

Quick Impact of Protecting, Strengthening and Repairing and Consequences of Fire Damaged Structure — Hotel Union, Kosovo

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Abstract: This paper work aims to contribute to active participation of professional authorities into the updating process of education, law and standardization when the preparation of a catastrophic risk plan, in particular fire and safety of buildings. Thus will encourage responsibility of Kosovo Government and society to look after the catastrophic events in a structured way, while this approach will enhance effectively and efficiently the level of FP e the buildings, emphasize buildings of cultural heritage of Kosova.

Key words: Fire pritection, Kosova, fire damaged structure.

1. Objectives

With regard to life safety and economic losses due to catastrophic events and direct damages of urban habitat structures and in order to assist authorities and experts with the issues of fire safety in heritage buildings we decided to set up a working group to prepare appropriate recommendations.

This paper analyses the consequences of fire events occurring in heritage buildings, especially those already within the rehabilitation process with intension for theirs publication and recommendations to authorities. In particular, the paper summarizes the results and information for an investigation and consequences of fire hazard at damaged structure—Hotel Union in Prishtina, Kosovo.

Provided example in the paper requires authorities' attention, particularly its durability against the vulnerability. Therefore the recommendations are essential for future efforts and approaches for owners, occupiers and users of many types of buildings, especially historical buildings towards fire and life

safety in buildings, through several interrelated fire safety systems and features.

2. Introduction

A historical building is one that gives us a sense of wonder and makes us want to know more about the people and culture that produced it. Hotel Union is one of them due to its architectural, aesthetic, historic, documentary, archaeological, economic, social and even political and spiritual symbolic values.

Morally and psychologically the destruction of any cultural heritage building by fire is worse than total loss, for the loss could have been prevented in most cases. It is therefore desirable to examine first the cause of fire and then the means of lessening its extent and effect. It will have to be founded that fire and security precautions must be taken together in order to resolve possible contractions in their requirements. That requires a quick and efficient impact, drawing the attention to the understanding of the legal and administrative mechanisms, responsible for managing the protection, the conservation and the enhancement of heritage as well as it main features.

Apart to this, the recommendations base on the researched study case — Hotel Union (ex Hotel

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Skenderbeg), suffered premises by fire on 2009, could assist authorities and experts in various and/or similar situations faced with the issue of fire safety in general, effecting to other historic buildings as well.

3. General information

In this paper is presented the study case Hotel Union (Fig. 1). In view of monumentality, method of construction and its decorative elements, the building is listed among the most important example of eclectic style, a mixture of neo-renaissance, neo-baroque and Art Nouveau in Kosovo. It is worth to be mentioned that this architectural style is very rare in Kosovo, therefore we should safeguard them effectively from catastrophic events. Since 1996 the hotel was classified a cultural-historical monument under State protection.

The building has been built on 1927, by Austrian architect/engineer Andra Cramer. Layout plan of the three-story building covers an overall grass area of 650 m² including the auxiliary facilities on the back. Bearing structure of the building's opened L shape, with two main facades interesting in the middle with round tower rising above the remaining roof, is composed from three lines of brick masonry walls with thickness of 50 cm and horizontal floor slabs form timber beams structure supported by stone masonry strip foundations.

The roof structure is supported through regular double chairs timber structure beard from external and internal walls of thickness 50 cm and 25 cm. Part of the roof is "mansard type" while the rest is one slope from the eave to the top of the roof.

Based on the framework of the European Commission/Council of Europe Joint Programme on the Integrated Rehabilitation Project Plan/Survey on the Architectural and Archaeological Heritage (IRPP/SAAH), the Preliminary Technical Assessment (PTA), adopted by the Ministry of Culture, Youth and Sports – Kosovo/UNMIK on 31 July 2006, the hotel "Union" building's architectonic features have to be prevented. Due to its functionality, as the building will change its function and ownership, and of particular importance to the heritage movement, there can only be an adaption of the interior space. Also was recommended that the preservation and restoration on this monument is urgent.

