Damages of Monuments by Fire in the History of Vilnius: Damages of Monuments and Current Prevention Strategies

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The Lithuanian capital of Vilnius has seen many calamities in its long history. Geopolitical situation of the town was one of the reasons of frequent wars and fires. As in many countries of Baltic region fires influenced the unexpected changes in architectural and urban development of the town or broke it**. During the centuries a big experience of prevention and suppression of fire was accumulated**.

Numerous archive documents inventories chronicles, some drawings and plans of Vilnius monasteries churches and palaces and other describes the damages made by fires. The fires destroyed the town in 1377, 1383, 1383, 1386, 1392, 1394, 1399, 1419, 1432, 1438, 1471, 1513, 1530, 1539 (in this fire two thirds buildings of the town were burnt down), 1533, 1539, 1542, 1544, and 1557. After the fire of 1471 number of new streets were laid out. Following the fire 1530, the rebuilding of the town gave rise to the emergence of more side streets. The fire of 1610 destroyed all the wooden structures of old Vilnius university campus and badly damaged the brick buildings. Less damage was done to the vaulted rooms. 4700 dwelling houses and 10 churches were burnt down in the town. During next centuries the chronicles of the Vilnius Jesuits recorded nine great fires of the town in the years 1645, 1655, 1706.1723, 1737 (three quarters of the building burnt down), 1748, 1749, 1760. The first result of those fires was destruction of the earlier buildings and in this way creating space for new ones. The Gothic Vilnius was changed into a late baroque town. Other result was increasing demand for architects, craftsmen and artists; hence numerous foreign artists came to the town. Third result was avoiding inflammable materials in rebuilding the town, especially in altars, roofs and tower domes.

Until 1737 in all of Vilnius wooden altars were built; and after the fire, for the next 30 years only stone ones. They were decorated with imitation of marble and stucco sculptures. All of sudden a lot of stucco-workers appeared in Vilnius To decrease the amount of wood in the roofs their construction was changed. In 1750 in St. Casimir church instead of wooden rafters cross stone arches were built. This unusual system was repeated in Pollock. Traditional wooden tower domes that sometimes were masterpieces off carpenter work were now replaced with stone domes with rich, pictures silhouettes.

Stucco altars and stone domes become most characteristic feature of the Vilnius late baroque.

As the consequence of the fire was the appearance in Vilnius in 1737 of the most outstanding architect, Jan Krzysztof Glaubitz, who was employed by the Jesuits for 30 years, despite the fact that he was of Evangelic-Augsburg creed.

Besides the big fires of Vilnius in 1770, 1776, 1778, 1780 and 1944 (all most a half of the buildings of the town were destroyed and burnt down) there were a large number of smaller fires that expanded in several houses, one district, or block. After big fires the town looked like one big building site. Also major fires influenced the planning of towns.

There were three main reasons of frequent fires in Vilnius that were detected several centuries ago and mentioned in old documents:

1. The most popular and cheep building material in Lithuania, the country of woods and forests, was wood. There were a lot of wooden houses in towns; even the roofs of brick houses were covered with long and narrow wooden plates called “gont”. Stone constructions started to spread with the advent of the 13th century. Not alike as in other countries the dominant type of stone architecture of pagan Lithuania in 13th-14th centuries was for defense rather then ritual purpose.

2. Because of cold and windy climate heating was used five or six month a year various types of stove heating and fireplaces that required permanent maintenance and care were used. The population and the need of heating were growing rapidly At the end of the 15th- the beginning of the 16th about 10 thousand people lived in Vilnius, whereas in the middle of the 16th century its population stood at 20 thousand people.
3. There where huge number of craftsmen in Vilnius that earned their living ”because of using the fire”. Many factories were situated in the middle of the town near dwelling houses, palaces and monasteries, or belonged to them.

From time to time new more effective and perfect rules of preventing and extinguishing the fires in Lithuania and other countries of the region appeared. In 1749 was issued the prescript that forbids building the wooden house in Vilnius. In this document it was written that churches, monasteries and all brick houses must be tiled, and a kind of factories had to be moved out of the town.

In Estonia fire safety law directly influenced town planning and residential architecture. There were several large fires in the middle of 18th century in Tartu (the last of them in 1775), as a result of whish streets were straitened and laid out so as to form a rectangular pattern. In Narva, all the houses in the New town were destroyed in 1773 and later the area was given a regular street network.

In the middle of 18 century there were fires in many provincial towns of the Russian Empire. To put stop to them a law on stone building was issued in1762, which established that stone buildings were to be build in city centers, and wooden buildings were crowded out into more out laying quarters. The 1776 building regulation of Tartu dictated the building of grand stone houses in the center, with wooden houses permitted only in the 2nd and the 3rd boroughs. Fire safety regulations were issued for the towns of Liefland in 1766, and observation of the restrictions was laid on the police. All night watch service (particularly in summer months) was instituted. Fireproof roofing was seen as one of the most important safety measures. If Shingle and board roofs were still permitted in the 2nd half of the 18th century, and then new houses had to be given tile roofs.

