

Evidence Based Design for ECIB

Using evidence to innovate and elevate WDHB facilities and improve patient experience and outcomes

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Aim

- Explain the concept of evidence based design
- Update on the Elective Capacity Inpatient Bed (ECIB) project
- Identify areas of the ECIB project – particularly the ward which needs investment in evidence based decision making with the aim of improving outcomes
- Gain support from W2025 design group for a evidence based approach to the ECIB project

How can design influence health, patient outcomes and experience?

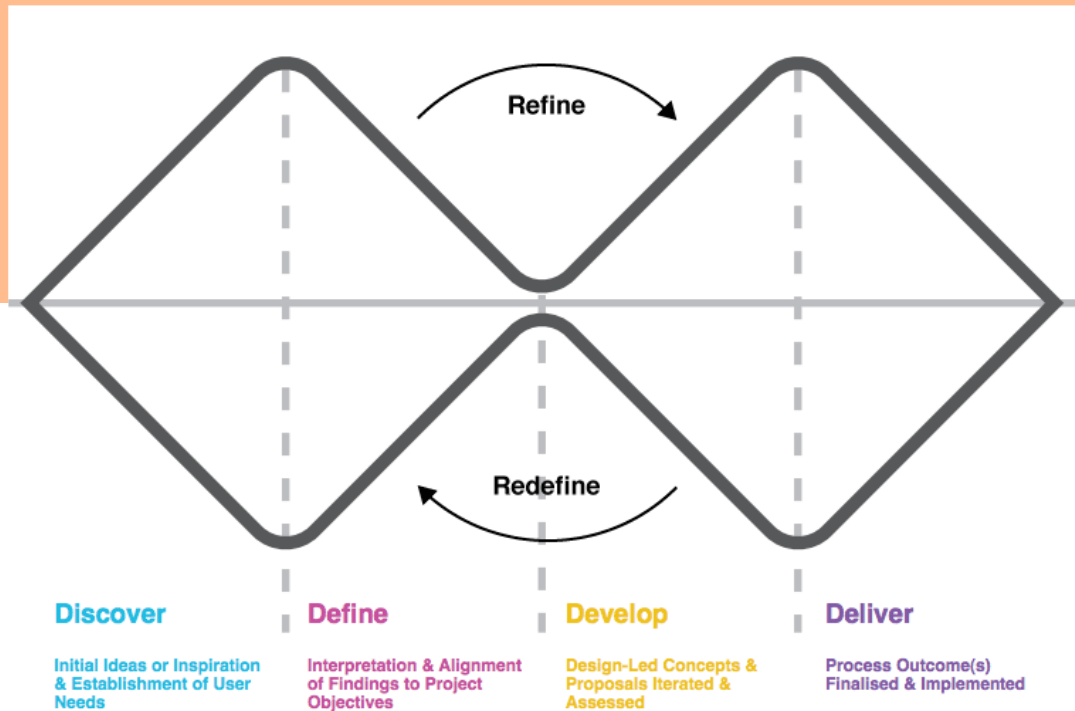
Who decides?

Philippines Rural Hospital, CAZA architects



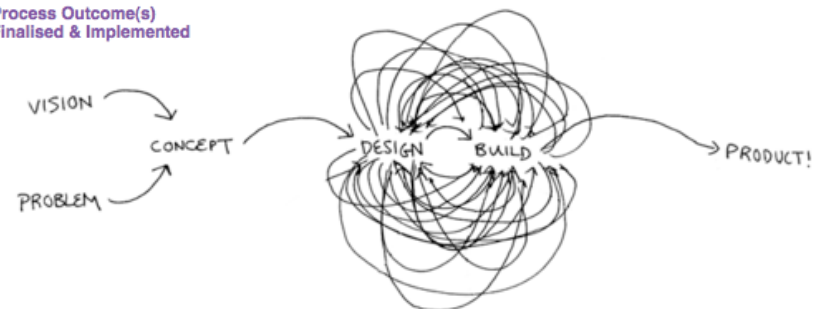
How can design influence health, patient outcomes and experience?

Who decides?



Publicly funded health facilities don't have the flexibility (or resources) to iteratively refine and redefine in a timely manner.

We need to be smart about how we design for the short term, but also long term



Evidence Based Design

- Concept derived from Evidence Based Medicine
- Process in which a designer, together with an informed client, makes decisions based on best information available from research and project evaluations



