

## **Introducing Team Members**

Project Manager Aurecon

Pippa Stockfeld

Architect John Wardle Architects

Meaghan Dwyer

Contractor Brookfield Multiplex

**Andrew Deveson** 

Focus of our talk today:

Collaboration

A building/a project with a pedagogical purpose

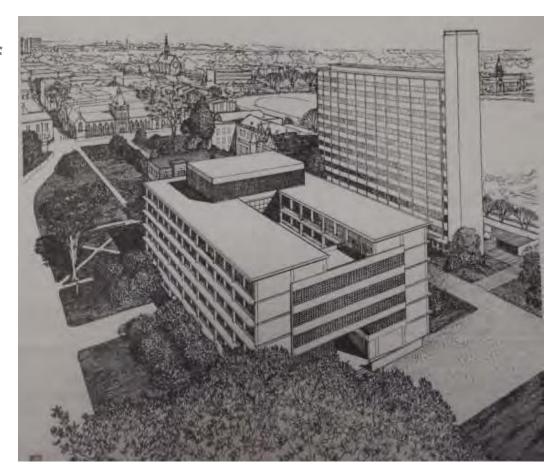
#### The Need

Original faculty building designed by the first Chair of Architecture (Brian Lewis) in 1960

Completed in 1964

Underfunded & constructed from a range of new and donated materials

Alterations & additions in 1989 and again in the late 1990's



#### The Need

By 2000:

Faculty bursting at the seams
Building in poor condition, at the end of its life cycle

Push in early 2000's for new building Open international design competition in April 2009

John Wardle Architects/NADAAA appointed in September 2009





**McBride Charles Ryan** 



Koning Eizenberg & William J Mitchell & Gehry Technologies



**Denton Corker Marshall** 



Diller Scofidio & Renfro & BVN



Sauerbruch & Hutton





### Facts & Figures

**Budget approved in late 2010:** 

Project Budget \$129.35M

Construction Cost \$102M

**Procurement Methodology:** 

Early Works Construction Management

Main Works Design & Construct

(100% Contract Documentation)

Nominated end date: December 2014

#### And the results

**Budget of \$129.35** 

**Maintained** (\$5,415 m/2)

**Program:** 

Early Works January 2013 - April 2013 (4mths)

Met program

Main Works

May 2013 – August 2014 (16mths)

4 months early

**Green star certification** 

Uplifted from 5 to 6 green star

The Client & Team

Delighted at handover!

To be evaluated again in 12 mths



### **Setting Project Culture**

Architect and client selected the core consultants

Robust governance structure adhered to

Effective resourcing of the project (by Property Campus Services & the Faculty)

Key selection criteria: support for the design intent, strong design management capability and the "fit" of the consultants and contractor with each other and the client

#### **Culture of Collaboration**

We may have all come on different ships, but we're all in the same boat now.

- Martin Luther King Jr.





## Call for research papers

- Aurecon treated the academic research opportunities as a related project
- Technologies integrated into the fabric of the building sensors, geothermal piles
- Team configuration and process cross platform design collaboration
- Aspects of procurement zero carbon supply chains
- •Retrospective study of project archives photographic documentation and design archive



Melbourne School of Design FACULTY OF ARCHITECTURE, BUILDING AND PLANNING

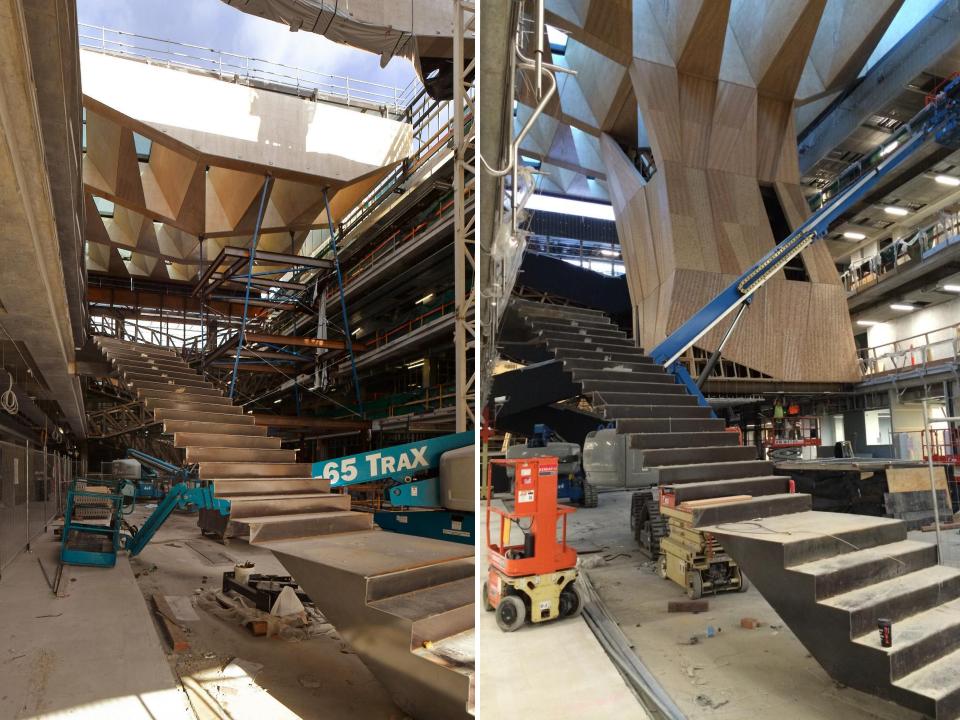






Research
Laminated
Veneer
Lumber





## Teaching & Learning

A demonstration project

Full team involved delivering classes to the faculty / undertaking extensive tours

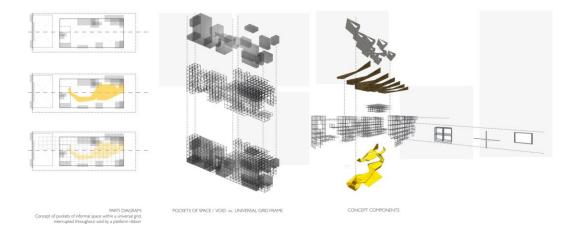
#### Classes include:

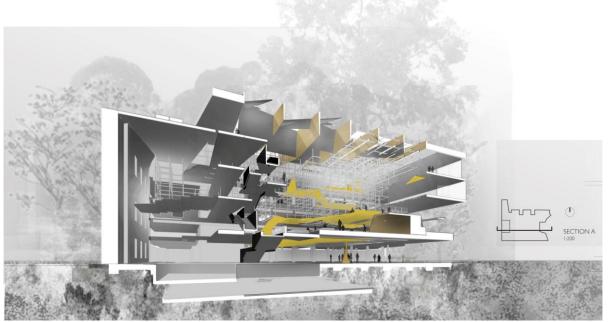
- Design Studios
- Procurement
- Engineering
- Cost Management
- Construction
- Project Management

Provides a model for how Universities can leverage projects

Provides students access to real world learnings

Educates consultants about the nature of teaching and learning





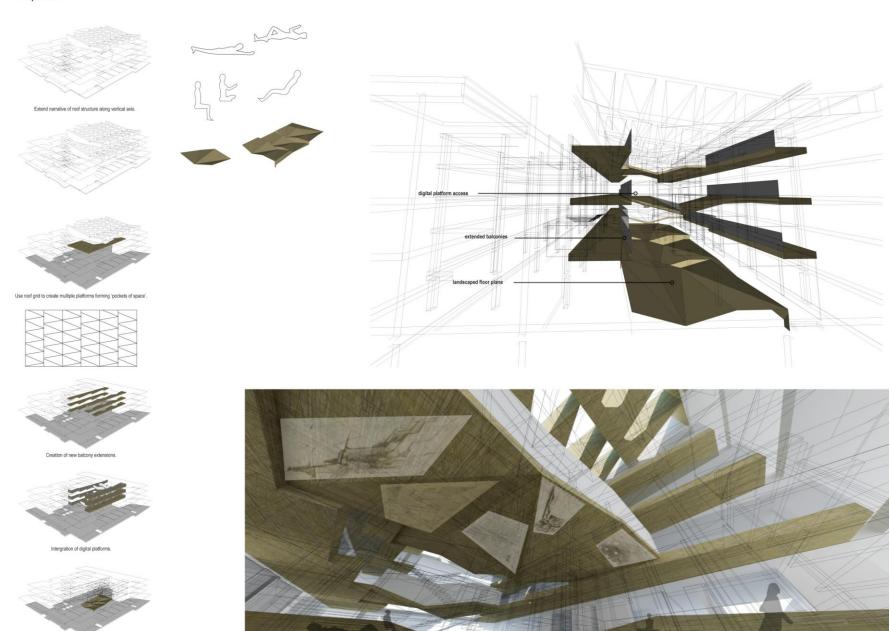




View from Level 00 Exhibition Space, Joseph Reed Facade

#### the process

Landscaped floor plane, modelled from abstracting the grid of the roof as well as taking the physicial human body into consideration



#### Engagement

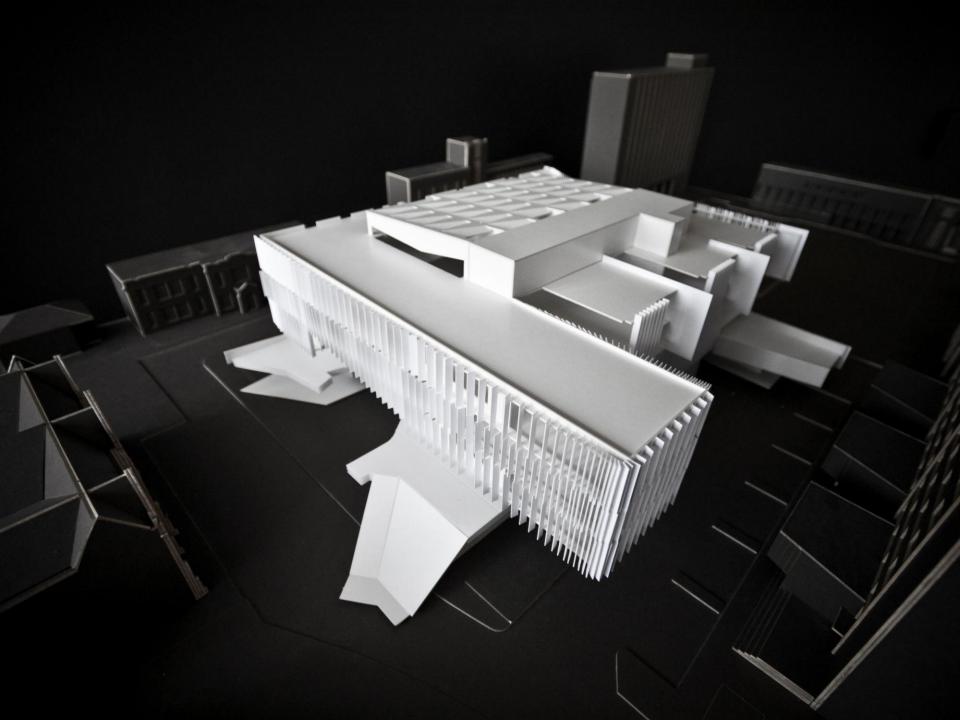
**Design stage:** 

**Exhibitions at the faculty International exhibitions** 

During the build:

Open House Melbourne (over two thousand visitors)
Talks and presentations to whole of faculty
Extensive stakeholder communication during construction
Viewing platform and panels, time lapse photography





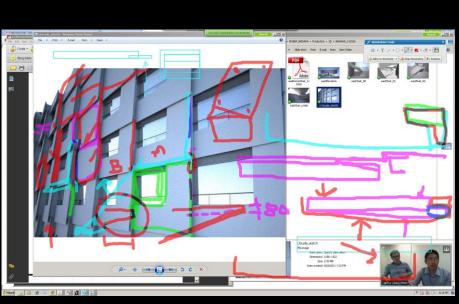






# **A Creative Partnership**









																								12 night	
-		-						<del>-</del> -							-										-
	9:00am	10:00am	11:00am	12 noon	1:00pm	2:00pm	3:00pm	4:00pm	5:00pm	6:00pm	7:00pm	8:00pm	9:00pm	10:00pm	11:00pm	12 night	1:00am	2:00am	3:00am	4:00am	5:00am	6:00am	7:00am	8:00am	





### **Summary of Accommodation**

Teaching Spaces

3,538m<sup>2</sup>

26 Studios @ 54m<sup>2</sup>

2 Seminar Rooms @ 75m<sup>2</sup>

2 Lecture Theatres 125 Seats (2 @ 175m<sup>2</sup>)

1 Lecture Theatre 500 Seats (650m<sup>2</sup>)

(Centrally timetabled)

2 Computer Labs

Japanese Room

Workshop
Library

Research Higher Degree Students

Academic Workspace

Professional Workspace

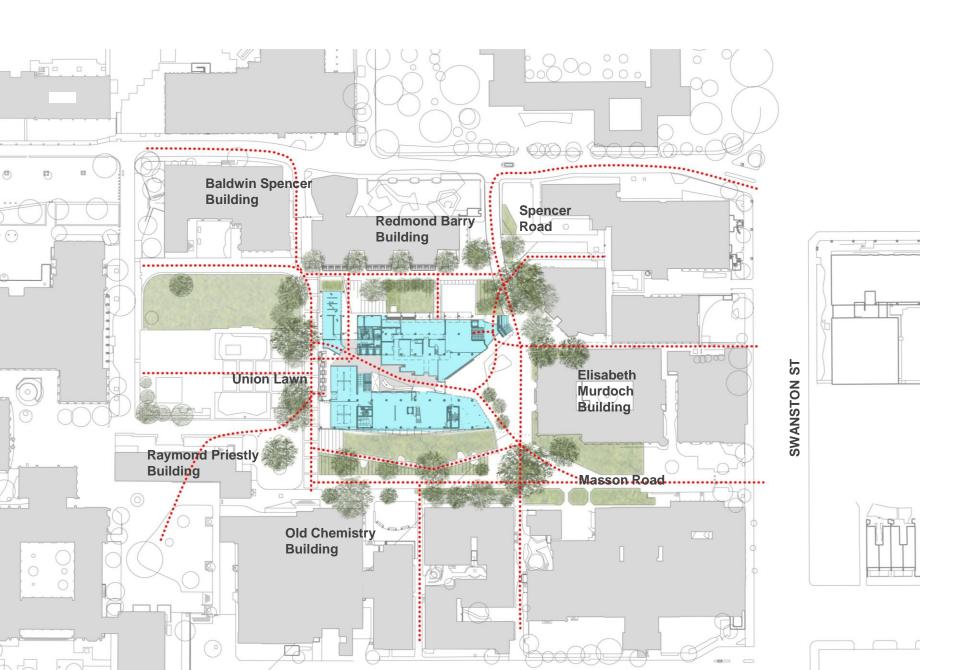
Exhibition

757m²
1,297m²
640m²
2,300m²
638m²
210m²

GFA (FECA + UCA) Efficiency 14,870m<sup>2</sup>

**73%** 

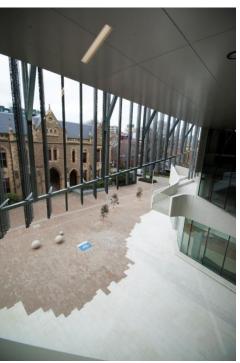
## **Tour**











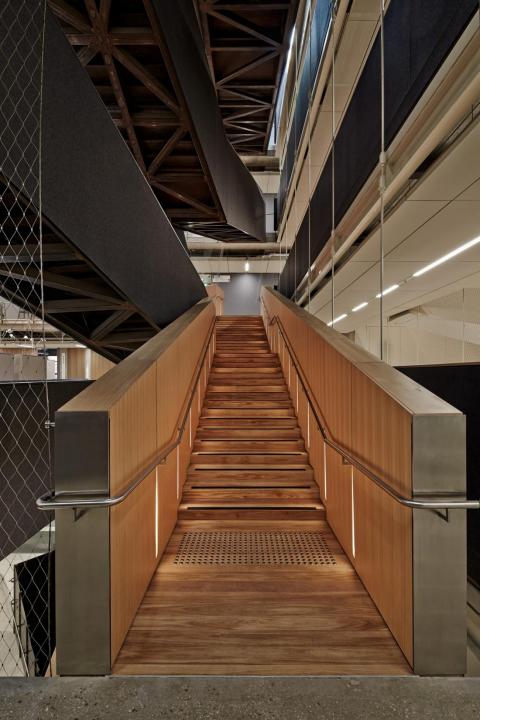


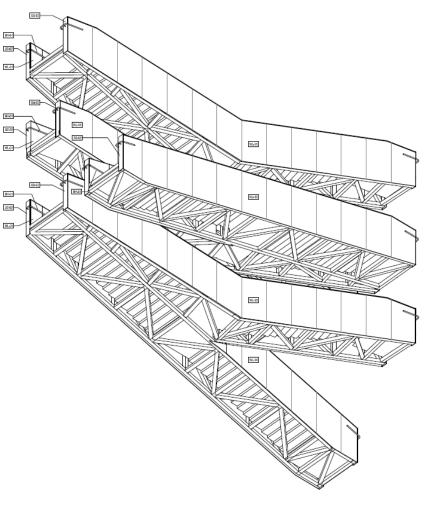


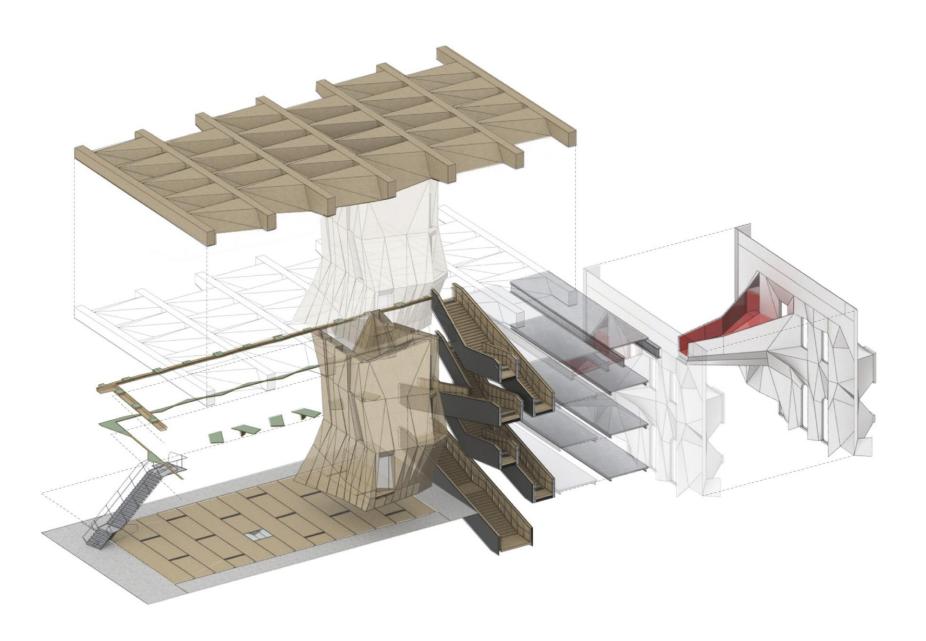














All day crowds moved and milled, in, out and around all sides of the building, engaged by extraordinary student displays, gazing up at Harry Potter-esque stairways and taking selfies on the concrete globes.

