



RIPL Project One

Post-occupancy built and technology design evaluation

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Project Background

In 2010 the Transport Accident Commission (TAC) established Residential Independence Pty Ltd (RIPL), a property trust dedicated to the development of small-scale home-like living environments. These new environments are intended to offer a model of shared support, bringing together the design of the environment and the use of assistive technology to meet the needs of residents with near 24-hour care requirements (TAC, 2011).

RIPL Project One opened in August 2013. The project consists of four apartments and a small office for disability support workers within a larger medium density residential development in an inner suburb of Melbourne. A model of 24-hour shared support, coupled with a comprehensive home automation and resident-staff communication system has been provided onsite.

Notably, RIPL Project One was a particular case in terms of the planned RIPL portfolio. The TAC entered the project after construction of this mixed development had commenced. As a result, substantial changes were required to the design of the four ground floor apartments, and some of the associated common areas. While this presented some significant challenges in the realisation of the environments and some necessary compromises were needed, it has also provided a variety of spaces and resident experiences for consideration in this post-occupancy evaluation. This innovative approach to the provision of housing and support, and the evaluation of its impact, can usefully inform the design and development of future supported accommodation projects.

This post-occupancy evaluation report details a comprehensive interdisciplinary evaluation of RIPL Project One. A customised Environment-Experience Evaluation Framework was developed for this purpose. It established criteria on the basis of stated ambitions for the project, identified by stakeholders and Scheme documentation. The Framework consists of tailored post-occupancy evaluation procedures considering the briefing, design development and inhabitation of this purpose-built environment and its assistive technology enhancements. Recommendations to inform future RIPL developments are offered in this Research Report, including design and technology briefing and further refinement of the ambitions for the Scheme, using innovative approaches to the communication of evaluation and evidence.

People with significant and permanent disability and resultant high daily support needs currently have a limited range of options for a return to community living. To date, these options have consisted primarily of returning to the person's own or family home, often with a mix of paid and informal supports, or moving to more institutional models of living, such as disability-specific shared supported accommodation or residential aged care (Callaway, Winkler, Sloan, Osborn, Pattawage & Pitt, 2013; Winkler, Farnworth, Sloan, Brown & Callaway, 2010). The Transport Accident Commission (TAC) is a Victorian Government body providing no-fault compensation to people injured in road accidents (TAC, 2014). The TAC has recognized the need to increase the range of housing models, and the type of support offered within these models, for people who sustain neurotrauma, specifically severe traumatic brain and spinal cord injury.

The TAC has developed the *TAC 2015 Independence Accommodation Strategy and Vision*, detailing principles that underpin optimal housing and support delivery, in order to begin to address this need (TAC, 2011). As part of this strategy, the TAC established Residential Independence Pty Ltd, a property trust aiming to offer new models of supported housing for Scheme clients, by using state-of-the-art technology and built environment design to assist in the delivery of support. RIPL Project One includes four one-bedroom apartments and a support worker office. It is located on the ground floor of a medium density residential development in an inner suburb of Melbourne. RIPL Project One opened in August 2013.

This report, provided as an interactive and navigable pdf document, responds to six key project objectives:

- Develop a comprehensive and tailored Environment-Experience Evaluation Framework (E-EEF) for RIPL projects.
- Design the RIPL Project One E-EEF for mixed methods data collection and procedures that identify and respond to key criteria.
- Pilot the RIPL Project One E-EEF.
- Evaluate and report the impact of the designed built and technology environments at RIPL Project One, on user experiences and outcomes.
- Identify elements of the built and technology environment that act as enablers and / or limitations in terms of the criteria identified.
- Draw on evaluation findings for recommendations to RIPL and TAC regarding future project design and development.

The methodological approach in this project was innovative, customised and comprehensive. It included both quantitative and qualitative methods as detailed in the Methodology section of this Report. An interdisciplinary approach brought together architectural and occupational therapy expertise. This was supported by consultancy from specialists including a physiotherapist and exercise physiologist for mobility tracking, and IT developers for the production of navigable panoramas. Project Phases generally reflect the timeline of the project, although some refinement of criteria and approach took place as the project progressed.

Phase 1

- 1.1 – Review of project background, documents and relevant literature, and interviews with key project stakeholders
- 1.2 – Identification of criteria and sub-criteria

Phase 2

- 2.1 – Investigation of the environment and users' experiences
- 2.2 – Evaluation of RIPL Project One against identified criteria

Phase 3

- 3.1 – Communication of project findings and recommendations.

The collaborative approach of the interdisciplinary research team and the careful balance of selected research methods have informed a unique and valuable perspective on RIPL Project One. The identification and refinement of key RIPL criteria over several stages has been a central task of the project, and has provided eight criteria, and thirty related sub-criteria for evaluation of RIPL Project One. These are presented in the Criteria Overview section and include: Independence, Community Integration, Homelike Environment, Support, Effective Workplace, Flexibility, Risk Management, and Scheme Viability. A small proportion of the sub-criteria identified were considered beyond the scope of this project, or not yet able to be evaluated in these early stages of RIPL Project One's operation. These have been included for completeness with relevant notes.

The translation of these criteria through their application at RIPL Project One and the impact on residents' experiences are central concerns of the evaluation. The intersection of criteria and data collected has provided a testing ground for their success. The particulars of RIPL Project One have necessarily affected the way that these ambitions have been realised. Key factors included the timing of RIPL involvement after construction had commenced, the urban location and the mixed medium density development.

The design and development of this Interactive Research Report aims to clearly communicate the project findings and E-EEF approach to a number of audiences. These findings look beyond the particulars of Project One to consider the application of recommendations to future Scheme projects, which are expected to vary in nature. The development of the E-EEF has included the production of the report as an interactive pdf document structured by the criteria, evaluations, and relevant evidence. The research team have also designed and produced navigable panoramas to represent occupied spaces with situated research findings, integrating detailed analysis and spatial experience. Panoramas include non-identifying or virtual furnishings, indicators of equipment controlled using assistive technology, and identified thresholds and circulation routes. The development and inclusion of a 'slider' allows viewers to switch to an overlay view representing key elements of a particular resident's experience, including degrees of physical access, zones of extended inhabitation and indications of full or partial support provision. Explanatory notes have been inserted as interactive hotspots and refer viewers to relevant sub-criteria, report content and source materials. Design and development of this approach to reporting has provided a navigable communication environment for a varied audience, including people with disability and their families, allied health professionals, designers and key stakeholders involved in RIPL projects.

Overall, RIPL Project One was found to be very successful against the vast majority of the established criteria and sub-criteria. In general, the reported and observed user experience of the built and technology design was positive. However, significant learnings have also been made and key recommendations stem from these. The variety of apartment plans and participant experiences at RIPL Project One has allowed for comparison in a small development, informing project findings and recommendations. These findings have included the identification of both conflicts and intersections between identified criteria, particular observations, and surprising outcomes.

Key recommendations stem from the evaluation findings, and focus on their relevance to future development projects. These are summarised below:

Site Planning and Context

Site selection and planning will be particularly relevant to the provision of suitable levels of security, access to local amenities and services, and opportunities for the development of community. Strategies developed for each site should balance community integration both within developments and between a development and its surrounds.

Layout and Planning

Passive approaches to the control of light, temperature, noise and other environmental factors can be assisted by early siting and orientation decisions, as well as the location of particular spaces within resident dwellings. This is particularly relevant for residents who spend a considerable amount of time in the home. Planning of thresholds, circulation, and spatial layout must consider issues of personal privacy in the context of the regular presence of support workers in the home. Design of circulation patterns should consider challenges of manoeuvring mobility devices in confined spaces.

Fitting the Fitout

Preparation and general layout of spaces may be completed prior to resident selection, however the tailoring of joinery installation to suit particular residents' physical abilities may support further development of independence thereby reducing or focussing requirements for support.

Home-like Appearance vs Functional Effectiveness

A more nuanced investigation of home furnishing options that can simultaneously provide a functional environment for this client group is necessary.

Client Selection

Client selection should balance a range of factors, including accommodation history and preferences, the need for and ability to share support, physical function and matching to accommodation design, and the cognitive ability to learn to use new environments. Coupling of a potential resident and the built and technology environment is required, and may necessitate further customisation to ensure independence is maximised.

Customisation, Modification and Flexibility

Provision for customisation, modification and flexibility can be helpful for the individualised and specific needs of this client group. This may also include provision for the delivery of different levels of support by reconsidering the relationship of support 'infrastructure' and dwellings. Costs should be balanced against potential savings, particularly if a more tailored approach to resident-specific joinery installation is adopted.

Transition Planning

Transition to new accommodation requires considerable preparation. A Community Inclusion Facilitator role has proved useful to this process in Project One. Site visits and building of links in the new local community prior to the move are beneficial. Training for use of the built and technology environments should begin early, with follow up monitoring and additional assistance provided over time.

Building Skills and Independence

A continued focus on the development of effective routines and approaches to tasks of daily living that foster resident independence is required in the long term. Consistent implementation of these routines is also required, and monitoring will be necessary to ensure all support staff follow the routines established.

Assistive Technology Design

Detailed testing and systems training prior to transition is required to eliminate system errors and build resident confidence. Consistent use of technology by residents and staff must be encouraged to avoid technology abandonment and with a view to adjusting support and building independence over time. Details regarding system performance are not currently included in the *RIPL Design Brief*.

Support Model

Exemplary built and technology design must be coupled with a targeted and consistent model of person-centred support. Variation in the performance of direct support staff can impact this, and requires continued monitoring by the contracted support agency over time.

Work Environment

Investigation of the physical relationship between support worker office and resident dwellings may further contribute to the grading of support over time, however further research is required to investigate this. Consideration of staff workspaces beyond the office is necessary and should include the many spaces that staff occupy within a supported accommodation development.

Relevant sections of the *RIPL Design Brief* are detailed in Recommendations in the final report.

Callaway, L., Winkler, D., Sloan, S., Osborn, W., Pattuwage, L., & Pitt, V. (2013). Models of supported accommodation for people with traumatic brain injury: A systematic review. Melbourne, Australia: Institute for Safety, Compensation and Recovery Research.

Transport Accident Commission (TAC) (2014). Transport Accident Commission. Accessed via <http://www.tac.vic.gov.au> on 1 April, 2014.

Transport Accident Commission (TAC) (2011). TAC 2015 Independence Accommodation Strategy and Vision. Melbourne, Australia: Author.

Winkler, D., Farnworth, L., Sloan, S., Brown, G., & Callaway, L. (2010). Comparison of people with ABI living in two accommodation settings: Shared supported accommodation and residential aged care. *Brain Impairment*, 11(3), 313-325.



RIPL Project One is the first project developed by Residential Independence Proprietary Limited.

RIPL Project One consists of four ground floor apartments with a support worker office and ensuite. These spaces form part of a new mixed-tenancy development in an inner suburb of Melbourne that also includes social housing and privately owned dwellings. The project offers gated security entry to a central common courtyard space, in addition to security entry to independent internal foyers and to the apartments themselves. An underground car park with storage cages is also provided and is accessed via security entry.

There are several key aspects of the development that are unusual with respect to other planned projects for the RIPL Trust. These include the inner suburban location, the inclusion of RIPL housing within a larger mixed development, collaboration with a non-government organisation to share disability support with two additional apartments, and the timing of RIPL involvement in the project. The location has brought specific considerations with regards to security, as well as access to a wide range of services and supports in the area. Inclusion within a mixed development has also offered opportunities for connections with neighbours, but has also presented challenges to the design of a supported model in terms of spatial integration. The unusually late stage of involvement, after approvals by local authorities were received and construction had commenced had an impact on the realisation of the Project. This limited opportunities to modify the layouts for the apartments due to the location of structural supports and plumbing points, as well as the selection of some fittings and finishes that had been purchased for the whole development. The location and design of large elements of the construction, notably the slab over the basement carpark, limited the opportunities of some design decisions in the development's common spaces.

Built Design

The RIPL apartments at Project One have large internal open spaces and high ceilings, benefitting from their location within an historic masonry factory building that occupies part of the site. Each apartment includes a single bedroom with built-in wardrobe storage and ensuite. An open plan lounge / dining area, kitchen and European laundry are also included. One RIPL apartment has a private courtyard space attached. These four apartments are all fitted with split system heating and cooling, wall-mounted conventional and microwave ovens, four-burner induction cooktops and front loading washer-dryers.

A mobile height-adjustable bench unit was provided to each apartment. All bathroom walls were fitted with structural ply to allow flexible fitting of grab rails as required. Structural allowance has been made for the installation of ceiling-mounted tracks for hoists should this be required. The opportunity for individual clients to modify particular aspects of their homes via individual claims informed construction detailing and decision-making. Clients pay a rental fee, furnish their own homes, and are responsible for bill-paying for utilities.

Keyless access is offered to the courtyard entry, car park and apartments via a security fob or by use of a customized home automation application operated via smartphone or tablet (refer below). The support worker office is a small space with ensuite located centrally to the four apartments. These spaces of RIPL Project One surround one of the four lift cores and associated internal foyers of the development.



Residents

Residents in RIPL Project One are TAC or WorkSafe clients who have experienced neurotrauma and as a result have near 24-hour support needs. Residents all use a motorized or manual wheelchair to aid mobility. One person is also able to walk short distances using a wheeled walking frame, or to stand for brief periods with support. In Project One, resident selection was managed by the TAC Claims Division, with input from TAC Business Intelligence, RIPL and a consultant occupational therapist. Prior to their move to RIPL, residents had lived in traditional shared supported accommodation or with family.

Assistive Technology

RIPL housing developments aim to integrate comprehensive assistive technologies to offer flexibility in the way that support is delivered (TAC, 2011c). After significant investigation by RIPL, an existing home automation system was selected for Project One for this purpose, the HIA Snap-Link application. The system operates via a smartphone or tablet (Android or iOS). This can run via both a wireless local area network (LAN) and internet.

The assistive technology approach includes home automation and active environmental control functions that allow the programming of frequently-used scenarios, such as the control of lighting and heating / cooling, and adjustment of blinds or doors when residents 'arrive home' for example. If residents consent, staff may be informed of this arrival via the support worker interface. Residents also control access by visitors external to the development at the main entry, entrance to the internal foyer and to the particular apartment, using these assistive technology functions. The operation of internal apartment doors is also controlled using an electronic system similarly controlled.

In addition to privacy and security, and environmental control, the home automation suppliers customised and integrated a system for resident-support worker communication. Residents are provided with a range of options to contact staff, including large wall-mounted switches in strategic locations within the home, stand-alone personal alarms which can be worn on the body or mounted on home furnishings, and the SnapLink application as detailed above. Communication is offered via a ceiling-mounted two-way speaker system. Protocols for the use of the communication system, and response to calls for assistance have been developed.

Model of Shared Support

The TAC developed and contracted a model of 24-hour shared support to be delivered at RIPL Project One by a non-government organisation. This is complemented by individual support hours for targeted and individualised home or community access support. The contracted organisation provides in-home and community support through a pool of rostered disability support workers. RIPL residents have also been provided with support by a Community Inclusion Officer from the same agency to plan transition into the accommodation, and to build community links. The centrally-located support worker office includes a shower, toilet, desk space and single bed for staff rostered on inactive overnight support. The addition of two apartments two floors above RIPL Project One that were developed by a collaborating non-government organisation will call for the refinement of this model of support once these additional apartments are occupied.

Citation Guide

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Associate Professor Karen Stagnitti, Deakin University

Johanne Walker, Deakin University

Paul Marcolin, Spike Creative

Monash Architecture Studio, Monash University Art Design + Architecture

Research team

Kate Tregloan is a registered Architect and a researcher and lecturer in the Department of Architecture, Monash Art Design + Architecture (MADA). She has professional experience working on low and medium density residential projects and community buildings. She has an ongoing research focus on the intersections of evaluation and design, and post-occupancy evaluation as it informs design development. On this project, Kate has designed and co-ordinated the development of the Environment-Experience Evaluation Framework (E-EEF), customized research methods, the interactive pdf package, and the navigable panoramas.

Libby Callaway is a registered Occupational Therapist and a researcher and lecturer in the Department of Occupational Therapy at Monash University. Libby is also the Research Manager at the Summer Foundation, an organisation working to address the issue of young people with disabilities living in nursing homes. Libby has worked with people with acquired brain and spinal cord injury for two decades. Libby was the Research Project Lead on this project. She developed human ethics submissions, led discipline-specific data gathering processes and analyses, provided input to the design of the E-EEF, and enabled application of clinical knowledge of the RIPL client target group, and their range of outcomes, to evaluation findings.

Byron Meyer is a graduate architect, researcher and tutor. He has a research assistant role at Monash Architecture Studio (MAS), Monash Art Design & Architecture (MADA). Byron was contracted to this project to assist with the review of documentation, data collection and testing of customized methods, and the development and production of content for the navigable panoramas.

Rebecca Wood is a registered occupational therapist, a researcher at the Summer Foundation, and an adjunct researcher in the Department of Occupational Therapy at Monash University. Rebecca was contracted to this project to support data cleaning, entry and associated quantitative and qualitative data analysis.

Natalie Iannello is a recent graduate of the interior architecture program and a studio assistant at MADA. Natalie was contracted to this project to assist with the production of the interactive pdf document, and final 2D drawings.

No part of this publication or panoramas may be reproduced or transmitted in any form or by any means without prior written permission of the authors and copyright owners.

Assistive technology

Refers to aids and equipment and can be anything from a simple device in the kitchen to a wheelchair or a computer application (ARATA, 2012).

Circulation Spaces

Spaces within a built environment that permit movement or access to adjacent spaces.

Community Integration

Access to and participation in cultural, social, educational and productive tasks that offer the development of social relationships, engagement with mainstream services, community presence and connectedness.

Effective and efficient shared support

Scheme-funded assistance, delivered onsite or via remote support, which is both effective (offering the type and amount of support required by residents), and efficient in the way it is delivered (such that support can be shared by residents across dwellings).

Flexibility

The design of built and technology environments such that they allow for customisation and modification, adjust to and anticipate individual resident's current or future needs.

Homelike Environment

The provision of a residential environment that offers a sense of home, responding to issues of security and comfort, agency and control, and self-expression. Primarily considered as a contrast to an institutional environment.

Independence

The capacity for an individual to engage in daily tasks, activities and life roles with a maximum level of autonomy, agency and control.

Post-occupancy evaluation

Post-occupancy evaluation (POE) is the examination of the effectiveness for human users of occupied designed environments, where effectiveness may include the many ways that physical and organisational factors enhance achievement of personal goals (Zimring & Reizenstein, 1980). POE is a careful, systematic, and reliable process intended to ensure that evaluation findings can be applied to future building and assistive technology design (White, 1986).

Residential Independence Pty Ltd

A property trust developed by the Transport Accident Commission dedicated to the development of small-scale home-like living environments that offer a model of shared support and the use of technology to meet the needs of residents with near 24-hour care requirements (TAC, 2011).



Risk Management

Proactive systems and strategies that aim to provide reliable response, and flexible monitoring, to anticipate and manage unexpected events experienced and secondary health conditions following neurotrauma.

Scheme Viability

The management of claim liability through operational cost savings (TAC, 2011) in order to deliver a viable and sustainable insurance scheme.

Spinal cord injury

Permanent spinal insult resulting partial or complete physical and sensory impairments (van Leeuwen et al, 2012).

Support

Scheme-funded assistance that is delivered on-site or via remote support, which is both effective (offering the type and amount of support required by residents), and efficient in the way it is delivered (such that support can be shared by residents across dwellings).

