

Archivo General de la Nación:

General Archive of the Nation - Protecting Mexico's Heritage



FROM PRISON BUNKER TO NATIONAL TREASURE

Archivo General de la Nación (AGN), translated to the General Archive of the Nation, is a decentralized body of the Mexican Ministry of the Interior responsible for safeguarding and archiving national documents fundamental to Mexican history.

In 1982, the AGN was moved to an old prison bunker complete with armored concrete walls, ceilings and floors. The 4-floor facility, located in the heart of Mexico City, houses one Archive Storage Room per floor in each of its 20 expansive blocks. The fortress-like aura justly represents its importance as a source of genealogical and historical information and records related to Mexican history, culture, and people. Protecting the integrity of these collections is a priority for AGN officials, and Mircom was chosen to provide a comprehensive analysis of their building systems.

Smart Buildings. Smarter Solutions.

Did you know...

The AGN protects over 375 million pages dating back to the 16th century - enough pages to span across 52 kilometers!

Challenge

Given the complexity of heritage document preservation, AGN officials knew it was necessary to have early fire detection and complete monitoring and control of the environmental conditions within each of the archive storage rooms. They issued a three-part challenge:

DETECT fire in its early stages to prevent irrecoverable damage

AGN official knew that the biggest threat they, and all cultural institutions, face is from fire and the ensuing harm done by water and chemicals used to put it out. No institution is immune to fire, and its damage is usually permanent and irreparable. Once reduced to ash, historical buildings or contents can never be restored, so early detection was a priority.

MONITOR the environmental conditions in each room

Given the sensitivity and age of the archived documents in the building, it was extremely important for archive officials to implement a system that would monitor the environment, protecting their national documents from damaging factors such as temperature and humidity.

Create a SELF-SUSTAINING integrated building

Given the limited resources throughout the facility, AGN officials were seeking a building system that could be managed without constant human presence or interaction. Their goals were to increase overall efficiency while reducing energy costs and CO2 emissions.

Mircom Solution

After evaluating the electromechanical installations and conducting a risk analysis, a tailored proposal was created for the AGN, which included designing the systems based on a critical infrastructure concept.

“[AGN] is considered the most important archive building in the Americas...”

Early Detection and Warning: PRO-2000 Fire Alarm Panel

The Mircom PRO-2000 Fire Alarm Panel provides superior performance and reliability by isolating each of the Aspiring Smoke Detectors (ASD) to prevent complete system loss in the event of a short circuit in the communication loops.



Mircom partnered with Xtralis, a provider of life safety and security solutions, to develop a new interface that allows AGN officials to visualize all operational conditions and quickly determine the location of a fire in its early stages. This solution ensures business continuity with minimal disruptions while providing the necessary warning to mitigate potential disaster.

Monitoring Environmental Conditions: Building Management System with Temperature and Humidity Sensors



Mircom's complete Building Management System provides integrated monitoring of the environmental conditions in each of the 72 Archive Rooms. The wireless features of the OpenBAS-HV-WLSTH



“Mircom’s OpenBAS solution provides AGN with a self-sustaining approach to building management, automating the management of heating, ventilation, air conditioning, lighting, power metering & more.”

and OpenBAS-HV-VAVFC allowed for a cost-effective solution to the difficult installation environment. The OpenBAS-HV-VAVFC field controllers, OpenBAS-LC-NX12R lighting controller, and OpenBAS-PM-ME11 power meter all transmit their data to the OpenBAS-HV-NX10P, which is configured as the master controller.

Mircom’s Ethernet Gateway then sends all information via multiple protocols (BACnet/IP and Modbus TCP) over IP to the 3rd party head-end software where the building management system can be monitored and controlled via a graphical user interface.

Self-Sustaining Building: Open Protocol Integrates and Future-Proofs

Mircom’s OpenBAS solution provides AGN with a self-sustaining approach to building management, automating the management of heating, ventilation, air conditioning, lighting, power metering and more. Additionally, the open protocol design gives AGN officials the flexibility to use controllers not limited to the Mircom brand. Third party solutions can be seamlessly integrated with Mircom to work in tandem by utilizing different industry standard protocols.

System Summary



Fire System

- 1 X6 Pro-2000 Panel
- 3 PCA-14558-02 RTU-485 Modbus HUB 1 input eight outputs
- 1 PCA-12892-00 Comm. Card
- 1 PCA-14508-01 RTU-485 Driver
- 4 PCA-14292-00 ADI PRO-2000 Cards
- 1 PCA-13137-00 RS-232 Driver
- 1 APS-14127-00 Auxiliary Power Supply with Battery backup
- 20 HLI RS-232 Modbus Interface and ADAM RS-232 to RS485 Converter
- 96 Addressable Manual Pull Stations MS-710ADU
- 96 Horn/Strobes FHS-340
- 5 INX-10
- 59 MIX-5251B
- 194 MIX-M500R
- 96 MIX-M500S
- 1 Open Graphic Navigator Connect-1 License

OpenBAS

- 18 OpenBAS-HV-NX10P, 18 OpenBAS-NWK-XP, 36 OpenBAS-HV-WLSTH
- 18 Lighting System Integrated for: 4 OpenBAS-LC-NX12R, 2 Touch Screen HMI DOP-B03S211, 1 OpenBAS-PM-ME11, 2 BB-OpenBAS-TS43-W, 2 BB-OBS-VDINR19, 4 BB-OpenBAS-WIN-W, 4 BBA-OBS-LCNX12R-W
- 72 OpenBAS-HV-VAVFC and 72 OpenBAS-HV-WLSTH
- 5 OpenBAS-HV-NXSF (Monitor Emergency Power Generator, and sump pumps)

THE RESULT: A SMART SOLUTION THAT PROTECTS THE PAST AND THE FUTURE

Despite the very challenging environment at the Archivo General de la Nación, the entire project was completed in only eight months. The Mircom OpenBAS solution delivers complete building management control that offers early detection, environment visibility, and energy management within Archivo General de la Nación.

“There was a lot of trust and partnership involved in the successful deployment of this solution.”

About Mircom

Founded in 1991, Mircom is a global designer, manufacturer and distributor of Intelligent Building Solutions. Reaching customers in over 100 countries worldwide, Mircom's portfolio includes: fire detection & alarm, communications & security, mass notification, nurse call, and building automation & smart technologies. Mircom's vision is to make buildings worldwide safer, smarter, and more livable.



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