- Glyn Davis, Vice Chancellor University of Melbourne

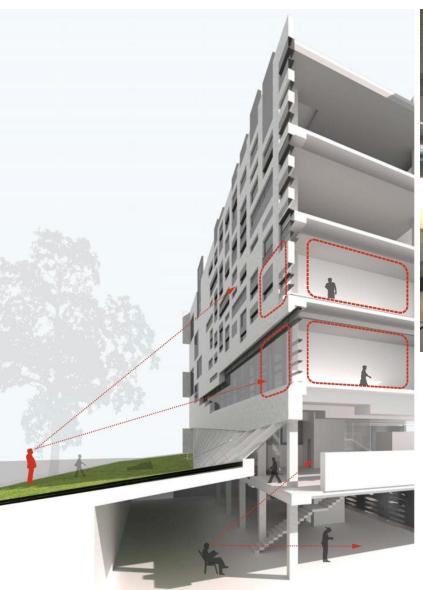
#### **Themes**

The Academic Environment
The Studio
The Living Building
Built Pedagogy

#### The Academic Environment

Library
Lecture Theatres
Workspace

# Library



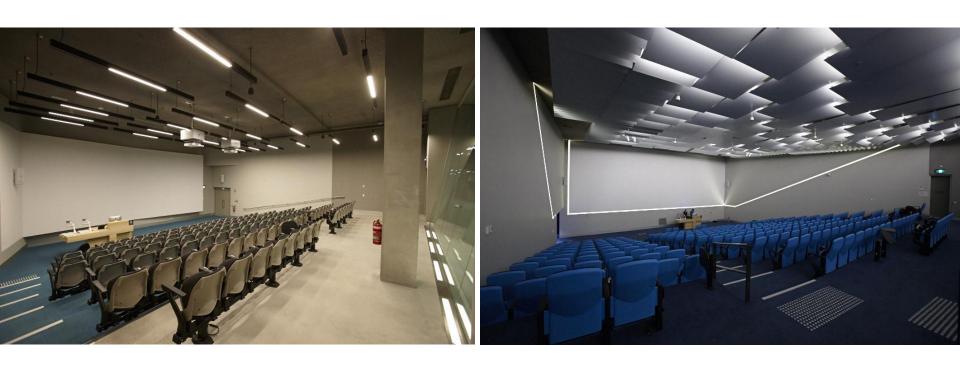




#### **Lecture Theatres**

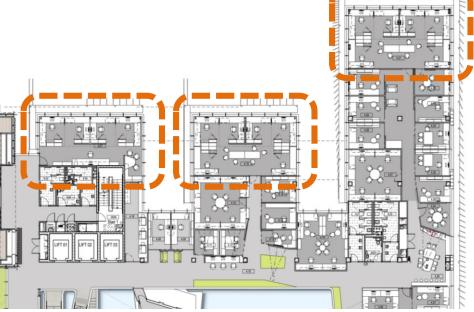


### **Lecture Theatres**



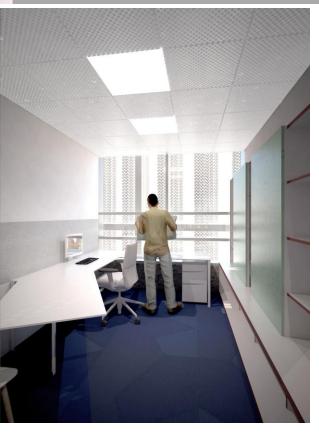
## Workspace

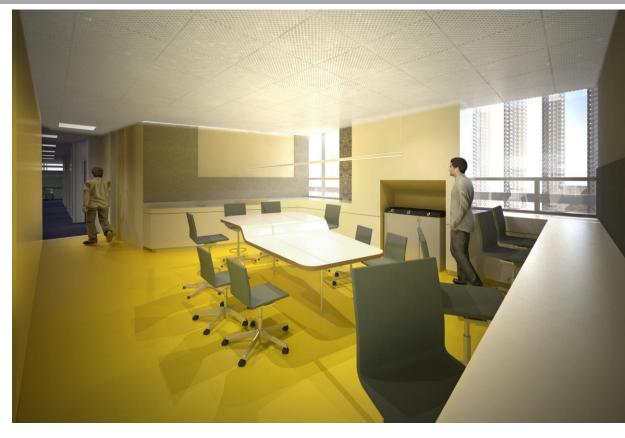




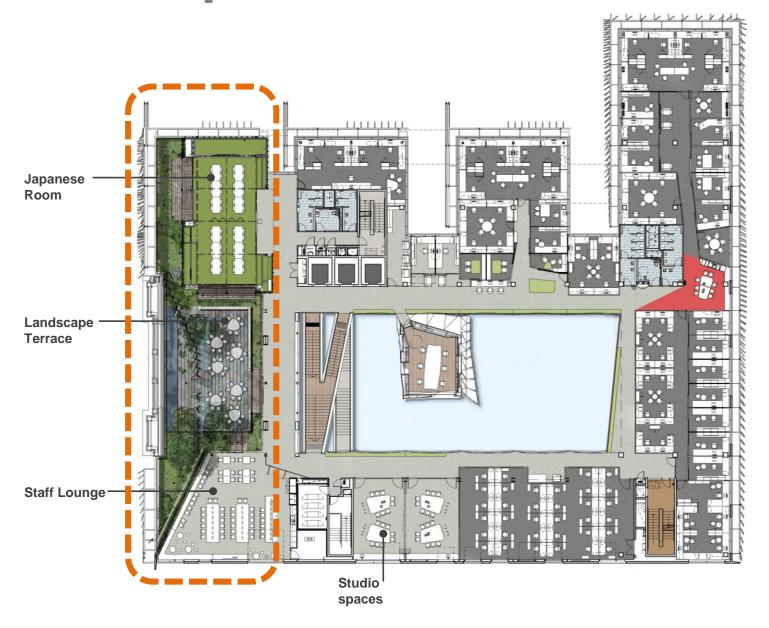
## Workspace





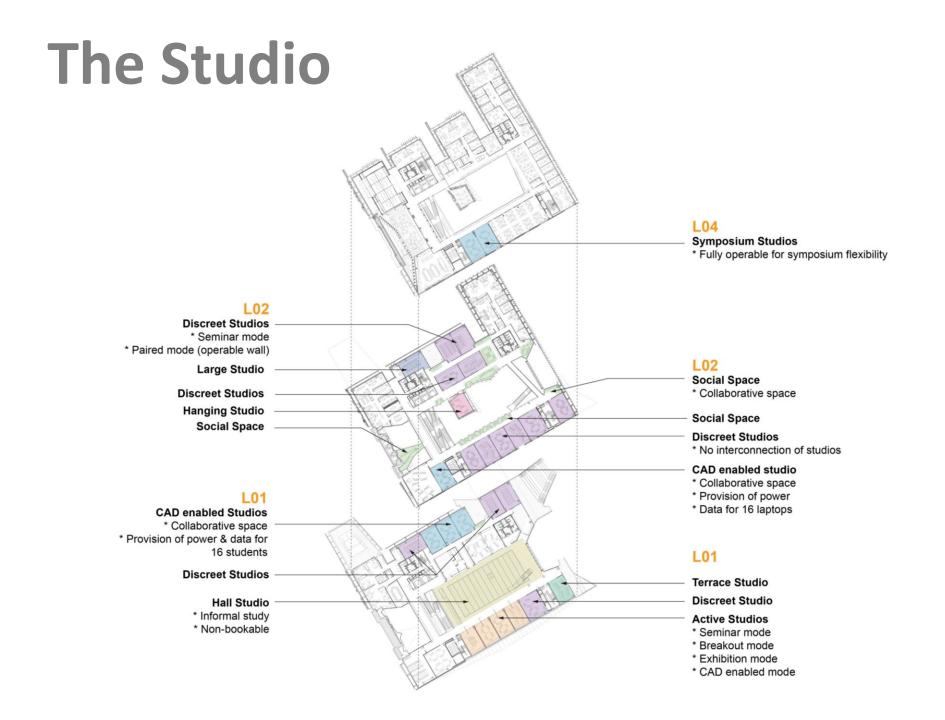


## Workspace

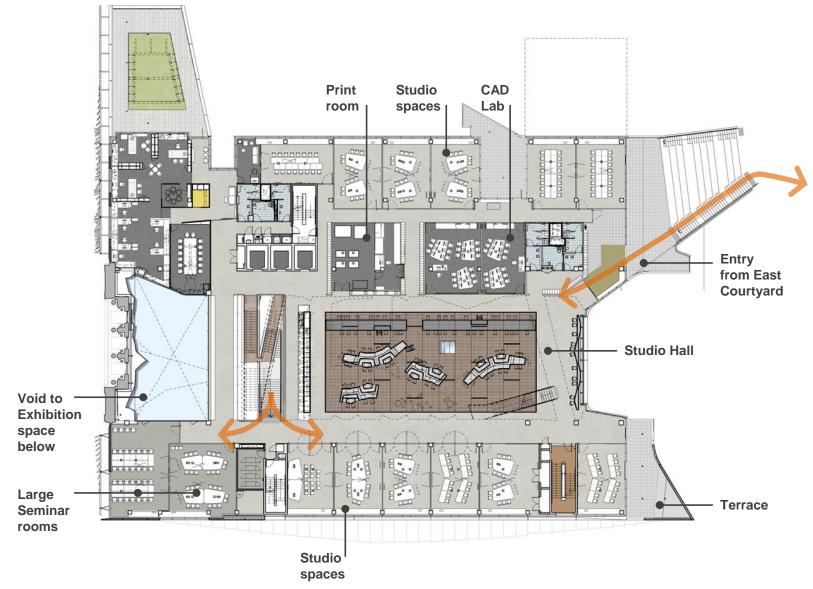


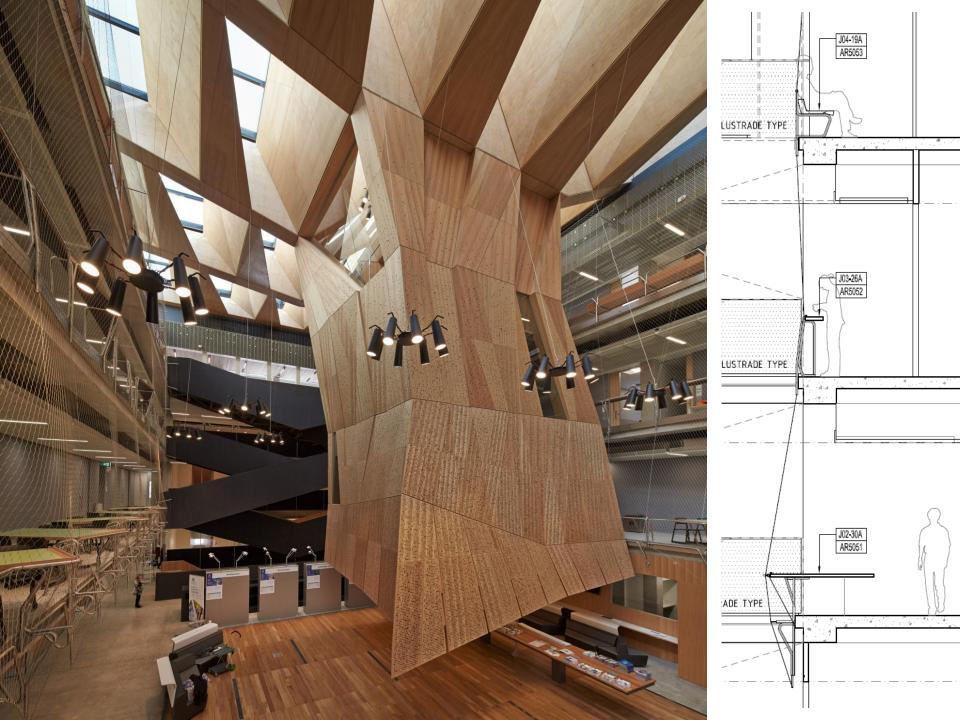
#### The Studio

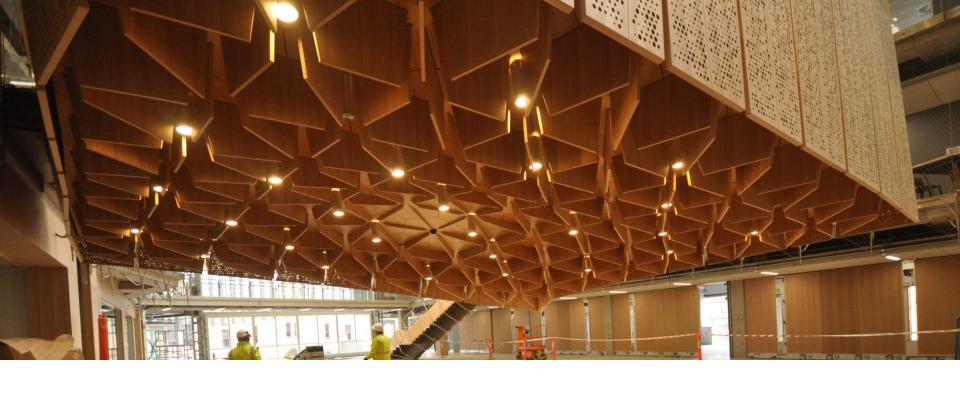
Design Hall Suspended Studio



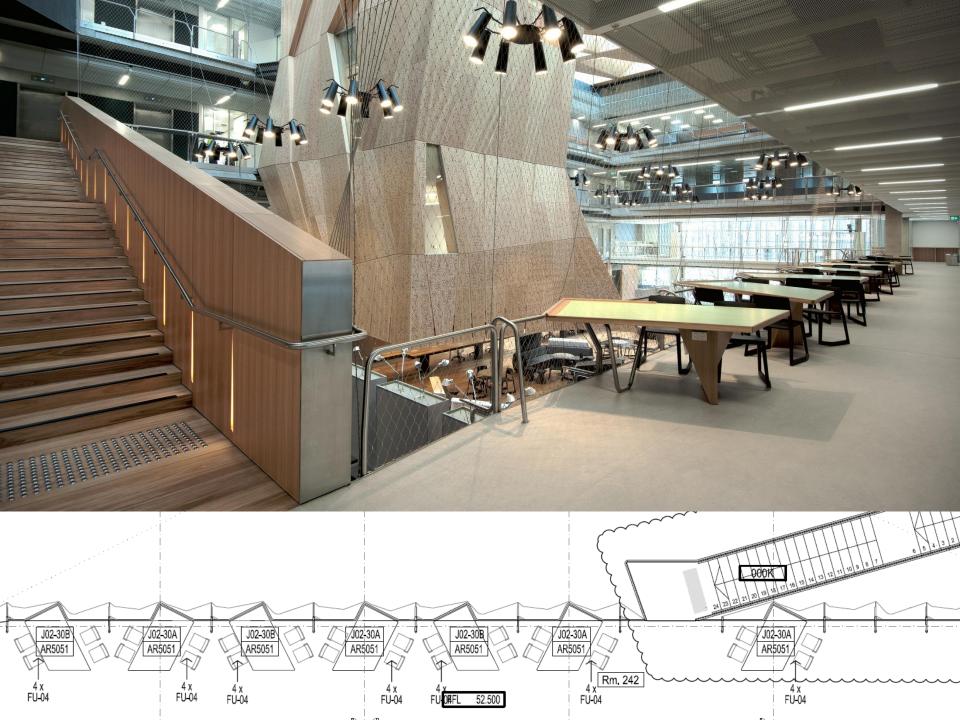
#### The Studio



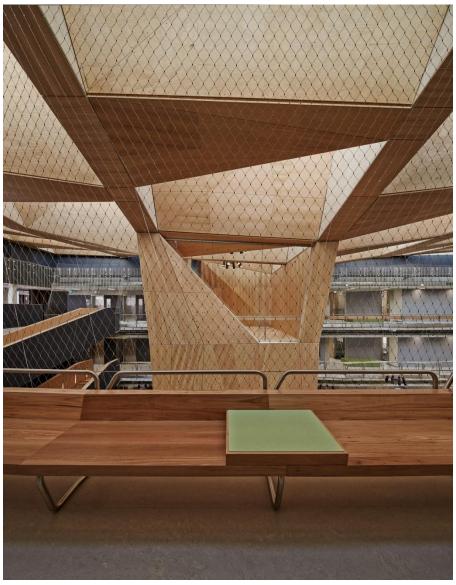






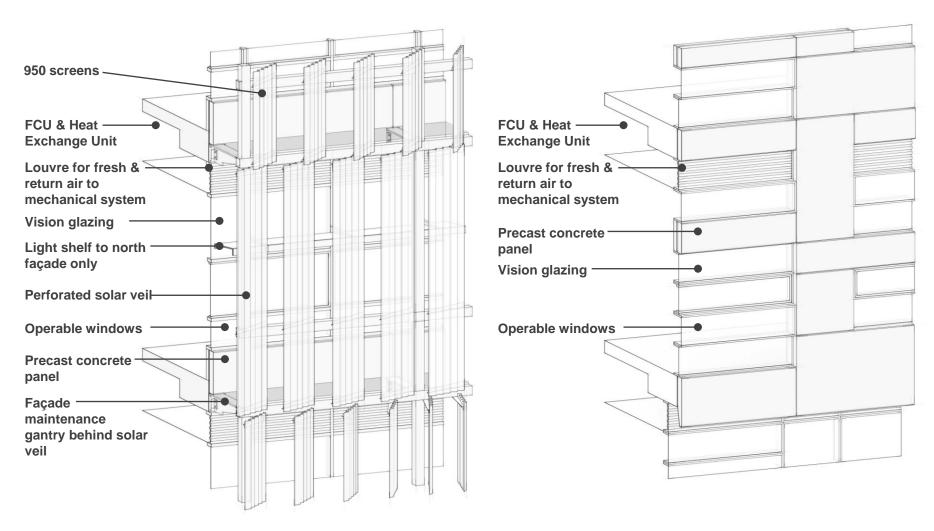


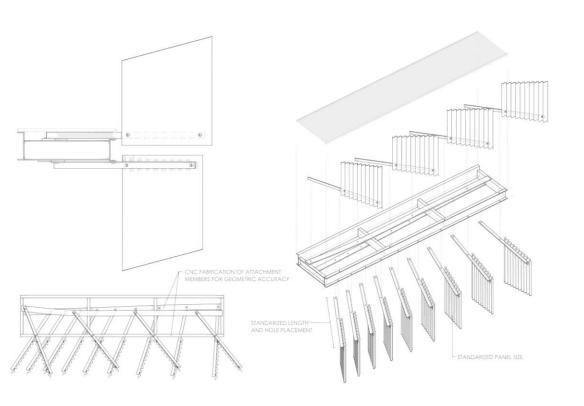




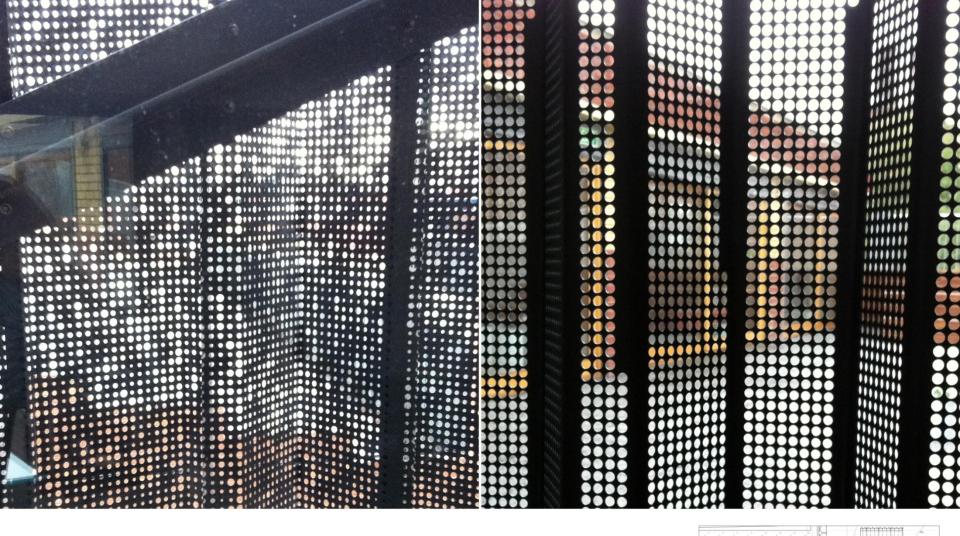
## The Living Building

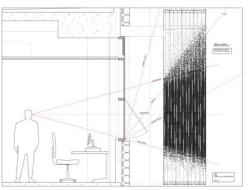


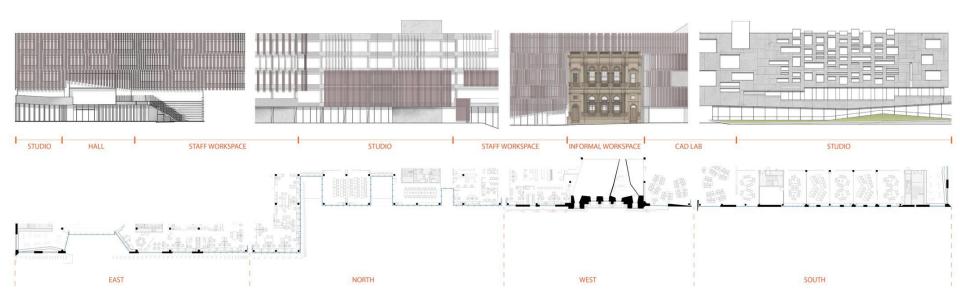
















## **Built Pedagogy**

**Heritage Facade** 

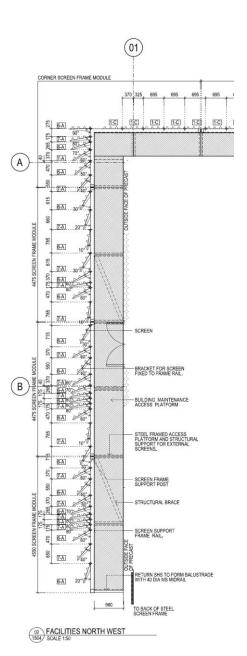


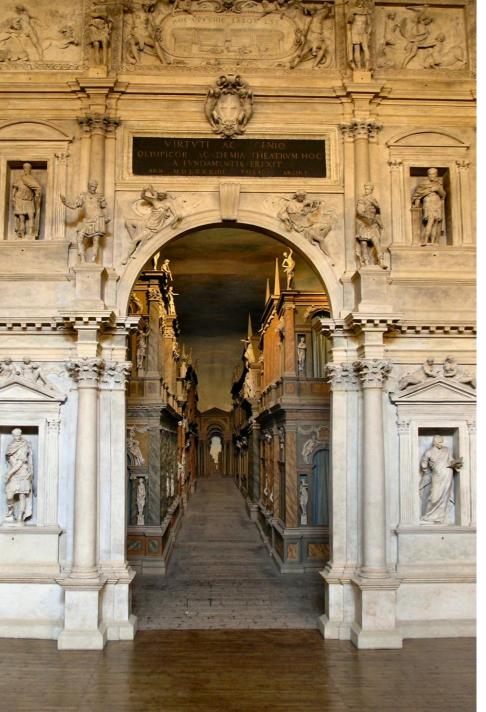




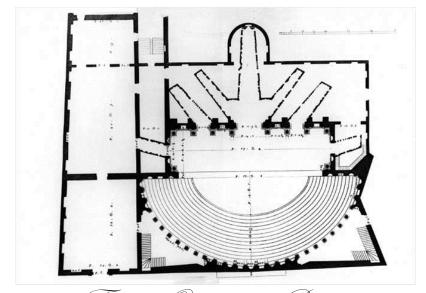




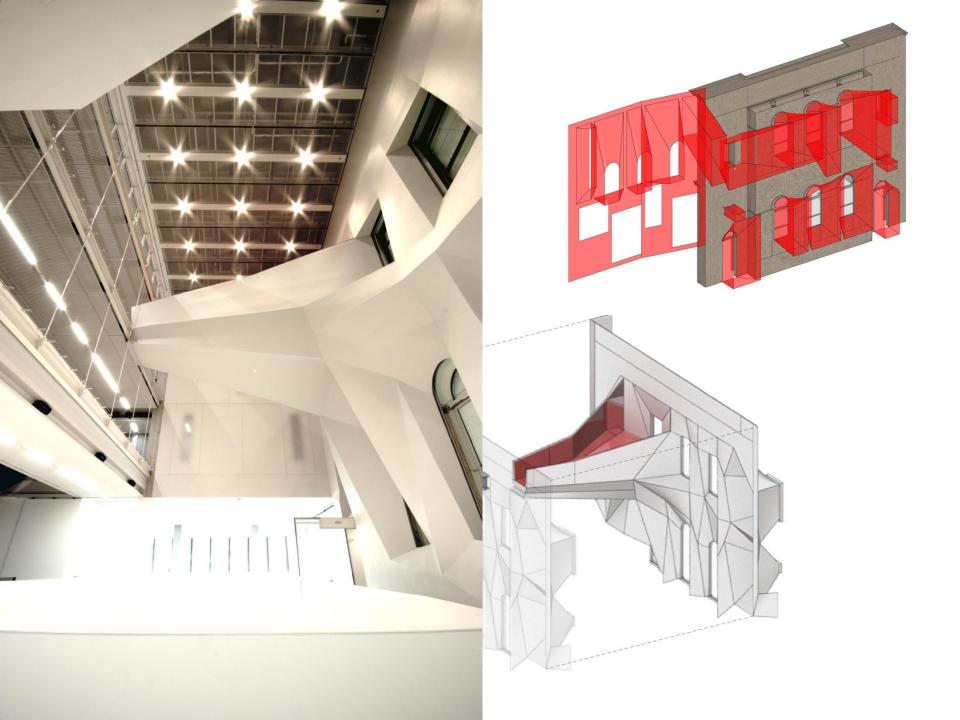


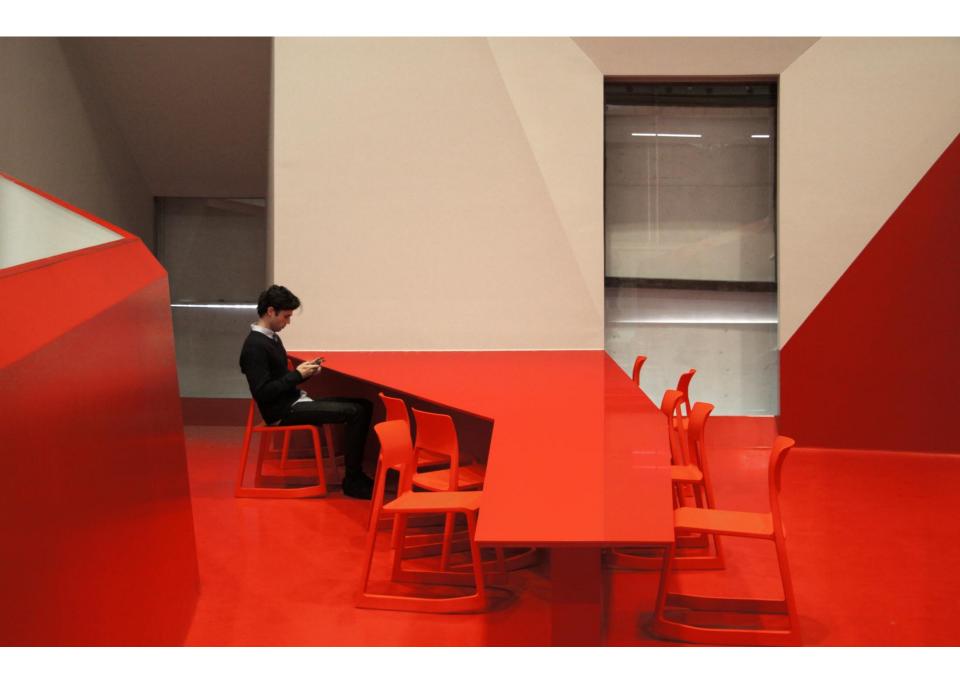






Teatro Olimpico Palladio







## Solving a problem!

The tenders submitted were 10% over pre tender estimate

Brookfield Multiplex offered smart solutions to meet the budget, but sought to protect and even enhance the design

Each changes reviewed and agreed with full team and client

Documented over a 3 month period post novation of the design team prior to works commencing

Key changes included:
Redesign of roof
Rationalisation of basement
Deletion of thermally broken frames
Deletion of mound studio
Deletion of CLT
Precast cores and columns in lieu of insitu concrete
Change from polished to offform on 3 elevations

## **VM Items**

RLB | Rider Levett Buckna

RLB|Rider Levett Bucknall,

General Motes:

All provisions of Fire engineering & RCA Pert J (JVI) to be mile.

Provisions to make Journal report.

All substitutions to be subject to RSD requirements,

-Services to be confirmated with all VE revisions.

All adopted VE adopted are deemed accepted by UCM.

JAKIN YAM KINE		-All adopted VE adopted are diserned accepted by UCM		
No.	ten	Clarification	Documentation Date	Trade
Architectural				
Architectural	Replace CLT to also soffts to levels 2 and 3 with	Also includes the deletion of the PA-17 Lime wash finish. The Atternative	Redocumentation required	
1	conventional off form concrete (Class 2 finish)	Structural Design is as per Option on Structural drawings	Nedocumentation required by no later than the	
	Contraction of the Contract Contract		1/3/2013, Decision needs to	
			be made by the RO/R/SR, If	
			the CLT is to returned to	
		BMC will tender both materials, and adopt specified material if required		
٥	Replace 1.5mm thick VM zinc with same thickness	sentC will tender both misserers, and adopt specified misserer if required saving can be achieved through that process.	No further documentation	
	Rheinzink alternative without change to steel framing or	seving can be acrewed through that process.	required	
	support. Maintain Design Intent. Delete MI.T-1 perforated zinc to the plant room engineure	As per scope on Addendum 5 Doguments	No further documentation	
	and replace with Alucobond.	ne per acope or reconstant o constraints	required	