Thresholds

Transition spaces between adjacent areas of a built environment, particularly between spaces of differing levels of perceived privacy.

Transport Accident Commission

A Victorian Government-owned organisation which provides no-fault compensation to people who experience personal injury in road accidents (TAC, 2014).

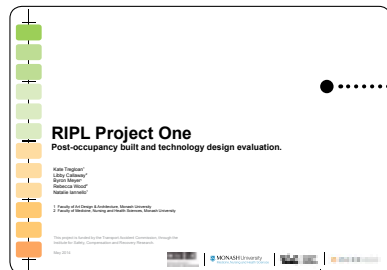
Traumatic brain injury

Permanent injury to the brain occurring after birth and where the mechanism of the brain injury is traumatic in nature, arising from an external force (AIHW, 2007).

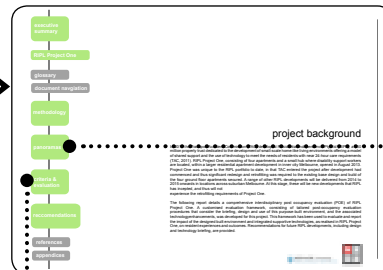
Workplace

The individual dwellings, support worker space, and internal and external shared or common spaces of the development that form an effective work environment for RIPL support staff.



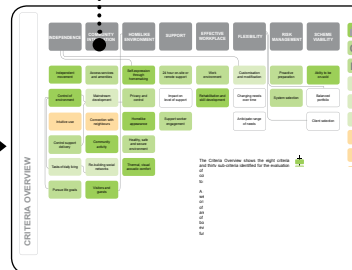


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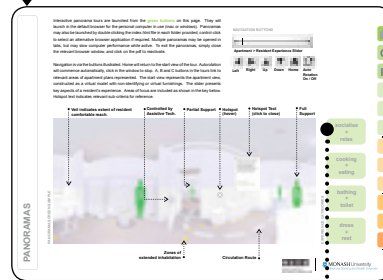


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CRITERIA OVERVIEW



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- > sub-criteria



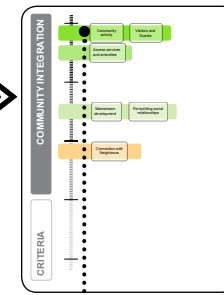
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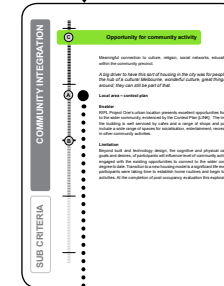


Launch and navigation details for panoramas are provided on the Panorama page.



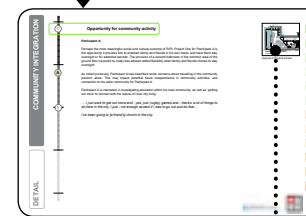
C CRITERIA

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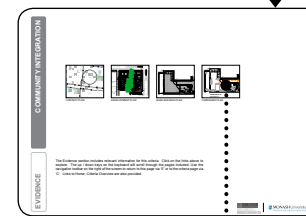
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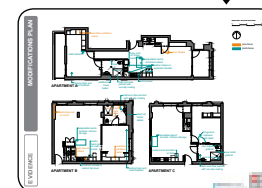
D DETAIL

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E EVIDENCE

Evidence pages are provided at the end of each Criteria section



This section details the methodological approach for the project, phases of work, methods used, and permissions and ethical approvals obtained.

The three main phases of the project outlined below each contributed to the development and application of this post-occupancy evaluation (POE) framework. Consistent with relevant POE approaches, the key focus of the framework was the investigation of factors influencing the design of a complex environment and correlating influences on behaviour and experience (Friedmann, Zimring, & Zube, 1978). The study followed relevant literature to develop an approach with a focus on user experience, evaluated on the basis of the design intentions as realised in the outcome (Shepley, 2011). While a smaller component of longer-term Building Performance Evaluation, post-occupancy evaluation is seen as a valuable, and too seldom used opportunity for designers and clients to learn from hindsight in the briefing and development of new projects (Bordass & Leaman, 2005; Hadjri & Crozier, 2009; Preiser & Vischer, 2005). Specifically the TAC acknowledge that they have no formal measures in place to evaluate the effectiveness of accommodation and support services in delivering client outcomes relating to independence and community participation (TAC, 2011). The current project offers an innovative approach to address this evidence gap.

Project Phases generally reflect the timeline of the project, although some refinement of criteria and approach took place as the project progressed:

Phase 1

1.1 – Review of project background, documents and relevant literature, and interviews with key project stakeholders

1.2 - Identification of criteria and sub-criteria

Phase 2

2.1 - Investigation of the environment and users' experiences

2.2 – Evaluation of Residential Independence Pty Ltd (RIPL) Project One against identified criteria

Phase 3

3.1 - Communication of project findings and recommendations

Approaches to data collection were driven by the requirements of each phase, and the potential for contribution to the development of the framework. Details of these approaches are provided in following sections. Quantitative data collection included existing published measures relevant to the study. Customised methods were developed by building on professional site analysis, observation and representation techniques. Qualitative data relating to the experience of stakeholders and residents were gathered via semi-structured interviews. All on-site data were collected within an interdisciplinary approach by two researchers – a registered architect and a registered occupational therapist. Data were collected at a minimum of three months following the person moving into Project One. This allowed time for residents to settle into the new environment and ensured that any early transition or handover issues were addressed prior to participation in this research.

The approach to phases of development outlined above has ensured that the criteria identified by stakeholders, and the specifics of the RIPL program as translated in this first project, have been central to the content, approach and application of this evaluative framework. The inclusion of multiple methods in an interdisciplinary approach has allowed triangulation of findings, and a comprehensive tailored approach to post-occupancy evaluation for this project.

Phase 1

1.1 – Review of project background, documents and relevant literature, and interviews with key project stakeholders

Pre-data collection

Human Research Ethics Committee approval was obtained from the relevant academic institution for all aspects of this research. A low risk ethics approval was secured for the Phase One data collection completed with stakeholders involved in the RIPL Project One development, whereas high risk approval was required and secured for Phase Two data collection, as it included recruitment of and research with people with disability.

The research group undertook an international grey and academic literature review of existing post-occupancy evaluation methods and associated published tools to inform the design of a tailored, interdisciplinary post-occupancy evaluation framework for this project. The developed outline for the framework was presented to a project reference group, which included key representatives the TAC, RIPL, and the Institute of Safety, Compensation and Recovery Research.

A range of briefing documents, internal reports and other relevant resources were supplied to the researchers by the TAC and reviewed in detail. These included the RIPL Design Brief, a number of design development schematic and development application plans, full contract documentation set, assistive technology briefing notes and internal TAC documentation, including comprehensive Independence and Accommodation Strategies (Transport Accident Commission, 2011a, b). Key criteria or briefing aspirations / guidelines for RIPL project design were extracted from this range of documentation and explored further in the Phase One interviews completed with key project stakeholders.

Phase One participants

Participants were key stakeholders in the RIPL Project One. Groups invited to participate in phase one included representatives from TAC and RIPL, as well as community housing, building, architectural, assistive technology and occupational therapy consultants who worked on RIPL Project One. Representatives from a non-government organisation collaborating with the TAC on RIPL Project One were also invited to participate. This organisation has developed two apartments for non-compensable clients within the same apartment complex, and will share the model of disability support with residents in the four TAC apartments, once these additional apartments are occupied.

Recruitment

A key RIPL representative identified all stakeholder organisations involved in the inception, development and delivery of RIPL Project One. Researchers provided this RIPL representative with a permission slip outlining the research project, and inviting the organisation to consider returning the permission slip nominating a representative to be contacted by the research group. The RIPL representative sent potential participants this permission slip with a reply paid envelope. This was the extent of the RIPL representative's involvement in recruitment. If the organisation was willing to hear more about the study, or consider participation, they returned the slip with their contact details directly to the researchers. Researchers then arranged a time to meet with the potential participant, explain the research and provide the written explanatory statement and consent form for review. Willing participants signed the consent form and the research commenced within the same or a subsequent meeting. Five of the seven organisations invited to participate returned the permission slip, and then consented to and completed participation.

Data Collection and Analysis

Phase one qualitative data were gathered via semi-structured interviews. Interview questions covered the following areas: the participant's background and introduction to the RIPL collaboration, how project deliverables were formulated, the participants' own aspirations for the project and experience of the project's development and delivery, and key learnings gathered about the built and technology design at RIPL Project One (refer to Appendices). Interviews were audiotaped and transcribed verbatim, and lasted on average 73 minutes (range = 59 to 99 minutes). Reflections and field notes were recorded in reflective

journals by the two principal researchers immediately following interviews (Braun & Clarke, 2013). A qualitative comparative method of thematic analysis was used to analyse the qualitative data (Braun & Clarke, 2006; Corbin & Strauss, 2008) and is detailed below.

1.2 - Identification of criteria and sub-criteria

Interview transcripts, researcher field notes and reflective journals were analysed thematically to extract initial key criteria and sub-criteria (Braun & Clarke, 2006). RIPL Project One-specific issues and influences were also identified. Subsequently, the key researchers in this project reviewed the data, relevant TAC documentation, and linked thematic analysis. Initial criteria were refined via researcher consensus using qualitative auditing (Lincoln & Guba, 1985), with a total eight criteria and thirty sub-criteria finalised – refer to criteria overview page. Corresponding verbatim quotes from project participants were identified, and are included in this report to illustrate criteria.

Project reference group

Key representatives at the TAC, RIPL, and the Institute of Safety, Compensation and Recovery Research were invited to attend regular presentations by the research group in order to discuss post-occupancy evaluation framework design and implementation, and review progress towards achievement of project aims and timelines for project delivery. A total of five meetings were held with this reference group, in addition to a presentation to the RIPL board of management. Each meeting included a detailed question and answer component for the reference group.

Phase 2

2.1 - Investigation of the environment and users' experiences

Phase 2 participants

Adult TAC clients with neurotrauma were eligible for this study if they had capacity to provide their own consent, were aged over 18 years, were in receipt of TAC funding and had accepted placement in the RIPL Project One.

Recruitment

The research group provided a TAC claims division representative or nominated support provider with a reply paid envelope and single page permission slip outlining the research project and inviting an eligible person to consider whether they would like to hear more about the study and consider participation. Potential participants were sent a permission slip outlining the research project, and inviting release of their contact details to the research group, as well as a reply paid envelope. This was the extent of the TAC representative or support provider's involvement in recruitment.

Upon receipt of the person's contact details via the permission slip, researchers arranged a time to meet to explain the project and provide the written explanatory statement and consent form for review. Willing participants signed the consent form and the research commenced within the same or a subsequent meeting. Consent was designed such that the person could opt in or out of all or some of the data collection methods used in this study. The permission slip, explanatory statement and consent form all detailed that the person's housing and support, or receipt of TAC funding, would be in no way affected if they declined participation in this study, or commenced participation but subsequently withdrew from the research.

Of the four eligible people from RIPL Project One, three returned the permission slip providing their contact details. Two subsequently consented to participation in all methods in the study, whilst one participant declined participation in the mobility tracking component, but consented to participation in all other data collection methods.

During the consent process, participants had the choice to nominate a family member and / or paid support person to be interviewed by the research team in relation to project aims, if the nominated person granted consent. Each participant nominated a paid support worker. By choice of the three participants, no family members were nominated.

Data Collection Methods – Published measures

Residential Environment Impact Survey

The Residential Environment Impact Survey Version 2.0 (REIS) (Fisher & Kayhan, 2012) was initially developed with a focus on assessing the impact of the built environment on resident outcomes of people with disability living in traditional shared supported accommodation settings (such as residential group homes). Despite its background, the REIS was always envisaged as a measure adaptable for use in other models of housing and support (Fisher & Kayhan). The REIS is a non-standardized assessment tool (University of Illinois Board of Trustees, 2014a). It consists of both semi-structured interview schedules, as well as structured rating forms. The REIS was designed as a measure of the opportunities available for resident participation and independence within the home setting, as well as a rating of the accessibility, impact and importance of indoor and outdoor spaces, objects within the home, tasks / activities available to the person and the social environment on these opportunities. The tool was originally designed for use by occupational therapists. Personal communication was undertaken with an author of the REIS (Fisher) who confirmed it was reasonable to use only those parts of the REIS that were most relevant to this project's aims and the design of the specific model of housing and support delivered within RIPL Project One (personal email communication with G. Fisher, January 3, 2014). With her consent, this project used three key parts, and the associated semi-structured interview questions, of the REIS: Part I - Walk through observation guide, Part III a – Space checklist, and Part III b – Objects checklist.

While incidental staff–resident interactions were recorded as part of this evaluation, direct observations of staff–resident interactions during activities of daily living were not sought. The focus of this study remained an evaluation of the opportunities afforded to the resident by the built and technology design of RIPL Project One, rather than an explicit evaluation of the direct support provision. However, the research groups acknowledged that the lived resident experience of supported housing cannot be separated from the delivery of support. The support model was discussed within semi-structured interviews with reference to the contribution of the built and technology design as an enabler or limitation to effective and efficient support delivery, and user experience of the same.

Residential Environment Impact Survey–Short Form

The Residential Environment Impact Survey–Short Form (REIS-SF) is a modified version of the REIS (University of Illinois Board of Trustees, 2014b). Like its parent, the REIS-SF is a non-standardised and semi-structured assessment tool. The REIS-SF was created by a group of community-based occupational therapists, in consultation with the first author of the REIS (Fisher & Kayhan, 2012). The REIS-SF is structured so that a user can document and summarise the qualities of the built environment that impact independence, participation and quality of life from the assessor's perspective, based on resident interview and observations of the built environment and residents' use of and access within the same. There are a total of 17 items on the REIS-SF: five items related to the physical space, three items exploring the availability of resources within the home environment, four items assessing the nature and quality of social support, and five items examining opportunities to engage in meaningful activities and roles within and outside of the home. Each item is rated on a 4-point scale, with the rating reflecting how each aspect of the environment meets the needs and interests of the individual resident, and the extent to which the appropriate level of support and opportunity is provided (Fisher & Kayhan). A rating of 4 indicates exceptional opportunity / support afforded, whereas a rating of 1 indicates the need for major improvement. There is also allowance for written observations relevant to each item. The REIS-SF was used in this project to complement the three parts of the REIS long form and summarise researcher observations for reporting.

Quebec User Evaluation of Satisfaction with assistive Technology

The Quebec User Evaluation of Satisfaction with assistive Technology, version 2.0 (QUEST) (Demers, Weiss-Lambro, & Ska, 2000) is a standardized assessment of user satisfaction with a technology device and its related services. The 12-item scale asks the technology user to rate their device with regard to its physical properties, ease of use and effectiveness. Ratings are made on a scale of 1 (not satisfied at all) to 5 (very satisfied). The user is also asked to rate delivery,



maintenance and follow up services using the same scale. The user then has the opportunity to choose the three assistive technology satisfaction items that are most important to him/her, from a total of 12 items. RIPL Project One evaluation of assistive technologies in the form of home automation and support staff communication technology, controlled using an application loaded onto a smart phone or tablet (depending upon personal preference). In this study, participants were therefore asked to rate, using the QUEST, their satisfaction with “the primary device they use to access this home automation and community system”. Participants were given the opportunity to rate a second device of their choosing (including non-technology assistive devices). Only one participant rated a second device.

Psychosocial Impact of Assistive Devices Scale

The Psychosocial Impact of Assistive Devices Scale (PIADS) (Jutai & Day, 2002) was developed to measure the psychosocial effects a nominated assistive device has on its user. This 26-item questionnaire asks the user to rate the impact the assistive device has had on their sense of competence, adaptability and self-esteem in daily life. Scores range from -3 (negatively impacts the user) to +3 (positively impacts the user), with a rating of 0 indicating no perceived impact. Participants in this study were asked to rate the same assistive technology devices that they had rated using the QUEST. The participant who rated satisfaction with an additional device using the QUEST did not rate the psychosocial impact of this second device using the PIADS.

Analysis of data gathered via published measures

The REIS, REIS-SF, PIADS and QUEST were administered and scored following the procedures outlined in each of their respective manuals, and reported descriptively in either words or figures for each participant within the relevant criteria section.

Data Collection Methods – Customised measures

Task demonstration and photography

During the first meeting with the researchers, participants were asked to demonstrate their use of the built space by undertaking daily living task/s of their choice, following a design ethnography approach (Koskinen, Zimmerman, Binder, Redstrom, & Wensveen, 2011). Consent was given by participants for these tasks to be digitally recorded by photography and / or video. This digital recording allowed further analysis by the research team after the data gathering session. Tasks chosen by participants including filling a cup with water at the kitchen sink, reaching for commonly used kitchen items, operating kitchen or laundry appliances, operating home automation technology, and demonstrating the person’s access to bedroom, bathroom and kitchen storage areas. Audio data from the digital recordings were transcribed verbatim and thematically analysed against the RIPL stakeholder project criteria. Participants were also asked to identify elements of the built and technology design that they felt were either an enabler or barrier to their independence and participation. Analyses of digital photography and video recordings were guided by the observational ratings provided in the REIS long form. In order to maintain confidentiality, digital photography and video recordings that may be identifying were analysed and reported in writing, rather than by image, consistent with the ethics undertaking.

RIPL Design Brief review

A general review of the *RIPL Design Brief* informed the research team’s understanding of its translation for the design of RIPL Project One. This review was undertaken by comparing major recommendations of the Brief document with the construction drawing set, excepting the introductory ‘principles’ section. Significant instances where the Brief did not appear to be satisfied were then investigated via interview with relevant stakeholders or on site - refer to Appendices for details.

Customised representations and design development

The development of customised forms of spatial representation is consistent with the use of representation by designers in the analysis of existing sites and design issues, and the development of new proposals. A distinction is drawn here between design as the particular solution of a bounded problem (problem solving), and design that builds on a co-evolutionary engagement with problem and solution, interpreted as ‘wicked’ or ill-defined and complex potentials that

characterize the inhabited environment (Cross, 2007; Dorst & Cross, 2001; Lawson, 2006; Poon & Maher, 1997; Rittel & Webber, 1973). Expert designers regularly represent spaces and the intersecting factors that influence a particular context to assist the generation, transformation and evaluation of emergent proposals and ideas (Goldschmidt, 1991; Visser, 2010).

The drawings developed to inform the evaluation of RIPL Project One built first on accurate measured drawings of the spaces as both 'empty' and furnished environments. Identification, representation and contrast of selected aspects of the environment and its inhabitation were developed iteratively as outlined in the relevant sections below. Each of these drawings focuses on content or perspectives that are of particular relevance to the evaluation criteria identified. Evidence of all of these phenomena is present in the environment studied, however independent representation has been developed to permit focused consideration of these issues 'in isolation'. These customized representations also highlight particular issues or potential conflicts between criteria, providing rich analysis of this precedent to better inform future design development alongside site and project specific issues (Lawson, 2004; Moraes Zarzar, 2008).

Context Plan

The Context Plan was produced on the basis of publicly available mapping, and local area information, filtered for key streets and landmarks only. Text and annotations were amended to de-identify the content, including generic terms for local features, amenities and services, and removing all street names.

Base Plans

Apartment Base Plans were produced on the basis of documentation by the main building architects and architects for RIPL Project One spaces. This comprised complete construction documentation as noted, including amendments confirmed during interviews. Review of the RIPL Design Brief and records of technology briefing also informed discussion of design decisions as they were recorded in the initial documentation. Accurate measurements of spaces and furnishings were collected by researchers on-site. Discrepancies were noted and further investigated in interviews where significant and relevant.