Evidence Based Design

1. Evaluate evidence from scientific literature and the link between physical environment and health outcomes



2. Create a theory based on evidence

3. Implement a design + Measure the results



4. Publicly share results

Evidence Based Medicine

1. Evaluate evidence from scientific literature



2. Create a theory based on evidence



3. Implement a treatment + Measure the results

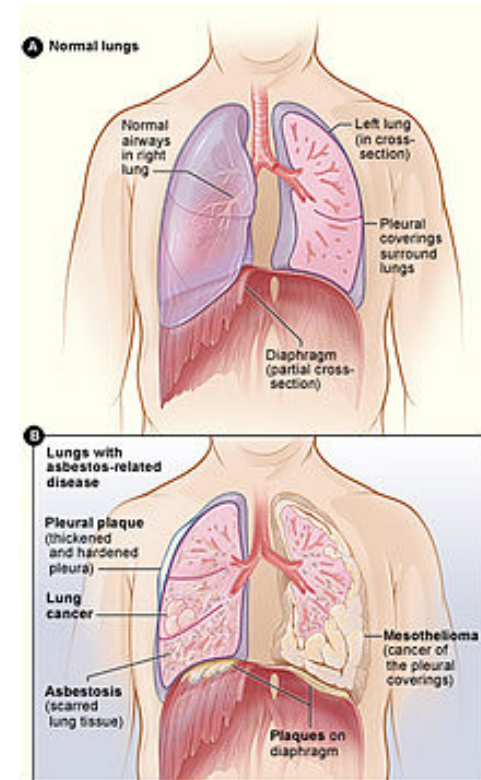


4. Publicly share results

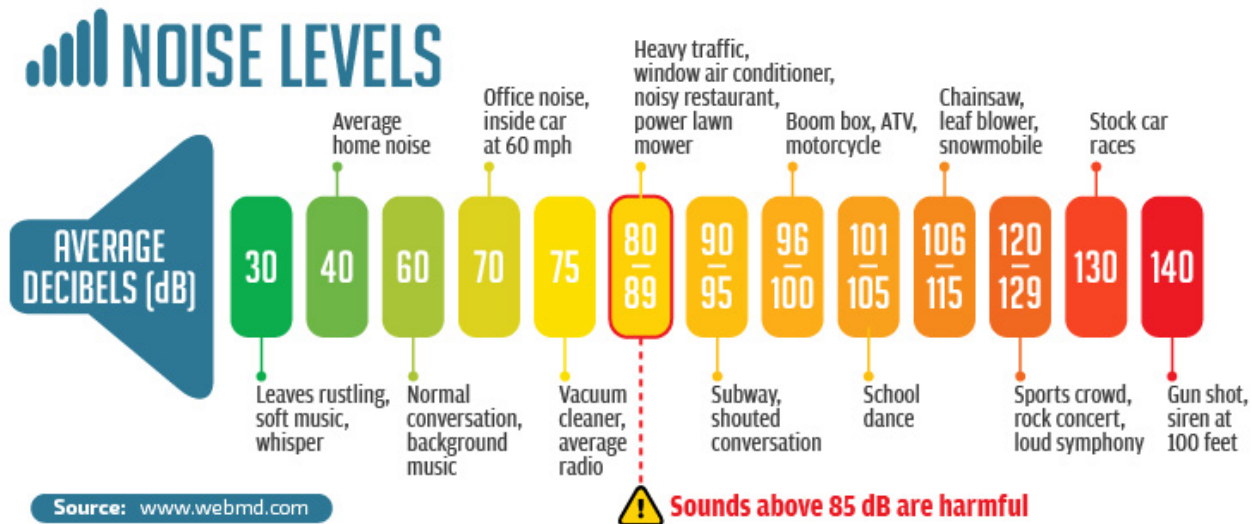


Why use EBD in design?