11a	Substitute - Alucobond plant enclosure to Spandak	Further saving to substitute Alucoband in term 11 to Spendeck, Acoustic	80/08/3018	
		performance to be maintained.		
12a	Revise Pre-cast to off form (light colour) to North, East and	Concrete mix to remain as documented to all facedes. UOM sign off of fiamole required.	8/08/2018	
15	West facades, South facade to remain honed. Revise Tit-up doors to ground level storage and workshop.	Standard Fold-up doors (single glazed), Scope as per scope indicated on	8/08/2018	
10	(CO no.)	JWA Mark-ups (Machment A)	N/UN/2018	
17	Delete the rubber lining to bike store (\$102) and replace	Painted finish direct to block walls, coloured concrete sealer to floors.	80/08/2018	
	with painted finish.			
19	Revise wall linings to columns in the library, replace	Review any column mounted services controls. Cost in or relocate as	8/08/2018	
	stainless steel polished mirror finish (WL-16) to columns	required. Nominated skirting to be retained.	I	
25	with class 2 finish averaged concrete Replace facing (CP-02) nominated in library with	Sochrey Hint landscape carpet tile, with bitumen backing directly achieved	De la Procesa	
25		to flaor. Selection subject to warranty and RSD requirements. UCM	80/08/3018	
	alternative carpet.	sample approvel required	I	
38	Change belustrade design to fire egress Stairs 0000 and	Standard Inc. reli escape steir detail	80/08/3018	
	0000 - adopt stainmenter Delete suspended plywood ceiling panels to southern			
41		Accustic, services and natural ventilation performance to be maintained. Access penels to be standard flush trowel in type coordinated with plant.	80/08/2018	
	studios on level 1. Adopt pibd and paint	Pauless periens to be standard hush trower in type coordinated with plant.	į .	
41a	Delete suspended plywood ceiling panels to southern	Assigne	80/08/3018	
	statios on levels 2. Adopt olbd and ceint Regisce the placeod wall finish to the southern studies on			
42		As above	80/08/3018	
	level 2. Adopt plbd and paint			
53	Eliminate all studio pocket doors and sliding doors (keep	Scope - Doors: D107, 167, 165, 163, 170, 171, 172, 263, 261	80/08/2013	
	Level 1 Plvot doors only). Fill in opening with surrounding		I	
50a	well type and lining type in lieu of doors GSO1 - delete glass foor - replace with adjoining finishes -	Deletion Includes SS RuidheedReveal surround.	80/09/3018	
200	celling and floor.	- (preference to return this item if budget permits)	MO/ON/SOLIA	
57	Climinate Large Exhibition curtain only	Curtain storage to be deleted. Reckout blinds to be retained.	30/09/2013	
01	Eliminate Large Exhibition curtain only Delete the mound studio. Allow for attempts stair between	As per scope indicated on JAVA Mark-ups (affactment C)	Slab profile and Structure	
	Level 1 and Level 2, replacement of outtom lockers with off-	S provisional sum for Stair	drawings complete 1/2/2018	
	the-shelf lockers, additional informal furniture to Design	Services provisions to be revised accordingly. Lighting and services		
	Hall, and conversion of informal space at SE corner Level 2	assumed to be resolved within current services budget	I	
	to Studio		1/02/2018	
62	Replace off-form concrete slab soffts with Bondek.	As per scope indicated on JWA Mark-ups (attachment D highlighted orange)	1/02/2018	
66	Reduce day, of glazed tith-up doors to north @ GO1	Scope as per scope indicated on JWA Mark-ups (attachment A)	20/09/2013	
-	(workshop/storage) Delete doors DG16, DG15 & DG59 and		May con act a	
	replace with FS-13			
67	Revise class trouistie to Y509 around small exhibition	As per scope/detail indicated on JAVA Mark-up(ettachment A)	80/08/2018	
69	L01 NW terrace (Rm 111)- Delete zinc screen and steel	As per scoperdetall indicated on JAVA Mark-up(stachment A)	80/08/3018	