Housing loans were usually issued on more favorable terms after major fires, and the houses were exempt from taxes for a certain time. Fire safety regulations were established in 1902 in Estonia. These include areas for stone and for wooden houses, which were constantly widened. In wooden areas, the distance between the houses as well as their high was strictly regulated, the upper limit being the basement floor of stone and two full wooden floors. A wooden house had to stand at least 14 feet from the neighboring plot. In already built up area, or as an exception it was permitted to build immediately on the boundary line but a stone firewall had to be built between the houses. In Tartu, under regulations for the building of wooden housesenforsed as of 1908, the distance between the houses had to be at least 42 fee t(12,8 m.) , with the distance from a wooden house to the boundary of the plot set at 21 feet(6,4 m.). Only two-story houses on a stone socle were permitted to be built.

In our days fire hazard concerns above all the many still preserved heritage but mostly constructions and buildings of wood. There is no reason to believe that even the historic buildings that have very good maintenance, fire detection and protection system should avoid this fire risk. A good example is the fire On 20 November 1992 in Windsor castle. It is thought to have been coast by a spot light igniting a curtain high up over the altar in the Private Chapel. Despite the efforts of the castle staff and the fire brigade, the fire spread rapidly at roof level, destroying the sealing of halls and rooms and subsidiary room As a result few artistic treasures were destroyed. The work of repair began immediately after the fire, and was completed in November 1997. There was considerable debate about the restoration of Windsor: should the damaged rooms be completely restored or replaced from scratch? Two comities were set up to supervise the work- a general restoration committee, chaired by the Duck of Edinburgh and an Art and design committee, chaired buy the Prince of Wales. In the event the damaged rooms were restored to the original designs, but those areas which were totally destroyed- were rebuild into harmonious new designs. The aim was

to create modern Gothic, original in its details, but continuing to the Middle Ages in along English tradition stretching back almost without break.

Fire danger also overtakes generally somewhat preserved and populated rural wooden buildings in the countries where wood has always been the main building material. A big attention to fire protection problems is paid in Norway. Still more than 80% of all buildings in Norway are made of wood, although in a different construction than in the past centuries.

During the last four years, three important listed churches and several other listed buildings have been destroyed by fires. Recently the wooden part of a palace complex was lost in a large fire. Experts have for some years worked with a fire protection program for the medieval wooden stave churches. The program includes a fire prevention part and a fire suppression part.

The fire prevention program deals with different fire precautions: for instance, grass is removed in a one meter zone along the church walls and is replaced by a flagged footpath; smoking or use open fire is prohibited inside the churchyard gate; an lightning conduction equipment is installed.

The fire suppression program is also divided into different levels. In the simplest form, the fire suppression program deals with hand extinguishing outfit and water hoses. The main goal with the fire suppression program is to install an automatic fire extinguishing and alarm system in each of the 30 stave churches.

The Norwegian Government has allocated money especially for fire protection of historic buildings. Each year we receive about 430.000 USD to protection equipment in the stave churches, and 1.000.000 USD to other listed buildings. These funds makes it possible to protect 3 stave churches and 4-7 other buildings each year. Much time and effort are spent on tests, new designs, and the development of new detection and extinguishing systems. We are still working on the problems on how to fit these complicated structures into sensitive historic buildings. Much has been done, but we still have a long way to go.

In Poland the conservation of heritage items made of wood lies in above all proper fireproofing and use. For example in Poland educational programs and training courses are implemented, whose goals is to minimize the danger in this field. Unfortunately there are known cases of deliberate burning of wooden churches motivated by a desire for the acquisition of space to build a large church occasionally activated by ideological reasons.

In Lithuania responsibility for the protection of cultural heritage from the fires determinates the Civil Defense Law of The Republic of Lithuania. The Law determines the legal organizing and acting principles of rescue systems and institutions. Institutions responsible for heritage protection: the State Monument Protection Commission and The Department of Protection of Cultural Property in the Ministry of Culture do not have prevention and restoration strategies in this field. There is no systematic surveying of the effects of fires on monuments and at the same time there is an absence of the overall inventory of the buildings.

In reality security of the architectural monument in Lithuania depends on the importance of its function. Governmental and private offices, museums and theaters have the security and alarm systems and are connected to the observation posts that lets know about the fire immediately. Many churches, monasteries (some of them are abandoned and in bad condition) have now such systems. Existing primitive means of extinguishing the fire are dangerous for the authentic materials of the buildings and sometimes do much more harm then the fire. We have the experience that they destroy not only the fire but also every think valuable around: plaster, wall paintings, floor, act. they are dangerous for the authentic material of the building.