Links between Environment + Health



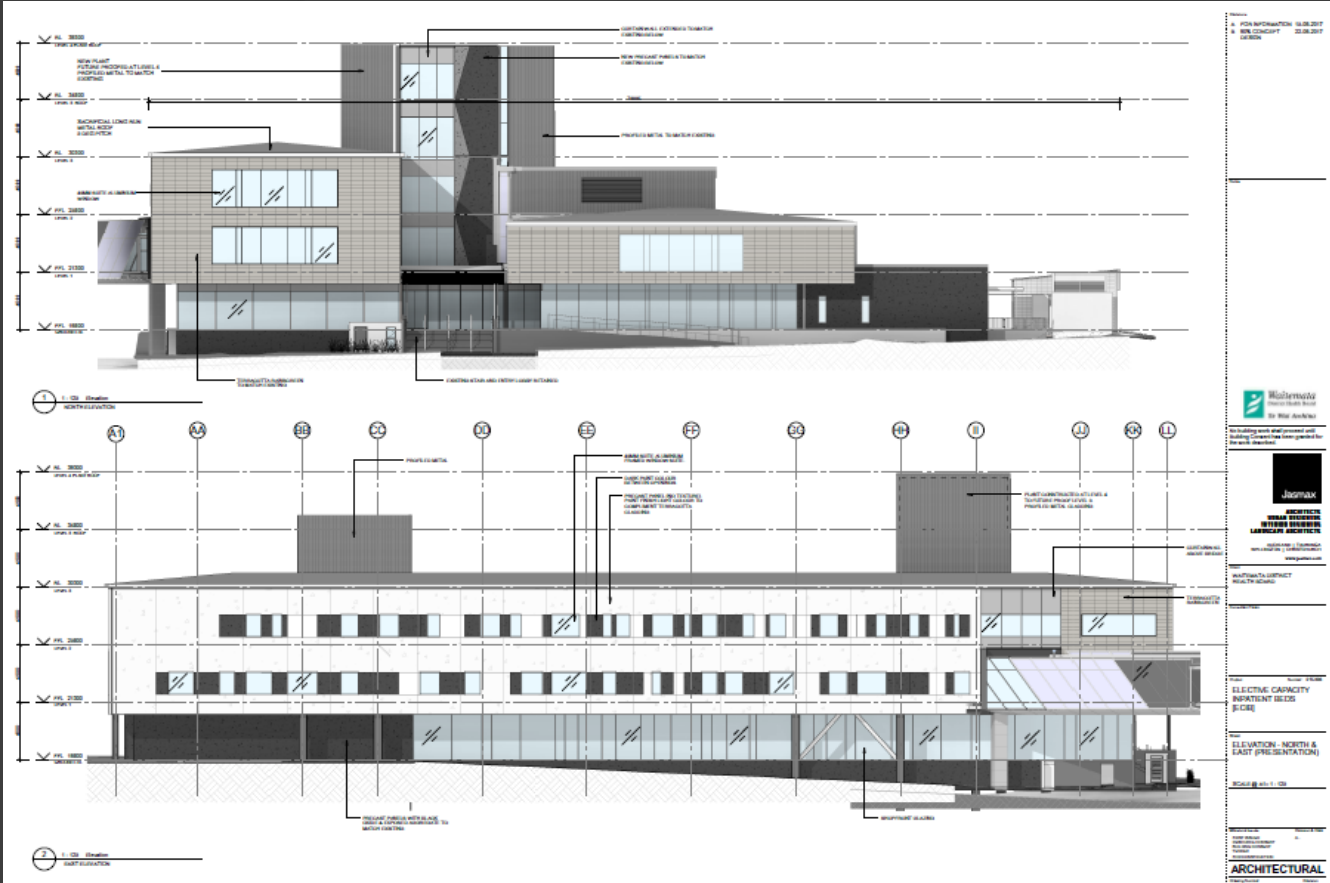
Links between Environment + Health



Links between Environment + Health



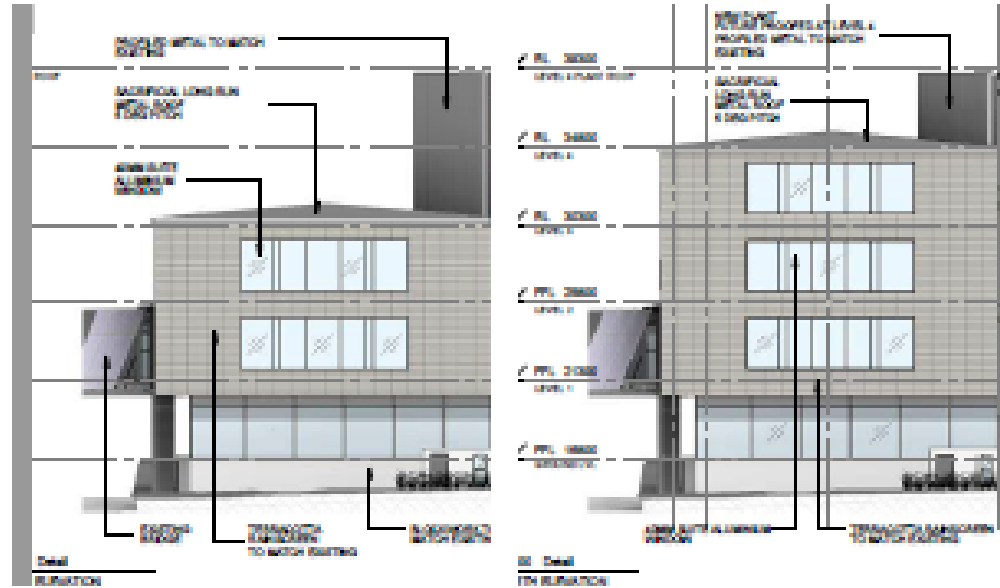
ECIB Elective Capacity Inpatient Beds



Background

- Extension of ESC building eastward on grass area
- Number of levels has changed since last consultation with W2025 group
- Business case submitted to CIC (Capital Investment Committee) in August 2017
- Positive direction towards sustainability

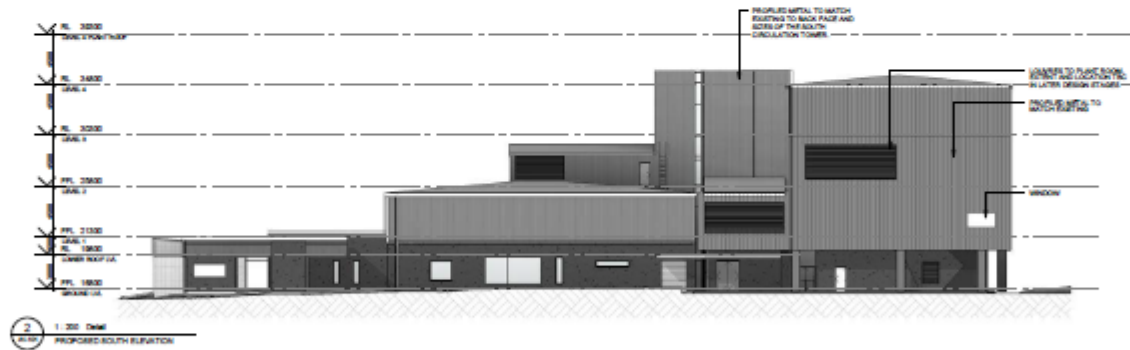
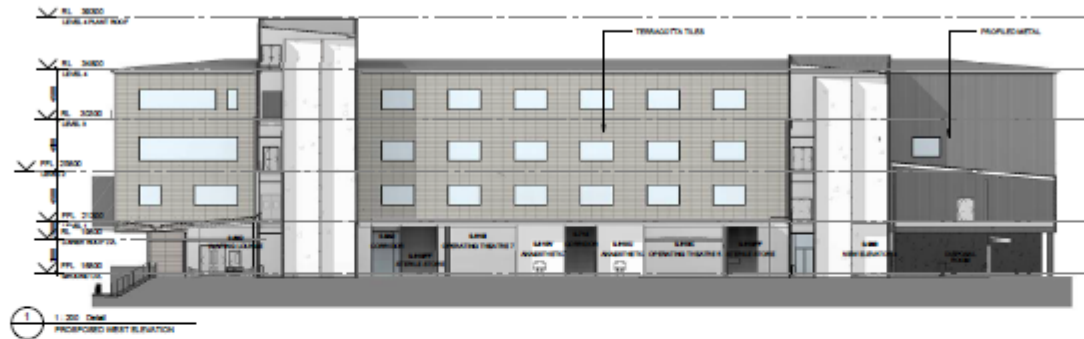
envelope design and energy modelling analysis conducted to help the design team reduce operational energy consumption. This work was fully subsidised by EECA (Energy Efficiency and Conservation Authority)