75	support framing to east side of terrace.	Strom "light grey" colour Environment 200 textured off the gun finish		
79	Adopt alternate to 'CL13' apray applied acoustic lining	(Rutibition space Rt 2068121 to be as specified)	80/08/3018	
90	Delete ceiling panels through the two smaller lecture	As per acoperistal indicated on Mark-unistachment Rt. 25mm Sott one/	80/08/2018	
-	Deaths.	As per scope/detail indicated on Mark-up/stachment R) 25mm light grey colour Environment (300 textured off the gun finish, Lighting and services		
		assumed to be resolved	I	
		with in current services budget. Should flush pleatentword ceiling be		
93	Adopt alternate Ceiling through the basement fover area	required, add back at Suht2 including paint.  As per acoperises indicated on Mark-up/Attachment R) 25mm "light grey".	80/09/3018	
83	Annual manage Centry Strongs are deserved byer shee	colour Environmey 300 textured off the gun finish. Lighting and services	80/08/3018	
		essumed to be resolved	į .	
		with in current services budget. Should flush plasterbeard ceiling be		
98	Provide alternative to carrier (CP-01)	required, additions at \$110m2 including paint. Godfrey Hint landscape carpet tile, with bitumen backing directly adhered.	80/09/2013	
90	Provide assertable to carper (CP+U1)	to drace selection subject to warranty and RSD requirements. UOM	80/08/3018	
		sample approve required		
97	Replace rubber fooring (RED4, RED5, RED7, RED6, RED9,	Forbo Marmoleum as scheduled elsewhere on the Project	80/08/3018	
	RE10, RE11) with Marroleum			
90a	Reduce extent of entry mat	As per scope indicated on JWA Mark-ups (Attachment R)	80/08/3018 80/08/3018	
99	Provide alternative to architectural louvres	Visual intent to be retained. All mechanical performance to be retained.	80/08/3018	
100	Target reduction in wall tiling (TL02, TL00, TL04) JWA mark	As per scope indicated on JWA Mark-ups (attachment F)	80/08/2018	
	40	No change to ties specified, waits painted where ties omitted, substrate		
	_	coordinated eccordingly.		
101	Replace atrium roof shading device (ARS230)	The proposed attemative stills roof glazing shall be designed to meet the	Programme for	
	with fritted glass. Simplify roof to single fall panellised, with	following performance requirements:	redocumentation to be	
	no internal gutters, with compliant maintenance system.	<ol> <li>Annual everage direct surlight gians penetration to the level 1 stria floor sastile floor areas shall be not more than provided by the tendered</li> </ol>	developed between BMPX	
			and JMA, target completion	
	Design intent retained - LVL beams, coffers under	external shading design.  2. The overall attemptive building facade and roof design shall meet	date 80/8/3018	
	unchanged, glass panel size and shape to be retained.	RCANCC Part JV3 performance modeling requirements	į .	
		<ol> <li>A Daylight factor level of 2% or greater shall be achieved for at least.</li> </ol>	I	
		80% of the level 1 attle foor usable foor area 4. Designed to not adversely affect the mechanical system	į .	
103	Provide atternative MDF substrate to wall linings WLD1		80/09/2018	
103	Provide abernative MUF substitute to wall linings WLD1	blisterial to meet all Greenster and regulatory requirements. Tas Aan as specified	80/08/3018	
104a	WL01.CL15.CL16 - Finish with alternate clear lacquer	subject to sample approval	80/08/2013	
1056	Delete WL-06 to areas as marked on levels 1-4 on JWA	As per acope/debil indicated on JANA Mark-up(ettachment G)	80/08/2013	
	markup including north comidors and academic comidors			
	and workspaces. Substrate to wall retained, with point finish	II .		
	to walk	11	1	1

