

**National Library of Australia
Storage Facility
Return Brief**

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Introduction

HASSELL has been commissioned to prepare a Concept Design for a new National Library of Australia storage facility in the suburb of Hume in Canberra. A preferred site has been identified but not yet purchased (Block 7, Section 1, Hume). It will be designed to comply with all relevant Australian Standards, Regulations and Legislation including the Building Code of Australia, the Disability Discrimination Act.

Our current approach will be to set the framework for a facility that will achieve a long life, consume low amounts of energy and over time, be of loose fit to accommodate technological and storage method changes that surely will come.

The estimated net cost over the next four years including management, land purchase, design, capital works, book relocation and contingency associated with the proposed facility is approximately \$9.9 million excluding GST.



Current Break-up of Off-Site Storage

Hume Warehouse (Newspapers and Journals). To be replaced by a new purpose built facility.

3,283m² existing

- Non insulated, non air conditioned
- Lineal metres of storage 28,045 lin m

Hume Annex (other). To be retained as a leased storage facility

2,734m² existing

- 7.5m clear height
- Insulated and air conditioned
- Lineal m of storage 32,000 lin m (500lin m currently vacant but will be used by 2006).

TOTAL

6,017m² existing

Proposed Break-up Off-Site Storage**Module 1: Hard Copy Newspapers**

Conventional height open newspaper shelving (0.5m deep and 2.3m high)

Environment

- 20° ± 2°C @ 45% ± 5% relative humidity (RH) generally
- 15° ± 2°C @ 35% ± 5% RH for material of National significance. Extent of area to be advised by the National Library of Australia.
- In 2006 Module 1 will require 26,250 lin m of storage.

Module 2: Other Paper Based Materials

High-rise shelving accessed by stock picker.

Environment

- 20° ± 2°C @ 45% ± RH
- In 2006 Module 2 will require 29,000 lin m.

The combined modules 1 and 2 are to have a storage capacity of 55,250 lineal metres.

In addition, the existing Hume Annex building as currently leased.

Proposed Facility

The proposal is for a single facility. Two separate buildings may be considered. Scope for future expansion is required to be demonstrated. It is proposed that the envelope of the building be as environmentally responsive as is economically possible – both in terms of embodied energy and contribution to the reduction in recurrent energy costs. While natural daylight would be welcomed in the Operations areas of the proposed facility, it is to be prohibited in the storage zones (Module's 1 & 2). We have assumed a 40-year design life for the proposed building/s.

Building Code of Australia

Following is a brief summary of BCA requirements for the proposed facility.

- The proposed facility would be Classified 7b (for storage)
- The rise in storeys is three for Module 1 and one for Module 2
- The type of construction required (from Table C1.1) is as follows:
 - up to 2 storeys: Type C Construction (external walls more than 3 metres from boundary not required to have a fire resistance level)
 - 3 storeys: Type B Construction (load bearing parts of external walls within 18 metres of a boundary are required to have a fire resistance level)
- A minimum unobstructed access width of 6 metres with load bearing capacity (for emergency vehicles) and unobstructed height needs to be provided to the perimeter. At no point shall this unobstructed access be greater than 18 metres from the building.
- Internal fire separation (between modules 1 and 2 for instance) could reduce the necessity for fire sprinklers.
- Fire exits will need to be provided to the perimeter of the facility to comply with the 20 metre/40metre exit travel distance rule (D1.4 (c)) at ground floor and at each 'mezzanine' level of Module 1 storage.
- Exits are to be not less than 9 metres and not more than 60 metres apart.
- The unobstructed width of required exit paths – except for doorways – must be not less than 1 metre.

Envelope

Steel portal or other clear span structure on an 8 to 9 metre grid.

(a single row of columns could be considered as long as this does not affect storage layout or long term flexibility)

- Insulated panel wall and roof construction, which have low maintenance characteristics. A 'ceiling space' could be developed in the roof to improve insulation.
- (options to be considered on cost/benefit environmentally responsive basis. All/any choices are to minimise the recurrent energy costs of mechanical services cooling or heating. (low maintenance/secure perimeter)
- High load concrete slab floor.

Environment & Services

- Low energy efficient lighting with UV reduction filters to satisfy the requirements of AS1680.3.
- Motion Sensor operated lighting should be considered in the 'mezzanine' areas of Module 1 manually controlled lighting is to be provided where stock pickers are used in Module 2.
- Pollution/particulate control of all air intakes in the building.
- Air conditioning to $20^{\circ} \pm 2^{\circ}\text{C}$ @ $45\% \pm \text{RH}$ generally.
- Air conditioning to $15^{\circ} \pm 2^{\circ}\text{C}$ @ $35\% \pm \text{RH}$ to part of the total floor area of Module 1.
- Staff A/C (possibly split unit system) capable of maintaining a yearly temperature from 21°C (winter) to 24°C (Summer) with limited RH control (40-60% range).
- Provision for mechanical plant.
- Provision for electrical switchboards and distribution boards.
- Provision for telephone and data racking.
- Stormwater retention for on site use. Assume a 15,000 Litre storage tank with water mains to tank solenoid switching to provide for periods of low rainfall.
- If required, stormwater detention should utilize 1200mm to 1500mm tube type storage under 'road' areas.
- AAA rated taps (2.5 to 6 L/min flow), shower heads (7 L/min flow) and toilet cisterns (3/6 L dual flush)
- Fire Hydrant Hose Reel and portable fire extinguishers to comply with Section E of the BCA.
- Fire sprinklers and VESDA air sampling system.
- Hydraulic services could include a septic tank system rather than be connected to sewer mains (3 staff to maximise proposed at present)
- Exit lighting.
- Security alarm and monitoring with access control to all entry doors. Motion detectors system is to be monitored from the existing security room at the National Library of Australia.