Among early conservation works, such as: 1972 – reconstruction without any permission or project, the structure of the monument was seriously damaged. Various rebuilds and installations were carried out over the last decades that led to the unsafe state of the building. Old electrical installations posed a great risk on fire. The building's appearance has been threatened by new, surround constructions. Illegal buildings surrounding the hotel, lack of administration and legislation on cultural heritage and the question of ownership of the building led to a lack of

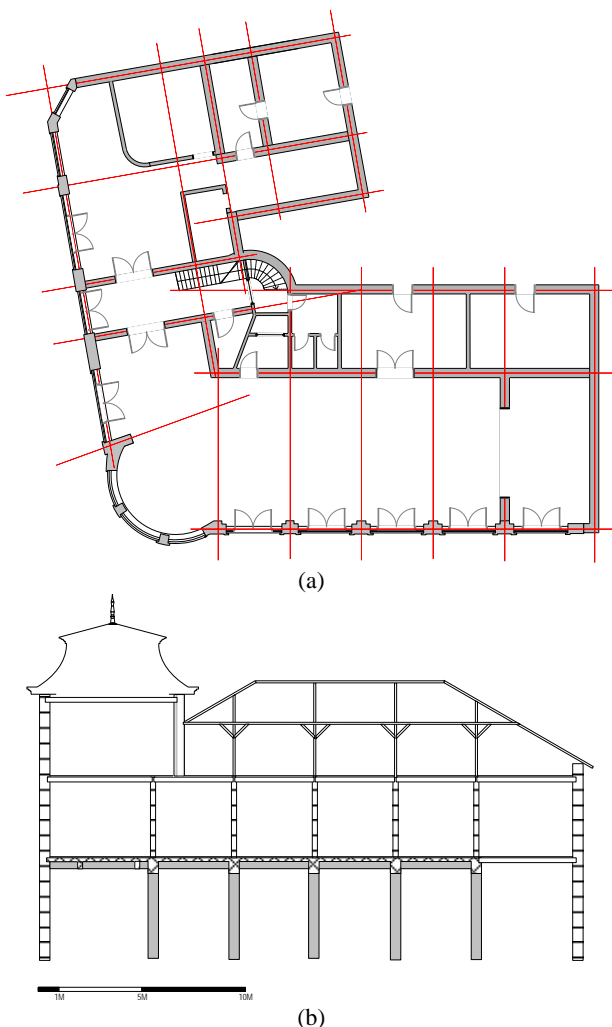
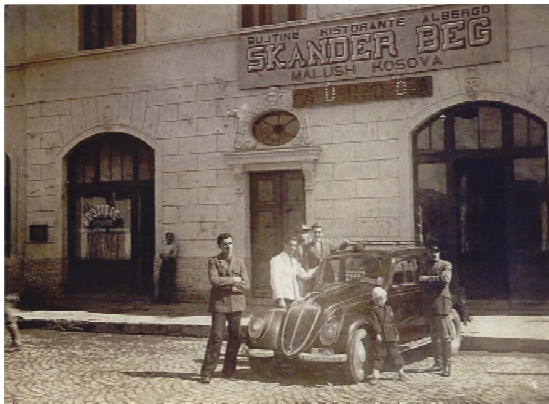


Fig. 1 Layouts of Hotel Union: (a) ground floor; (b) section.

investment for maintenance. Deficiency of quick impact and well coordinated process between preparation of the project for preservation and restoration of the building with its protecting, strengthening and repairing phase, drifted the fire and damaged structure of hotel “Union”. (Fig. 2)



(a)



(b)



(c)

Fig. 2 The main views of Hotel Union: (a & b) the building originally was private owned hotel named Skenderbeg which has been changed after World War II is nationalized and named Union; (c) present time of the building, 2007 (a & b credited by: I. Ganimula, c. credited by Sh. Nixha).