General Notes:

-All provisions of Fire angineering 6 BCA Parl J (J/O) to be met.
-Provisions to met Acoustic report
-All substitutions to be subject to ESD requirements,
-Services to be coordinated with VIV revisions
-All adopted VIC adopted are deemed accepted by UDM

No. 106b				
1065	item	Clarification	Documentation Date	Trade
1000	Reduce extent of WL-11, 12, 13 and 14 fabric panels by	Options adopted - Novawall fabrics WL11-13 to Kvadrat Maharam 'Reply',	30/03/2013	
	30% and substitute painted plasterboard. For retained	and WL-14 to Maharam "Kvadrat Maharam "Moon"		
	panels adopt nominated optional fabric.		I	
105d-g.j	Delete WL-19,20,21,22 and 31) to L1-4 and replace with	As per acopaidatail indicated on JWA Mark-uplattachment (ii)	30/03/2013	
	painted Plasterboard		344,444	
105h	185 '77' delete enters bench about to Unexpreded too point.	Not appropriate in wet area, maintenance issue		
1001	and allow ones 201 and emission with the and exist.	The state of the s	I	
106			30/03/2013	
1081	Delete WL-30 and replace with 3mm painted steel plate in		30/00/2013	
100	leu.		30/03/2013	
105k	WL-39 - Delete colourback glass to L01 model storage		30/00/2013	
1061	cupboard, replace with P.B. and paint			
	Delete PA-17 Lime wash to CLT exposed ceilings.	Adopted as SK-10	30/08/2013	
105m	SK-04, SK-08, SK-15 - Adopt alternative to SS skirtings, ie	Adopted as SR-10	30/03/2013	
108	Aluminium or deleted where feasible.	As per scope indicated on JWA Mark-ups (attachment E)		
108	Delete rubber/marmoleum flooring to the circulation zones	As per scope indicated on JVVA Mark-ups (scacnment L)	30/03/2013	
	around the atrium and replace with exposed concrete		I	
	Snore, Additional to Item 97			
	JOB-01, JOB-04, JOB-05, JOB-06, JOB-14, JOG-08 -		30/03/2013	
112c	Allow for targeted savings for following joinery Library tables:		I	
	- retionalisation of joinery and change in material			
112e	JOG 28 THRU JOG 31 - Allow for a targeted cost savings		30/03/2013	
1128	for the workshop work tables.			
	JO1-04 & JO1-06 - Allow for a targeted cost savings for the		30/03/2013	
112f	large N/S running joinery unit to L01 Hall (computer/storage	1		
	unit)			
112a	JO1-29 - Deletion of joinery associated with Mound studio.	See Item 61	30/03/2013	
1129				
112h	J02-22 AND J02-23 - Deletion of joinery associated with	See Item 61	30/08/2013	
112h	Mound studio relocation to Rm. 236.			
	JO2-25 - Deletion of joinery associated with Mound studio.	See Item 61	30/03/2013	
1121				
1131	104 104/0/C Delete Information of LOS strium	Not taken up at this time		
STS	Rationalise of footing sizes	Savings possible due to revised Geotechnical Report - Douglas Partners	1/02/2013	
		Report	No. of Contract	
Landscaping 1	Delete Biofits system to Landscaping	Saving includes walls, infrastructure and planting.	30/03/2013	
		Note: Irrigation system retained.		
LS2	Achieve a targeted budget saving over entire remaining		30/05/2013	
	Landacace cackace			
LSS	External Pavers to be supplied by UOM	PV-01, and PV-02	1/02/2013	
OT8	Adopt Bonds in Ileu of Bank Guarantees			
5V2a	Adopt Standard Lift car interiors	Based on Standard range from selected Contractor.	NA.	
5V21	Reduce sensor numbers (to omit research sensors)	Omit 300 No. sensors at \$x per sensor	30/03/2013	
		The Research Sensors may be reduced. The Web-Based energy	I	
		management system shall be installed as per specification to relay or	I	
1		'bloov back' onto specified BMS. This system will repeat energy use data.		
		piggy back' orto specified BMS. This system will repeat energy use data, CC2 levels, room temperatures for use by researchers. Example system		
		'bloov back' onto specified BMS. This system will repeat energy use data.		
6V22	Alternative Sold Sillings	piggy back' onto specified BMS. This system will repeat energy use data, CC2 levels, room temperatures for use by researchers. Example system by Switch Automation investigated by researchers.	NA sample process with	
5V22	Alternative light fittings	piggy back' orto specified BMD. This system will repeat energy use data, CO2 levels, more temperatures for use by researchem. Example system by Switch Automation investigated by researchem.  Performance and appearance to meet that of selected fitting, with no	NA sample process with Contactor	
		piggy back' onto specified BMS. This system will repeat energy use data, CC2 levels, room temperatures for use by researchers. Example system by Switch Automation investigated by researchers.	NA sample process with Confactor	
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Services saving	gs leinderer  delete secondary driv pumping  florides design supply air duct to 500 seat theatre to delete floor tench.  Adopt standard linear slot diffuser	sigg had only aposited MM. This system will repeat energy use data, COD levels, most impressment for any presentants. Exemple system by Switch Automation investigated by researches. Prefermance and expeasance is made of welched fitting, with no impact or, mathematics or significant noteings. Magnetic flow mathematics or significant noteings, Magnetic flow mathematics or significant noteings, but to be insulation on each cities; notinely pumps - variable speed, pump in 444-dation regulars to meat duty. Dut to be insulated, and valverpromoted and meet current performance regularises.	20/03/2013 1/02/2013 1/02/2013	
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Services saving  vii  ix  xi  b  c  d  Architectural sa	ga banderer  delete secondary dree pumping  Nevinse design supply air duct to 500 seed theatre to delete More beach.  Adopt dendered linear slot diffuser  Adopt and second bescholdsteam to mech system.  Alternata MMI contended historia to mech system.  Alternata MMI contended historia  samo.  Alternata MMI designed under the delete condensate  samo.  Alternata Air hastino Unite trensfecturer  Delete biotorios protection.	siggs had only aposition BMD. This system will repeat energy use data,  COD levels, most improvement for two presentants. Exemple system  by Switch Automation investigated by researches. Exemple system  by Switch Automation investigated by researches. Exemple system  by Switch Automation investigated by researches. Exemple system  by Switch and the system  by Switch and the system  by Switch and the system  by Switch and switch on each citize, froming jumps - variable speed,  burns in addedion regulars to meat duly  but to be invalidate, and waterproving and meet current performance.  but to be invalidate, and waterproving and  but to be invalidated and switch  but to be invalidated and switch  but to be invalidated and but the  but to be invalidated and  but the but the but the  but to be invalidated and  but the but the but the  but the but the  but the but the  but the but the  but the  but the but the  but the	20/00/2013 1/02/2013 1/02/2013 NA NA	
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Services saving  III  VII  Ix  xi  b  c  d  Architectural sa  b	go tendence delete accordant of the pumping delete accordant of the pumping delete accordant of the pumping flowing delete accordant of the pumping flowing delete accordant to the pumping de	siggs had only expected MIA. This system will repeat energy use data,  OCO levels, most impressment for two presentants. Example system  by Switch Automation investigated by researches. Exemple system  by Switch Automation investigated by researches. Performance and expected present  present and an expected present property  Magnetic five means on each cities, primary pumps - variable speed,  burns in-election required to meet dide,  burns in-election required to meet dide,  but to be invasion, and waterpromoted and meet current performance  requirements.  All certification, cellips temperature, couppert comfort levels, and  for meet interpretation.  For certification, cellips temperature, couppert comfort levels, and  for meet requirements of Automatic report.  Fully conforming to Automatic Report.  Fully conforming to Automatic Report.  The proposed alternative non-hormatic branch fecules glacing and be  satisfand to meet the following participation  for the proposed alternative non-hormatic branch fecule glacing and be  satisfand to meet the following participation  sequences are sent to see the  SCANOC Pert Ard performance advantages.	Contaction   \$0,000,7013  1,00,7013  1,00,7013  1,00,7013  NA  NA  NA  NA  NA  NA	
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Services saving  III  VII  Ix  xi  b  c  d  Architectural sa  b	gs bendance dislets excondany drive pumping flowine design supply air duct to 500 seal threaths to delete flowine design supply air duct to 500 seal threaths to delete flowine the seal of the seal o	siggs had only aposition BMD. This system will repeat energy use data,  COD levels, more improvement for two presentants. Except systems  by Switch Automation investigated by researches. Except systems  by Switch Automation investigated by researches. Except systems  by Switch Automation investigated by researches. Except systems  by Switch and the systems of the systems  by Switch and the systems of the systems  by Switch size investigated and residency  but to be mutation on each cities; priving yourse - variable speed,  burle in advantant on each cities; priving yourse - variable speed,  burle in advantant on each cities; priving yourse - variable speed,  burle to be mutation on each cities; priving yourse - variable speed,  burle to be mutation on each cities; priving yourse - variable speed,  burle to be mutation on each cities of priving yourse - variable speed,  burle to be mutation on each cities of priving yourse - variable speed,  burle to be earliered on the system of proving yourse - variable speed,  burle to be earliered on the system of proving your  the proposed alternative non-themselves the systems of priving  the proposed alternative non-themselves the systems of priving  the proposed alternative non-themselves the systems of the section  that proving is Automatically stocked or and to specifical research  building fectors and medical CAMANC Pet JAY proving proving and be  subjectly to the systems of the systems of the section  building fectors and medical CAMANC Pet JAY of the systems of the section  building fectors and the systems of the systems of the section  building fectors and the systems of the systems of the systems  building fectors and the systems of the systems of the systems  building fectors and the systems of the systems of the systems  building fectors and the systems of the systems  building fectors and the systems of the systems  building fectors and the systems  building fe	Contaction  30/03/2013  1/02/2013  1/02/2013  1/02/2013  NA  NA  NA  NA  NA  NA  NA  NA  NA  N	
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## **VM Items**

