This is the author's version of an article from the following conference:


Access to the published version:

Unique New Library Macquarie University’s Experience

Presented by Wendy Palmer Facilities and Equipment Coordinator Macquarie University Library
The Past

When Macquarie University Library first opened its doors in 1967 the building was centrally located as a physical symbol of the University’s interdisciplinary approach to teaching, learning and research.

The existing library has delivered best-practice traditional library services to the University for over 40 years.

From a student intake of twelve hundred in 1967 to an intake of over thirty one thousand in 2007 the student population has grown significantly, placing extreme pressure on the physical building and its resources.

Over the last four decades the Library has radically changed the way it delivers its resources and services.

Technological developments and the pervasive use of PCs and laptops, as well as online resources, has had a significant impact on the use of the Library.

There had been plans to extend and refurbish the current building but due to financial constraints this did not occur.
The Present

Today the Library is open 82 hours a week during semester and receives over five and a half thousand (5,500) physical visits and five thousand (5,000) website visits each day.

We are now at the stage where we have “maxed out” our seating capacity and our power capability.

The advent of the laptop has created operational issues as students disconnect any and all power points, even Library equipment and computers to plug their laptops in.

With seating for 1260 we are at our full capacity and students have become very frustrated with the lack of space.
Assignment and exam time can be very volatile and each semester a security officer is present for 8 hours a day to help with any potential conflict and to communicate the Library’s policies to the students.

With a collection totalling 1.8 million items we are running out of space and storage is also a big problem in the current Library.

In June 2007 the Library received a grant of $150,000 from the University’s 2007 Carrick Institute Learning and Teaching Performance Fund.

This has been used to design a student-centered learning space on level 1 of the Library.

There are 50 dedicated laptop workstations with double power points on the desk.

A mixture of desks with castors on one end encourages students to configure their own learning environment.
Several lounges and a variety of coloured ottomans are available for a more relaxed setting.

Results from a recent Learning Lounge focus group indicated that overall students like the area and the furnishings and thought it should be bigger in size.

The Learning Lounge is a self-regulated area for students to use technology and work individually or collaboratively. The area is being monitored and evaluated so that the best design features and most in-demand solutions can be integrated into the new Library.

The Future

In 2006 University Council approved a project budget of $70 million (excluding GST) for a state of the art Learning and Research centre to replace the existing Library and appointed award-winning architects Francis-Jones Morehen Thorp ( fjmt ) to design the new building.

The total project budget, including sustainable initiatives to achieve a 5 star Green Starr rating has been increased $92 million (excluding GST) to offset the impact of exchange rates and other price movements.
The new Library will provide a 21st century learning and research environment that facilitates interactions between people and knowledge and will be even more of a key campus facility.

Located at the main entry to the University, the new building will enrich campus life by providing a central Library combined with learning, research and social spaces. These facilities will be unmatched by any existing academic library in Australia and complement today’s collaborative approach to learning and research.

The building is expected to have a life of between 40 – 50 years by which time we estimated that the physical collection will have reach 2.3 million items, almost double the current collection.

To meet these projections a combination of open access and high density storage is applied as the solution. 500,000 items will be housed on the open access shelves with the rest of the collections housed in the Automated Storage and Retrieval System (ASRS).

Some features of the new Library, with comparisons to the existing Library are:

- **learning lounges open 24/7**
  
  *existing Library open up to 10 hours a day*

- **Automated Storage & Retrieval System (ASRS) will help you find and retrieve items quickly and efficiently, storing 80% of collection, open shelves storing 20% of collection**
  
  *existing Library collections (1.8 million items) on open shelves and in stack, offsite storage vulnerable to theft and damage*

- **café located at entrance**
  
  *existing Library has vending machines for refreshments*

- **adaptable & high tech personal and collaborative learning spaces with capacity for 3,000 seats**
  
  *existing Library has 1,260 seats, 21 group study rooms, and a learning lounge*

- **quiet study areas & dedicated postgraduate research areas**
  
  *existing Library has Postgraduate Reading Room*
• support for technology enabled learning with more PCs and digital resources
  existing Library has 124 PCs plus 100 PCs in a building elsewhere on campus

• training, meeting and consultation rooms
  existing Library has three training rooms with fixed configurations and only small meeting and consultation rooms for clients

• exhibition space at the entrance including the public display of the Lachlan Macquarie Room
  existing Library has exhibition space on level 2 and the Lachlan Macquarie Room in a restricted area with viewing by appointment only on Level 1

• emphasis on sustainability, healthy environment, natural light and living courtyards
  existing Library has served the University and students well and is of a design typical of its era. It has an aging infrastructure as would be expected.