4. Status Analyses of Fire Protection

With the intention to protect human lives and property from fire as well as to organize and put into the system dealing with fire protection and protection of people and their property the Assembly of Kosovo adopts the Law of Fire Protection (LFP) on April 2006.

General provisions of law obligate every individual, owners, respectively users of premises and other areas of premises, legal persons, public professional bodies, Public Administration bodies and those of local administration, of local communities and the fire departments to undertake the measures for preventing fire causes, to act upon it with certain care, obstructing the possibility of fire spreading, fire discovering and firefighting, for verification of fire causes, as well as for giving assistance for recovering consequences inflicted by fire. Provisions of this law apply also to premises and areas of premises of special interest, in case they are not regulated with special law.

The responsible authorities, such as Municipalities, Ministry of Internal Affairs, and the private entities should work closely to organize FP within its territory, ensure the implementation and the advancement of FP measures, issues FP plans based on fire risk assessment; to evaluate its compliance with the new urban plan, with construction changes, construction intentions and similar; to organize training for firefighters; and to issue instruction for the criteria and method for determining the danger of fire. Basically, adequate determination of organization and implementation of FP measures, premises, parts of the premises and areas are ranked into four groups of fire risk, dependent on technological process being developed in them, type of produced material (reproduced or stored), type of material's ingredients in construction and their importance. According to the ranking stages (I, II, III and IV) of fire risk category, the owners, users of premises, parts of premises and areas are obligated to provide FP plan, to establish FP services, with necessary personnel and means for implementation of FP measure.

The legal entities or physical persons, those are owners or users of premises, parts of premises and areas are obligated, each in their field of activity, are responsible for implementation of FP measures, especially in the maintenance of means and equipment in proper condition for firefighting, and well the responsibility to inform workers on fire risks at their working places or premises.

Besides the fire risk and its prevention, the elimination of causes which effect in fire spreading or ease its expansion, the insurance association is obligated to follow up and analyze fire causers by working closely with the Ministry.

Overall, FP measures, fire stations and associations, firefighting, supervision regarding the implementation of FP measures, education and training, financing and administrative sanctions are included in the LFP, but not linked specifically with the conditions and general provisions of the law of Cultural Heritage (LCH) and mutually.

Furthermore, referring to the research work from international fire and rescue expert consultants review, recommended by the CTIF (Comite Technique de Prevention et d'Extinction de Feu', founded in 1900 in Paris) related to the Inspection and status analyses of the Fire and Rescue Services (FRS) in Kosovo (Fig. 3). The conducted analyses of their research contain the summary of a detail description and conditions of each fire and rescue station in Kosovo, including staffing, training, equipment and working conditions and recommendations for the future FRS. Compared with above analysis of LFP, there are vast discrepancies between the applicable law and the reality in Kosovo.

The executive summary of evaluation accents the following issues: lack of standardized alerting and incident command procedures; the handing over of the fire brigades to the municipalities has obviously failed and resulted in a very uneven state of fire and rescue brigades all over Kosovo with inadequate funding; very few fire and rescue brigades conduct regular trainings; fire fighters are de-motivated, not insured



(a)



(b)

Fig. 2 The pictures taken during the fire and day after.

against accidents at work and underpaid; fifty percent of all fire and rescue service vehicles have technical defects which limits their use considerably; etc.

Referring to their vision, the FRS should reach a standard equal to the standard of the other public safety providers in Kosovo and be transformed to a centralized Kosovo FRS with a centralized structure similar to the police or customs and correctional service; in order to be organized in a way that offers the best opportunities to provide a good and effective service in the public, to be prepared for incidents and accidents involving hazardous materials and every year

publishes trustworthy statistics from the fire brigades about the turn-outs, etc.