### **BROOKFIELD MULTIPLEX LIST OF ADOPTED VE**

### General Notes:

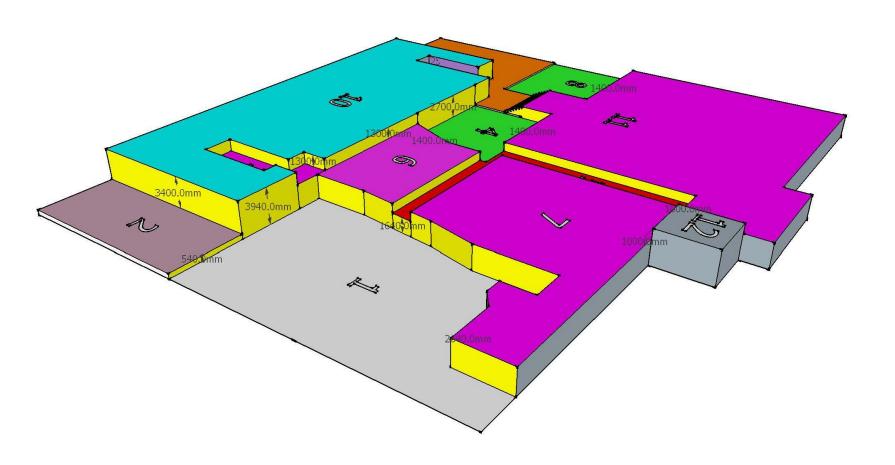
- -All provisions of Fire engineering & BCA Part J (JV3) to be met.
- -Provisions to meet Acoustic report
- -All substitutions to be subject to ESD requirements,.
- -Services to be coordinated with all VE revisions
- -All adopted VE adopted are deemed accepted by UOM

### JWA VM List

No.	Item	Clarification	Documentation Date	Trade
Architectural				
1	Replace CLT to slab soffits to levels 2 and 3 with conventional off form concrete (Class 2 finish)	Also includes the deletion of the PA-17 Lime wash finish. The Alternative Structural Design is as per Option on Structural drawings	Redocumentation required by no later than the 1/2/2013. Decision needs to be made by the 30/3/13, if the CLT is to returned to	
8	Replace 1.5mm thick VM zinc with same thickness Rheinzink alternative without change to steel framing or support. Maintain Design Intent.	BMC will tender both materials, and adopt specified material if required saving can be achieved through that process.	No further documentation required	
11	Delete MET-1 perforated zinc to the plant room enclosure and replace with Alucobond.	As per scope on Addendum 5 Documents	No further documetation required	
11a	Substitute - Alucobond plant enclosure to Spandek	Further saving to substitute Alucobond in Item 11 to Spandeck. Acoustic performance to be maintained.	30/03/2013	

## **Alternate Basement Design**

Rationalised the original basement design by reducing the number of different levels across the floor plate.



### **Precast Cores and Columns**

Introduction of precast cores and columns adopted throughout the building in lieu of insitu concrete elements.





## **Early Commencement of Project**

Brookfield Multiplex was provided early access to site, to get a jump on the program

Required a sharing arrangement with the Early Works contractor

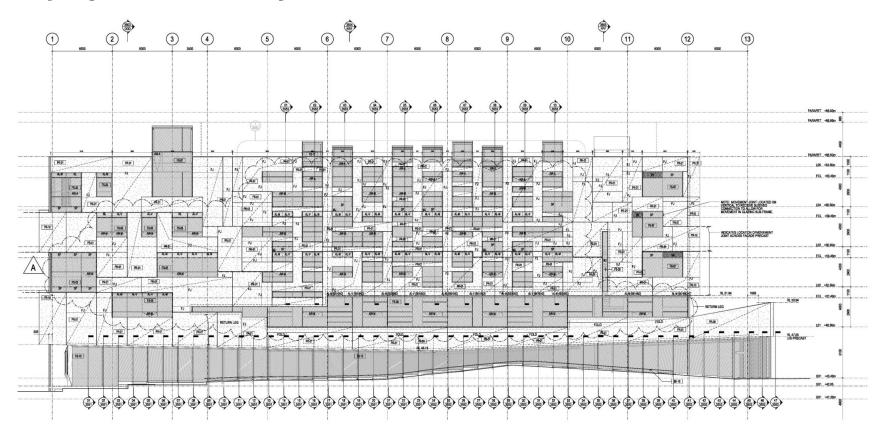




# Open Design Meetings

Design meetings were held with all stakeholders involved in the project.

This included the client, consultants and PM for the project on a weekly basis.

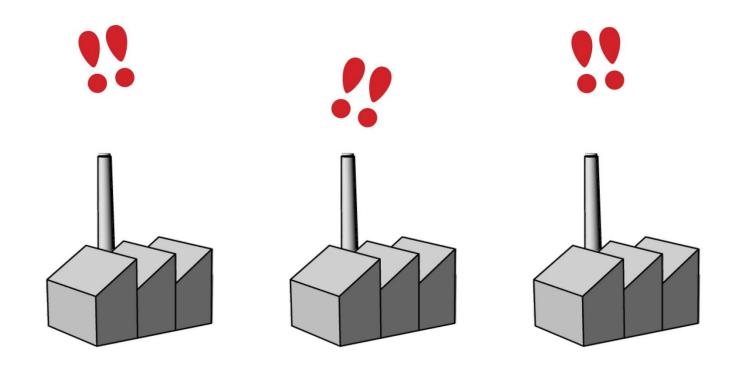




# **Spandrel Precast**

Change of spandrel precast details in order to delete perimeter PFC.



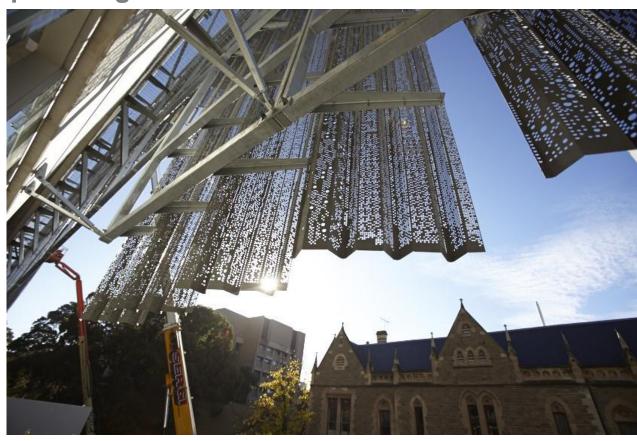


### **PRODUCTION**

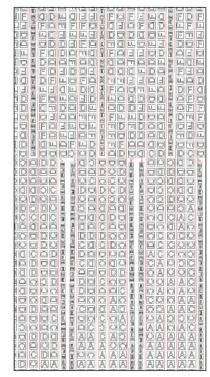
**DOUBLE SHIFTS for 36 WEEKS** 

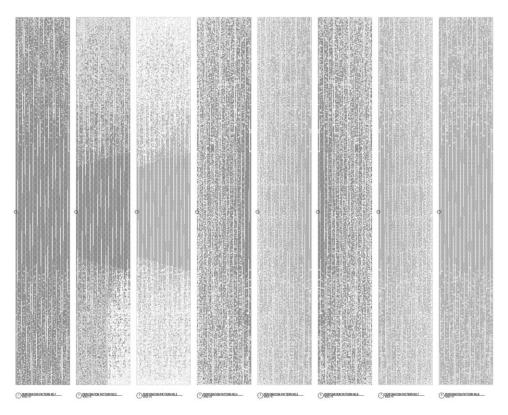
### **Zinc Screens**

The design of the zinc screen pattern was simplified using a preselected layout in order to increase efficiency of punching.

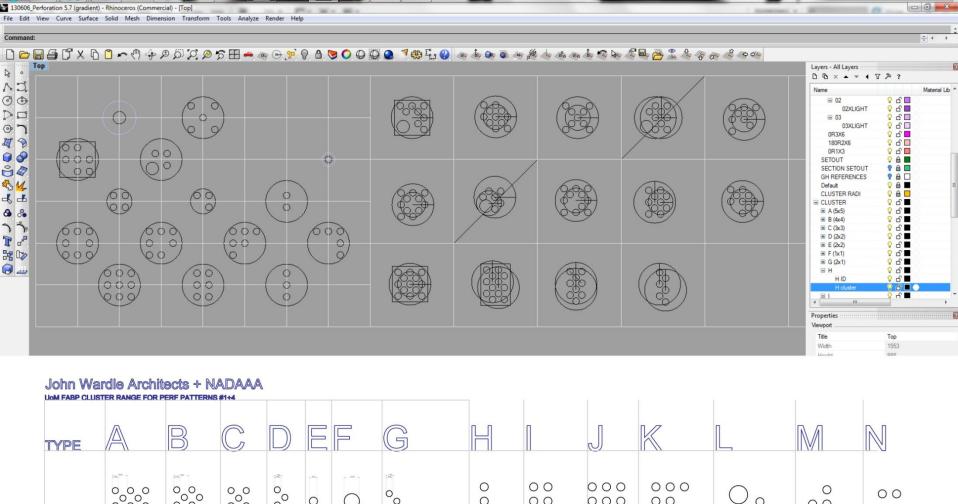


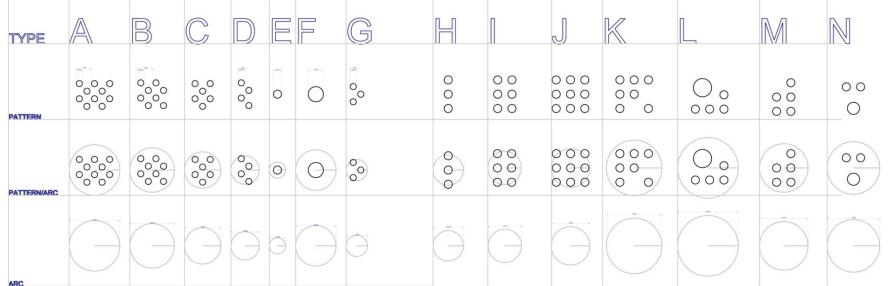






8 Perforation Patterns89 Panel types817 Screens





## **Roof Design**

The redesign of the roof allowed for the glazed modules to be prefabricated off site.

