

Case Study

National Library.

Australia's largest library storage facility is also state-of-the-art.





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The National Library of Australia recently opened the largest library storage facility in Australia. Located in Hume ACT. With federal government funding of \$9.9 million the facility was opened by Senator Kemp, Minister for Arts and Sport.

The storage system contains approximately 56 kilometres of shelving, weighs some 200 tonnes, contains 200,000 bolts.

The system stores 25.6 linear kilometres of newspapers and 28.3 linear kilometres of other printed material. Most of this material is stored in high rise shelving. A separate area of approximately 1.7 linear kilometres of low-rise shelving is utilized to store more fragile material.

It is the only library storage facility in Australia to use custom-designed and high rise shelving to store newspapers, with wire-guided stock pickers to access the material. This solution facilitates quick access to all material.

Jan Fullerton AO, Director-General of the National Library said that adequate

storage is crucial to the successful preservation and provision of access to the Library’s vast print resources.

“At present there are 9 million items in the overall National Library collection, which occupy 240 kilometres of shelving in the main Library building and our two offsite facilities.”

“Each year the shelving requirement increases by 3 kilometres mostly due to our legal deposit obligations. What this ongoing need clearly demonstrates is that print publishing is still strong in an increasingly electronic environment.”

“Our central responsibility is to ensure that the collection is preserved for future generations. This purpose built facility contains the optimal environmental controls available today to ensure the longevity of the collection,” she said. Construction of the repository commenced in September 2005 to enable the building to be ready for the book move from the nearby leased premises that took place between 7 August 2006 and 14 November 2006.



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The building will provide storage space until 2013 with possibilities to further expand the facility in the future.

The design and construction of the building was governed by a number of environmental issues relating to the preservation of the collection. The building features strict environmental control throughout the storage areas ensuring the most suitable climates are maintained for the various elements of the collection. For example it incorporates a separate preservation vault where fragile material can be housed at lower temperature and humidity.

The building also incorporates some best practice in terms of ecologically sustainable development principles and, for example, features underground tanks to harvest rainwater for irrigation of the surrounding grounds. It is also believed to be the largest offsite storage facility owned by any Australian library with a land area that equals 12,530m². The building size is 3,730m² which consists of 3,510m² of

storage space and 220m² office and amenities space.

Dexion was selected by the Construction Head Contractor, Manteena Pty Ltd to detail design, supply and install a very specific storage solution.

Dexion’s Business Development Manager for the Government sector, Brett Piskulich, takes up the story. “We take great pride and satisfaction in the fact that we have commissioned a very unique and effective solution for the National Library. The system consists of continuous Cantilever Shelving that in some parts spans some 20 metres between uprights. The nature of the items being stored meant that standard shelving depths were also not applicable,” he said.

“So we designed a special ‘shelf clip’ that allows shelf depths to be varied thus creating additional capacity. There is also a significant Ultima high-rise shelving system installed.”



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The specification also required that the shelving systems have an earthquake rating. “Our in-house Structural Team was heavily involved to ensure the system did indeed meet the rigorous compliance standard,” said Piskulich.

Construction of the system was a complex process and required detailed planning by the Project Management Team. Installation began at opposite ends of the building and worked towards the middle.

The Cantilever was assembled laid down and a special tool attached to the fork-lift hoist lifted each section of shelving into place before it was tied back to the previous section. In some areas the clearance was only millimeters away from the overhead services.

The Ultima high-rise shelving system is almost 7 metres high without any intermediate floors. This meant that it too needed a unique construction method. The shelving bays comprised of a top and a bottom section each over 3 metres high.

These sections were assembled on the ground with the top section lifted into place using a specially designed jig, increasing the speed of assembly and minimizing the manual handling required.

“This was a massive project. To give you some perspective we delivered materials packed in 52 semi-trailers over a 14 week period. We treated the assembly process like a production line using fabrication jigs, and with dedicated crews for the different types of equipment,” said Piskulich. “The 16 man team also became acquainted with Canberra in winter! Sometimes the temperature did not get above zero until late morning and any equipment staged outside would quickly get a coat of ice.”

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“As a team we all felt we learned a lot on this project. Given the customised design of the system and the unique installation



methods required, we had to develop specific systems and procedures,” said Piskulich. “We also worked closely with

the other trades on site and feel that we have achieved a good result for the National Library.”