General findings and recommendations from above research are relatively recent developments, but not responding too closely with cultural heritage building techniques and methods of upgrading the fire resistance at their building elements, respectively at the cultural heritage premises and other areas of premises. This is the main issue, discussed further in this research and basically focused at study case, a cultural heritage building – Hotel Union, due to the following reasons: (1) most of construction elements, such as floor, roof, staircase, doors and windows of the cultural heritage buildings are from timber, which is weak in fire resistance, (2) absence of fire protection precautions, such as observation, guarding, signalization, etc., during the passive stage of intervention, (3) there are lots of valuable items and priceless heritage to be protected from fire in cultural heritage buildings, (4) deficiency of materials alterations that could affect to existing cultural heritage buildings where necessary to effectively increase the fire resistance of entire premises (Fig. 4).

In general, the Law of Fire Protection and Law of Cultural Heritage, should be updated in particular the fire protection and safety standards in heritage buildings, due to the fire greatest threat to the fabric and contents for any building and, in the case of cultural heritage building, the loss of any authentic value in fire is irretrievable. It is essential, therefore, to minimize and likelihood of fire, by early elimination of



Fig. 4 The building was not professionally protected after the fire.

major risk, careful management and control over risks that cannot be eliminated. Fires in cultural heritage building are not unusual and there is no recently published statistics and/or database showing that how many of premises or other areas were lost or damaged as a result of fire.

Also, while it is important to preserve the nation's richness of cultural heritage buildings and artifacts from both a cultural and economic viewpoint, the life safety of occupants, visitors and staff must not be forgotten and should take precedence when considering fire risk. In this regard, the appropriate future assignment should remain the approval of series of documents, prepared and issued by the state authorities, in purpose to provide practical guidance to adopt alternative methods, referred to the requirements of the Buildings Codes and Regulations for Fire Safety, in particular a suitable and sufficient Fire Risk Assessments.

5. Research Methodology

Fire resistance in cultural heritage building is a very important issue. It is to protect the life of its occupants, building fabric and its contents. Therefore the aim of this research is to evaluate the works that have been done in upgrading fire resistance in cultural heritage buildings. The findings are to suggest the best technique and method of upgrading fire protection and its requirements, such as preparation, prevention and protection of premises and their areas. Interviews, investigation and observable evidences are analyzed and synthesized to determine evaluation of data regarding the need to update the responsibility triangle: owner, law and fire safety authorities.

6. Observable Evidence

Early warning of possible hazards and taken precaution measure in required time, are critical in any building but especially in cultural heritage buildings because of the presence of hidden voids and the materials used in construction, which will facilitate the fire spreading rapidly throughout the building.

The interest to this matter and its significance outlined the research at one of fire suffered premises, at one of rare cultural heritage eclectic style in Kosova, Hotel Union, privately owned premises as of Aug 2006. As of the 22 Aug 2009 when fire occurred up to date the building is indetermined, rather to be completely and/or partially destroyed. The following chronological accents could be considered helpful device to implement suitable measures by authorities and professional while faced with the future of building's cultural heritage values.

Since the time when the building was defined as a cultural heritage premises until the privatization process, period 1996–2006, the building has been used even though that rehabilitation process should have been taken accordingly. Partial improvements were performed, such as floorings, toilets and some of windows and doors.

After the privatization took place, the owner received the guidelines for rehabilitation of building and preparation of its design, prepared by Directorate for Urban Planning in close cooperation with Institute for Cultural Heritage, on May 2008. The owner followed up and agreed that according to the Guidelines related with standards and procedures prepared and awarded permit by authorities to start the implementation of rehabilitation plane. Almost all preparation works were settled and the owner started the works when the fire occurred. Unfortunately, there is no clear and sharp information about the reason why it happened, whose responsibility was to install precaution measure against hazards or possible damages occurred during the rehabilitation works.

Due to the lack of administrative procedures, bureaucracy, no clear sharing of the responsibility between authorities and owner the damage of the premises increased rapidly. The process of rehabilitation was stopped and there were no laboratory tests performed. The damaged report issued by professional team for evaluation of damaged walls determined the pending situation while the damages on the building are progressively increased.