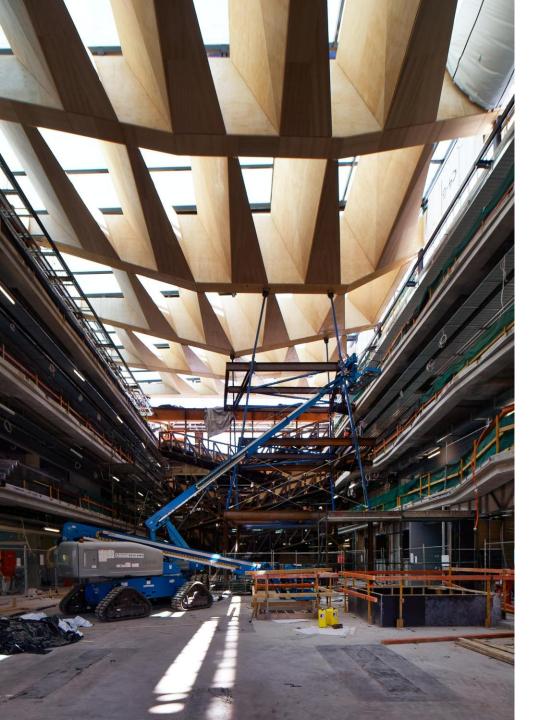








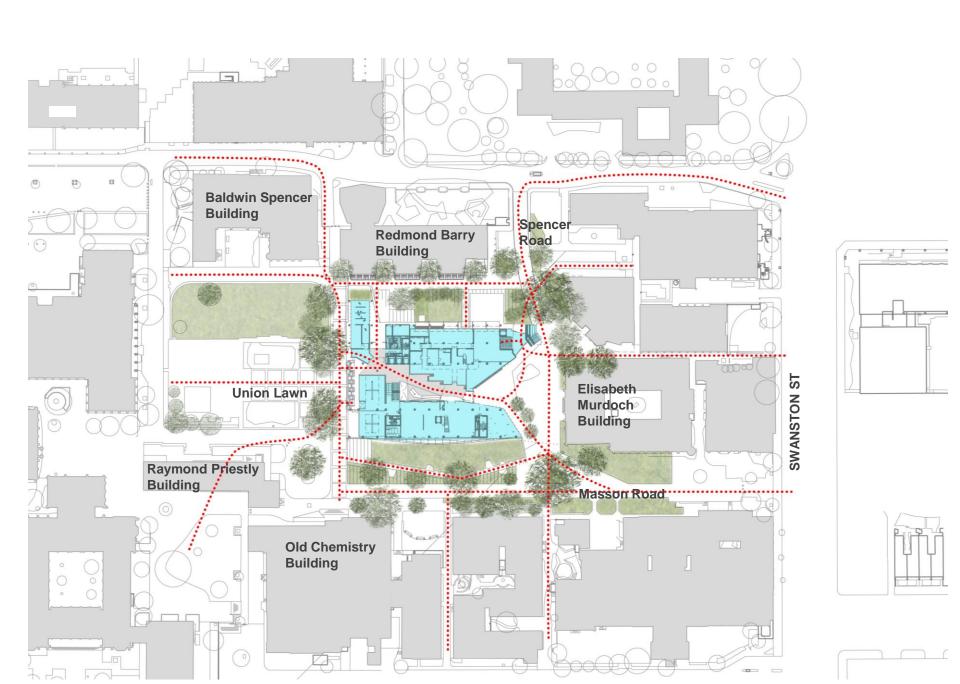


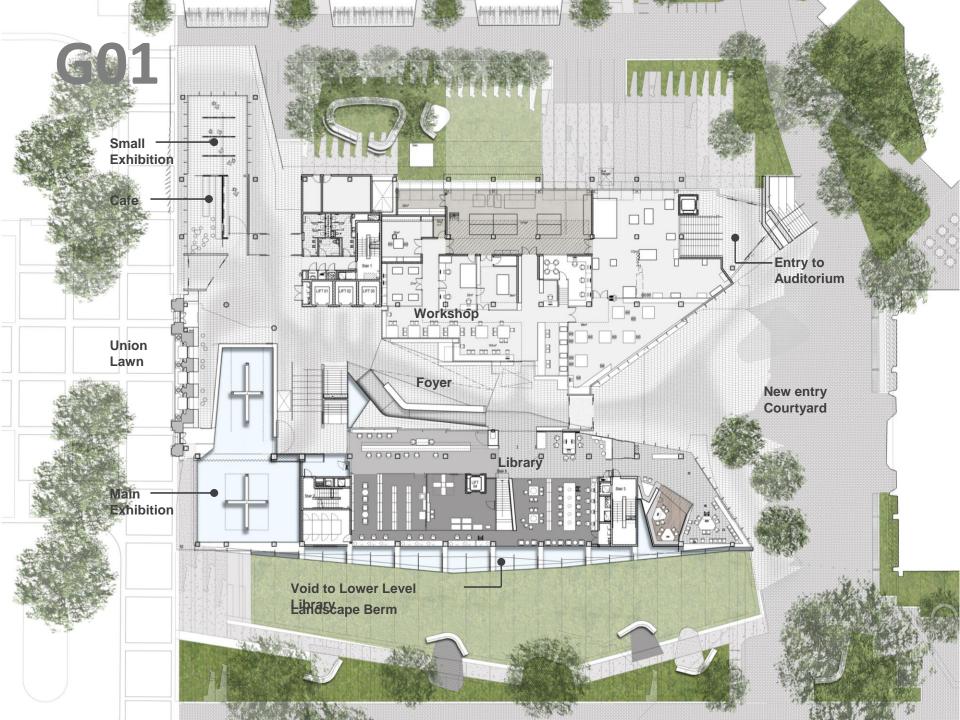


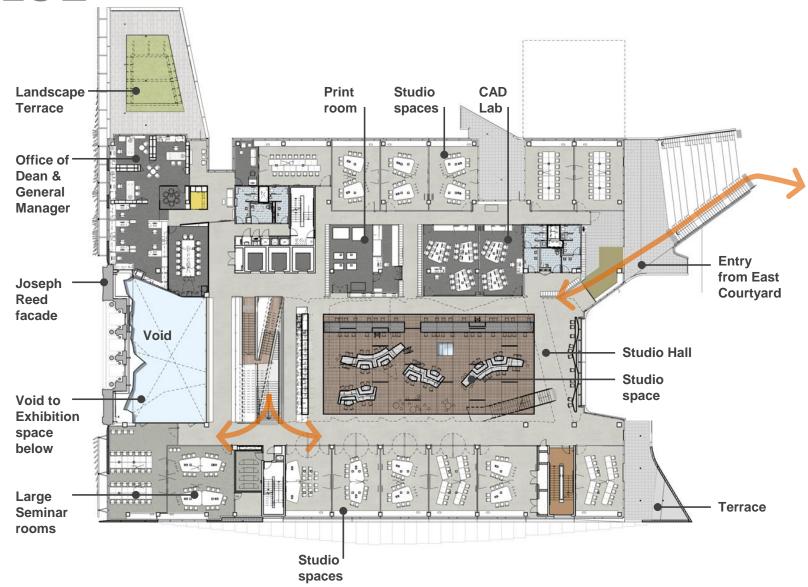


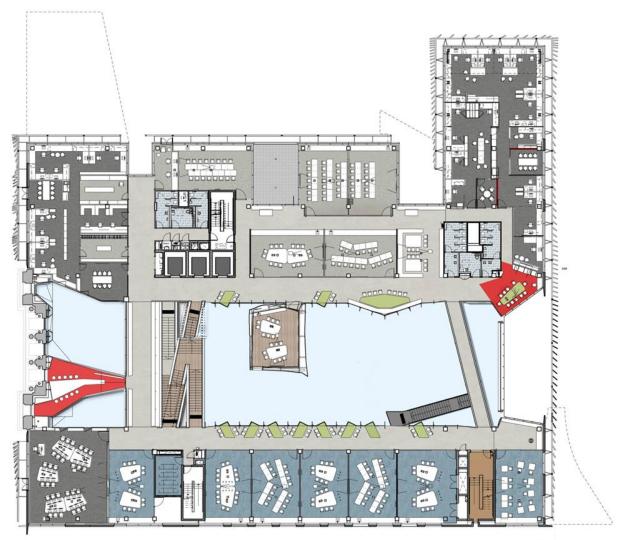
### **B01**

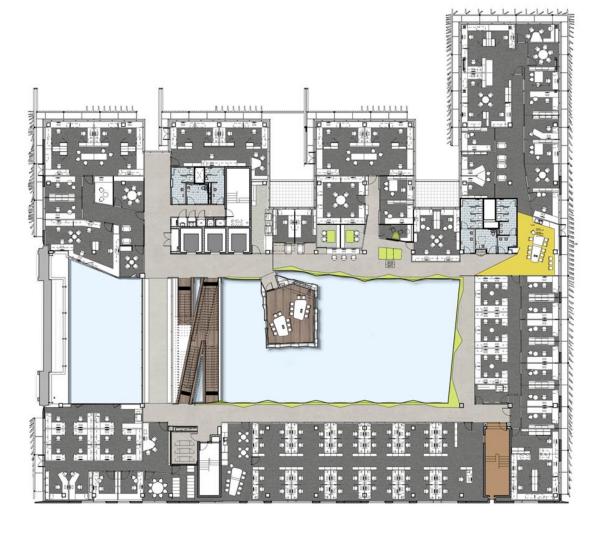


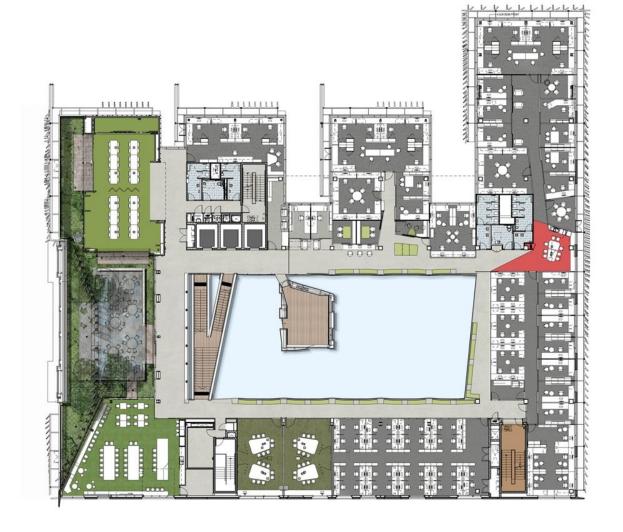












## Benchmarking

### **UNIVERSITY BENCHMARKING**

Project		Construction Cost \$ / m2
Project A	UoM, Faculty of Business and Economics	4,815
Project B	UoM, Neurosciences, Parkville	5,424
Project C	RMIT Design Hub Melbourne	5,713
Project D	UoSA, Hawke Building (Wardle + Hassell)	5,628
Project E	UoSA, City West Library	5,551
Project F	UoM, Faculty of Architecture	5,414
Project G	UoA, Faculty of Engineering	6,973
Project H	UoM, Peter Doherty Institute	7,097
Project I	QUT Science and Technology	4,093
Project J	QUT Creative Industries Precinct 2	5,980
Project K	UQ Global Change Institute	7,743
Project L	UQ Advanced Engineering Building	5,617
Project M	UQ Oral Health	6,837
Project N	UQ Brain Institute	5,128
Project O	UQ Centre for Advanced Imaging	6,569
Project P	UQ LIB	5,081
Project Q	University of Adelaide "The Braggs"	7,396
Project R	UoM, Arts West	6,220
Project S	La Trobe Institute of Molecular Science (LIMS)	6,316
Project T	University of Sydney, School of Business	4,550
Project U	UTS School of Business	7,556