The statistics of the fires in Vilnius testifies that, Vilnius old town is a place where fires are more often then in other parts of a town.

In 1994 Vilnius Old Town was inscribed on the UNESCO World Heritage List.In 1995 the International Reconstruction and Development Bank (Word Bank) responded positively to a request of the Lithuanian Republic to provided subsidies for technical assistance to Vilnius Municipality for the preparation of the Vilnius Old Town Revitalization Strategy. The UNESCO World Heritage Center considered Vilnius Old Town revitalization process as a model for similar cities in East and Central Europe. In support of the Vilnius Old Town revitalization strategy project regulations, the Lithuanian Ministry of Culture and Vilnius Municipality established the Vilnius Old Town Renewal Agency that coordinates the common goals of the renovation of the Old Town and preservation of its cultural monuments and heritage.

Vilnius Old Town Renewal Agency is able together with the institutions responsible for heritage protection and civil defense to prepare fire prevention program for Vilnius old town.

Following the maintenance program for World Heritage Sites {Bernard M. Fielden and Jukka Jokilhto, Management Guidelines for World Cultural Heritage Sites, ICCROM Rome, 1993, P.45, 46) we could propose the draft of Fire **Prevention Strategy for Vilnius old town**:

- One of the worst fire hazards is faulty electrical installation. The electrical installation should be tested at yearly intervals and will probably need renewal if it is over twenty years old; it may be possible to re-plan it m such a way that only essential services are kept live at night.
- Fire-detection systems are set off by the presence of flame, smoke or heat. Since they can be subject to frequent false alarms, sensors should be wired together, so that if one fails there is no false alarm, and two are activated if there is a fire. Generally, fire-detection systems are designed for commercial buildings and their performance may be limited in historic buildings, so management should be aware of their limitations. If possible, two independent systems should be installed, since one of them might fail at the vital moment. It is advisable to link the detection system directly to the fire station. Hand extinguishers (powder or appropriate type of gas - such as C02 - are safest for cultural property), hose reels and fire hydrants should be carefully located on the site, and clearly signposted. Local sources of water for firefighting should be identified and recorded.
- Lightning could be a major hazard if a proper protection system is not installed and maintained annually. The destruction of irreplaceable cultural property by fire should be prevented through the introduction of such measures as taking appropriate security precautions to reduce the risk of arson, and prohibiting smoking except in designated areas
- It is imperative that all staff receives basic training in fire prevention, fire fighting and first aid, with regular drills in work hours to practice emergency procedures. A Pire Prevention Officer should be appointed by the Director.
- If a fire cannot be controlled in three minutes, it may be a total disaster in five minutes. This means that, in the case of remote historic buildings, it is desirable to install an automatic fire protection system, which at least will prevent a total loss.

Automatic gas and water-sprinkler fire protection systems are a good investment, but like all modem technical apparatus, their design requires sensitivity when they are to be installed in historic buildings. Previously, Halon gas systems, although expensive, were considered the best form of protection, as low concentrations do not directly endanger human life or cultural property

- The problem with sprinklers is that water usually damages the building and often leaves behind it the threat of fungal attack to its fabric and contents. Whether using gas or water, it is essential to eliminate false alarms to avoid costly waste of gas or damage to the cultural resource.

- There should be a strategic fire-fighting plan allowing duplicate access to all buildings in case one way is blocked, and ensuring sufficient supplies of water for fire fighting. Access for fire fighting must be planned and improved in order to allow heavy fire engines to reach key points. A copious supply of water from hydrants, tanks or other sources must be ensured.
- Passive fire protection - such as fire-resisting doors (closed at night but not locked), fireproof partitions and sub-divisions of roof spaces - is always on duty and helps to limit the spread of fire.

Literature

[1] Bernard M. Fielden and Jukka Jokilhto, Management Guidelines for Workd Cuktural Heritage Sites, ICCROM Rome, 1993, P.45, 46

[2] Heritage at Risk, ICOMOS World reports on monuments and sites in danger, Munchen, 2000.

[3] Jerzy Paszenda, Wplyw požarow Wilna na architekturę pożnego baroku, Sztuka Ziem Wschodnich Rzeczpospoliteo 16-18 W., Lublin 2000,S. 447-493

[4] NILSMARSTEIN: Fire Protection of wooden historic Buildings, ICOMOS Wood committee, Proceedings of the v. International Symposium, Norway 1983, P102-108.

[5] Windsor Castle, Text written by Jon Martin Robinson, 1997, London.

[6] Estonian Wooden Architecture, Tallinn, 1999, P142-144.