

# CASE STUDY 4

## THE GEORGIA ARCHIVES



### PURAFIL ENSURES AN OPTIMAL ENVIRONMENT 4 THE GEORGIA ARCHIVES



#### ABOUT THE ARCHIVES

The Georgia Archives, a division of the office of the Secretary of State, identifies, selects, preserves, and makes accessible records that constitute Georgia's recorded history. The Archives also increases the efficiency of the state government through effective records management and improves the quality of records and archives management statewide. As one of the nation's largest facilities of its type, the Archives stores over 75,000 ft<sup>3</sup> of historical records dating back to the 18th century.

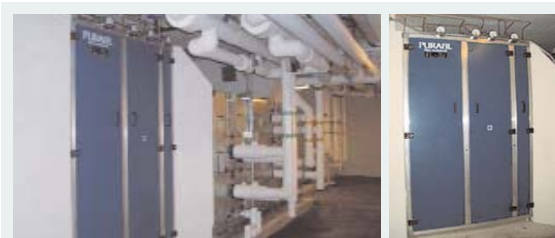
#### THE PROBLEM

Formerly located in downtown Atlanta, the Archives moved to a well-traveled area of Clayton County in May 2003. To maintain optimal air quality, managers at the Archives needed to eliminate automobile exhaust from the outside air supply. They also wanted to remove gases from new carpeting, paint, furniture and office machines, which could have adversely affected archival materials and human occupants. Gases of concern included formaldehyde, toluene, xylene and volatile organic compounds.

#### PURAFIL PROVIDES THE SOLUTION

Because of exhaust fumes and the gases associated with new building products and materials, directors decided to install Purafil systems before they began storing documents. To provide clean air inside the Archives, they used six Purafil® Side Access Systems (PSA).

They placed two PSAs in mechanical rooms to purify outside air before it entered the facility. They also incorporated PSAs into Trane air handling units to provide clean, recirculated air to each of the four vaults. Purafil representatives worked closely with Trane engineers to devise an effective method of attaching PSAs to the air handling units.



A TEAM OF PURAFIL AND TRANE ENGINEERS WORKED CLOSELY TO INCORPORATE SIX PSA'S INTO TRANE AIR HANDLING UNITS INSTALLED IN MECHANICAL ROOMS AT THE ARCHIVES.

PURAFIL® SIDE ACCESS SYSTEM (PSA)

Constructed of double-wall aluminum panels, each PSA has multiple banks with tracking for Purafil's PK-18 MediaPAK™ disposable plastic modules. These modules contain Purafil® Select CP Blend dry-chemical media to eliminate gases of concern from the Archives. Since the chemical reaction between media and gases is permanent, the gases cannot re-enter the facility once the media removes them.

By the time the State's records were in storage, the Purafil systems had purified the air and created a safe indoor environment.

Management also installed six Purafil OnGuard® Environmental Reactivity Monitor (ERM) in each of the four vaults and alongside the units for outside air purification to maintain optimal indoor air quality.

An active, real-time monitor, the OnGuard ERM continuously gauges the level of reactivity in the Archives. Each monitor uses copper- and silver-plated quartz crystal microbalance sensors to measure in angstroms the mass accumulation of film on sensitive metals. The monitor also generates minute-by-minute readings that help prevent severe damage to fragile materials.

Because the OnGuard ERM is easy to operate, users can read local output that verifies their systems are functioning properly.

As shown in Table 1, measurements from the OnGuard ERM correlate directly to Purafil's air quality classification scheme, which characterizes an environment based on its copper and silver reactivity rates.

According to air quality advisory guidelines, the chemical pollution of the air in archives should meet Class 1 standards; that is, the air quality should be extremely pure, with a maximum corrosive value of 40 angstroms per 30 days. Purafil systems are designed to guarantee Class 1 air, and the OnGuard ERM monitors help archival facilities maintain this level of cleanliness. After decades of working with museums, libraries, and archives,

Purafil has built an extensive database of monitoring information. While individual results are kept confidential, the database provides a guideline for design standards. Using this information as a measurement tool, Purafil can determine if a facility needs an environmental control program. Archival facilities around the world use this method to prevent potential damage to collections.

TABLE 1

**COPPER CORROSION**

CLASS	AIR QUALITY CLASSIFICATION	REACTIVITY RATE*
C1	Extremely Pure	<90 Å/30 days
C2	Pure	<150 Å/30 days
C3	Clean	<250 Å/30 days
C4	Slightly Contaminated	<350 Å/30 days
C5	Polluted	>350 Å/30 days

\* Å = angstroms

**SILVER CORROSION**

CLASS	AIR QUALITY CLASSIFICATION	REACTIVITY RATE*
C1	Extremely Pure	<40 Å/30 days
C2	Pure	<100 Å/30 days
C3	Clean	<200 Å/30 days
C4	Slightly Contaminated	<350 Å/30 days
C5	Polluted	>350 Å/30 days

\* Å = angstroms

\* BASED ON THE ABOVE-MENTIONED ENVIRONMENTAL CLASSIFICATION, PURAFIL RECOMMENDS THE FOLLOWING LEVELS OF AIR QUALITY FOR LOCATIONS WITHIN THE MUSEUM OR ARCHIVE:

- Class S1/C1: Archives, Metal Collections, Rare Books
- Class S4/C4: Short Term Acceptable
- Class S2/C2: Museums, Museum Storage, Libraries
- Class S5/C5: Not Acceptable
- Class S3/C3: Historic Houses

As with the PSAs, the monitors in the Archives were particularly helpful during the moving process. The instruments indicated when directors needed to replace media, which was depleted due to off-gassing from new building materials as well as diesel exhaust entering the facility through open doors and loading docks.



PK-18 MEDIAPAK®

**CUSTOMER SATISFACTION**

Managers at the Archives have been very pleased with their clean air solutions from Purafil.

"Our consultant strongly recommended Purafil because they are proven systems," says Deputy Director Brenda Banks. "We want to make sure we have clean air throughout our facility. It's good to have systems that are high tech, up-to-date, and effective at helping us achieve the air quality we absolutely have to have. The systems and monitors we use are extremely important for both the records and the human occupants. Purafil has done a great job of helping us maintain an optimal indoor environment."

**ABOUT PURAFIL**

Purafil, Inc. is a single-source solution for controlling indoor air quality in preservation environments. We offer a comprehensive selection of gas-phase and particulate air filtration systems designed to remove pollutants permanently from indoor, outdoor, and recirculated air. Call Purafil at (770) 662-8545 or (800) 222-6367 for assistance with your air quality concerns.



THE ONGUARD® ERM



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**PURAFIL**



2654 Weaver Way Doraville, Georgia, 30340, U.S.A. tel: (770) 662-8545 (800)-222-6367 [www.purafil.com](http://www.purafil.com)

