

1.14.31. THE OBJECTS OF HISTORICAL VALUE – NON-DESTRUCTIVE METHODS OF EXAMINATION

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Often, due to shortage of land for new construction, developers are trying to renew or adjust the existing old buildings and structures that are in very poor condition. Sometimes the original project documentation for such buildings does not exist anymore. They were without heat for a long time and they are usually covered with multiple fractures and deformation cracks. Regardless of building condition, it takes a long way from technical expertise of the dilapidated building up to the full aesthetic and technological renovation. The main purpose of the examination the technical condition of buildings and structures is to determine the actual status of individual structures of the building and whole structure in general. In addition there is a need to decide what kind of work should be done to preserve the building or to upgrade it. The religious buildings and churches which are usually built several centuries ago are requiring special attention in such cases. Their construction base is very important element, always were arches and vaults are built.

The different approaches are requires on the each particular project's research and some jobs may not be integrated in such survey program, but will be determined by the actual situation on the project site.

Most of the parameters must be examined using non-destructive methods of investigation that would not cause the disappearance of irreversible deformation and collapse.

Many architectural objects are in such bad condition that the examination of them can be applied only with non-destructive methods of visual-instrumental monitoring with photographic images. This method allows finding out the type and nature of the visible damage, their position, as well as predicting the development of future deformities.

To verify the consistency and strength, one usually needs to use multiparameter strength meters type "ONYX – 2.6". Also In very important cases it's most efficient to use of the device "Pulsar-1.2", allowing to identify, assess and localize defects in the structure. That device also allows to determine the irregularity by durability and deepness of the cracks. The same effect to measure the durability of construction materials could be obtained with the meter IPG-MG4. The microprocessor's unit is designed for rapid and laboratory testing, the structural matters by durability and homogeneity.

To exaninate the wet areas have been used rapid non-destructive method of physico-chemical's control. This method allows to identify the critical salinity zones and critical moisture zones, and also the level of corrosion. For such inspection have been used protimer-moisture meter, protimer – salt meter and diagnostic-protimer (thermohygrometer).

Laser scanning. Using this technology will provide the main advantage in the construction and renovation fields with different grade of complexity – reducing elaboration time.

The main point of the method is obtain the direct coordinates of thousands spots on the scanned object. You do not need direct access to the object or other items to measure. It's requires only a direct line of sight. Even if the object is so complicated and you need to scan it from a set of points, in most cases necessary only one day for field work.

Main field use this technology – the construction and architecture. This technology allows the discovery of defects during renovation and restoration work by using comparison with original design-project and also identifying and assessing the value of damage by comparison with earlier measurements.