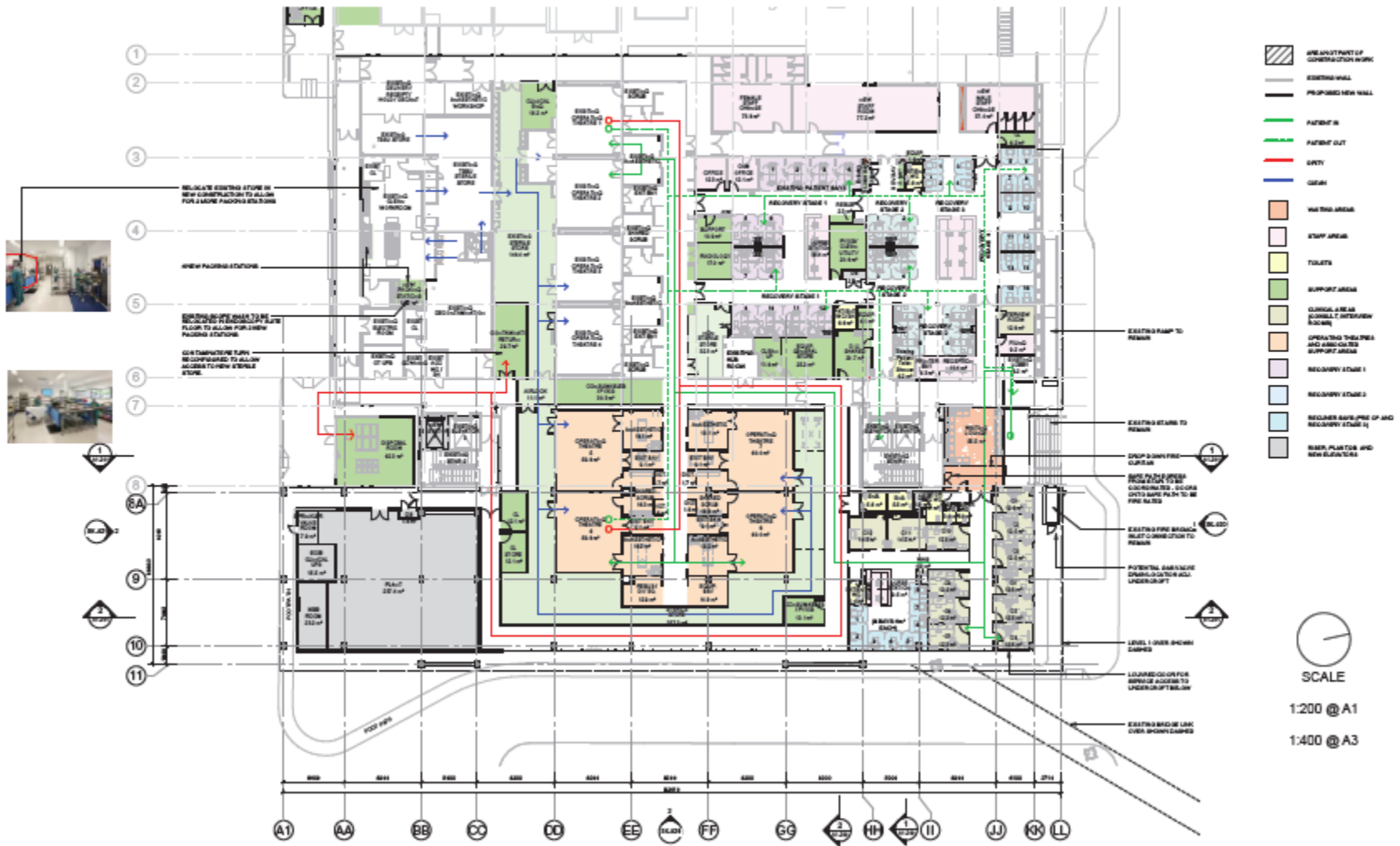


2.12 EXTERNAL PERSEPTIVE - COMPLETE (4 LEVELS)

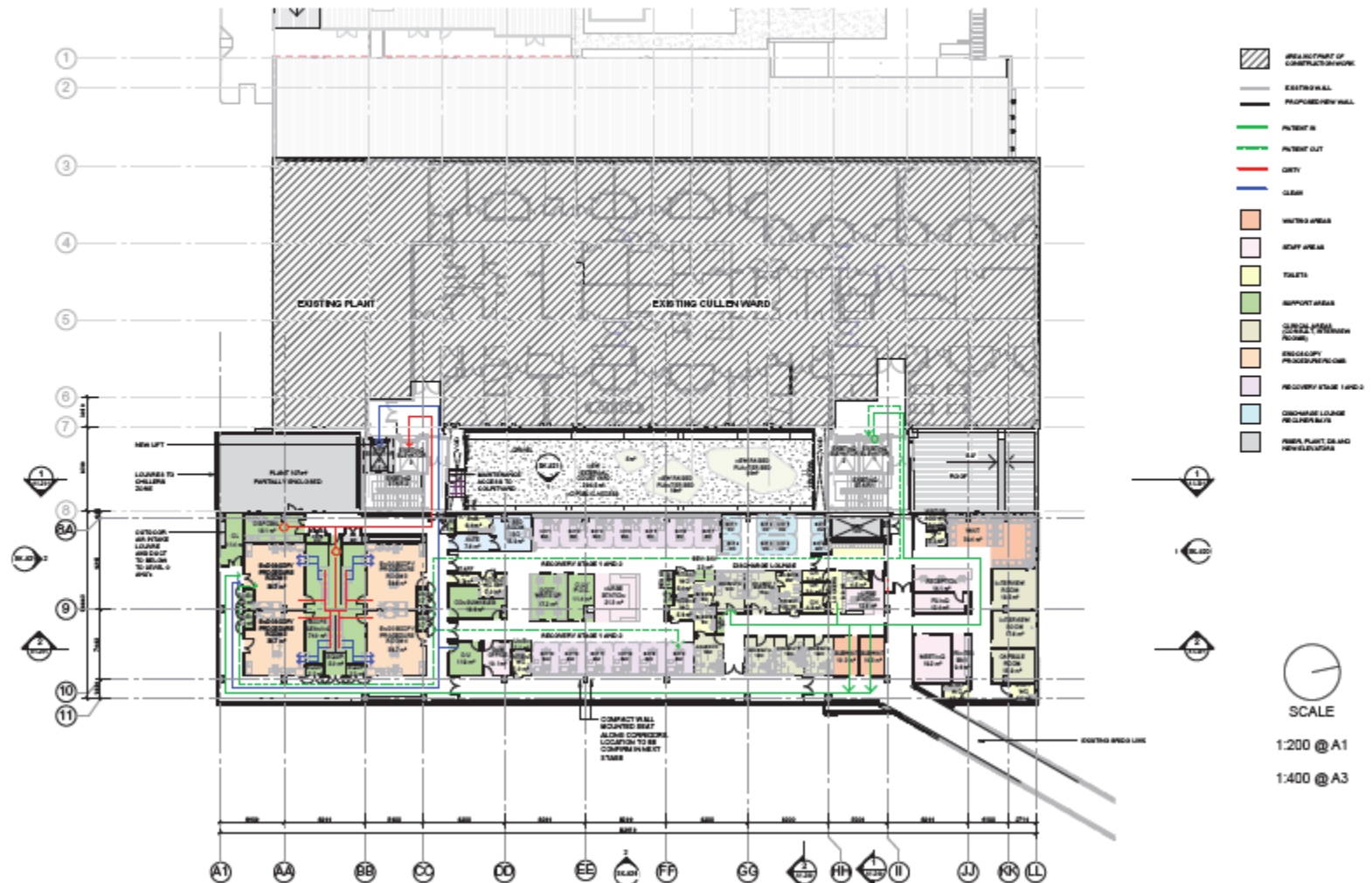




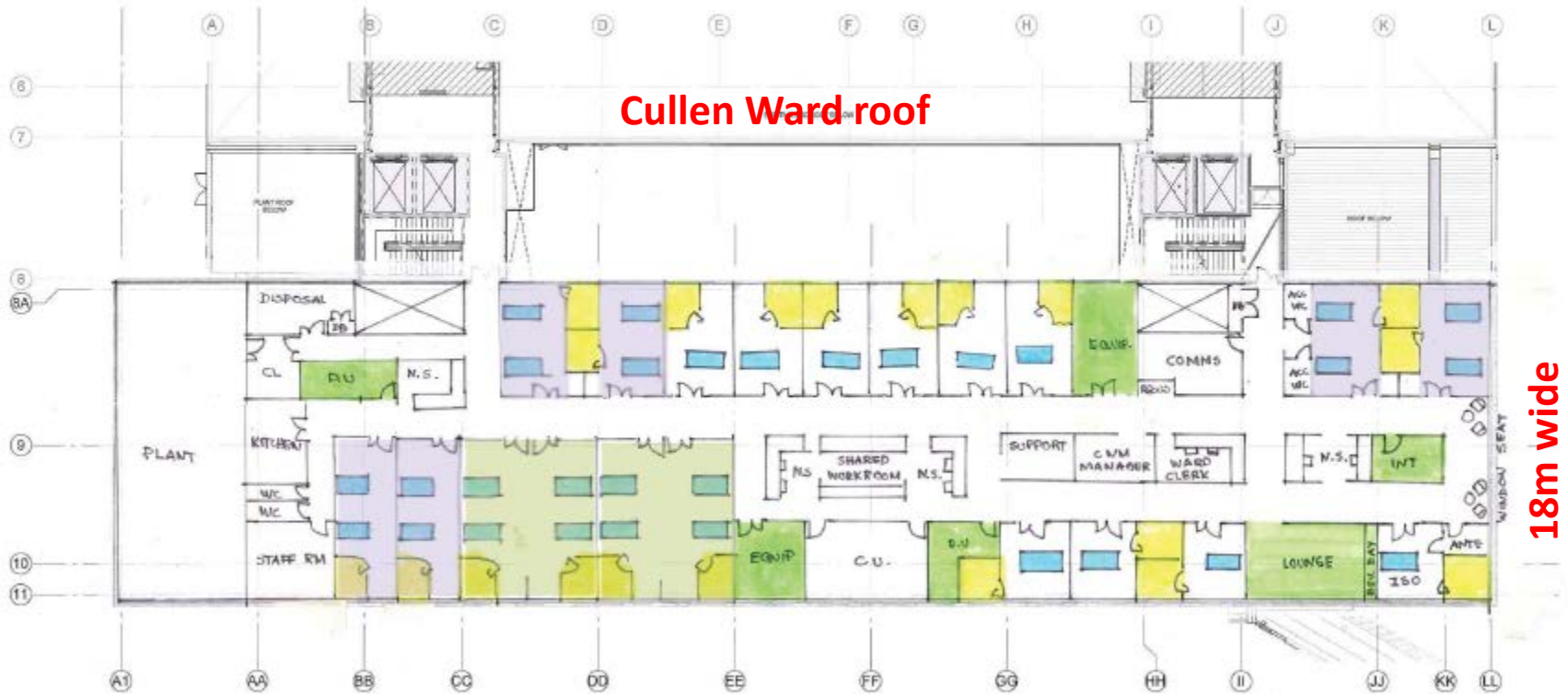
2.1 FLOOR PLAN - PROPOSED GROUND FLOOR