Technology Interface

The Technology Interface Diagram was produced on the basis of the assistive technology behavioural design, observed interface and briefing documents for technology. Digital images of the interface panes were also recorded.

Base Building Plan

The Base Building Plan of the ground floor of the development was produced on the basis of documentation produced by the main building architects and architects for the RIPL Project One spaces. Identification of the support workers' office and the location of apartments are indicated, however identifying features have been removed to protect the privacy of participants.

Modification Plans

Modification Plans were prepared on the basis of the Base Plans. These include annotations highlighting discrepancies between the Base Plans and the measurements taken on site resulting in 'pre-move modifications' such as changes to construction details or joinery installations. Post-move modifications were also recorded to indicate those changes made by residents following their move to RIPL Project One. These include minor customizations as well as significant modifications such as the installation of grabrails or hoists. These modifications were investigated with participants during interviews.

Furnished Plans

The Base Plans also provided the basis for the Furnished Plans. These included the addition of furnishings and their location in each of the inhabited spaces investigated for the study. Representations of furnishings and their location is accurate for scale and location, however generic virtual furnishings or spatial

primitives were used to protect participant privacy. Issues related to furniture selection and location were investigated with participants during interviews.

Traces Of Wear And Tear Plans

Traces of Wear and Tear are indicated by notes and mark up of the Base Plans. Recording of these observations has informed analysis of travel patterns and resident use of particular spaces or installations. These observations were further investigated with participants during interviews.

Circulation, Thresholds And Privacy

Key circulation patterns for each participant were represented on the Furnished Plans of each apartment in order to identify the spatial patterns for residents and support workers as implied by the design. The inclusion of a representation of thresholds between public and private spaces, both at the boundary between the building common spaces and the apartment interior is on the basis of degrees of bound or unbound space dynamically experienced, and the potential for territorial claim implied by the design (Ching, 2007; McMurtrie, 2012; Stenglin, 2009).

Spaces Of Independent / Supported Inhabitation

Spaces of Independent and Supported Inhabitation are represented on the Furnished Plans, and draw in part on the implications of spatial use suggested by the selection and arrangement of furniture by residents, as well as observations of participants' behaviour in these spaces. Identification of locations for full or some support was informed by observation of participant use of space and equipment, findings from the REIS long form, and researchers' relevant expertise. These observations were further investigated with participants during interviews.

Degrees Of Physical Access

Degrees of Physical Access are represented on the Furnished Plans for each apartment. These represent participants' ability to negotiate and manipulate the furnished apartment and its fittings and fixtures. The representations were produced on the basis of measurement of "comfortable reach on a forward path of travel". Comfortable reach was defined by the research group as the ability of a person to reach without strain or strenuous movement whilst seated on their main mobility device (i.e., preferred wheelchair) across several planes (up, down, left, right), or short-term standing where the person was able to do so.

Researchers observed participants' ability to subtly refine the location of wheelchairs and subsequent reach during visits to the site, therefore these representations should be understood to demonstrate the minimum of 'usual' access. The use of other assistive devices (e.g., long handled pick up sticks) for grasping objects on the floor was similarly observed, and would extend the envelope of comfortable reach when used. In the production of these images, virtual blocks were created to represent relevant dimensions and radii of reach to inform the placement of fills and curves.

Data Collection Methods – Qualitative approaches

Semi-structured interviews with residents

At approximately three months following their move in to the RIPL Project One development, Phase 2 study participants undertook an initial semi-structured interview with researchers. A follow up, final interview was completed with participants at approximately six months post move.

For the first interview, a semi-structured interview schedule designed to explore and address the research project aims was developed. Topic areas included: resident experience of built space, resident experience of assistive technologies provided in the built space, resident experience of built design within the community precinct and other resident perspectives. Refer to Appendices for the semi-structured interview schedule. Published and customised measures (listed above) were completed and analysed prior to semi-structured interviews, so that initial findings, including identified enablers and limitations within the built and technology environment, could be further explored by interview. In addition, the research team reviewed this published / customised measure data against the RIPL stakeholder project criteria. This allowed the researchers to refine questions to explore whether elements of the RIPL stakeholder project criteria had been



achieved from the perspective of each participant.

Initial interviews were audio recorded and transcribed verbatim and were on average 60 minutes in length (range = 53 to 68 minutes). As outlined in Phase 1 data analysis procedures, interview transcripts were analysed thematically by the research team. Emerging themes and associated verbatim quotes were considered in relation to corresponding items of the RIPL stakeholder project criteria to assess whether these criteria had been achieved, and to aid data linking and reporting as outlined below.

At six months following the move into RIPL Project One, participants were invited to take part in a second and final semi-structured interview. These follow up interviews were also audio recorded and transcribed verbatim and were on average 44 minutes in length (range = 35 to 51 minutes). Findings of the thematic analyses of the first semi-structured interview, and associated quantitative data, were used to develop areas of investigation for the second interview. Changes made to the environment, such as an user-specific modification or adaptations recommended by a treating occupational therapist, movement of existing, or new, furnishings, and changes in use of the environment by the resident were also explored during the interview. Findings from the data logging, such as frequency of use of home automation system functions, were reviewed and explored with the resident.

Semi structured interview with the support provider

At approximately six-months following the move into RIPL Project One, the support provider nominated by the residents and recruited into the study also participated in a single semi-structured interview. This interview covered similar topic areas to the initial resident interviews, explored from the support provider perspective and was also audiotaped, transcribed and thematically analysed.

Qualitative research project rigor

A number of steps were taken to ensure rigor was maintained within the qualitative data collection and analyses (Morrow, 2005; Krefting, 1991). As part of this study, researcher field notes were recorded, as well as a reflective journal. This involved the researcher documenting their observations, reactions and thoughts throughout the project. The reflective journal was used to record and develop areas for further enquiry, enabling the researchers to test emerging themes with participants in subsequent data collection sessions. The variety of methods used, data collection at different time points, and analyses of data between data collection sessions allowed the researchers to feedback and explore developing themes with participants. This process of member checking occurred with each participant during the semi-structured interviews at both time points.

Triangulation is a key strategy for enhancing the quality of the research, particularly credibility, and is based on the idea of convergence of multiple perspectives for mutual confirmation of data to ensure that all aspects of a phenomenon have been investigated (Krefting, 1991). Triangulation of methods was achieved in this project through the intersection of quantitative and qualitative approaches, and a collaborative multidisciplinary research team with professional experience in occupational therapy and architecture. Consultancy from a physiotherapist and exercise physiologist was provided for mobility tracking and activity monitoring (refer below). Researchers met regularly during data analyses to ensure group consensus on findings and to avoid bias. Peer support was sought through the project reference group meetings (Braun & Clarke, 2013).

Mobility tracking

For the two participants who consented to this methodology, mobility tracking was undertaken for a period of four days in total, including at least one weekend day. A SANAV Nano GPS tracker was used to log the outdoor position of the participants throughout the day. This device was fixed to the wheelchair of the participants using a magnet, and was programmed to log data at a rate of 1 sample per minute. These data were transferred to a secure internet site, from which they were downloaded and analysed. Data was reported on a de-identified map, and included reporting of the mode of travel in the community (e.g. wheelchair mobility, public transport, onroad vehicle) and the type of community service or venue accessed (e.g. church versus shopping centre).



Assistive technology data logging schedules

With participant consent, data logging schedules of smartphone and tablet use were obtained from the technology contractor for individual apartments. Data logs were obtained for a confirmed 'typical week' for each participant (i.e. a week when participants' normal activities were not interrupted by novel events, such as illness, holidays, or technology or home automation malfunction). It should be noted that the actual operator of the technology could not be distinguished through data logging (i.e. support staff versus participant).

2.2 - Evaluation of RIPL Project One against identified criteria

Researchers prepared for the evaluation of RIPL Project One by making an initial allocation of data packages against the 39 criteria and sub-criteria by research group consensus. Additional data were collected, and all data sorted, systematically reviewed and re-presented for group review. The research group reviewed all criteria and sub-criteria and data collected for each. Initial evaluations were reached by consensus among the group on the basis of the evidence provided. Evaluation took place at several levels, working from the detail to an overview for clarity. Where relevant, individual apartments were evaluated against sub-criteria and an overall evaluation for the project identified independently. Evaluation of the project against the criteria was also derived independently, but informed by findings for sub-criteria. Detailed consideration of the enablers and limitations of the inhabited experience of RIPL Project One were identified for sub-criteria by drawing on the evidence. Conflicts and opportunities were also identified by considering the intersections of data collected, and the relationship of sub-criteria across criteria.

A small proportion of the sub-criteria identified were considered beyond the scope of this project, or not yet able to be evaluated. These have been included in the reporting for completeness, with relevant notes.

Phase 3

3.1 - Communication of project findings and recommendations

Report Design and Preparation

The RIPL Project One Report is designed primarily as an interactive pdf document, allowing intuitive navigation by readers among key sections of the document, and supporting easy dissemination. This is intended to allow readers to investigate the areas most relevant to their purpose, with the primary intention of informing future design development for a similar client group.

The majority of the included material relates directly to the evaluation of RIPL Project One, and the navigation of the document has been developed to reflect this by using a representation of a colour scale as a key graphic theme. The evaluations, and the presentation of data that have informed them, are presented at a number of levels from an overview Criteria level, and progressing through Sub-Criteria to Detail by apartment or participant experience. The main evaluation is supported by the inclusion of full evidence packages.

Other supporting documents are provided, including an Executive Summary, a RIPL Project One overview, this Methodology section, Criteria Summary, and supporting Glossary, Document Navigation, Appendices and Reference Sections. Links are also provided to Panoramas, an innovative approach to the communication of spatial findings, detailed below.

Panoramas: panoramic photography, filtering of images, 3d modelling

A new use of technology has been developed in this project to represent occupied space with situated research findings as navigable panoramas. The production

of these virtual environments progressed in several stages. Initial images using a digital camera with large viewing angle were taken at 90 degree angles in identified locations and at a field of vision height to match that of a person utilising a wheelchair for mobility. In order to protect participant privacy, identifying features in this photography were then removed, linework adjusted and translucent stamps of matching virtual objects created using digital image adjustment software (Adobe Photoshop CS6). In the case that an image was deemed to have the potential to be identifying, it was not used but rather was analysed and reported in writing, rather than by image. The final de-identified images were 'stitched' to create an image suitable for use in a panorama. A 3D virtual model of the space and main fittings was also created using architectural modelling tools (Rhino7), with virtual blocks representing similar furniture pieces in correct locations. Images of this model were created from a location in the model to match the location in 'real' space, and these images stitched to match the panorama images. These stitched images were overlaid and combined to create a base navigable virtual representation of the occupied apartment.

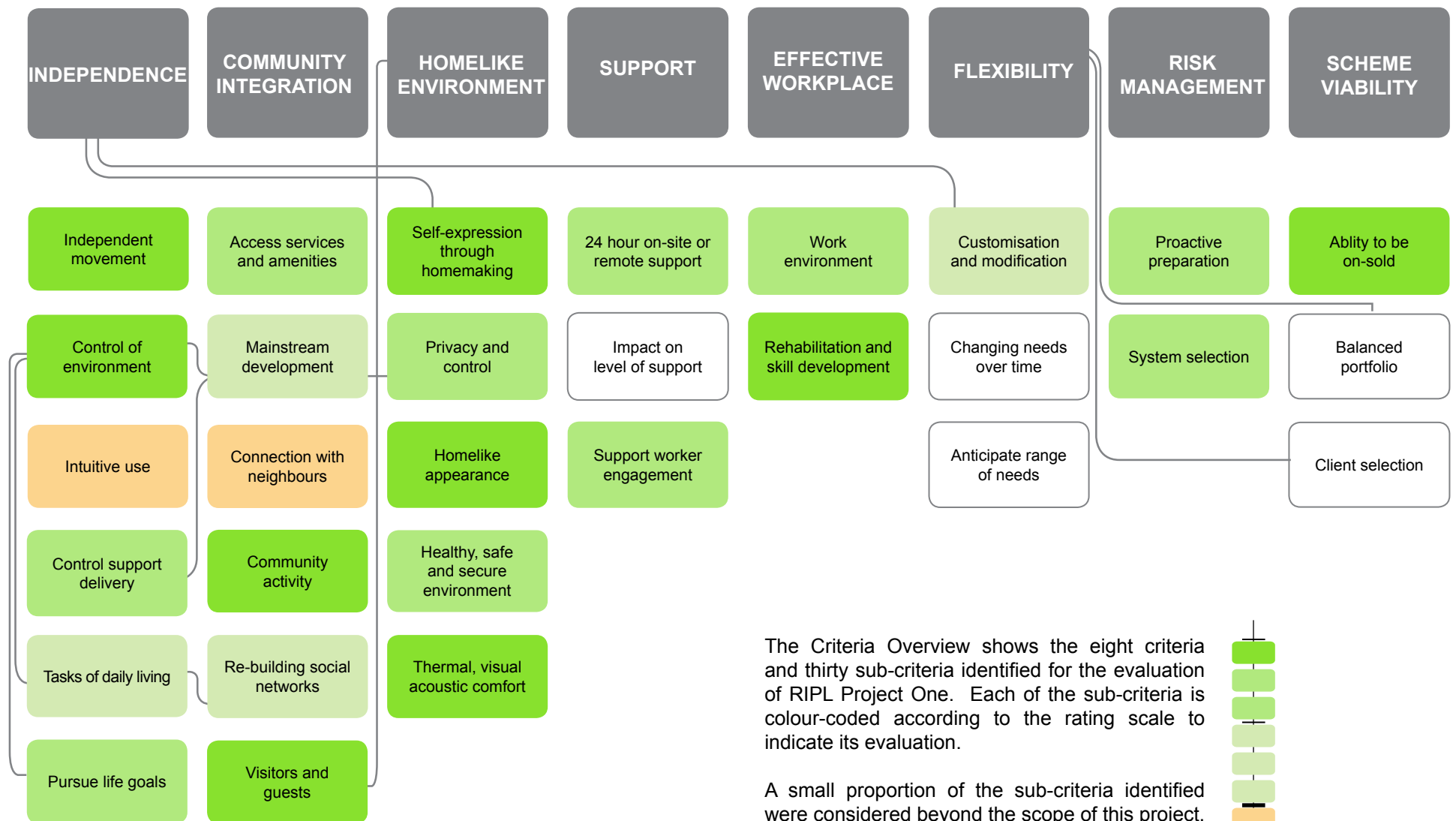
Additional information was also created and imported into the panorama environment. This included indicators for equipment that could be controlled using assistive technology devices, and identified circulation routes for the start state of the panorama.

The production of a 'slider' to allow users to switch to an overlay view from any position in the panorama environment was also designed and produced. The overlay view represents key elements of a participant's experience within the modelled apartment space. This includes degrees of physical access, to match those represented in plan, but now indicated in 3 dimensions. This has included a representation of upper and lower comfortable reach throughout the apartment, with more complex modelling in focus areas such as kitchen or wardrobe joinery. Zones of extended inhabitation were indicated on the ground plane. 'Avatars' to indicate the provision of full (fill) or some (outline) support were located in appropriate locations following the data collected elsewhere.

Explanatory notes were inserted into the images as interactive hotspots to connect with the report content and source materials. The virtual panorama environments produced were reported by room type, rather than within whole apartment presentation, in order to further de-identify this data and to focus on key learnings for design development in other projects. In this way, key aspects of the experience of RIPL Project One have been reintegrated offering researchers additional perspectives on these focus issues, while also producing a navigable environment for clearer communication with relevant stakeholders.

The comprehensive and innovative methodology for this project has been informed at all times by relevant literature and the professional techniques and experience brought to this project by the multidisciplinary research team. It has resulted in a carefully constructed and informed approach to the evaluation framework. This framework responds to the aspirations of the RIPL Trust, in addition to the specific ambitions for RIPL Project One, with a view to the identification and rich communication of findings that can best inform the briefing, design and development of future projects.

CRITERIA OVERVIEW



The Criteria Overview shows the eight criteria and thirty sub-criteria identified for the evaluation of RIPL Project One. Each of the sub-criteria is colour-coded according to the rating scale to indicate its evaluation.

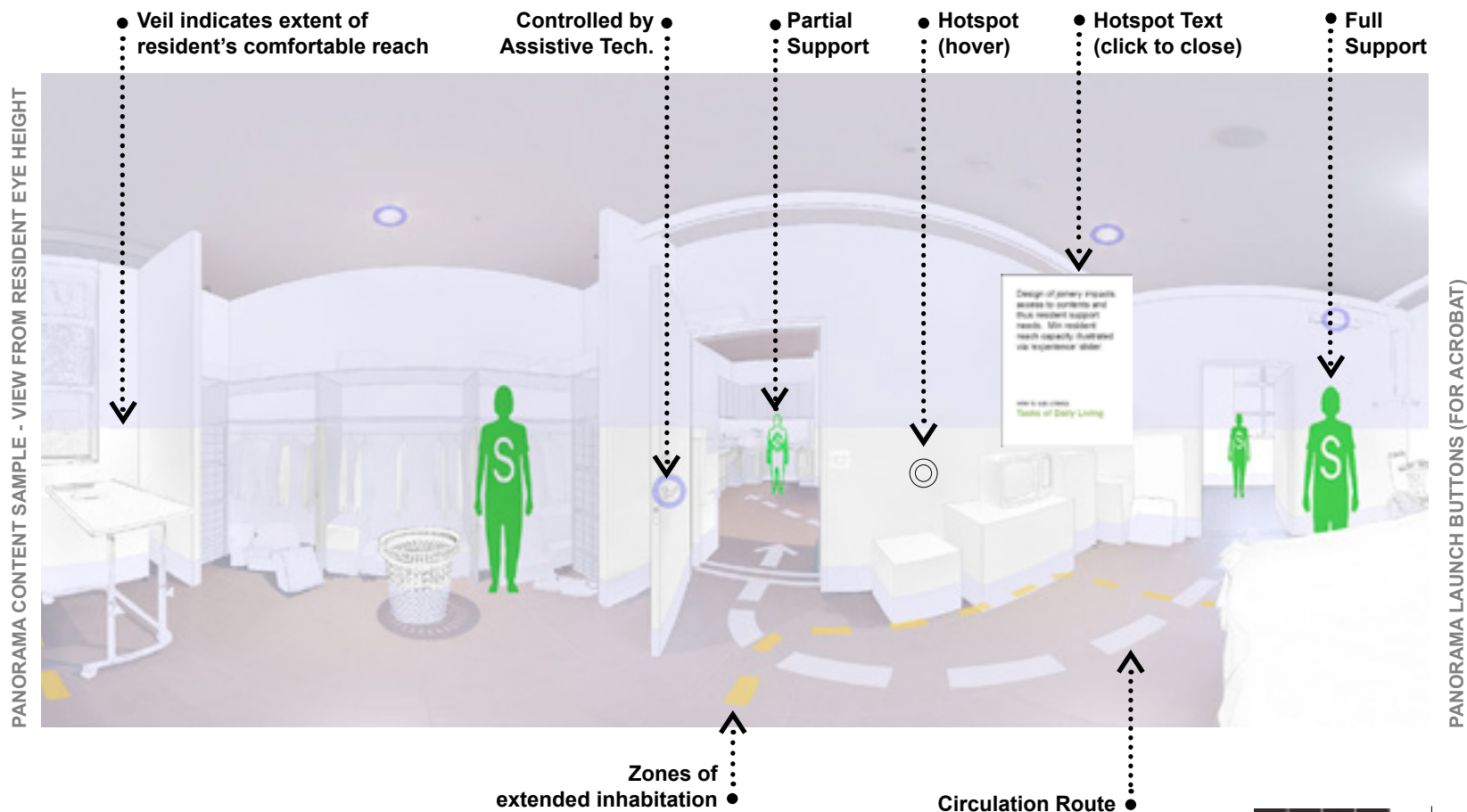
A small proportion of the sub-criteria identified were considered beyond the scope of this project, or not yet able to be evaluated in these early stages of RIPL Project One operation. These sub-criteria are shown unshaded. Definitions and discussion of all criteria and sub-criteria are provided, accompanied by the relevant evidence. Click each criteria or sub-criteria button to access.

