The new Victorian Archives building in Melbourne is a state-of-the-art facility serving the Public Record Office Victoria and the National Gallery of Victoria. Officially opened in November 2000, this facility provides a controlled environment for both traditional format and electronic records. Vaisala equipment assists in guaranteeing that optimum environmental conditions protect these valuable assets.

The Victorian Archives has insulated panels and sophisticated climate control systems to protect and preserve records and art works in their original condition.
The collection of Public Record Office Victoria was relocated to new premises in early 2000. These archives were formerly housed in a refurbished warehouse, which proved unsuitable for the long-term storage of the valuable records due to the lack of adequate climate and environmental control. In late 1997 it became known that the National Gallery of Victoria was also seeking a site for temporary and off-site storage of artwork. The efficiencies of combining the two requirements were obvious. In February 1998, approval was therefore given for a new combined facility to be built on a site in North Melbourne. The project went to tender in April 1998 and the 20,000 m² three-level facility was completed in late 1999.

Preserving an irreplaceable collection

Valued at $90 million, the collection of Public Record Office Victoria forms a vital part of the state of Victoria’s cultural heritage. The records, which date from the 1830s, provide a rich source for historians and include documents such as the police records for the infamous Australian bushranger, Ned Kelly, who was finally captured following a gun battle in the Victorian town of Glenrowan in 1880.

State-of-the-art building technology

Engineering consultants Lincolne Scott Australia were responsible for the design of the building services and worked closely with architects Bates Smart and builder Walter Constructions to achieve a building design and construction considered high by Australian standards. It incorporates a state-of-the-art BAS (building automation system) that manages the environmental systems, lighting and electrical load control. It also includes a sophisticated security system. The design of the facility incorporates an advantageous combination of structure and insulation materials to optimize the building’s thermal performance. Should the air conditioning system shut down, it would take over a week under extreme weather conditions before the internal conditions drifted unacceptably. This provides added protection for the collections in the event of failure of services to the site. The building has proven to be extremely energy efficient, with utility costs varying only slightly between summer and winter - unusual for such buildings in Australian climatic conditions.

Located only 3 kilometers from the center of Melbourne, the purpose-built Victorian Archives is a state-of-the-art facility. Finishes have been chosen to suit the function of the space. In storage and processing areas, pale colors are used to provide maximum luminance.
Designed for maximum security

Given the cultural and monetary value of the material to be stored, high security is paramount. The design allows for maximum security and safety of records and artwork through the isolation of the public areas and the placement of entrances to storage areas well within secure staff-only zones. The installation of a variety of security systems permits electronic surveillance of the building 24 hours a day.

Careful control for stable conditions

Maintaining stable storage conditions is critical for the long term preservation of the records and artwork. Stable relative humidity is particularly important for paper and cellulose-based material, which would otherwise deteriorate through the continual absorption and release of moisture as the relative humidity changes. Mr. Peter Mathieson, project leader for Lincolne Scott, notes that each monitoring point for the air conditioning control in the record storage areas has three independent Vaisala Relative Humidity and Temperature Transmitters to provide for “triple redundancy”. The BAS uses the average of the two closest sensor readings, ignoring the most divergent reading. This not only ensures that the most accurate readings are used by the BAS, but provides information regarding the long-term calibration behavior of the transmitters.

Providing a clean environment

To assist with maintaining stable relative humidity and temperature of the air within the archives, the ventilation outdoor air supply is subject to a separate extensive preconditioning and filtering process to minimize the introduction of dust particles and gaseous pollutants. Without this process, there is a risk of deterioration of the records as atmospheric pollutants may react with archive material or artwork to form acids or through oxidation. It is important not to over-use this pristine air supply, so Vaisala Carbon Dioxide Transmitters are used to provide occupancy-based demand control ventilation, particularly to areas subject to short-term high occupancy. These areas include the foyer, the exhibition space, and the conference and meeting rooms. In meeting rooms for example, the volume flow of conditioned air is first increased, with the BAS then rescheduling the outdoor air intake volume. This avoids long periods of operation with excessive ventilation, thus saving energy while meeting occupant outdoor air requirements.

The result is a stable, clean environment where conditions are maintained at 50 % RH (± 5 %) and 20 °C (± 1°C). For film and magnetic tape storage areas the environment is regulated at 35 %RH (± 5%) and 10°C (± 1°C).

Protecting the heritage through accurate measurements

Over 160 Vaisala transmitters are used to monitor and control relative humidity, temperature and carbon dioxide. These transmitters were chosen on the basis of past project performance where they have proven their accuracy and reliability. The transmitters and the air conditioning systems have proven effective. Mr. Russell Ormston, the Victorian Archives’ Facilities Manager, reports that they maintained steady temperature and humidity levels, better than the required ranges, in the records and artwork storage areas through one of Melbourne’s hottest summers.

The Victorian Archives uses over 160 transmitters (Vaisala HMD60, HMW60 and GMW20) to ensure stable environmental conditions.