Automated Storage & Retrieval System

The new Library will be the first in Australia to install an Automated Storage and Retrieval System (ASRS) for Library use. The ASRS consists of an environmentally controlled vault with metal bins stored in industrial racking on either side of aisles, with each aisle served by a robotic crane. The ASRS will be constructed as a large 1,000 square meter vault that will occupy four floors but uses one seventh of the space taken up by open access shelving.

This innovative technology was adapted from the automotive industry’s application for warehousing and retrieving small components. It allows higher density storage resulting in a significantly smaller footprint and a more affordable project cost.

17,394 storage bins will hold up to 80% of the projected collection for the next forty years. The remaining 20% of the collection will be on the open shelves.

From a pc in the library, to the comfort of home once logged on to the Library’s catalogue a client can select an item located in the ASRS and come into the Library at their convenience and pick up the requested item from a service point.
The item identifier is passed from the Library Catalogue to the ASRS inventory system. This inventory system then directs the appropriate robotic crane to retrieve and deliver the bin containing the item to a pick station where Library staff then select the item from the bin and prepare the item for collection.

This retrieval process takes just a few minutes, meaning that the items are available onsite for immediate access.

The bins will also be used to store other Library material such as:

- Reams of paper and stationery supplies
- Library files and records
- Books and donated items awaiting incorporation into the collection
- Spare parts for the ASRS, copiers and printers
- Link to further information about Automated Storage & Retrieval Storage System at:
  
  http://www.automatedlibrarysystems.com/

  (There is a great 8 minute YouTube clip on this page)

**Sustainability**

The benefits will be measurable and we aim to certify the building with a Green Star Rating. It will be the first such building on campus and is a significant milestone for the University as it strives to minimise its environmental impact and establish itself as a leader in sustainability.

Greenstar is a rating system designed by the Green Building Council of Australia and is used to assess and certify buildings according to their environmental impact and the design and operational strategies that minimise the building’s environmental impacts.

Buildings are assessed in a range of areas such as power usage, water recycling, material selection and sustainable building practices.

The new Library design has included a number of initiatives that are supporting its Greenstar accreditation goals including, the use of the ASRS for efficient storage of the collection, water recycling, the materials used in building the new Library and the use of natural light.

So far we have looked at the history of the current building and have glimpsed the possibilities of our future building. Now we go on a journey of what is happening
behind the scenes. To prepare and move a Library’s collection and its staff is a monumental undertaking that has been in the planning stages for the last 18 months.

**Preparing for the new Library – the project approach**

In order to prepare for the new Library our organisation has adopted a distributed project approach we have called Library 2010. The distributed structure includes: sponsors, the project coordinator, the steering committee, five key project teams and their working parties.

The Library 2010 project has 2 sponsors, The University Librarian and the Deputy University Librarian.

There is a Library based Project Coordinator with the role of bringing together the work of and liaising between the five key project groups to ensure critical tasks are completed.

There is a Steering Committee that is comprised of the Sponsors; Project Leaders from each of the key project groups and their backups; the Project Coordinator and the Quality and Planning Coordinator.

The Library 2010 Project Steering Committee has the role of overseeing the 5 key projects. It monitors progress, establishes priorities, approves strategies and assists in the management of issues and risks.
Each key project group establishes working parties to achieve specific outcomes within a specific timeframe to feed back into the project.

The project team and working party structure for delivering on the key projects has been developed so that staff are able to contribute towards project outcomes and so the Library is able to leverage the considerable expertise of our staff.

The Working Parties

- will assist by tackling a manageable component of work in order to contribute to the overall project goals
- help to achieve greater consultation in order to arrive at better outcomes
- facilitate ‘up-stream’ communication so that information and ideas from a range of staff are considered
- provide opportunities for interested staff to become more involved in the Program

Each Working Party is supplied with a briefing document that outlines the scope of the work they are to undertake and defines the timeframe for delivering outcomes. In many cases, the work undertaken by Working Parties will result in a proposal that outlines methods and frameworks for delivering services

Library 2010 Key Projects

The tasks and activities involved in preparing for the move to the New Library have been brought together under the Service Innovation Programme 2008-2009: New
Library 2010.

Five key projects will lead to several sub-projects and the formation of Working Parties to look at a specific issues or deliverables. The outcomes of Working Parties will be used for consultation with staff and clients and as the basis for 2010 related plans.

Each project has a Project Leader, a Backup Leader, Project Coordinators and Working Party Leaders.

The five key projects are:

**Service Delivery Project**

How are we going to deliver our services in the new space and what other service models might be required?