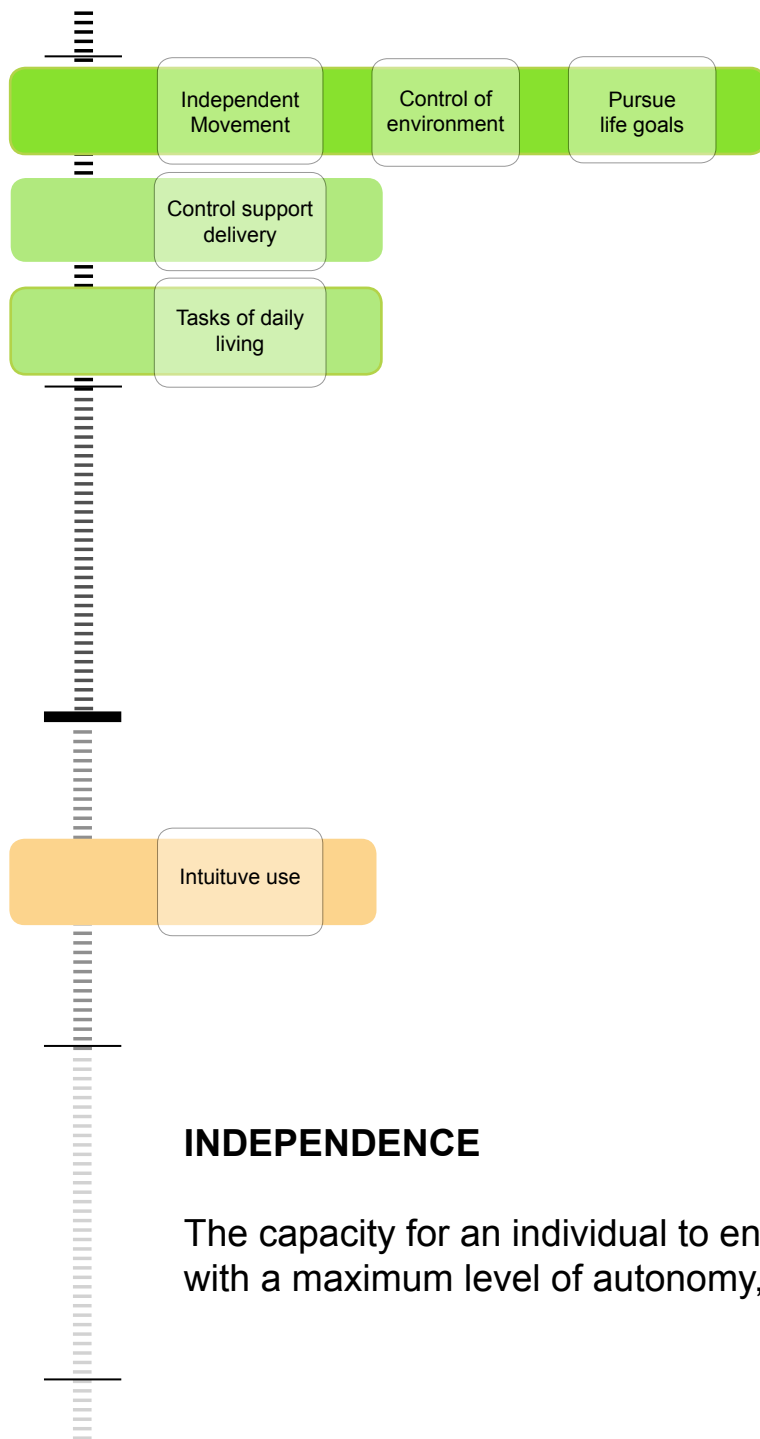


Interactive panoramas are launched from this page in Acrobat or by double clicking the '... *panorama*' files on the USB card next to the report pdf, or the *panorama.html* files in each panorama folder. They will launch in the default browser for the personal computer in use (mac or windows). Control-click to select an alternative browser application if required. They are off-line and do not need an internet connection. Some computers may have pop-up blockers - you will need to agree to the launch of the files. To exit the panoramas, simply close the relevant browser window, and click on the pdf to reactivate.

Navigation is via the buttons illustrated. Home will return to the start view of the tour. Autorotation will commence automatically, click in the window to stop. A, B and C buttons in the tours link to relevant areas of apartment plans represented. The start view represents the apartment view, constructed as a virtual model with non-identifying or virtual furnishings. The slider presents key aspects of a resident's experience. Areas of focus are included as shown in the key below. Hotspot text refers to relevant sub-criteria that offer further detail.

NAVIGATION BUTTON SAMPLES





... I'm getting far more independent though ...

... He's doing really well. So when he was living in his previous home, he made his lunch once a week. Now he's making it every day. His access is pretty good. I've seen - he'll make cups of tea and coffee and he uses the dishwasher ...

... He's also much more confident ... He tries new things with the support. He takes time to get to that as well but he'll try and he does push himself...

INDEPENDENCE

The capacity for an individual to engage in daily tasks, activities and life roles with a maximum level of autonomy, agency and control.

A

Independent Movement

The ability of residents to move easily and independently within the shared and private spaces of the development.

C

B

...The physical space – I think is fantastic. So the bathroom and getting in and out and being able to get the wheelchair in and close the door - you're not sort of stuck and can't turn around. Even the bedrooms, there is room for them to move around. So because they have a lot of big stuff, the layout - I suppose it's open plan-ish but still, you can close it off. I think that's a real benefit...

ENABLERS

Participants in this study all rated the internal apartment, and external common spaces as either 'sometimes accessible' or 'always accessible' using the REIS. Of particular note, living areas and bedrooms offered greatest mobility, with access to storage areas (e.g. wardrobes, bathroom or storage cupboards) and kitchen areas presenting challenges for two of the three participants

Participant A travels primarily in long straight lines within his 'linear' plan apartment, evidenced by the patterns of wear and tear. In contrast, for Participant C, the combination of tight corners and rear wheel drive of a motorised wheelchair appears to have contributed to more corner damage in that apartment.

Participants reported use of the lift to access the basement car park for rubbish disposal, or to access storage cages. None owned a vehicle. The gradient of the vehicle ramp is steep, limiting participant use via wheelchair. For two participants, family members parked in the car park when visiting. One participant reported good capacity to transfer to and from that vehicle. Consideration of circulation space for accessible / modified vehicle access was made by RIPL during project development.

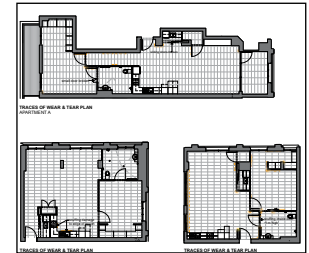
LIMITATIONS

Two ramps have been provided to the main entrance to the building offering different gradients, one of which includes landing spaces, as required by the Code and relevant Standards. The 1:8 gradient ramp can only be accessed by residents using a motorised wheelchair, or a manual wheelchair with attendant support. Participants reported use of the 1:14 ramp with landings without support in both manual and motorised chairs. Both ramps are narrow (further impacted by the requirement for rails), limit the space available for the main entrance and access to the letterboxes. The timing of RIPL involvement once the slab over basement car park was already in place affected this.

The location of apartment furniture deserves special note, as this has had a significant impact on the floor area residents occupy, and their ability to maneuver within the space. Some training or discussion informing clients and their families on design and location of furniture would assist in future.



DEGREES OF PHYS. ACCESS



TRACES, WEAR & TEAR PLAN

RESIDENTIAL ENVIRONMENT IMPACT SURVEY (REIS)					
Information Obtained Via Group Interviews of Participants/Residents					
Space	Participant A	Participant B	Participant C	Participant D	Participant E
Living Area	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Bedroom	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Bathroom	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Kitchen	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Storage	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Common Area	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Entrance	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Exit	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Staircase	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Lift	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Car Park	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Ramp	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Pathway	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Driveway	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Garage	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Storage Cage	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Wardrobe	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Shower	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Toilet	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Bath	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Laundry	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Storage Room	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Common Room	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Reception	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Security	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Mailbox	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Letterbox	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Bin	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Waste	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Recycling	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Composting	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Water	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Electricity	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Gas	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Heating	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Cooling	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Lighting	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Sound	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Security	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Fire	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Earthquake	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible
Other	Always Accessible	Sometimes Accessible	Always Accessible	Sometimes Accessible	Always Accessible

REIS LONG FORM

A

C

B

Independent Movement

PARTICIPANT A

Participant A reported he was very satisfied with his ability to move around in his home. He was able to visit and measure the spaces pre-move to plan for furnishing and installation of audio-visual systems.

Between the two data collection time points, Participant A had made minimal changes to furnishings, besides rotating the mobile kitchen bench 90 degrees. He had organised for the rear shear / tie panel to be removed so that he could mobilise under the bench from either side, however this will reduce the lifespan of the bench unless another support structure is put in place.

Degrees of Physical Access

Participant A has good access through the majority of the apartment. The plan provided shows reach and access from the resident's current motorised wheelchair. The plan shows that access is impacted by furnishings and the nature of Participant A's physical disability, particularly his restricted bilateral upper limb and hand function. Participant A reported satisfaction with his reach capacity in his new home, given the level of assistance he receives from support staff for most domestic tasks.

Door opening and manual control location

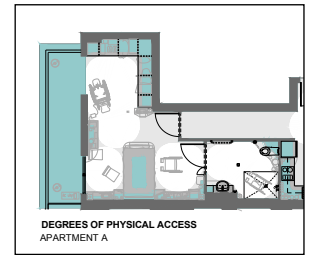
The installation of wall switches for the opening of doors was limited by access to power and the location of constructed walls in the development. This means that the door does not have a clear swing when Participant A is at the switch seated in a wheelchair. Participant A uses the assistive technology each time. As noted, there is a potential conflict between the designed plan layout for privacy vs. access at the threshold.

Traces of Wear and Tear

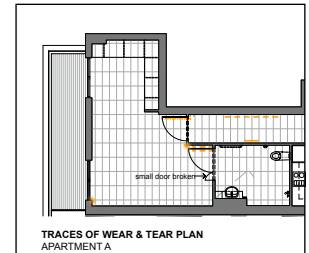
Recorded traces of minor wear and tear suggests that the travel patterns through the apartment are providing few challenges to Participant A. Most traces were recorded on doors and at a tight turn connecting living area and bathroom. There is minor scuffing along the hall walls. The generally linear arrangement of spaces appears to contribute to this ease of circulation. Comparison to traces observed in other layout plans is informative.

REIS Long Form (Space Checklist)

Participant A rated the home as easy to move around in. The bedroom, kitchen and living room were rated as 'always accessible'. Participant A does not have the hand function to be able to adjust the height of his kitchen bench. It is set at a height that is suitable for him to wheel under in his manual wheelchair. He therefore takes a side-on approach to this bench using his larger motorised wheelchair, or uses a 'Stable Table' on his lap as an alternative. He reported the tiled flooring of the apartment was 'easy to push on' in his manual wheelchair.



DEGREES OF PHYS. ACCESS



TRACES, WEAR & TEAR PLAN

RESIDENTIAL ENVIRONMENT IMPACT SURVEY FORM						
Information Obtained From Group Interviews of Participants/Residents						
Room/Space	Access	Reach	Control	Power	Lighting	Other
Living room						
Kitchen						
Bedroom						
Bathroom						
Hallway						
Storage						
Other						

REIS LONG FORM

...It's going great. Yes ... there's no real change that I've done with the furniture and everything because it's all good. I can get around and reach everything...

A

C

B

Independent Movement

PARTICIPANT B

Degrees of Physical Access

Participant B has good access through the majority of the apartment plan, reach and access from his current wheelchair is illustrated in this drawing. Participant B has a large collection of personal belongings not yet stored – the drawing shows access observed over the study period, but does not represent potential access. Access to the front edge of joinery and storage is generally good, access within these is limited by Participant B's reach, left hemiplegia, use of a large motorised wheelchair and, particularly in the kitchen, the inclusion of corners in the L-shaped design. Between the two data collection time points, Participant B made no noted changes to furnishings.

Door opening and manual control location

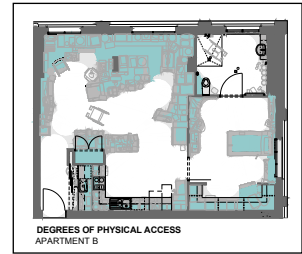
The installation of wall switches for the opening of doors was limited by access to power and the location of constructed walls in the development. This means that the door does not have a clear swing when Participant A is at the switch seated in a wheelchair. In these cases Participant B uses assistive technology, or positions himself in the laundry cavity in order to access the wall-mounted switch. There is a potential conflict between the designed plan layout for privacy and access at the threshold that will call for particular attention.

Traces of Wear and Tear

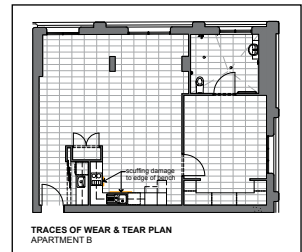
Recorded traces of minor wear and tear suggests that the travel patterns through the apartment are providing few challenges to Participant B. It is notable that this participant appears to occupy fairly limited space within the apartment, and that these are linked by straight and open circulation routes. A significant collection of personal belongings also means that there is little access to wall surfaces. Comparison to traces observed in other layout plans is informative.

REIS Long Form (Space Checklist)

The REIS Long Form was completed prior to the engagement of a building consultant by the TAC to seek kitchen modifications to improve access. At the time the REIS was completed, all physical spaces were rated as 'sometimes accessible' with access to each space rated as 'important'. The wardrobe area was reported as not accessible – although Participant B could position himself in front of most areas his reach capacity and the design of corners impacted his ability to gather or hang clothing. Accessible kitchen bench space is limited due to Participant B's mobility and reach capacity, and coupled with the L-shaped kitchen design has impacted participation in meal preparation. Participant B completes food preparation tasks at the height adjustable mobile bench (kept at a fixed height suitable for his motorised wheelchair), or on a 'Stable Table' on his lap. Participant B described access to the laundry as 'rather awkward', with sliding doors impeding access, even when left in an open position. Street access via the ramp was challenging due to its width, and could not be used without assistance if he was carrying shopping bags.



DEGREES OF PHYS. ACCESS



TRACES, WEAR & TEAR PLAN

RESIDENTIAL ENVIRONMENT IMPACT SURVEY (REIS)									
Information Obtained Via Group Interview of Participant/Residents									
Area	Access	Use	Frequency	Importance	Comments	Access	Use	Frequency	Importance
Living Room	Good	Good	Good	Important		Good	Good	Good	Important
Kitchen	Good	Good	Good	Important		Good	Good	Good	Important
Bathroom	Fair	Fair	Fair	Important		Fair	Fair	Fair	Important
Bedroom	Fair	Fair	Fair	Important		Fair	Fair	Fair	Important
Wardrobe	Poor	Poor	Poor	Important		Poor	Poor	Poor	Important
Laundry	Fair	Fair	Fair	Important		Fair	Fair	Fair	Important
Entrance	Poor	Poor	Poor	Important		Poor	Poor	Poor	Important
Storage	Good	Good	Good	Important		Good	Good	Good	Important
Staircase	Good	Good	Good	Important		Good	Good	Good	Important
Corridor	Good	Good	Good	Important		Good	Good	Good	Important
Common Area	Good	Good	Good	Important		Good	Good	Good	Important
Garage	Good	Good	Good	Important		Good	Good	Good	Important
Other	Good	Good	Good	Important		Good	Good	Good	Important

REIS LONG FORM

...Oh, yes well I suppose the space is bigger [than my previous home], there's more room to move around and things...

A

C

B

Independent Movement

PARTICIPANT C

Participant C reported a very high level of satisfaction with his ability to easily and independently move around his own home. Participant C is now using his motorised wheelchair more often, rather than walking with a frame, compared to his previous living environment. Greater circulation space and transition from walking to a motorised wheelchair at home will have implications for this participant's physical capacity and will require monitoring. He has an established weekly home exercise program, and a comprehensive gym and hydrotherapy program in the local community. It is apparent that his physical activity has reduced in this new home environment however.

Degrees of Physical Access

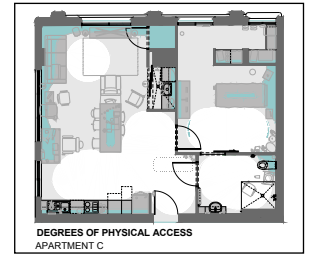
Participant C has good access through the majority of the apartment plan. The plan shows reach and access from his current wheelchair, although it should be noted that this particular resident is also able to stand with support and does so on a regular basis (e.g., to access overhead cupboards). The linear kitchen design offers a high level of accessibility. Limitations on access are mainly as a result of the location of personal furniture – the dining table and television chair effectively create a barrier in the centre of the space limiting options for turning. The location of the television unit means there is no current access to the storage cupboard in the living area. Access to the wardrobe is limited by Participant C's right upper limb hemiplegia, coupled with the robe design. Independent use of the wardrobe with a wheelchair is therefore only possible if Participant C reverses into the space, or moves from sitting to standing once in position.

Traces of Wear and Tear

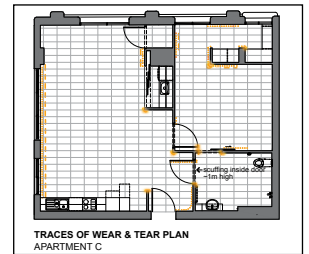
Recorded traces of minor wear and tear suggests that circulation patterns are providing some challenges to Participant C. It is notable that this resident, until moving into RIPL Project One used a wheeled walking frame for indoor mobility and the motorised wheelchair for outdoor mobility due to access issues. Learning to negotiate an apartment interior with this chair initially proved challenging, however Participant C's skills have improved, as evidenced by limited additional traces observed between the first and second visits. The circulation patterns themselves include relatively tight corners. Four doors are located close to the entry threshold, requiring tight turns. Comparison to traces observed in other layout plans is informative.

REIS Long Form (Space Checklist)

The physical spaces of this apartment were rated as 'always accessible' by Participant C. He reported that mobility using a motorised wheelchair was a key aspect of this independence. The outdoor spaces of the development offered 'good access' for Participant C, and he was able to host a barbeque in the communal courtyard for family and friends. However, plans of the courtyard area demonstrate the limited wheelchair access available.