2.2 FLOOR PLAN - PROPOSED LEVEL 1



2.4 FLOOR PLAN - PROPOSED LEVEL 2: OPTION B



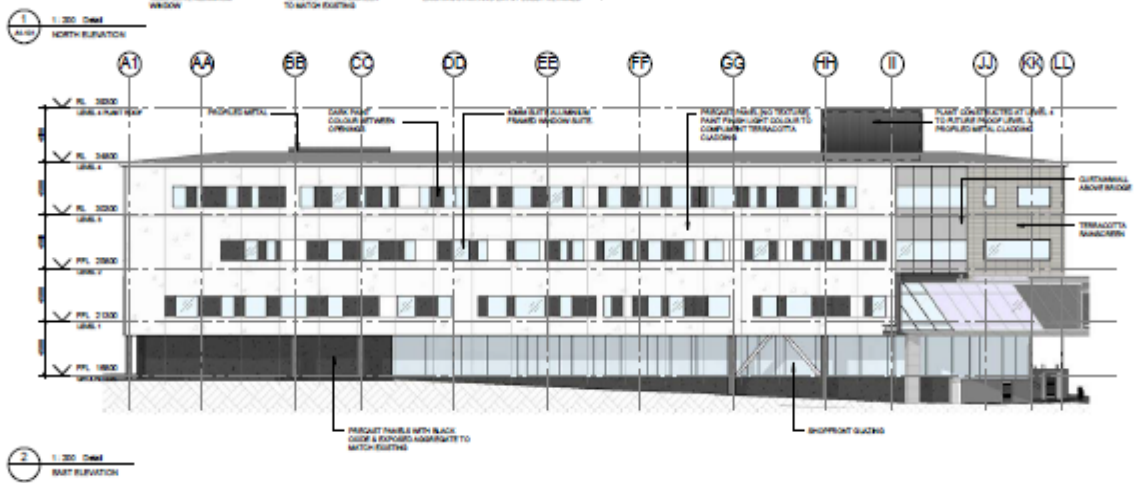
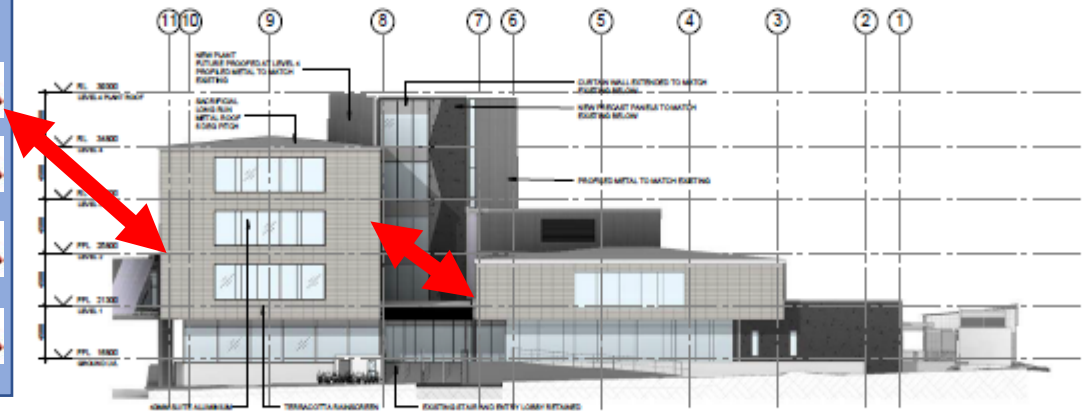
Cullen Ward roof