This project will examine our current service offerings and construct new or modified models for delivering services in the new building. This will involve engaging with clients in order to establish their needs and trial new methods for delivering library services.

**Collection Access Project**

How are we going to provide access to our collections and deliver collection based services in the new Library?

This project is responsible for planning and overseeing the movement of the collection to the ASRS and to the new building and includes the development of workflows and resourcing recommendations.

**IT Project**

What will our IT requirements be in the new building including IT specific to the ASRS?

This project will look at the tasks and equipment required in order to function from the new building.

Client, staff, server and communications requirements will be addressed for management of both software and hardware. New Technologies and IT strategies will also be considered.

**Building Management Project**
How will we manage and operate the new building and its facilities?

This project encompasses OH&S and other risk assessment, cleaning, café and food service management, dock and ASRS management in regards to maintenance considerations, evacuation procedures and the development of a building manual.

**Communications and Fundraising Project**

How do we communicate and consult with our clients, what signage do we want in the new space?

This project is tasked with formulating the plans and frameworks associated with communicating and consulting with the Macquarie community.

The communication frameworks developed will influence the consultation carried out by all other groups and will specifically deal with the issues of signage and fundraising.

Detailed project group and working party briefs with timeframes and identified impacts on other projects have been scoped as well as critical path documentation prepared. These things have been developed to facilitate good outcomes and include deadlines for each of the deliverables. Much of the planning work is in motion and will involve testing and trialling new ideas and service models.

**How Library staff can participate in the project**

On the Library’s Intranet page there is a link to the New Library 2010 project. This is where staff can find out about what's currently underway and what’s in the pipeline as we prepare for our move to the new Library. There is also a regular printed newsletter with Library 2010 updates which is put on each staff members desk.

Library staff have been encouraged to contact the relevant Project Leader if they are interested in contributing to any of the working parties formed as a result of one of the key projects.

As Working Party briefs are drafted they are posted on the intranet. Staff may be co-opted and will also have the opportunity to volunteer for a Working Party. Membership must be discussed and approved by your supervisor.

You can get involved in the Library 2010 project by:

- Contributing to Watch this Space! Blog for staff
• Providing ideas and information to project teams and working parties
• Commenting on working party reports and documents
• Participating in focus groups, etc.

Wherever possible improvements and changes to Library services that can be enacted prior to the new Library opening are being implemented now, through the Quality Review Group that has been established under the Library Quality Enhancement Framework. All staff have some buy-in to the results and recommendations of the working parties.

Staff involvement and engagement with the Library 2010 project is essential and has been identified as part of the 2008/2009 Performance Development & Review process (PDRS) which will provide the opportunity for staff to record their participation in the planning for the New Library.

Preparing the Collection

The Collection Access Project is responsible for producing plans to prepare the collections for moving to the new Library and include

• Collection Storage Principles (what items go where either the open access shelves or the ASRS)
• Collection Access Plan (a plan outlining the destination of items in the new building)
• Consultation and Communication Plans (consulting with academics about access to items and collection composition in the new Library)
• Collection Cleaning Plan (for ensuring the collection is clean, particularly before items are stored in the ASRS)

Identifying collection items

As a central part of preparing the collection a barcoding project was established to begin labelling and arranging items for inclusion in the ASRS or the open shelves. The ASRS stores items based on height not call number therefore accurate barcoding and identification of the collection is vital. Marking the collection based on
the Collection Storage Principles created by the Collection Access Project Group and the Steering Committee makes the move to the ASRS system possible.

To undertake the huge task of marking the estimated 1.4 million volumes in the collections, two Coordinators and 24 new staff were appointed.

These teams developed several unique approaches to how they would prepare the collection for the move to the new Library.

A time and motion study was done to establish what was the most time effective way to label the 1.4 million items in the current building.

The results were:

- It took 90 seconds to place a sticky coloured label on a row of 15 items (with no protective shield)
- It took 23 seconds to paint the same row with a brush
- It took 12 seconds to paint the same 15 items with a roller

Why are we painting the books?
- Painting was the easiest, quickest and permanent way to colour code the large runs of serials in the collection.

![Painting supplies](image1)
![Painted books](image2)

Coloured paper flashes with a protective shield have been used on all other items.
The grey tagged items are destined for the open shelves in the new building.

The pink, purple, yellow and blue tagged items are destined for the ASRS and the colours indicate the 4 different bin heights which are 6 inches, 10 inches, 12 inches and 15 inches respectively.
Each item must be at least half an inch shorter than the bin height so that they don’t snag or catch as the bins are reinserted into the storage racks.

This visual identification method will also assist the removalist teams when the collection is ready for relocation to the new building.