DEGREES OF PHYS. ACCESS



TRACES, WEAR & TEAR PLAN

FEDERATION ENVIRONMENT IMPACT SURVEY (FEIS)									
Information Obtained Via Group Interview of Participants/Residents									
Area	Access	Use	Frequency	Duration	Intensity	Impact	Notes	Comments	Recommendations
Living Area	✓	✓	✓	✓	✓	✓	Participant C reported high satisfaction with the living area, particularly the open plan lounge and kitchen. The linear kitchen design was noted as being highly accessible.		
Kitchen	✓	✓	✓	✓	✓	✓	Participant C reported high satisfaction with the kitchen, particularly the linear design and the ability to reach overhead cupboards.		
Dining Area	✓	✓	✓	✓	✓	✓	Participant C reported high satisfaction with the dining area, particularly the ability to turn around the dining table.		
Bedroom	✓	✓	✓	✓	✓	✓	Participant C reported high satisfaction with the bedroom, particularly the ability to reach the wardrobe.		
Bathroom	✓	✓	✓	✓	✓	✓	Participant C reported high satisfaction with the bathroom, particularly the ability to reach the toilet and shower.		
Wardrobe	✓	✓	✓	✓	✓	✓	Participant C reported high satisfaction with the wardrobe, particularly the ability to reach the hanging space.		
Storage Cupboard	✓	✓	✓	✓	✓	✓	Participant C reported high satisfaction with the storage cupboard, particularly the ability to reach the shelves.		
TV Unit	✓	✓	✓	✓	✓	✓	Participant C reported high satisfaction with the TV unit, particularly the ability to reach the screen.		
Entry Threshold	✓	✓	✓	✓	✓	✓	Participant C reported high satisfaction with the entry threshold, particularly the ability to turn around the door.		
Communal Courtyard	✓	✓	✓	✓	✓	✓	Participant C reported high satisfaction with the communal courtyard, particularly the ability to host a barbeque.		

REIS LONG FORM

... It's so accessible for this [motorised wheelchair] ... I love the open plan lounge room and kitchen. Such a good use of space. They don't waste any space. Space - they put a premium on space here ...

B

The ability to easily manipulate, operate or control the home and shared spaces, using fittings and fixtures, appliances, or installed technology.

Assistive Technology

Data logging at two time points, and participant reporting via the PIADS and QUEST revealed important findings. These included participants' limited awareness of certain features offered by the system and some confusion regards the user interface – this is linked to the intuitive use of the technology, and the cognitive ability of the user.

Fixtures, Fittings and Appliances

Some participants preferred using fixed switches rather than the home automation. This was because they felt it was more time efficient than stepping through the smart technology interface to reach the desired control button. However, the location of some switches inhibited their use. Researchers observed that support staff call buttons located on kitchen splashbacks were out of reach for two participants. One participant demonstrated his front door swinging in to his wheelchair as he could not activate the switch and then move in sufficient time.

Letterbox location and lockable design using keys, restricted access and use for the two participants who use wheelchairs for all mobility and had impaired upper limb function.

PIADS

QUEST

ASSISTIVE TECH LOG

...There are some controls that I use more than I do others, like the entry door, the blinds and the courtyard door. There are probably some that I don't even know how to use...

Participant A reported he was very satisfied with the home automation offered. He particularly liked the automation of his patio door, enabling him to move in or outdoors whilst using his motorized wheelchair. This is something that he had been unable to do without assistance of another person until moving to this apartment.

Participant A had experienced some initial issues with operation and responsiveness of the duress alarm on the application. An attendant call pendant was provided, attached to his bedrail, as a backup system. However, Participant A had expressed concern regarding its consistent operation. Technology consultants provided a customised attendant call button which could be fixed to a wall in reach of Participant A.

Given his limited hand function, Participant A is unable to access or unlock/lock his letterbox and collect his mail due to the key lock in place and narrow box design. Support staff do this for him.

Use of the home automation features via his smart phone positively impacted Participant A's sense of independence (item 3 on the PIADS) and control (item 20). He rated both items as a 3 on the PIADS.

Participant A was very satisfied with the effectiveness of both the smart phone and iPad in meeting his home automation needs. Effectiveness, or the degree to which the device met Participant A's needs, was identified as one of the most important factors that impacted his satisfaction with the devices.

It is clear from the assistive tech log that Participant A made the most use of this facility, primarily to control internal and external doors, and air conditioning. The participant is also using this means to contact support workers. This apartment is the furthest from the office.

PIADS

QUEST

ASSISTIVE TECH LOG

A

C

B

Control of Environment

...Just mainly use [the assistive technology] to open the blinds. That's about mainly what I use it for, and for some of the lights. Apart from that, I just go and use the - seeing as I've got my light switch there, I'll ... press the button myself...

PARTICIPANT B

Participant B expressed concerns regarding mounting of, access to, and negotiating the control offered through the assistive technology provided, and this was reflected in his ratings on both the PIADS and the QUEST and the limited range of features accessed through the assistive technology (refer to assistive technology log below). With suitable modification of the user interface, cognitive supports and targeted training Participant B may be able to increase his level of use and satisfaction with this technology.

PIADS

Participant B's sense of independence (item 3) increased through use of the iPad, with a rating of 2 on the PIADS. He did not perceive any change to his sense of control (item 20) through use of the iPad, rating this item 0 on the PIADS.

QUEST

Despite a high rating of perceived increased independence on the PIADS, Participant B did not rate the iPad highly with regards to its effectiveness in meeting his needs. This was primarily due to limited options for accessing the device when he was not near the location he selected on the kitchen bench. He reported that 'whole parts' of the app control were not working. This appeared to primarily relate to confusion between operational controls (indicated by buttons) versus indicators (marked by flags) on the user interface. Participant B expressed some concerns regarding the duress alarm, and whether it was in fact activating in the staff office. He reported that he tended to call the office via his standard mobile phone as this was 'easier' than going through the app.

ASSISTIVE TECH LOG

It is clear from the assistive tech log that Participant B is using this facility primarily to contact support workers, and to attempt to control the internal environment. It is noted elsewhere that the location of the apartment presents some challenges in this regard.

Each word or phrase below describes how using an assistive device may affect a user. Some might even remind you of a response that you answer every one of the 24 items. So, for each word or phrase, put an "X" in the appropriate box to show how you are affected by using the iPad.

	Decrease	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) convenience								
(2) happiness								
(3) independence								
(4) adequacy								
(5) confidence								
(6) efficiency								
(7) effectiveness								
(8) productivity								
(9) security								
(10) satisfaction								
(11) usefulness								
(12) well-being								
(13) systems								
(14) well-being								
(15) well-being								
(16) well-being								
(17) well-being								
(18) well-being								
(19) well-being								
(20) well-being								
(21) well-being								
(22) well-being								

PIADS

QUEST		QUEST
1	How much do you use the device?	1
2	How much do you use the device?	1
3	How much do you use the device?	1
4	How much do you use the device?	1
5	How much do you use the device?	1
6	How much do you use the device?	1
7	How much do you use the device?	1
8	How much do you use the device?	1
9	How much do you use the device?	1
10	How much do you use the device?	1
11	How much do you use the device?	1
12	How much do you use the device?	1
13	How much do you use the device?	1
14	How much do you use the device?	1
15	How much do you use the device?	1
16	How much do you use the device?	1
17	How much do you use the device?	1
18	How much do you use the device?	1
19	How much do you use the device?	1
20	How much do you use the device?	1
21	How much do you use the device?	1
22	How much do you use the device?	1

QUEST

Specific Function Usage		Specific Function Usage
1	How much do you use the device?	1
2	How much do you use the device?	1
3	How much do you use the device?	1
4	How much do you use the device?	1
5	How much do you use the device?	1
6	How much do you use the device?	1
7	How much do you use the device?	1
8	How much do you use the device?	1
9	How much do you use the device?	1
10	How much do you use the device?	1
11	How much do you use the device?	1
12	How much do you use the device?	1
13	How much do you use the device?	1
14	How much do you use the device?	1
15	How much do you use the device?	1
16	How much do you use the device?	1
17	How much do you use the device?	1
18	How much do you use the device?	1
19	How much do you use the device?	1
20	How much do you use the device?	1
21	How much do you use the device?	1
22	How much do you use the device?	1

ASSISTIVE TECH LOG

Fixtures used were user friendly for those people with adequate hand function, however, cupboard door handles posed risks to those with reduced sensation and hand function, and required individual modification. No issues were identified with appliances supplied, such as the conventional and microwave ovens or washing machine, with regard to their intuitive nature. Participants were receiving support from staff for use of appliances, however – most often due to physical access issues, coupled with the increased time it took for a participant to complete specific tasks, compared to staff.

The user-interface of the smart home technology installed in RIPL Project One was the standard interface that is used by the technology provider. Research findings indicate that a modifiable and flexible interface would have great benefit in servicing this client group. Confusion was arising for some participants regarding both those areas of the home that were controlled by the application, as well as the user interface itself. Participants raised some concerns with the way the assistive technology interface relays information. A flag up / flag down symbol, indicating whether a light was on or off, or a blind open or closed, did not seem to relay information clearly to residents. Opportunities for additional staff and resident training in the use of the technology prior to moving in may have avoided a number of these issues.

It is apparent from evaluation at six-months post move, that participants are not using all features available through this home automation, and further consultation and training would be beneficial to ensure the maximum potential of the system is harnessed. This is particularly important for those people with learning or memory impairment, who may require greater periods of training and practice to develop skills. There is a role for support staff to further facilitate the expansion of technology use by residents onsite and in real time, as opportunities arise. However, this relies on all support staff being adequately familiarised with the home automation available.

The ability to use fittings and fixtures, appliances and smart technology installed. The design of these has an impact on efficient access and navigation by users.

Washing machines were raised on a plinth in order to allow for front loading and unloading of laundry from a seated position. However, it is difficult for a person seated in a wheelchair to fill the washing powder inlet whilst in a seated position, as this inlet is unable to be seen due to its position at the top of the machine. Consideration of use of dissolvable laundry washing tablets may be required to address this. Large button switches offered a simple user interface; however, some light switches used, which had illuminated touch switches, were reported as less intuitive by participants.

...Yeah, it needs to be manipulated. It needs to be personalised not only per, I suppose, industry like into the disability industry but into each person because some person might have more dexterities so therefore the smaller buttons on one page is easier than one or two buttons on multiple pages...

PIADS

QUEST

ASSISTIVE TECH LOG

INTERFACE NAVIGATION

A

C

B

...The more I use (the assistive technology interface) the more I start to figure it out myself...

PARTICIPANT A

Participant A described the stovetop as easy to use. The pull out bench underneath the oven offers additional space to chop and transfer ingredients to be cooked, however impedes access to the oven if approached from the hinged side of the door. The bench top is not heat resistant and may be damaged if hot items from the oven are placed on this.

PIADS

Use of the smart phone had no perceived impact on Participant A's level of confusion (item 5), this item rated 0 on the PIADS. It significantly increased his sense of efficiency (item 6), indicated by a score of 3 on the PIADS. It somewhat increased his level of frustration (item 10) rating 1. It is possible this frustration level would reduce with further practice of the device, as Participant A was otherwise very satisfied with the home automation control.

QUEST – 6; final question; 11; 12

Participant A was quite satisfied with the ease with which the smart phone could be used. However, he noted that loading of the app on the device can take time, and if mobile internet service is absent, the app cannot be used. This loss of mobile service has safety implications also. Participant A chose an Android smart phone over an iPhone as screen size was bigger and offered greater ease of use with his limited hand function.

Intuitive Use

While Participant A was very satisfied with the ease with which the iPad could be used, he indicated that it is not easy for him to move this device from his lap if going out, or re-position the device when it is not in use, given his limited hand function. The smaller smart phone could be easily positioned and adjusted and Participant A felt there was less risk of dropping it.

Participant A was very happy with the professional (information) and follow up (continuing support) services that he could access for both devices. Follow up services were chosen by Participant A as one of the most important factors that impacted his satisfaction with both his iPad and smartphone.

Participant A's PIADS scores (0-3 scale):

Item	Score
1. Confusion	0
2. Independence	2
3. Efficiency	3
4. Frustration	1
5. Satisfaction	2
6. Confidence	2
7. Control	2
8. Knowledge	2
9. Motivation	2
10. Frustration	1
11. Satisfaction	2
12. Confidence	2
13. Knowledge	2
14. Motivation	2
15. Frustration	1
16. Satisfaction	2
17. Confidence	2
18. Knowledge	2
19. Motivation	2
20. Frustration	1
21. Satisfaction	2
22. Confidence	2
23. Knowledge	2
24. Motivation	2
25. Frustration	1
26. Satisfaction	2
27. Confidence	2
28. Knowledge	2
29. Motivation	2
30. Frustration	1
31. Satisfaction	2
32. Confidence	2
33. Knowledge	2
34. Motivation	2
35. Frustration	1
36. Satisfaction	2
37. Confidence	2
38. Knowledge	2
39. Motivation	2
40. Frustration	1
41. Satisfaction	2
42. Confidence	2
43. Knowledge	2
44. Motivation	2
45. Frustration	1
46. Satisfaction	2
47. Confidence	2
48. Knowledge	2
49. Motivation	2
50. Frustration	1
51. Satisfaction	2
52. Confidence	2
53. Knowledge	2
54. Motivation	2
55. Frustration	1
56. Satisfaction	2
57. Confidence	2
58. Knowledge	2
59. Motivation	2
60. Frustration	1
61. Satisfaction	2
62. Confidence	2
63. Knowledge	2
64. Motivation	2
65. Frustration	1
66. Satisfaction	2
67. Confidence	2
68. Knowledge	2
69. Motivation	2
70. Frustration	1
71. Satisfaction	2
72. Confidence	2
73. Knowledge	2
74. Motivation	2
75. Frustration	1
76. Satisfaction	2
77. Confidence	2
78. Knowledge	2
79. Motivation	2
80. Frustration	1
81. Satisfaction	2
82. Confidence	2
83. Knowledge	2
84. Motivation	2
85. Frustration	1
86. Satisfaction	2
87. Confidence	2
88. Knowledge	2
89. Motivation	2
90. Frustration	1
91. Satisfaction	2
92. Confidence	2
93. Knowledge	2
94. Motivation	2
95. Frustration	1
96. Satisfaction	2
97. Confidence	2
98. Knowledge	2
99. Motivation	2
100. Frustration	1
101. Satisfaction	2
102. Confidence	2
103. Knowledge	2
104. Motivation	2
105. Frustration	1
106. Satisfaction	2
107. Confidence	2
108. Knowledge	2
109. Motivation	2
110. Frustration	1
111. Satisfaction	2
112. Confidence	2
113. Knowledge	2
114. Motivation	2
115. Frustration	1
116. Satisfaction	2
117. Confidence	2
118. Knowledge	2
119. Motivation	2
120. Frustration	1
121. Satisfaction	2
122. Confidence	2
123. Knowledge	2
124. Motivation	2
125. Frustration	1
126. Satisfaction	2
127. Confidence	2
128. Knowledge	2
129. Motivation	2
130. Frustration	1
131. Satisfaction	2
132. Confidence	2
133. Knowledge	2
134. Motivation	2
135. Frustration	1
136. Satisfaction	2
137. Confidence	2
138. Knowledge	2
139. Motivation	2
140. Frustration	1
141. Satisfaction	2
142. Confidence	2
143. Knowledge	2
144. Motivation	2
145. Frustration	1
146. Satisfaction	2
147. Confidence	2
148. Knowledge	2
149. Motivation	2
150. Frustration	1
151. Satisfaction	2
152. Confidence	2
153. Knowledge	2
154. Motivation	2
155. Frustration	1
156. Satisfaction	2
157. Confidence	2
158. Knowledge	2
159. Motivation	2
160. Frustration	1
161. Satisfaction	2
162. Confidence	2
163. Knowledge	2
164. Motivation	2
165. Frustration	1
166. Satisfaction	2
167. Confidence	2
168. Knowledge	2
169. Motivation	2
170. Frustration	1
171. Satisfaction	2
172. Confidence	2
173. Knowledge	2
174. Motivation	2
175. Frustration	1
176. Satisfaction	2
177. Confidence	2
178. Knowledge	2
179. Motivation	2
180. Frustration	1
181. Satisfaction	2
182. Confidence	2
183. Knowledge	2
184. Motivation	2
185. Frustration	1
186. Satisfaction	2
187. Confidence	2
188. Knowledge	2
189. Motivation	2
190. Frustration	1
191. Satisfaction	2
192. Confidence	2
193. Knowledge	2
194. Motivation	2
195. Frustration	1
196. Satisfaction	2
197. Confidence	2
198. Knowledge	2
199. Motivation	2
200. Frustration	1
201. Satisfaction	2
202. Confidence	2
203. Knowledge	2
204. Motivation	2
205. Frustration	1
206. Satisfaction	2
207. Confidence	2
208. Knowledge	2
209. Motivation	2
210. Frustration	1
211. Satisfaction	2
212. Confidence	2
213. Knowledge	2
214. Motivation	2
215. Frustration	1
216. Satisfaction	2
217. Confidence	2
218. Knowledge	2
219. Motivation	2
220. Frustration	1
221. Satisfaction	2
222. Confidence	2
223. Knowledge	2
224. Motivation	2
225. Frustration	1
226. Satisfaction	2
227. Confidence	2
228. Knowledge	2
229. Motivation	2
230. Frustration	1
231. Satisfaction	2
232. Confidence	2
233. Knowledge	2
234. Motivation	2
235. Frustration	1
236. Satisfaction	2
237. Confidence	2
238. Knowledge	2
239. Motivation	2
240. Frustration	1
241. Satisfaction	2
242. Confidence	2
243. Knowledge	2
244. Motivation	2
245. Frustration	1
246. Satisfaction	2
247. Confidence	2
248. Knowledge	2
249. Motivation	2
250. Frustration	1
251. Satisfaction	2
252. Confidence	2
253. Knowledge	2
254. Motivation	2
255. Frustration	1
256. Satisfaction	2
257. Confidence	2
258. Knowledge	2
259. Motivation	2
260. Frustration	1
261. Satisfaction	2
262. Confidence	2
263. Knowledge	2
264. Motivation	2
265. Frustration	1
266. Satisfaction	2
267. Confidence	2
268. Knowledge	2
269. Motivation	2
270. Frustration	1
271. Satisfaction	2
272. Confidence	2
273. Knowledge	2
274. Motivation	2
275. Frustration	1
276. Satisfaction	2
277. Confidence	2
278. Knowledge	2
279. Motivation	2
280. Frustration	1
281. Satisfaction	2
282. Confidence	2
283. Knowledge	2
284. Motivation	2
285. Frustration	1
286. Satisfaction	2
287. Confidence	2
288. Knowledge	2
289. Motivation	2
290. Frustration	1
291. Satisfaction	2
292. Confidence	2
293. Knowledge	2
294. Motivation	2
295. Frustration	1
296. Satisfaction	2
297. Confidence	2
298. Knowledge	2
299. Motivation	2
300. Frustration	1
301. Satisfaction	2
302. Confidence	2
303. Knowledge	2
304. Motivation	2
305. Frustration	1
306. Satisfaction	2
307. Confidence	2
308. Knowledge	2
309. Motivation	2
310. Frustration	1
311. Satisfaction	2
312. Confidence	2
313. Knowledge	2
314. Motivation	2
315. Frustration	1
316. Satisfaction	2
317. Confidence	2
318. Knowledge	2
319. Motivation	2
320. Frustration	1
321. Satisfaction	2
322. Confidence	2
323. Knowledge	2
324. Motivation	2
325. Frustration	1
326. Satisfaction	2
327. Confidence	2
328. Knowledge	2
329. Motivation	2
330. Frustration	1
331. Satisfaction	2
332. Confidence	2
333. Knowledge	2
334. Motivation	2
335. Frustration	1
336. Satisfaction	2
337. Confidence	2
338. Knowledge	2
339. Motivation	2
340. Frustration	1
341. Satisfaction	2
342. Confidence	2
343. Knowledge	2
344. Motivation	2
345. Frustration	1
346. Satisfaction	2
347. Confidence	2
348. Knowledge	2
349. Motivation	2
350. Frustration	1
351. Satisfaction	2
352. Confidence	2
353. Knowledge	2
354. Motivation	2
355. Frustration	1
356. Satisfaction	2
357. Confidence	2
358. Knowledge	2
359. Motivation	2
360. Frustration	1
361. Satisfaction	2
362. Confidence	2
363. Knowledge	2
364. Motivation	2
365. Frustration	1
366. Satisfaction	2
367. Confidence	2
368. Knowledge	2
369. Motivation	2
370. Frustration	1
371. Satisfaction	2
372. Confidence	2
373. Knowledge	2
374. Motivation	2
375. Frustration	1
376. Satisfaction	2
377. Confidence	2
378. Knowledge	2
379. Motivation	2
380. Frustration	1
381. Satisfaction	2
382. Confidence	2
383. Knowledge	2
384. Motivation	2
385. Frustration	1
386. Satisfaction	2
387. Confidence	2
388. Knowledge	2
389. Motivation	2
390. Frustration	1
391. Satisfaction	2
392. Confidence	2
393. Knowledge	2
394. Motivation	2
395. Frustration	1
396. Satisfaction	2
397. Confidence	2
398. Knowledge	2
399. Motivation	2
400. Frustration	1
401. Satisfaction	2
402. Confidence	2
403. Knowledge	2
404. Motivation	2
405. Frustration	1
406. Satisfaction	2
407. Confidence	2
408. Knowledge	2
409. Motivation	2
410. Frustration	1
411. Satisfaction	2
412. Confidence	2
413. Knowledge	2
414. Motivation	2
415. Frustration	1
416. Satisfaction	2
417. Confidence	2
418. Knowledge	2
419. Motivation	2
420. Frustration	1
421. Satisfaction	2
422. Confidence	2
423. Knowledge	2
424. Motivation	2
425. Frustration	1
426. Satisfaction	2
427. Confidence	2
428. Knowledge	2
429. Motivation	2
430. Frustration	1
431. Satisfaction	2
432. Confidence	2
433. Knowledge	2
434. Motivation	2
435. Frustration	1
436. Satisfaction	2
437. Confidence	2
438. Knowledge	2
439. Motivation	2
440. Frustration	1
441. Satisfaction	2
442. Confidence	2
443. Knowledge	2
444. Motivation	2
445. Frustration	1
446. Satisfaction	2
447. Confidence	2
448. Knowledge	2
449. Motivation	2
450. Frustration	1
451. Satisfaction	2
452. Confidence	2
453. Knowledge	2
454. Motivation	2
455. Frustration	1
456. Satisfaction	2
457. Confidence	2
458. Knowledge	2
459. Motivation	2
460. Frustration	1
461. Satisfaction	2
462. Confidence	2
463. Knowledge	2
464. Motivation	2
465. Frustration	1
466. Satisfaction	2
467. Confidence	2
468. Knowledge	2
469. Motivation	2
470. Frustration	1
471. Satisfaction	2
472. Confidence	2
473. Knowledge	2
474. Motivation	2
475. Frustration	1
476. Satisfaction	2
477. Confidence	2
478. Knowledge	2
479. Motivation	2
480. Frustration	1
481. Satisfaction	2
482. Confidence	2
483. Knowledge	2
484. Motivation	2
485. Frustration	1
486. Satisfaction	2
487. Confidence	2
488. Knowledge	2
489. Motivation	2
490. Frustration	1
491. Satisfaction	2
492. Confidence	2
493. Knowledge	2
494. Motivation	2
495. Frustration	1
496. Satisfaction	2
497. Confidence	2
498. Knowledge	2
499. Motivation	2
500. Frustration	1
501. Satisfaction	2
502. Confidence	2
503. Knowledge	2
504. Motivation	2
505. Frustration	1
506. Satisfaction	2
507. Confidence	2
508. Knowledge	2
509. Motivation	2
510. Frustration	1
511. Satisfaction	2
512. Confidence	2
513. Knowledge	2
514. Motivation	2
515. Frustration	1
516. Satisfaction	2
517. Confidence	2
518. Knowledge	2
519. Motivation	2
520. Frustration	1
521. Satisfaction	2
522. Confidence	2
523. Knowledge	2
524. Motivation	2
525. Frustration	1
526. Satisfaction	2
527. Confidence	2
528. Knowledge	2
529. Motivation	2
530. Frustration	1
531. Satisfaction	2
532. Confidence	2
533. Knowledge	2
534. Motivation	2
535. Frustration	1
536. Satisfaction	2
537. Confidence	2
538. Knowledge	2
539. Motivation	2
540. Frustration	1