18m wide

82m long

2.12 EXTERNAL PERSEPTIVE - COMPLETE (4 LEVELS)





Core Design Principles

Ideal Ward

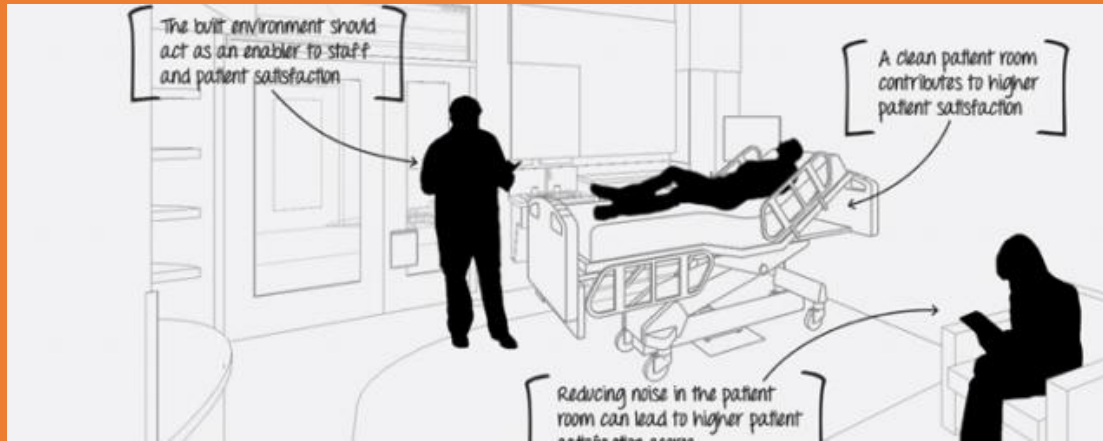
The **purpose** of our organisation

- Prevent, ameliorate and cure ill health
- Promote wellness
- Relieve suffering of those entrusted to our care

Our **priorities** are to enhance patient experience and achieve better outcomes



Areas for Evidence Based Design



1. Noise + Sleep
2. Nature + View
3. Line of site + Distance walked
4. Flexi Rooms
5. Mechanical Plant
6. Welcoming Environment

1. Noise + Sleep

EVIDENCE

Poor sleep within top 5 of all hospital complaints

Noise among the causes for poor sleep -*staff, equipment, multi-bedded rooms, other patients and visitors, alarms*

Sleep important for recovery, CVS, healing, mental health and wellbeing

UoA study Ward 7 NSH

i3



WDHB priority to improve inpatient sleep and enhance patient experience – Sleep Program

1. Noise + Sleep

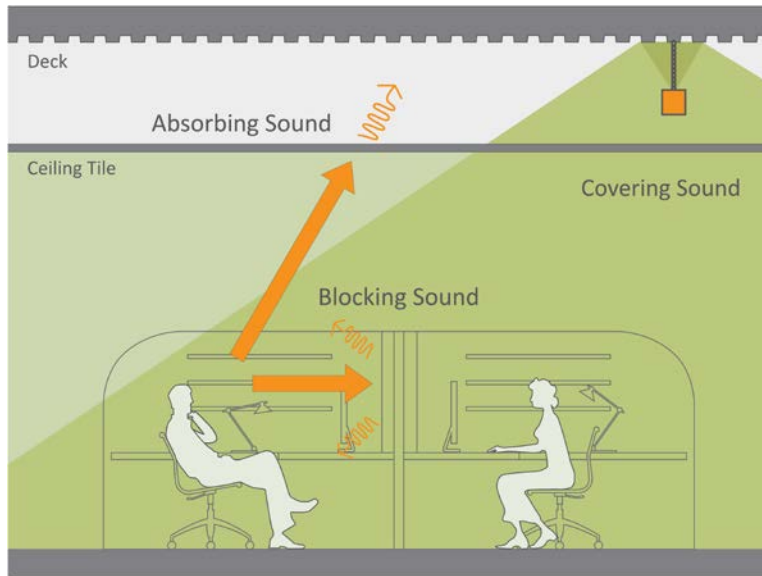
HYPOTHESIS we can reduce hospital noise with design?