**How items are scanned, processed and transported**

Hand held scanners are used to identify items on the shelf because of their portability and flexibility as work areas are set up outside the department office. Using the scanners means that the movement of trolleys through the building has been reduced. The scanners collect barcode information of each item which is then updated in a batch transfer.
Another bonus of using these procedures has been that the items are being dusted and vacuumed before going back out onto the shelves.

For the movement of library materials involved in this project new trolleys were custom made so that a shelf of books could be transferred from the open shelves directly onto a trolley.

While books are being processed the location names were changed behind the scenes to represent whether the item will eventually be located either in the ASRS or on the open shelves in the new Library. Clients won’t see a change until we alter the public display when we move to the new building.

In the last nine months the Barcoding Project Staff had reached a significant milestone by processing and completing data entry for 606,000 items and have added over 150,000 item records for journal volumes to the catalogue.

On average they processed 70 - 80 trolleys worth of items per day.
A weekly plan detailing which sections of the collection are being worked on is available in the Library foyer and on our website. A whiteboard is located on the entrance level that tells you which sections are being worked on today.

An example from our web page

**What’s Off Limits?**
We are working on sections of our collection as we prepare for the new Library. Currently we are working on:
- **PD** (Slavonic literature)
- **PE** (English literature)
- **KF** (US law)

These sections will be temporarily closed. Contact the Information Desk on Level 2 if you need to access an item in these areas.

Every item is barcoded and depending on the agreed collection principles, is assigned a potential location in the new Library. The item is then “tagged” with a
colour flash on its spine. These colours allow us to see which items will potentially be on the open shelves and which items are marked for the ASRS. Eventually the removalists will use these colours to assist in the relocation to the new Library.

With every item in the Library needing to be barcoded and tagged, the team need to process 3,500 items per day which equates to 17,500 items per week. To help achieve this the Shelving Supervisor has worked out a schedule of which part of the collection to work on to try to and minimise the inconvenience our clients.

Another project that the Collection Access Project Team is working on is refining our Reference Collections for the new Library. This has been an ongoing project that began in August 2008 and has involved scanning and recording Reference titles as they are re-shelved each day.

This information will be used to help determine what titles will remain on the open shelves in the new Library.

The catalogue Record Enhancement Working Group has been investigating ways we can improve “findability” and “browseability” of items through the catalogue. This effort has been greatly boosted by the introduction of the new Web Voyage catalogue in February as it allows for links out to Google Books for blurbs and reviews of matching titles.

The Collection Access Project and its working parties and teams are only one example of the types of activities required to complete the huge overall requirements of moving to a new Library.

In December 2008 over 107 library staff were involved in over 30 ongoing working parties.

**Celebrating and showing off the new Library**

Located on Level 2 of the current Library is a 1:200 scale model of the new building. Design and construction of this model took 500 working hours.
On 14th October 2008 the first sod was turned on the new site marking the beginning of the construction process. The Vice Chancellor Professor Steven Schwartz broke the ground and a traditional Aboriginal smoke ceremony was conducted by Darug elder Chris Tobin.
On 6th May 2008 the Library hosted a “Robots Party”.

The robot theme was chosen to highlight and dispel any fears staff and students might have had about the proposed use of new technologies in the new building by providing information on how the Library’s collection would be organised using a mixture of open access and the Automated Storage and Retrieval System (ASRS).
A Slab party was held on 1st July 2009 to celebrate to pouring of the first concrete slab of the new building. Library staffs, the architects, builders and other stakeholders were invited to dress up and share in the festivities. There was a cake with grey frosting to represent the concrete slab.
With approximately 16 months to go until the new building is completed and ready to be handed over to us there are many more projects and decisions to be made.

With an expected practical completion date of 13\textsuperscript{th} December 2010 our aim is to be operational in the new Library for the start of first semester in February 2011.

\textbf{Reference Documents}

Macquarie University Library Intranet

Library 2010 Information from link at Macquarie University Library’s Home page

Watch This Space, Macquarie University Library Staff Newsletter

Creating a new Library for Macquarie University: are we there yet? Maxine Brodie, University Librarian, Macquarie University Library; Meredith Martinelli, Manager, Library Development, Macquarie University

Watch this Space! Designing a New Library for Macquarie University, Maxine Brodie, University Librarian, Macquarie University

Macquarie University Library, Collection Preparation for move to C3C September 2008

Macquarie University Library, Collection Access Project, Barcoding Project August 2008

New Library 2010 Update report to Library Committee 20\textsuperscript{th} August 2009.

\textit{Your Library on the Move! Help us Make it Happen}, Issues Briefings for Library Staff 2009, Maxine Brodie, University Librarian.