*Final Technical Report*

# Evaluation of the James Lawrence King Justice Building, Miami, Florida

Submitted to: General Services Administration (Southeast Sunbelt Region)


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# II. Executive Summary

The objective of this report is to report on a study of the James Lawrence King Federal Building and Courthouse in Miami, Florida. Lessons learned and recommendations to supplement the facility manager's knowledge of "the mold problem" are also included. Management of moisture intrusion and mold growth indoors is a science currently under heavy debate. This report and included guidelines condense current knowledge of management practices and integrates state of the art recommendations of the leading professional organizations surrounding this science.

The Southeast Sunbelt Region of the General Services Administration (GSA) owns and operates buildings located in the state of Florida and eight other states in the region. The purpose of this study was to select a GSA building representative of the facilities operating in this sub-tropical climate and generate recommendations that, when implemented, will consistently maintain an indoor environment that is detrimental to microbial proliferation but satisfactory to tenants and the public. The study investigated the methods of humidity control, HVAC operational procedures, HVAC system design and/or retrofit options, and building envelope technology.

The findings of the studies conducted indicate the building operators need to consistently monitor the moisture levels and perform repairs to the buildings as needed to prevent future problems. Possible moisture sources may be chronically high humidity and/or moisture intrusion that may be occurring around deteriorated caulking on the exterior of the building. On the average, other indoor air quality (IAQ) parameters were within acceptable ranges established by American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). Humidity levels were slightly above the EPA recommendation for minimizing microbial growth. Afternoon carbon dioxide concentrations approached the ASHRAE recommended limit in some areas.

**Recommendations**

Provide a slight increase in outside air to the building, conduct further long-term investigations of the chronic humidity levels, repair deteriorated caulking on the exterior of the building, and use high efficiency particulate air filtered vacuums for cleaning.

Successful mold control in buildings located in hot and humid climates involves close attention to the HVAC performance in terms of ventilation, dehumidification, pressurization and filtration. Table 1 summarizes the specific findings and recommendations.

determined, but research is ongoing. Care must be taken to totally flush out the ozone before re-occupation.

Ultraviolet Germicidal Irradiation (UVGI) is another technology under development for destroying airborne microbial contamination. There are a number of commercial units available, but their actual effectiveness is still being researched. Hospitals have used UVGI in operating rooms for several years. Hospitals have found it to be effective against airborne droplet nuclei that transmit diseases such as measles, tuberculosis, and influenza. The specific short wavelength of 253.7 nm is used and is believed to cause no serious of long-term health effects. The use of UVGI is becoming more prevalent in common indoor air settings. Research is ongoing about its effectiveness. UVGI generating fixtures are available as upper room fixtures, in-duct, and inside the HVAC unit itself. UVGI room air cleaners are under development and are usually coupled with high efficiency filtration.

A major application of UVGI in Florida courthouses may be to disinfect contaminated books and documents. Low frequency microwave irradiation or freeze-drying also may be useful decontamination methods for books and documents.