Facilities

Interior

Operations facility

— Public entry from external car park	9m ² .
— Open plan, staff work area for 1-3 people	50m ²
— Trolley parking area with direct access to loading dock and storage modules	10m ²
— Staff lunch room and kitchenette	20m ²
— Public reading area	18m ²
— Male and female toilets	12.5m ²
(This could be 1 accessible unisex toilet, hand basin and shower for staff and 1 accessible WC and hand basin for public. Need to establish what library work practices allow but this arrangement would be suitable for BCA compliance).	
Circulation space at 15%	17m ²
— Loading Dock to suit VW Van	
Fully enclosed with dust barrier/air lock with remote control door	40m ²
Small sorting area outside of loading dock	12.5m ²
Total area including 15% circulation	198m ²

Module 1 Storage area (Newspapers)

Two levels of 2.5-2.6m clear height mezzanine floor structure, access stairs, handrails and access hoist.

The following has been identified:

- Floor to floor height of the mezzanine floors may need to increase to 2.8 – 3.0 metres to accommodate load bearing structure, mechanical ventilation ducts, lighting and sprinklers.
- There is a cost premium of 10-20% for a demountable steel structure over a more permanent reinforced or post-tensioned concrete one.

Shelving to be double sided 0.5m deep each side x 2.3m high (approx 11 shelves per rise) without vertical divisions. Shelving to be arranged in rows with 0.9m walkways in between rows and required fire egress paths as per BCA.

Total building footprint area 1,100m²

Module 2 Storage Area (other paper materials)

- Double sided high rise shelving 0.3-0.4m deep x 0.9m wide and 7.2 to 7.5m high with shelving adjustable at 25mm increments (Hume annex = 38 bays/row with central access through to next stock and pick row).

An approximate lineal metre of shelving space for Module 2 is as follows;

- Octavo, 15310 lin m with shelf clearance of 300mm between shelves,
- Quarto, 10690 lin m with shelf clearance of 350mm between shelves,
- Manuscript, 3000 lin m with shelf clearance of 320 between shelves.

All materials accessed by stock picking machine requiring steel guide rails in floor (2 machines to allow for redundancy).

Minimum walkway widths, plus that required for fire egress paths to comply with BCA.