A

...Just mainly use it to open the blinds. That's about mainly what I use it for, and for some of the lights. Apart from that, I just go and use the - seeing as I've got my light switch there, I'll use the - press the button myself. If I've got the iPad out here, I'll use it for the curtains ... I haven't been shown anything else, but I probably haven't asked...

C

PARTICIPANT B

Participant B demonstrated use of the home automation and communication features on the iPad during data collection. It was apparent that he was experiencing some difficulty in understanding the user interface, particularly the difference between control buttons and indicators that an item had been turned on / off (i.e. flag up or down). This was causing frustration and the sense that the technology was not operating correctly (refer to PIADS below) and points to the need for follow up training and support to extend use of technology and avoid risk of technology abandonment.

PIADS

Use of the iPad had no perceived impact on Participant B's level of confusion (item 5), this item rated 0 on the PIADS. While use of the iPad increased Participant B's sense of efficiency (item 6), scoring 2, his level of frustration (item 10) significantly increased, scoring 3, indicating that at the time of data collection he would have benefited from further instruction and demonstration of technology use.

Intuitive Use

B

QUEST – 6; final question; 11; 12

A key issue for Participant B was that, to date, a suitable mounting system for the iPad for use while he was in bed, or seated on his wheelchair had not been established. He reported that the iPad was therefore left in its original box on his mobile bench, as the box offered protection and ease of access. Participant B was not satisfied with the ease with which the iPad could be used. He commented that it was hard to increase the volume of the iPad by feel, and that he needed to be looking at the device to do so, which involved removing it from the storage box.

Participant B was more or less satisfied with the professional (information) and follow up (continuing support) services that he could access for the iPad. Follow up services were chosen by Participant B as one of the most important factors that impacted his satisfaction with the iPad and associated home automation and communication.

PLEASE REVIEW THESE QUESTIONS CAREFULLY. THEY ASK YOU TO RATE YOUR AGREEMENT WITH EACH STATEMENT. PLEASE RATE EACH STATEMENT ON A SCALE OF 1 TO 5. 1 = STRONGLY DISAGREE, 2 = DISAGREE, 3 = NEUTRAL, 4 = AGREE, 5 = STRONGLY AGREE. IT IS IMPORTANT THAT YOU ANSWER EVERY ONE OF THE 26 ITEMS. DO NOT LEAVE ANY ITEMS UNANSWERED. PLEASE PUT AN 'X' IN THE APPROPRIATE BOX TO SHOW HOW YOU ARE AFFECTED BY USING THE IPAD.

Item	1	2	3	4	5
1. I am confident in my ability to use the iPad					
2. I am confident in my ability to use the iPad					
3. I am confident in my ability to use the iPad					
4. I am confident in my ability to use the iPad					
5. I am confident in my ability to use the iPad					
6. I am confident in my ability to use the iPad					
7. I am confident in my ability to use the iPad					
8. I am confident in my ability to use the iPad					
9. I am confident in my ability to use the iPad					
10. I am confident in my ability to use the iPad					
11. I am confident in my ability to use the iPad					
12. I am confident in my ability to use the iPad					
13. I am confident in my ability to use the iPad					
14. I am confident in my ability to use the iPad					
15. I am confident in my ability to use the iPad					
16. I am confident in my ability to use the iPad					
17. I am confident in my ability to use the iPad					
18. I am confident in my ability to use the iPad					
19. I am confident in my ability to use the iPad					
20. I am confident in my ability to use the iPad					
21. I am confident in my ability to use the iPad					
22. I am confident in my ability to use the iPad					
23. I am confident in my ability to use the iPad					
24. I am confident in my ability to use the iPad					
25. I am confident in my ability to use the iPad					
26. I am confident in my ability to use the iPad					

PIADS

PLEASE REVIEW THESE QUESTIONS CAREFULLY. THEY ASK YOU TO RATE YOUR AGREEMENT WITH EACH STATEMENT. PLEASE RATE EACH STATEMENT ON A SCALE OF 1 TO 5. 1 = STRONGLY DISAGREE, 2 = DISAGREE, 3 = NEUTRAL, 4 = AGREE, 5 = STRONGLY AGREE. IT IS IMPORTANT THAT YOU ANSWER EVERY ONE OF THE 10 ITEMS. DO NOT LEAVE ANY ITEMS UNANSWERED. PLEASE PUT AN 'X' IN THE APPROPRIATE BOX TO SHOW HOW YOU ARE AFFECTED BY USING THE IPAD.

Item	1	2	3	4	5
1. I am confident in my ability to use the iPad					
2. I am confident in my ability to use the iPad					
3. I am confident in my ability to use the iPad					
4. I am confident in my ability to use the iPad					
5. I am confident in my ability to use the iPad					
6. I am confident in my ability to use the iPad					
7. I am confident in my ability to use the iPad					
8. I am confident in my ability to use the iPad					
9. I am confident in my ability to use the iPad					
10. I am confident in my ability to use the iPad					

QUEST

PLEASE REVIEW THESE QUESTIONS CAREFULLY. THEY ASK YOU TO RATE YOUR AGREEMENT WITH EACH STATEMENT. PLEASE RATE EACH STATEMENT ON A SCALE OF 1 TO 5. 1 = STRONGLY DISAGREE, 2 = DISAGREE, 3 = NEUTRAL, 4 = AGREE, 5 = STRONGLY AGREE. IT IS IMPORTANT THAT YOU ANSWER EVERY ONE OF THE 10 ITEMS. DO NOT LEAVE ANY ITEMS UNANSWERED. PLEASE PUT AN 'X' IN THE APPROPRIATE BOX TO SHOW HOW YOU ARE AFFECTED BY USING THE IPAD.

Item	1	2	3	4	5
1. I am confident in my ability to use the iPad					
2. I am confident in my ability to use the iPad					
3. I am confident in my ability to use the iPad					
4. I am confident in my ability to use the iPad					
5. I am confident in my ability to use the iPad					
6. I am confident in my ability to use the iPad					
7. I am confident in my ability to use the iPad					
8. I am confident in my ability to use the iPad					
9. I am confident in my ability to use the iPad					
10. I am confident in my ability to use the iPad					

ASSISTIVE TECH LOG

PLEASE REVIEW THESE QUESTIONS CAREFULLY. THEY ASK YOU TO RATE YOUR AGREEMENT WITH EACH STATEMENT. PLEASE RATE EACH STATEMENT ON A SCALE OF 1 TO 5. 1 = STRONGLY DISAGREE, 2 = DISAGREE, 3 = NEUTRAL, 4 = AGREE, 5 = STRONGLY AGREE. IT IS IMPORTANT THAT YOU ANSWER EVERY ONE OF THE 10 ITEMS. DO NOT LEAVE ANY ITEMS UNANSWERED. PLEASE PUT AN 'X' IN THE APPROPRIATE BOX TO SHOW HOW YOU ARE AFFECTED BY USING THE IPAD.

Item	1	2	3	4	5
1. I am confident in my ability to use the iPad					
2. I am confident in my ability to use the iPad					
3. I am confident in my ability to use the iPad					
4. I am confident in my ability to use the iPad					
5. I am confident in my ability to use the iPad					
6. I am confident in my ability to use the iPad					
7. I am confident in my ability to use the iPad					
8. I am confident in my ability to use the iPad					
9. I am confident in my ability to use the iPad					
10. I am confident in my ability to use the iPad					

INTERFACE NAVIGATION

A

C

B

...I didn't know it was possible to use the iPad [to operate lounge room blinds]...

PARTICIPANT C

Similar to Participant B, it is apparent that this participant would benefit from follow up training, written instructional supports and monitoring to harness the range of options available in the technology-enabled environment. Participant C benefited from practice with devices in his new environment, enhancing skill development. In the three months between the first and second post-occupancy interview, Participant C had learnt how to independently operate the microwave oven and had progressed to heating meals from his freezer.

PIADS

Use of the iPad had no perceived impact on Participant C's level of confusion (item 5) or frustration (item 10), with both items rated 0 on the PIADS. Use of the iPad somewhat increased Participant C's sense of efficiency (item 6), which he rated as a 1 on the PIADS.

QUEST – [link to items 6, 11 and 12; final question (3 most important things)]

Participant C was “quite satisfied” with the ease with which the iPad could be used. He was very satisfied with the professional (information) services, and quite satisfied with the follow up (continuing support) services he could access for the iPad. Ease of use and professional services were both identified as important factors that impacted Participant C's satisfaction with the iPad-controlled home automation and staff communication systems.

Intuitive Use

Table 1: PIADS (Participant Information and Assessment Data Sheet) - Participant C

Item	Confusion	Frustration	Efficiency	Control	Information	Support
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	1	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0

PIADS

QUEST (Participant Information and Assessment Data Sheet) - Participant C

Item	Confusion	Frustration	Efficiency	Control	Information	Support
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	1	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0

QUEST

ASSISTIVE TECH LOG (Participant Information and Assessment Data Sheet) - Participant C

Item	Confusion	Frustration	Efficiency	Control	Information	Support
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	1	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0

ASSISTIVE TECH LOG

INTERFACE NAVIGATION (Participant Information and Assessment Data Sheet) - Participant C

Item	Confusion	Frustration	Efficiency	Control	Information	Support
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	1	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0

INTERFACE NAVIGATION

A C

B

Post-occupancy evaluation highlighted varied levels of confidence in the technology and associated staff responsiveness to calls via the assistive technology. Two participants reported ongoing concerns about the reliability or accessibility of the technology to notify staff, and reverted to use of their mobile phone to call the staff office for assistance in order to ensure their call had been received. Generally, participants interviewed described no perceived impact on their sense of security as a result of the use of smart home technology, although one participant reported a minor improvement.

Figure 10.30: The appropriate test to select the best model for analyzing the data.

	Decision	-3	-2	-1	0	1	2	3
1) competence	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
2) happiness	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
3) independence	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
4) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
5) confidence	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
6) affluence	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
7) education	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
8) modernity	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
9) security	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
10) freedom	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
11) self-confidence	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
12) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
13) self-dependence	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
14) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
15) self-dependence	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
16) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
17) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
18) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
19) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
20) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
21) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
22) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
23) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
24) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
25) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
26) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
27) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
28) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
29) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
30) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
31) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
32) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
33) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
34) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
35) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
36) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
37) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
38) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
39) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
40) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
41) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
42) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
43) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
44) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
45) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
46) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
47) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
48) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
49) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
50) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
51) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
52) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
53) self-reliance	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
54) self-reliance	(1)	(1)	(1)					

[illegible]

MADA
MONASH UNIVERSITY
ART DESIGN & ARCHITECTURE

... But if it's urgent then I just ring the staff [via telephone] and speak to them directly...

A

C

Control Support Delivery

PARTICIPANT A

Participant A has five separate systems with which to notify staff of the need for assistance, including wall mounted call buttons, a single call pendant attached to the side of his bed, a large call button customised for him and affixed to the head of his bed, and the assistive technology offered via his iPad and smartphone. When lying in bed, this range of options is necessary as access to the smartphone and iPad is limited. As a result of his disability, this person has specific secondary health conditions that may lead to the need for urgent assistance – an indication via the technology of a call for urgent assistance, versus general support, would be particularly useful.

Initial researcher observations at data collection time-point one included that Participant A's apartment door was left open at regular times throughout the day, and staff were observed to enter and exit the apartment without notice. When explored, this appeared linked to the home automation controls, coupled with staff responses. Participant A reported he was not aware if the door had been left open by staff when departing. At time-point two, this issue had appeared to have resolved. The door was consistently closed throughout the second data collection period, and Participant A reported that staff would knock before entering.

Participant A reported that involvement in a regular meeting with the support provider gave him the opportunity to provide feedback and to modify elements of his individual support model.

ASSISTIVE TECH LOG

Evidence provided indicates that Participant A makes good use of assistive technology for this purpose.

PIADS

Use of the smart phone had no perceived impact on Participant C's sense of security (item 9), rated as 0 on the PIADS. This finding is likely linked to the range of staff call options Participant A has, as detailed above.

Please put an "X" in the appropriate box to show how you are affected by using the device

Device	1	2	3	4	5	6	7	8	9
1) communication									
2) independence									
3) self-reliance									
4) efficiency									
5) confidence									
6) self-esteem									
7) productivity									
8) accuracy									
9) speed									
10) self-confidence									
11) self-reliance									
12) self-esteem									
13) self-confidence									
14) self-reliance									
15) self-esteem									
16) self-confidence									
17) self-reliance									
18) self-esteem									
19) self-confidence									
20) self-reliance									
21) self-esteem									
22) self-confidence									
23) self-reliance									
24) self-esteem									
25) self-confidence									
26) self-reliance									
27) self-esteem									
28) self-confidence									
29) self-reliance									
30) self-esteem									
31) self-confidence									
32) self-reliance									
33) self-esteem									
34) self-confidence									
35) self-reliance									
36) self-esteem									
37) self-confidence									
38) self-reliance									
39) self-esteem									
40) self-confidence									
41) self-reliance									
42) self-esteem									
43) self-confidence									
44) self-reliance									
45) self-esteem									
46) self-confidence									
47) self-reliance									
48) self-esteem									
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82) self-confidence									
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84) self-esteem									
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86) self-reliance									
87) self-esteem									
88) self-confidence									
89) self-reliance									
90) self-esteem									
91) self-confidence									
92) self-reliance									
93) self-esteem									
94) self-confidence									
95) self-reliance									
96) self-esteem									
97) self-confidence									
98) self-reliance									
99) self-esteem									
100) self-confidence									

PIADS

Specific Personnel Usage - Participant A

Personnel	Usage	Frequency	Duration	Location	Notes
1) Staff					
2) Family					
3) Friends					
4) Neighbours					
5) Other					
6) Self					
7) Other					
8) Self					
9) Other					
10) Self					
11) Other					
12) Self					
13) Other					
14) Self					
15) Other					
16) Self					
17) Other					
18) Self					
19) Other					
20) Self					
21) Other					
22) Self					
23) Other					
24) Self					
25) Other					
26) Self					
27) Other					
28) Self					
29) Other					
30) Self					
31) Other					
32) Self					
33) Other					
34) Self					
35) Other					
36) Self					
37) Other					
38) Self					
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41) Other					
42) Self					
43) Other					
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91) Other					
92) Self					
93) Other					
94) Self					
95) Other					
96) Self					
97) Other					
98) Self					
99) Other					
100) Self					

ASSISTIVE TECH LOG

A

C

B

Control Support Delivery

... Sometimes I ring up, it could be 10, 15, half an hour later because I want to know is it working? So you press it again and still nothing or probably sometimes it's just as easy to use the phone...

PARTICIPANT B

A suitable mounting system for the iPad is recommended for when Participant B is positioned in bed, or moving around his home in his wheelchair, allowing use of the home automation and staff call system, in any location. Currently, he can only use his iPad if he is in his wheelchair and can move over to the mobile bench where the iPad is positioned. This access issue to the tablet, coupled with Participant B's concerns that the duress button may not have been activated, leads to him using his mobile phone to call staff more often than using the tablet-based call system.