METHODS



1. Noise + Sleep

METHOD



Teaming up: Academic institutions
R&D Companies
Acoustic Engineers

MEASURE dB readings
patient experience
patient reported sleep



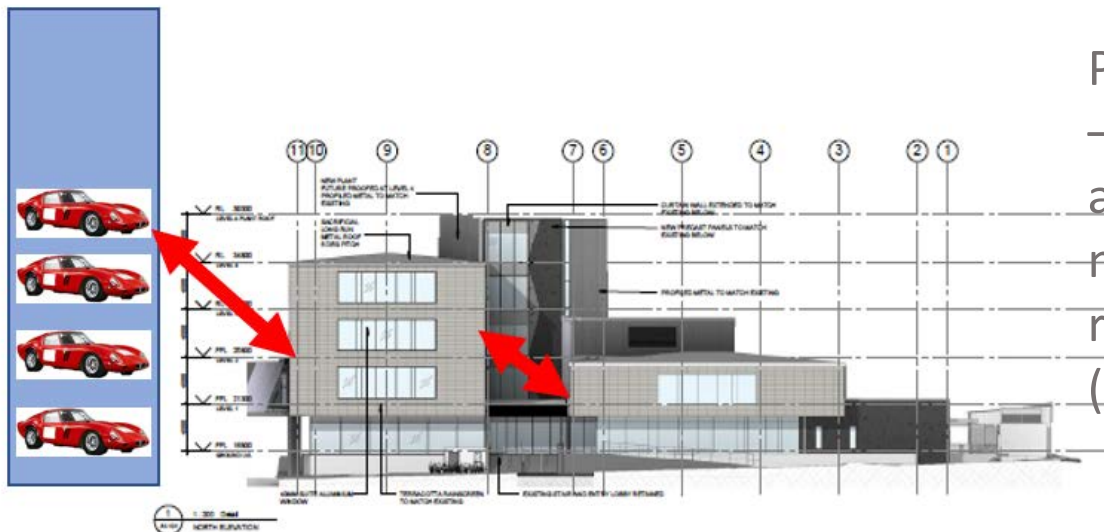
2. Nature + View

View from ECIB wards is towards carpark and Cullen Ward

EVIDENCE

Post op cholecystectomy recovery – shorter length of stay, lower analgesic requirement, less negative comments for patients in room with a view vs. a brick wall (1984 Ulrich)

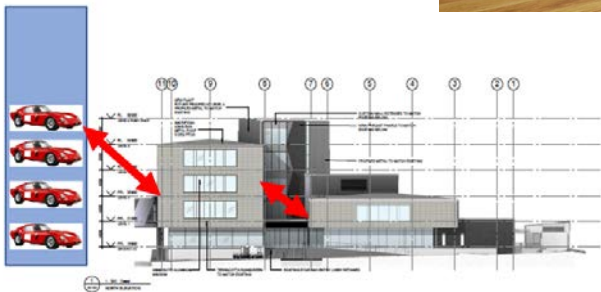
Proximity to green space reduces anxiety, improved perceived health status



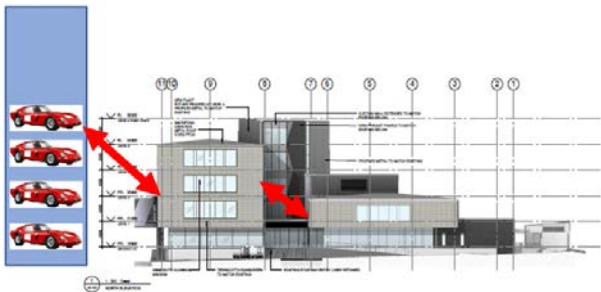
2. Nature + View

HYPOTHESIS can we improve patient experience and patient outcomes with a view of nature and privacy?

METHODS



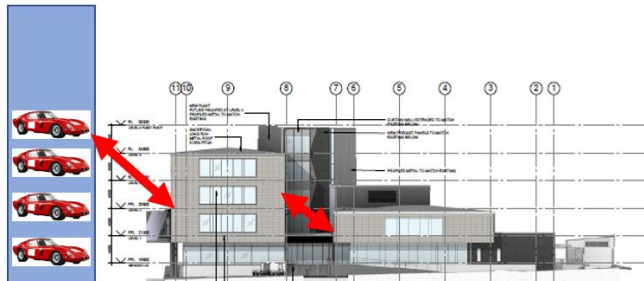
2. Nature + View



2. Nature + View



2. Nature + View



2. Nature + View



- Natural lighting in central atrium + smart lighting
- Solar power
- Heat recovery AC
- Waste reduction
- Built in energy optimising building management system



2. Nature + View



MEASURE

Patient experience

Physiological measurements – UoC study

Comparison study pre and post implementation

PROMs

Post Occupancy Evaluation

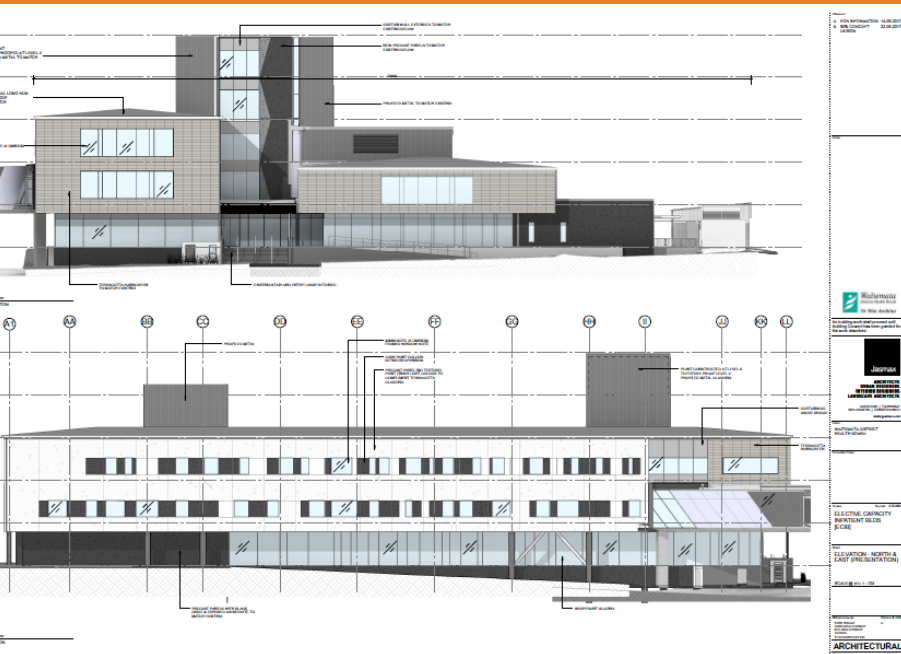
Green Star



3. Line of Site + Distance Walked

Long, narrow corridor

Patients rooms spread along footprint



EVIDENCE

? Distance trackers

Operational research –
floorplanning, master
planning



3. Line of Site + Distance Walked

HYPOTHESIS Will glass improve line of site and visibility in a long ward footprint?

