

Technical Study of Environmental Control System at the Byzantine and Christian Museum of Athens

J. Perdikari

Conservator, Byzantine and Christian Museum in Athens

A modern museum has to provide the optimum standards for environmental conditions in order to ensure long-term preservation of its collections while in the storages or on display.

Among necessary conservation treatment, there are a number of actions of preventive conservation that need to be done in order to provide standard conditions for the museum's objects.

Firstly in order to achieve this preventive conservation action, are the evaluation of the existing conditions and the consistent recording of parameters such as relative humidity, temperature and light levels, by specialized staff and with the use of the appropriate scientific equipment.

According to the actions mentioned above, is the study undertaken on behalf of the Byzantine and Christian Museum in Athens, for its new building complex, including the new underground showrooms and its storage rooms.

The new permanent exhibition, (the opening of the first part took place on July 2004, while the second part is planned to be on display within a year from now), was a motive for the museum staff to re-evaluate the existing conditions.

The increasing size of the collections along with the activities of the Museum demanded its spatial expansion. The new building spans over 12000 sq.m. in a layout suitable for the interpretation and the preservation of the museum objects in exhibition rooms (in a space of 4500 sq.m.), storage rooms and laboratories.

Works of art from the icon collection are hosted in all the above places. It is among of the largest collections of the Museum with more than 3000 items that represent

Byzantine and Post Byzantine periods from all over the Byzantine Empire and Greece.

From 1930 and up to 2002 the permanent collection of the Byzantine and Christian Museum was housed in the old building, the mansion of the Duchess of Placentia (a design and construction of the renowned architect, Stamatis Cleanthis, in 1848). A storage room situated in an underground space at the same building hosts until today a large number of icons.

Compared to the old building complex, the new one has the benefit of the technical support that a modern museum affords in order to cater for its needs.

Environmental control within the new building is handled by the existing air-conditioning equipment. The new exhibition space, the storages and the laboratories were constructed in a way that it is possible to control the environmental parameters (air pollution and temperature), but the system do not allow the control of the relative humidity.

The installed system is a Heating Ventilating Air-Conditioning (HVAC), connected for its control with a Building Management System (BMS) to be retrofit.

The HVAC system is composed by seventeen units supplying fresh air and heat trough a system of pipes to all the museum locations. All the in and out openings are equipped with suitable filters.

After having study the existent environmental conditions to all the museum and storage locations hosting works of art, it was obvious the urgent need of installing an appropriate humidification system so as to provide and control the necessary relative humidity levels.

In order to achieve this, we planned the followings steps:

- i. Evaluation of the requested environmental parameters
- ii. Evaluation of the particular needs for each kind of materials appertaining to a collection (including special cases parameters).
- iii. Evaluation of the external climatic parameters and other, having direct influence to the Museum environment.
- iv. Establishment and follow up of a monitoring plan for the relative humidity and temperature within the areas that host collections.

- v. Study and evaluation of the results.
- vi. Contracting the appropriate specialized engineering company so as to accomplish an environmental system installation
- vii. Estimation of the required budget for the installation and the purchase of the adequate equipment.
- viii. Installation of the environmental equipment and evaluation of its effectiveness.

The present paper will present the progress of the planned work and list all the particular problems experienced during the measurement, evaluation, study and installation stages.

Moreover, presentation of several examples where environmental control and special needs for particular works of art was needed is going to be discussed.