Participant B's response times using the home automation system were observed to be slow, due to his upper limb control coupled with his access to the iPad (refer above). He requires additional time to respond to a person knocking on his door in order to reach his iPad and activate door opening. Participant B reported inconsistency in some staff knocking and awaiting invitation of entry, whilst other staff entered once they had knocked on his door. This inconsistency was observed in the data collection period and impacts both how and when support is delivered, whilst also being linked to privacy.

Participant B is aware of specific times when 1:1 support will be delivered (e.g. the time each afternoon that meal preparation support commences) and anticipates arrival of support staff for these set tasks.

ASSISTIVE TECH LOG

Evidence provided indicates that Participant B makes quite good use of assistive technology for this purpose, however this participant is also using his mobile phone to call for assistance. These instances are not tracked using the tech log.

PIADS

Use of the iPad had no perceived impact on Participant B's sense of security (item 9), rated as 0 on the PIADS.

please, put an "X" in the appropriate box to show how you are affected by using the iPad

Item	1	2	3	4	5	6	7	8	9	10
1. convenience										
2. independence										
3. efficiency										
4. confidence										
5. efficiency										
6. confidence										
7. efficiency										
8. confidence										
9. security										
10. convenience										
11. independence										
12. efficiency										
13. confidence										
14. efficiency										
15. confidence										
16. efficiency										
17. confidence										
18. efficiency										
19. confidence										
20. efficiency										
21. confidence										
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93. confidence										
94. efficiency										
95. confidence										
96. efficiency										
97. confidence										
98. efficiency										
99. confidence										
100. efficiency										

PIADS

Specific Participant Usage - (Date: 10/10/14)										
	1	2	3	4	5	6	7	8	9	10
Satisfaction	1. convenience									
	2. independence									
	3. efficiency									
	4. confidence									
	5. efficiency									
	6. confidence									
	7. efficiency									
	8. confidence									
	9. security									
	10. convenience									
Usability	11. independence									
	12. efficiency									
	13. confidence									
	14. efficiency									
	15. confidence									
	16. efficiency									
	17. confidence									
	18. efficiency									
	19. confidence									
	20. efficiency									
Performance	21. confidence									
	22. efficiency									
	23. confidence									
	24. efficiency									
	25. confidence									
	26. efficiency									
	27. confidence									
	28. efficiency									
	29. confidence									
	30. efficiency									
Health	31. confidence									
	32. efficiency									
	33. confidence									
	34. efficiency									
	35. confidence									
	36. efficiency									
	37. confidence									
	38. efficiency									
	39. confidence									
	40. efficiency									
Other	41. confidence									
	42. efficiency									
	43. confidence									
	44. efficiency									
	45. confidence									
	46. efficiency									
	47. confidence									
	48. efficiency									
	49. confidence									
	50. efficiency									

Bar chart showing the percentage of participants using the system for each item. The x-axis represents the percentage of participants (0% to 100%). The y-axis lists the items. The bars are colored in shades of gray.

C

B

Use of the iPad had some impact on Participant C's sense of security (item 9), rated as 1 on the PIADS.

ASSISTIVE TECH LOG

C

...I can do more for myself... things like I can make my own cuppa.
I can put things in the oven and use the stove...

A

Tasks of Daily Living

Ability to independently manage activities of daily living consistent with the typical capacity of this client group.

As indicated in the Degrees of Physical Access plans, areas with fitted joinery present challenges depending on the extent of participants' hand function and reach while seated in a wheelchair. This is clearly relevant to the ability to independently manage tasks of daily living, and can be demonstrated via resident access in the kitchen areas. Access is also demonstrated in the panorama environments.

Participants' use of laundries is assisted by the placement of washer/dryers on plinths, raising the front loader doors to an appropriate height for filling. Removal of clothes when wet was considered too difficult by all residents interviewed, and all found filling of detergent dispenser out of easy reach. This raised some questions for the research group regards potential benefits of centralizing laundry duties with support workers.

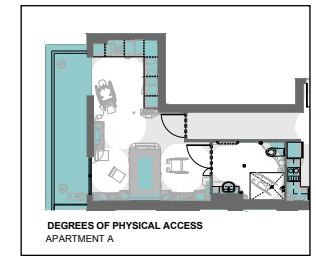
Actual use of space, and the activities of daily living undertaken in those spaces, is dictated by both the degree of physical access, as well as the increased time it will take the person to complete an activity independently as a result of their disability.

ENABLER

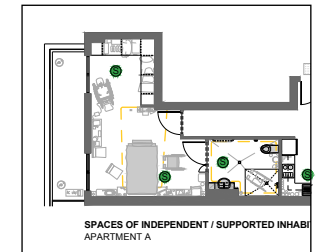
The self-contained home environment with accessible floor plan has presented some residents with the opportunity to build participation in activities previously undertaken for them by support workers or family, including heating prepared meals, cooking using the microwave, or independently completing cold meal preparation tasks.

LIMITATION

Physical access was restricting opportunities for independence in cooking for one participant. All participants interviewed were unable to use the conventional oven, and thus independent meal preparation options are limited to those that can be reheated using a microwave or do not require an oven. Access to wardrobes was limited by joinery and design, coupled with physical function of participants.



DEGREES OF PHYS. ACCESS



INDEPENDENT LIVING PLAN

REIS LONG FORM

REIS SPACE		Information Related to Group Interview of Participants/Residents	
Participant	Interview	Access	Participation
Participant 1	Interview	Access	Participation
Participant 2	Interview	Access	Participation
Participant 3	Interview	Access	Participation
Participant 4	Interview	Access	Participation
Participant 5	Interview	Access	Participation
Participant 6	Interview	Access	Participation
Participant 7	Interview	Access	Participation
Participant 8	Interview	Access	Participation
Participant 9	Interview	Access	Participation
Participant 10	Interview	Access	Participation
Participant 11	Interview	Access	Participation
Participant 12	Interview	Access	Participation
Participant 13	Interview	Access	Participation
Participant 14	Interview	Access	Participation
Participant 15	Interview	Access	Participation
Participant 16	Interview	Access	Participation
Participant 17	Interview	Access	Participation
Participant 18	Interview	Access	Participation
Participant 19	Interview	Access	Participation
Participant 20	Interview	Access	Participation
Participant 21	Interview	Access	Participation
Participant 22	Interview	Access	Participation
Participant 23	Interview	Access	Participation
Participant 24	Interview	Access	Participation
Participant 25	Interview	Access	Participation

REIS LONG FORM

PIADS

Participant	Interview	Access	Participation
Participant 1	Interview	Access	Participation
Participant 2	Interview	Access	Participation
Participant 3	Interview	Access	Participation
Participant 4	Interview	Access	Participation
Participant 5	Interview	Access	Participation
Participant 6	Interview	Access	Participation
Participant 7	Interview	Access	Participation
Participant 8	Interview	Access	Participation
Participant 9	Interview	Access	Participation
Participant 10	Interview	Access	Participation
Participant 11	Interview	Access	Participation
Participant 12	Interview	Access	Participation
Participant 13	Interview	Access	Participation
Participant 14	Interview	Access	Participation
Participant 15	Interview	Access	Participation
Participant 16	Interview	Access	Participation
Participant 17	Interview	Access	Participation
Participant 18	Interview	Access	Participation
Participant 19	Interview	Access	Participation
Participant 20	Interview	Access	Participation
Participant 21	Interview	Access	Participation
Participant 22	Interview	Access	Participation
Participant 23	Interview	Access	Participation
Participant 24	Interview	Access	Participation
Participant 25	Interview	Access	Participation

PIADS

Tasks of Daily Living

Participant A reported that use of his smart phone significantly increased his ability to make basic tasks more manageable and cope with change (item 25), scoring 3 on the PIADS. However, he reported no perceived impact on his ability to participate (item 23), equating to a score of 0.



PARTICIPANT B

Tasks of Daily Living

Participant B reported that use of his iPad increased both his ability to make basic tasks more manageable and cope with change (item 25), and to participate (item 23), scoring both items as a 2 on the PIADS.



C

A

B

...The freezer is full of frozen food that my Mum made... I do [heat] it myself all right. I've worked out how to use the microwave...

PARTICIPANT C

Participant C was demonstrating skill development in tasks of daily living within his new environment. His access and reach, benefited by his ability to stand from a seated position, enhanced this growing level of independence.

Tasks of Daily Living

Degress of Physical Access

Participant C has good reach to almost all areas of the kitchen. The ability to stand with support is clearly an advantage. The linear layout of the kitchen minimized inaccessible corners. The ability to stand with support was needed for full use of the pull-out pantry. Participant C was able to warm prepared food and prepare drinks and breakfast independently. Comparison with other kitchen layouts provides more detail.

Participant C has limited access to the wardrobe joinery while in the wheelchair as it is a linear space, and he has left upper limb function only. This means that access to the right is across the body, and therefore limited, otherwise the wheelchair must be reversed into the space.

Spaces of Independent / Supported Living

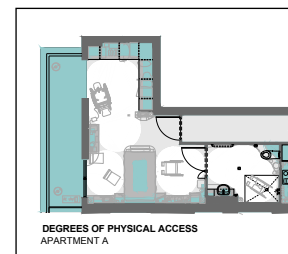
Participant C is able to independently occupy the majority of spaces in the apartment after some task set-up assistance by others. Once a shower chair is positioned for him, and clothes are placed, Participant C can undertake a number of tasks of daily living independently due to the accessibility of floor plan design. Participant C is able to prepare breakfast independently, and warm food prepared and provided by family. Participant C reported he was keen to extend activities in this area.

REIS Long Form – (Space and Object Checklists)

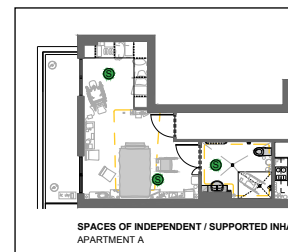
Objects for activities of daily living (such as grooming) were available to Participant C. Leisure / recreation objects were also available in the home environment and he had recently installed a surround sound system. Participant C rated the physical spaces where activities of daily living take place in his apartment as 'always accessible'. However, the time it takes him to undertake activities of daily living independently (e.g. laundry, hot meal preparation) meant that Participant C was assisted by a support worker for these activities. With modification of some tasks and graded training, it is anticipated that Participant C could build independence in a greater range of daily living tasks, including laundry and structured hot meal preparation.

PIADS

Participant C reported that use of home automation features via his iPad increased both his ability to make basic tasks more manageable and cope with change (item 25), and to participate (item 23), scoring both items 2 on the PIADS.



DEGREES OF PHYS. ACCESS
APARTMENT A



SPACES OF INDEPENDENT / SUPPORTED INHABITANT
APARTMENT A

REIS LONG FORM

REIS LONG FORM		REIS LONG FORM		REIS LONG FORM		REIS LONG FORM	
Item	Score	Item	Score	Item	Score	Item	Score
1	2	11	2	21	2	31	2
2	2	12	2	22	2	32	2
3	2	13	2	23	2	33	2
4	2	14	2	24	2	34	2
5	2	15	2	25	2	35	2
6	2	16	2	26	2	36	2
7	2	17	2	27	2	37	2
8	2	18	2	28	2	38	2
9	2	19	2	29	2	39	2
10	2	20	2	30	2	40	2

REIS LONG FORM

PIADS

Item	Score	Item	Score	Item	Score	Item	Score
1	2	11	2	21	2	31	2
2	2	12	2	22	2	32	2
3	2	13	2	23	2	33	2
4	2	14	2	24	2	34	2
5	2	15	2	25	2	35	2
6	2	16	2	26	2	36	2
7	2	17	2	27	2	37	2
8	2	18	2	28	2	38	2
9	2	19	2	29	2	39	2
10	2	20	2	30	2	40	2

PIADS

A

C

Pursue Life Goals

Elements of the home and shared environment that have capacity to impact engagement in meaningful activities and development of valued life roles.

...Obviously we need to acknowledge a lot of our clients might be married or live with a partner, and it's important that we accommodate for that. We're making these home like environments; they're people's homes. Not all our clients are single and live by themselves...

ENABLER

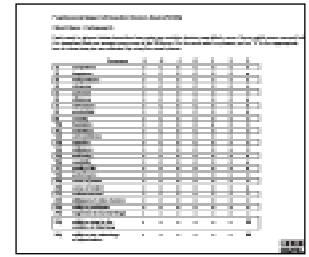
Participants utilised furnishings in their apartments for dual purposes to enhance pursuit of life goals. This included the use of the mobile kitchen bench or kitchen table as a desk space, and the provision of visitor bedding (via sofa bed or stored mattresses) used in lounge areas.

Dual doors for bathroom access in one apartment, and provision of a second visitors bathroom in the development, offer flexibility of bathroom spaces which may be a benefit if residents choose to live with a partner in the future, and links to facilitation of visiting by family / friends.

LIMITATION

The apartment style housing of RIPL Project One would not suit the interests, ambitions, and life goals of all people. This was particularly evident for one participant, who was unable to pursue home-based leisure activities and hobbies meaningful to him (e.g. woodwork; gardening). The constraints of space within the apartment, and other limiting factors (such as owners' corporation rules) would prevent uptake of these occupations in both the home and shared spaces of the development, however they could be pursued in community settings (e.g. community garden; local men's shed) if deemed suitable by the person.

B



PIADS

PARTICIPANT A

A

C

...The other [goal is] for study... [I'll study] computers, basics at first and see if I'm any good at it and then I'll take it from there. If not, I'll have to keep looking for something I can be good at ...

Pursue Life Goals

Participant A had demonstrated strong connections with family, and a majority of his home based participation revolved around the family role. The availability of stored bedding in his home allowed for overnight visitors. He was developing links for role participation in the community, including attending a neighbour's church and a community gym. This links to the Community Integration criteria.

PIADS

Use of the smart phone had no perceived impact on Participant A's productivity (item 8) or ability to participate (item 23), both rated as 0 on the PIADS.

PARTICIPANT B

...Because I've probably got a lot of stuff that probably doesn't suit a unit... a saw bench and router bench and I've got some, yeah I don't know, I've got some other little boxes of toys and stuff like that, models and [fishing gear] ...

This development offers appropriate opportunities and support for Participant B to express himself, and develop positive meaningful roles. However, some hobbyist roles important to Participant B are limited within apartment living and further exploration to harness these in community settings, or replace them with other meaningful home-based participation, will be important.

PIADS

Use of the iPad had no perceived impact on Participant B's productivity (item 8), who scored this item a 0 on the PIADS. However, as noted elsewhere, use of the iPad increased his ability to participate (item 23), with a score of 2 on the PIADS.

PARTICIPANT C

... I do heaps of good things. I go to gigs or to my friends and family so my life is full ...

Participant C had well established role participation in his new neighbourhood, and was demonstrating developing skills in homemaking, particularly in relation to meal preparation. He had extensively decorated his home with personal items and posters, demonstrating self-expression.

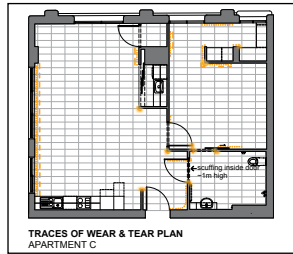
PIADS

Use of the iPad was rated as somewhat increasing Participant C's sense of productivity (item 8). As noted elsewhere, use of the iPad was rated as increasing Participant C's ability to participate (item 23), scoring 2 on the PIADS.

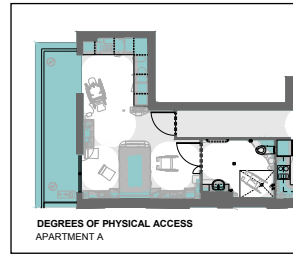
score manual but it is important that you answer every one of the 26 items. So, for each word or phrase, put an "X" in the appropriate box to show how you are affected by using the iPad.

	Decrease	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
1) competence																												
2) happiness																												
3) independence																												
4) autonomy																												
5) confidence																												
6) efficiency																												
7) self-esteem																												
8) productivity																												
9) motivation																												
10) satisfaction																												
11) confidence																												
12) self-confidence																												
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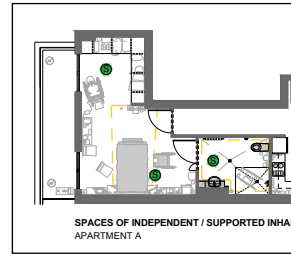
PIADS



