

Monitoring of Indoor Air Quality in Museums and other Exhibition Areas

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The cultural heritage of each country represents a unique and irreplaceable witness of the past. Nevertheless, in many occasions such heritage it is extremely vulnerable to natural disasters and reckless behaviors. Even if such exhibits are now located at Museums, they still receive insufficient protection due to improper environmental conditions.

Hence, it is imperative for an innovative low-cost system, to systematically monitor indoor air quality, since conventional methods are quite expensive and time consuming.

The present study gives an insight of the indoor air quality of the National Byzantine Museum of Cyprus. Systematic measurements of particulate matter, bio-aerosols, concentration of targeted chemical pollutants (including Volatile organic compounds -VOCs), temperature, relative humidity and lighting conditions as well as microbial counts have been performed using conventional techniques. Measurements showed that the monitored physiochemical parameters do not vary significantly within the 12 sampling locations apart from some cases. Seasonal fluctuations of ammonia were observed, showing higher concentrations in the summer and lower in winter. The outdoor environment does not greatly affect indoor air quality in terms of VOC and NOX. According to VOC's identification measurements, those were performed using a portable system, the GC / MS TORION T-9.

The measurements were used to validate an innovative low cost air-quality monitoring system that has been developed within the present work. The developed system is able to monitor the average concentrations (on a bidaily basis) of several pollutants and presents several innovative features, including the prompt alerting in case of increased average concentrations of

monitored pollutants, i.e., exceeding the limit values defined by the user.

In spite of the fact that its utilization has now been restricted in numerous nations, the broad utilization of asbestos in mechanical and homegrown conditions in the past has left a possibly exceptionally hazardous material in numerous areas. Asbestosis is a constant fiery ailment influencing the tissue of the lungs. It happens after long haul, weighty presentation to asbestos from asbestos-containing materials in structures. Victims have serious dyspnea (windedness) and are at an expanded danger with respect to a few distinct kinds of cellular breakdown in the lungs. As clear clarifications are not generally focused in non-specialized writing, care should be taken to recognize a few types of applicable sicknesses. As per the World Health Organization (WHO), these may characterized as; asbestosis, cellular breakdown in the lungs, and Peritoneal Mesothelioma (by and large an uncommon type of disease, when more inescapable it is quite often connected with drawn out presentation to asbestos).

Organic wellsprings of air contamination are likewise found inside, as gases and airborne particulates. Pets produce dander, individuals produce dust from minute skin chips and deteriorated hair, dust parasites in sheet material, covering and furniture produce compounds and micrometer-sized fecal droppings, occupants transmit methane, shape structures on dividers and creates mycotoxins and spores, cooling frameworks can brood Legionnaires' illness and form, and houseplants, soil and encompassing nurseries can deliver dust, residue, and form. Inside, the absence of air flow permits these airborne poisons to gather more than they would somehow happen in nature.