Fig. 5 The views of the building while the diagnostic phase took place in order to prepare the rehabilitation plan.



(a)



(b)

Fig. 6 Increase of building damages within short time, a. Aug 2009 and b. Nov 2009 (credited by: T. Jashari-Kajtazi).

Our recommendation for responsible authorities is to initiate the creation of data base, the state of art for damages by fire in order to prepare the preventive measures and to evaluate the possibilities for improvement of regulations for better future and protection of heritage buildings values.

7. Structural Damages, Precautions and Further Actions

The Cultural Heritage professional commission, after site assessment and construction observation concluded that during the period of Aug 2009 when occurred the fire and nowadays, Mar 2010, almost 60%

of heritage values are destroyed and damaged. The damage is due to the fire, less of maintenance, too much prepermission during the cleaning area of premise from debris of fired constructive materials, lack of owner management when required to take and implement the regulations to initiate the preventive measures against weather conditions and its imprecations to fired premises, the consequences occurred due to the miss usage of digging machinery and/or without professional outputs when he started to conserve, consolidate and rehabilitate south, west and north façade, not properly installation of temporary supported structure prior rehabilitation process, etc.

Since the walls are constructed by using clay as a construction material, and it's known that the binder materials are not fire resistant, their damage under fire is impossible to be recompacted. The part of the edges which are not totally destroyed could be laboratory exanimate (their stability and resistance) in order to prevent and save their position. In this case could be applied the methods which are using the injection with fluid mortars and other additives. In general the reconstruction will enclose the different methods including the strengthening with FRP—glass fibers or/and repairing mortars.

After the research, investigation, interviews, observation and analyzes of Hotel Union data the following are further actions to be taken in regards to establish the procedure, management of rehabilitation or/and reconstruction: to establish cultural heritage professional commission whose responsibility is to initiate and monitor closely reconstruction based upon to awarded rehabilitation project since the damages of the premises happened into very short period of time; to prepare the guide with intent to cover as much as possible the lack of information not only the fire experts such as fire safety engineers and fire brigades, but, more importantly, the people directly concerned with the upkeep and the operation of such buildings; to prepare the guide for using the repairing materials and strengthening materials according to the EN 1504.

The authorities, engineers and architects, nomocracy and others responsible for such premises should work in conjunction with national requirements for fire and safety adequately to national cultural heritage values, such as historic buildings, ancient monument and buildings containing priceless items of national heritage.

8. Conclusion

Based on the analysis of the consequences of catastrophic fire occurred in the structure on Aug 2009, in regard to life safety and economic & cultural losses due to direct damage, and in order to present suitable recommendations to the authorities, we emphasize as follow:

- Update the Law on Cultural Heritage (LCH) based upon to the recommendations given by the working group for Legal Support, prepared by Dr. John Bold (Workshop in Pristina, 28-31 July 2003), within frame of Regional Program for Cultural and Natural Heritage on Southeast Europe – Kosovo (REF: art.14 “*intimidations by conflicts or catastrophic hazards*”);
- Update LCH by demanding owners, occupancies or/and users to recover and rebuild the fire damaged cultural heritage building as per recent and appropriate recorded information;
- Authority's management should provide and in every building, including heritage buildings, the fire audit at regular intervals in order to cover fire precautions, FP measures, rescue, training, salvage and disaster control planning;
- Prepare the guidance for regulations relating to the fire at cultural heritage buildings, such as: fire-fighting agents, efficiency against classification of construction elements and its materials;
- Prepare the guide, depending of construction material, where could be implemented adequate materials and methods for strengthening and repairing for long-lived period.

- As fire safety includes preservation of monuments, fire safety organizations must include all cultural monuments in the precautionary measures to be taken.

Our recommendation for responsible authority is to initiate the creation of data base of state of art of damages by fire in order to prepare the preventive measures and to evaluate the possibilities for improvement of regulations for better future and protection of heritage buildings values.

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