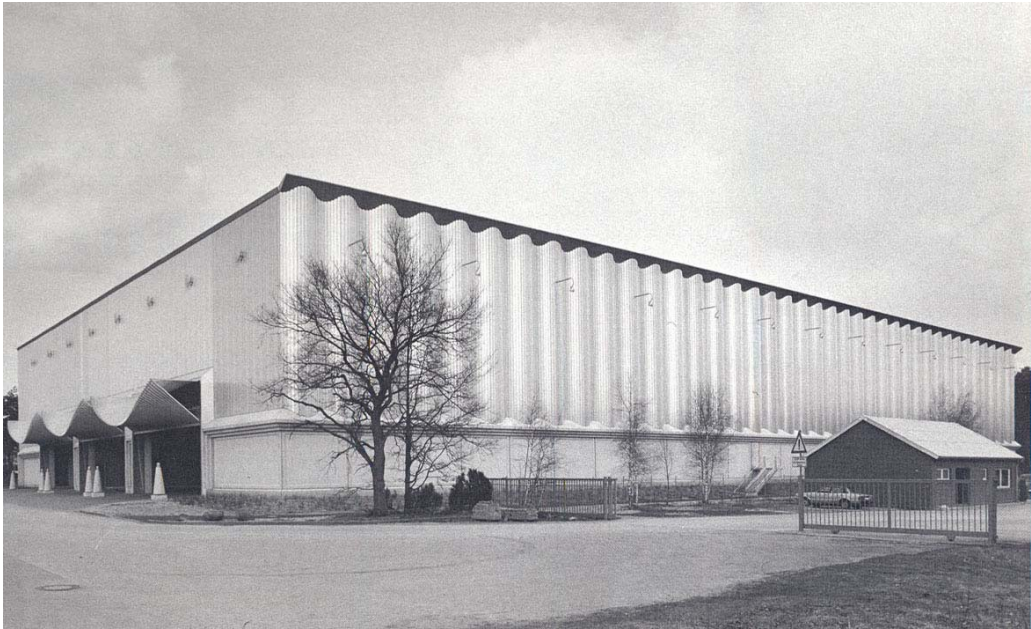
Total building footprint area 2,000m²

Exterior

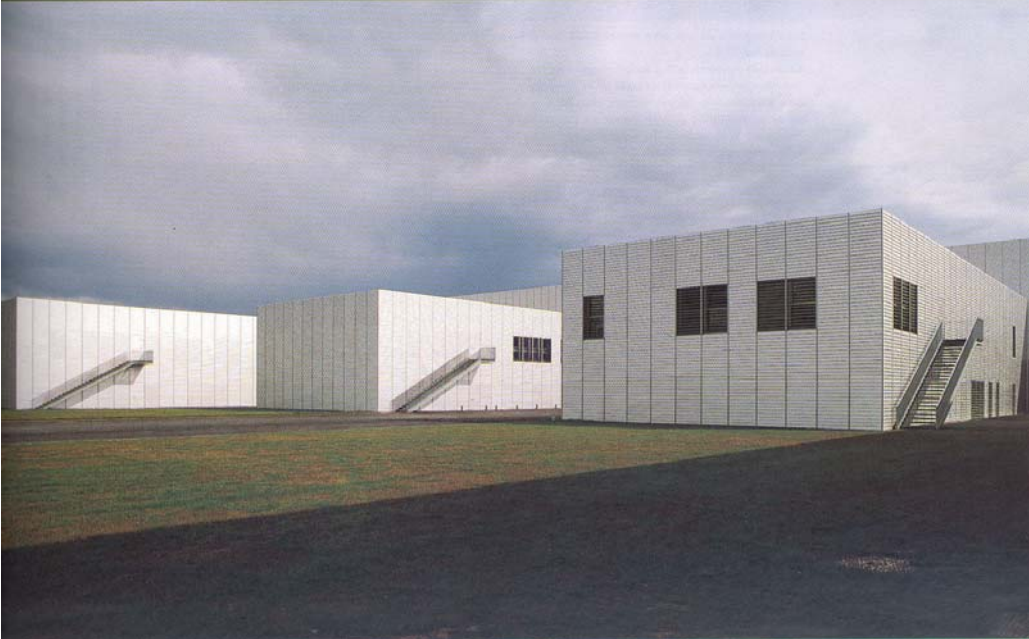
- 1.8m high perimeter security fence.
- Automatic sliding, remotely operable access gate approximately 5.5m wide with key card access.
- Parking space for 4 cars including one accessible space.
- Truck manoeuvring and turning space.
- Security lighting.
- CCTV surveillance to carpark, loading dock and entry gate.
- Safe roof access system.
- Landscape treatment (hard and soft) to all exterior surfaces with view to minimising any dust that may enter building.

Design Images

The selected images on the following pages indicate some treatments of the building envelope that may be considered.











Project Scope:

Construction completion February 2006 and book relocation completion June 2006..

Stage 1: 3,300m² building footprint area – including provision and services design for Stage 2.

- Bulk earthworks and site preparation
- Services infrastructure
- Building envelope works and services
- Siteworks and landscape
- Building fitout, equipment and furnishings
- Defects liability (52 weeks)

Total net cost \$9.9M

Including:

- Management
- Land purchase
- Design fees
- Book relocation
- Contingency sum
- Escalation
- Preliminaries
- Builders Margin

Excluding:

- GST

Next Step: Pre-Design Phase

- 1 Stage 2 Due Diligence
 - Site survey
 - Engineering appraisal (hydrologic, geotechnical etc)
- 2 Develop design briefs for sub-consultant
 - Buildings services (mechanical, electrical, hydraulic, fire etc);
 - Structural / civil / engineer / geotechnical;
 - Surveyor;
 - Cost planner;
 - Landscape architect;
 - BCA compliance and Construction Certification;
 - Project manager.
- 3 Finalise functional requirements, brief and budget
- 4 Develop detailed programme

Possible Project Procurement Models

1 Traditional Design, Documentation and Lump Sum Contract

Suitable for a wide range of building types and complexities

Facilitates a high level of client interaction with the design team and close involvement on the design process.

2 Detailed Design and Construct Contract

Suitable when a client wishes to hand final stages of design responsibility to a builder and normally when client is concerned about design related risks.

Design is generally described, finishes specified.

3 Design and Construct Contract

A form of contract used when a client is concerned about design risks and wishes to pass on risk of project procurement to a builder.

Design responsibility is vested in the builder (subject to performance brief) so the ability of the client to influence the design is limited.

4 Construction Management

Contractor engaged early as part of design team.

Documentation prepared in full or as a 'progressive let' set of packages which the 'Construction Manager' tenders separately.

Design integrity and maintained but may be at additional cost.

5 Novated Contract

Architect and transferred to a D & C Contractor.

This applies to 3 & 4 above.

**APPENDIX A
CONCEPT DESIGN DRAWINGS**