How can technology improve visibility?



3. Line of Site + Distance Walked



MEASURE



staff walking distances
investigate relationship falls vs distance
comparison study between Cullen ward
+ ECIB

4. Flexi Rooms

EVIDENCE

?? – hasn't been done in NZ

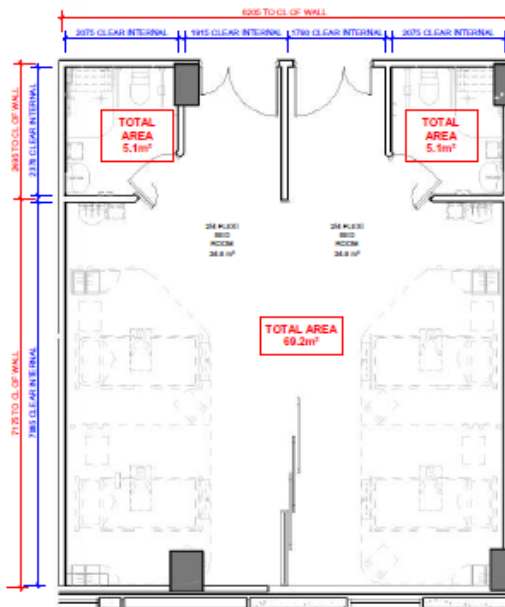
HYPOTHESIS

Do flexible rooms improve patient outcomes for THJR, TKJR

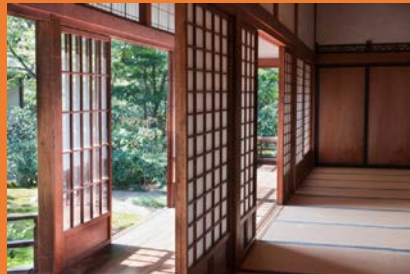
How do flexi rooms affect sleep?

Cost analysis flexi vs non flexi?

Mock ups?



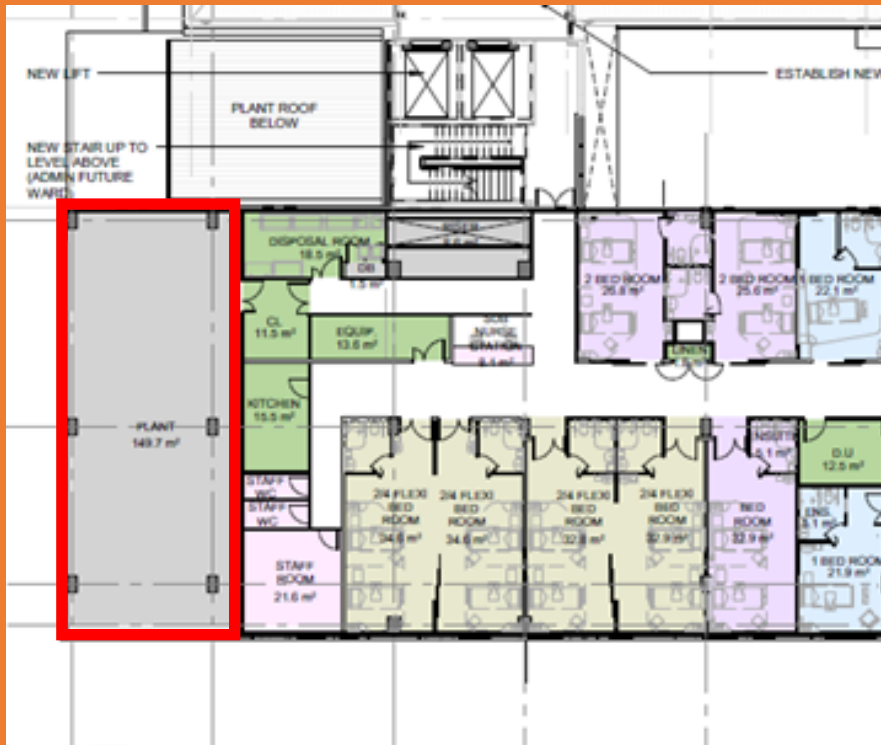
2 1:50 Detail
PROPOSED ECIS 4 BED ROOM



5. Mechanical Plant

?Where will this be placed?

Previously decided to place partially on the ward – taking up clinical space, reducing single bed numbers



6. Welcoming Environment

Wayfinding – reducing patients and whanau getting lost

Promoting independence and post operative recovery – ending PJ paralysis

Inviting space, providing privacy



6. Welcoming Environment

EVIDENCE

people getting lost – CB5 building
qualitative data



6. Welcoming Environment



6. Welcoming Environment



EVIDENCE

home environments improves patient experience + social engagement eg. dementia residences, EDARS

6. Welcoming Environment



6. Welcoming Environment

MEASURE utilisation of public spaces
patient experience
LOS
staff satisfaction
Friends + Family test



EBD: Short term outcomes

- Ensure that patient safety, experience and positive health outcomes remain at the forefront of this project
 - Real world demonstration of Core Design Principles, Ideal Ward at WDHB facilities development, providing an exemplar ward for innovative hospital design
- An innovative structured research based ward design approach



EBD: Long term outcomes

- Allowing for flexibility when refurbishment is required for changing demographics and models of care
- Evidence based design providing recommendations and information to guide future design at Waitemata DHB



Waitemata 2025 Design Group

Endorse

- i3, Leapfrog, Facilities and Patient Experience groups to be involved in an EBD approach to the ECIB project
- use of external parties in this field academic institutions, researchers, New Zealand Health Design Council, Jasmax in investigations
- work with Well Foundation and other external supporters for funding on extra costs in trialling, evaluating and implementing options
- trials and testing of various solutions as appropriate, running pilots/simulations/evaluations of products and solutions
- share information with other DHB's and contribute to EBD



institute for
innovation +
improvement