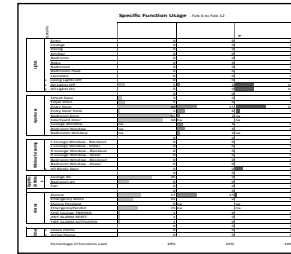
TRACES, WEAR & TEAR PLAN



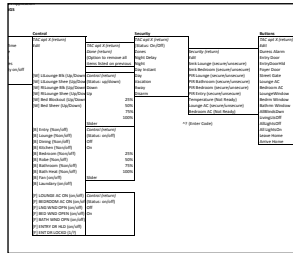
DEGREES OF PHYS. ACCESS



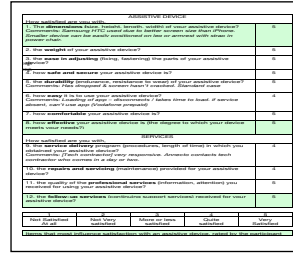
INDEPENDENT LIVING PLAN



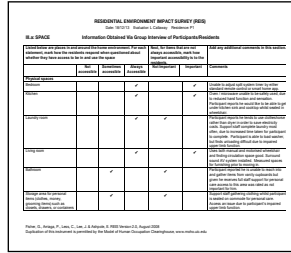
ASSISTIVE TECH LOG



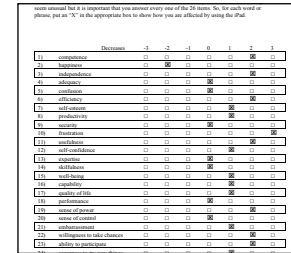
INTERFACE NAVIGATION



QUEST

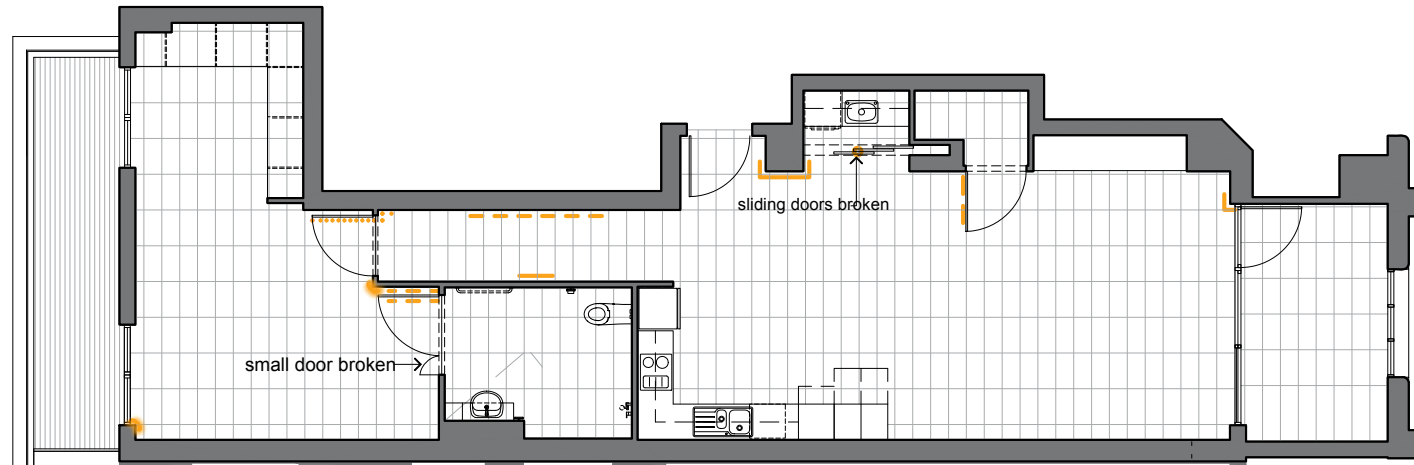


REIS LONG FORM

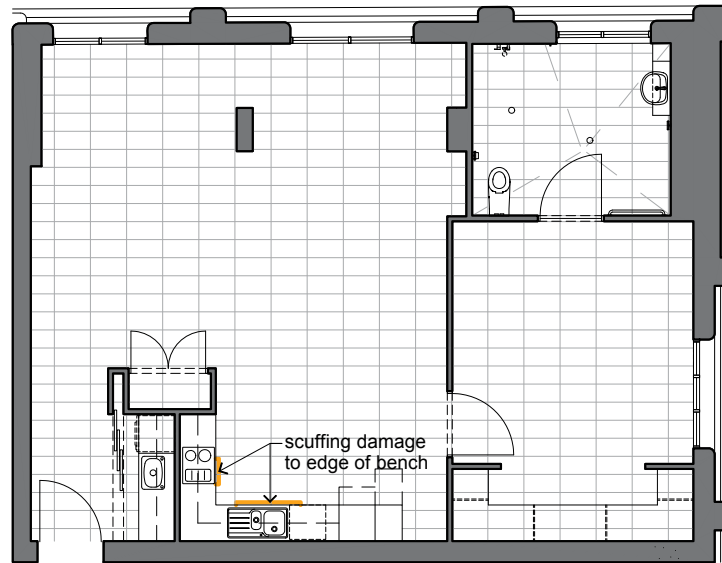


PIADS

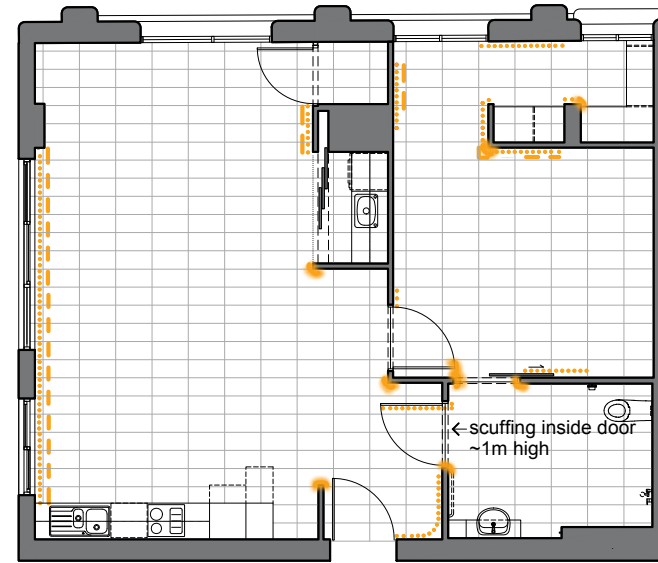
The Evidence section includes relevant information for this criteria. Click on the links above to explore. The up / down keys on the keyboard will scroll through the pages included. Use the navigation toolbar on the right of the screen to return to this page via 'E' or to the criteria page via 'C'. Links to Home, Criteria Overview are also provided.



APARTMENT A



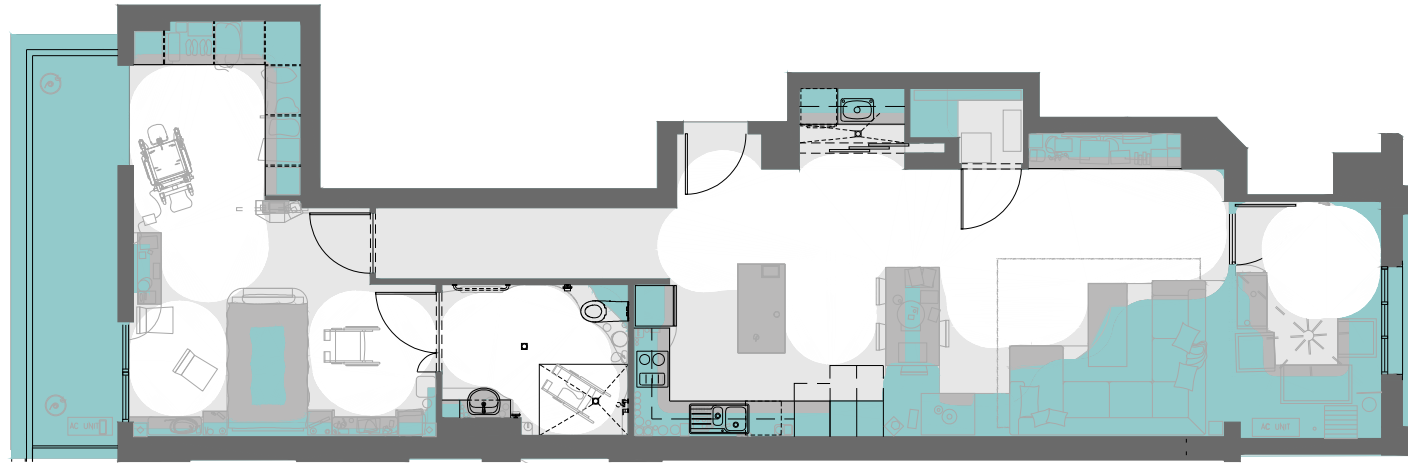
APARTMENT B



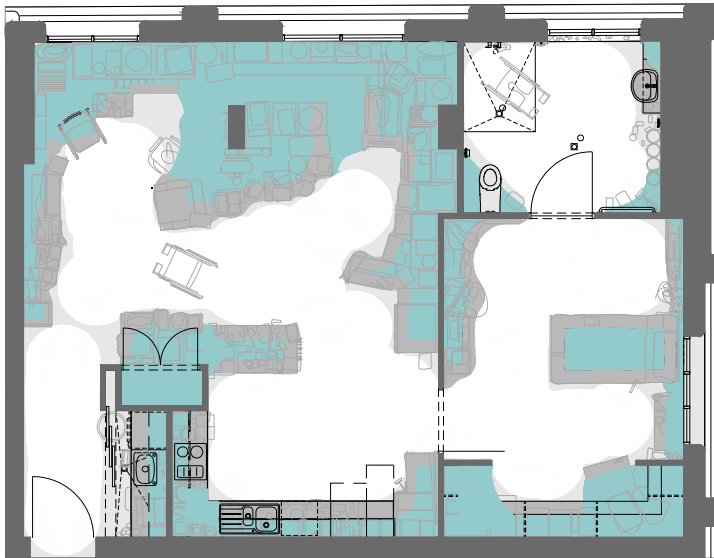
APARTMENT C



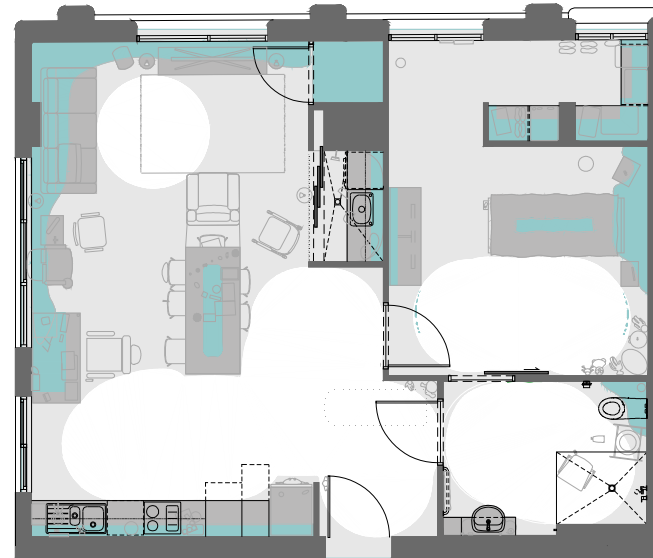
- damage to corner / nib wall
- mid level scuffing
- low level scuffing



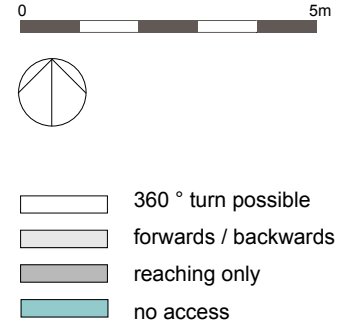
APARTMENT A

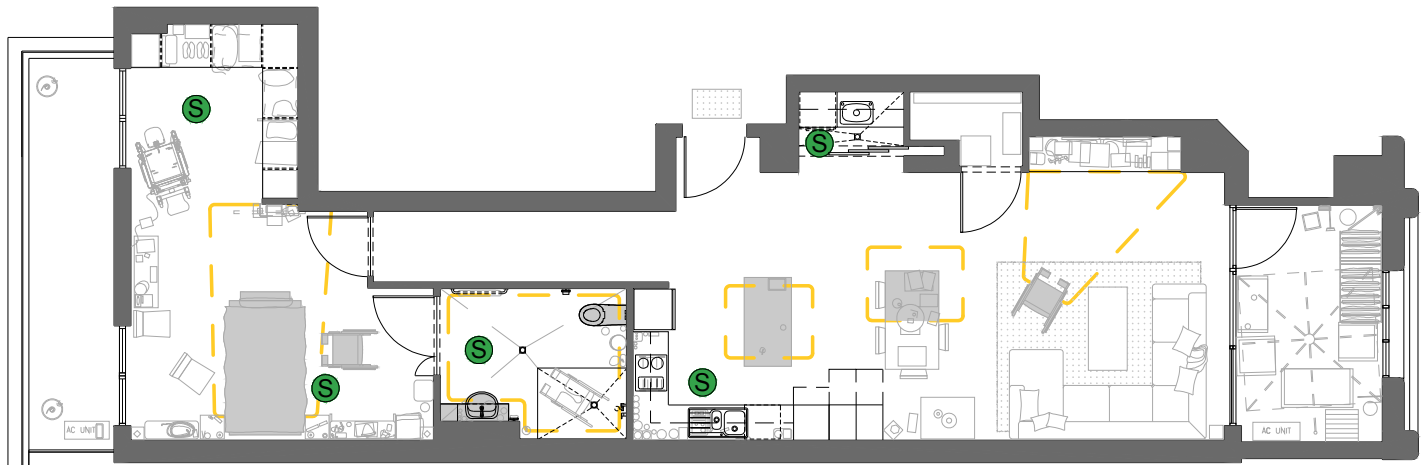


APARTMENT B

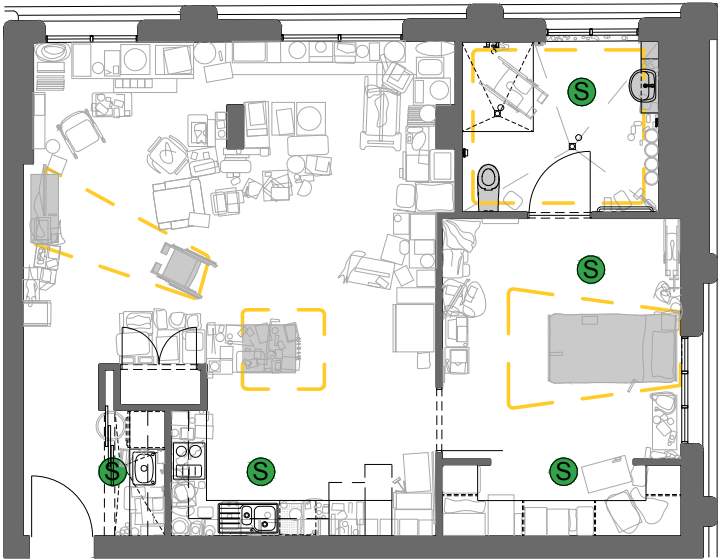


APARTMENT C

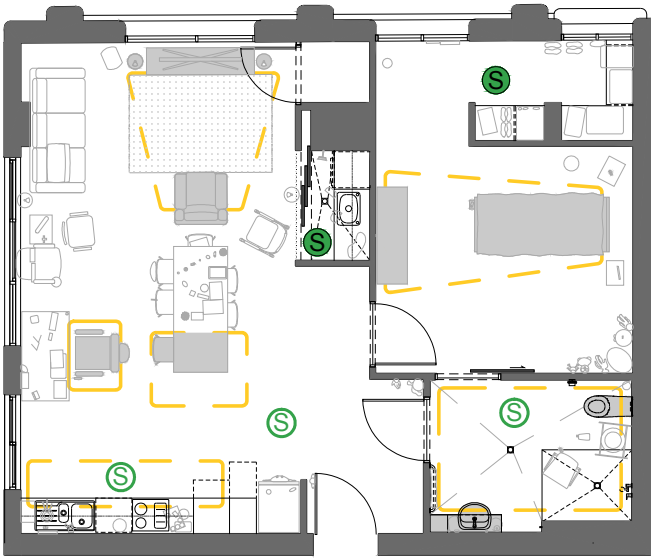




APARTMENT A



APARTMENT B



APARTMENT C



- key zones of habitation
- Ⓢ some support provided
- Ⓢ full support provided

Specific Function Usage - Feb 6 to Feb 12

scenario		A	B	C
Lights	Entry	0	0	
	Lounge	0	0	
	Dining	0	0	
	Kitchen	0	0	
	Bedroom	0	0	
	Robe	0	0	
	Bathroom	0	0	
	Bathroom Heat	0	0	
	Laundry	0	0	
	s Living Lights Off	0	0	
	s All Lights Off	5	2	
	s All Lights On	0	0	
		0	0	
Apertures	Street Gate	3	0	
	Foyer Door	5	0	
	Entry Door	44	15	
	Entry Door Hold	1	6	
	Bedroom Door	41	2	na
	Courtyard Door	34	na	na
	Lounge Window	na	4	
	Bedroom Window	na	6	
	Bathroom Window	na	2	na
Window Screening		0	0	
	L Lounge Window - Blockout	0	0	
	L Lounge Window - Sheer	0	0	
	R Lounge Window - Blockout	0	0	
	R Lounge Window - Sheer	0	0	
	Bedroom Window - Blockout	0	0	
	Bedroom Window - Sheer	0	0	
	s All Blinds Dwn	0	0	
Applinc/ Utilities		0	0	
	Lounge AC	26	0	
	Bedroom AC	8	0	
Alarms	Fan	0	0	
		0	0	
	Duress	17	15	
	Emergency Buttn	11	0	
	Duress Pendant	0	na	na
	EmergencyPendnt	15	na	na
	Smk Lounge TRIPPED	1	0	
	ANY ALARM RESET	1	0	
Other		1	0	
	s Leave Home	0	0	
	s Arrive Home	0	0	

Percentage of functions used

29%

24%



ASSISTIVE DEVICE	
How satisfied are you with,	
1. The dimensions (size, height, length, width) of your assistive device? Comments: <i>iPad mini trialled but not as easy to use</i>	5
2. the weight of your assistive device?	5
3. the ease in adjusting (fixing, fastening) the parts of your assistive device?	4
4. how safe and secure your assistive device is?	4
5. the durability (endurance, resistance to wear) of your assistive device? Comments: <i>No protective case currently</i>	3
6. how easy it is to use your assistive device? Comments: <i>Not learnt fully</i> - <i>Not easy to dismount if going out</i> - <i>Not easy to put aside, uses memory foam pillow. Does not want pillow on when driving</i>	5
7. how comfortable your assistive device is?	5
8. how effective your assistive device is (the degree to which your device meets your needs?)	5
SERVICES	
How satisfied are you with,	
9. the service delivery program (procedures, length of time) in which you obtained your assistive device? Comments:	5
10. the repairs and servicing (maintenance) provided for your assistive device?	5
11. the quality of the professional services (information, attention) you received for using your assistive device?	5
12. the follow-up services (continuing support services) received for your assistive device?	5

1	2	3	4	5
Not Satisfied At all	Not Very satisfied	More or less satisfied	Quite satisfied	Very Satisfied

Items that most influence satisfaction with an assistive device, rated by the participant

ASSISTIVE DEVICE	
How satisfied are you with,	
1. The dimensions (size, height, length, width) of your assistive device? Comments: <i>Samsung HTC used due to better screen size than iPhone. Smaller device can be easily positioned on leg or armrest with strap in power chair.</i>	5
2. the weight of your assistive device?	5
3. the ease in adjusting (fixing, fastening) the parts of your assistive device?	5
4. how safe and secure your assistive device is?	5
5. the durability (endurance, resistance to wear) of your assistive device? Comments: <i>Has dropped & screen hasn't cracked. Standard case</i>	5
6. how easy it is to use your assistive device? Comments: <i>Loading of app – disconnects / takes time to load. if service absent, can't use app (Vodafone prepaid)</i>	4
7. how comfortable your assistive device is?	5
8. how effective your assistive device is (the degree to which your device meets your needs?)	5
SERVICES	
How satisfied are you with,	
9. the service delivery program (procedures, length of time) in which you obtained your assistive device? Comments: <i>[Tech contractor] very responsive. Annecto contacts tech contractor who comes in a day or two.</i>	4
10. the repairs and servicing (maintenance) provided for your assistive device?	4
11. the quality of the professional services (information, attention) you received for using your assistive device?	5
12. the follow-up services (continuing support services) received for your assistive device?	5

1	2	3	4	5
Not Satisfied At all	Not Very satisfied	More or less satisfied	Quite satisfied	Very Satisfied

Items that most influence satisfaction with an assistive device, rated by the participant

ASSISTIVE DEVICE	
How satisfied are you with,	
1. The dimensions (size, height, length, width) of your assistive device? Comments: <i>Needs repositioning. Need mounting device for wheelchair / bed lying down. Still in box – no where else to put it</i>	3
2. the weight of your assistive device? Comments: <i>awkward to get out of box to charge. Someone else puts on charge</i>	3
3. the ease in adjusting (fixing, fastening) the parts of your assistive device? Comments: <i>"Laying down is the bit that is killing me." Positioning – curling of fingers means mishit of button.</i>	3
4. how safe and secure your assistive device is? Comments: <i>Wouldn't have it on chair. Couldn't use it outside home – does not work out of building</i>	2
5. the durability (endurance, resistance to wear) of your assistive device? Comments: <i>Concerned about screen breakage. Charger lead tiny – tried 1-2 times, get someone to do it.</i>	2
6. how easy it is to use your assistive device? Comments: <i>Find it hard to increase volume (need to look at it, not by feel)</i>	2
7. how comfortable your assistive device is?	2
8. how effective your assistive device is (the degree to which your device meets your needs?) Comments: <i>Don't think they get that section to work. Distress alarm does not go through. Happens quite often – last happened last night. Tends to call office via Nokia mobile as easier than going through app. Tag does not connect through to office</i>	2
SERVICES	
How satisfied are you with,	
9. the service delivery program (procedures, length of time) in which you obtained your assistive device? Comments: <i>Picked it up pretty quick – shown a few times. Don't like to use phone but have to.</i>	3
10. the repairs and servicing (maintenance) provided for your assistive device? Comments: <i>Staff need to notify [tech contractor], other times blocked out for ½ a weekend. "It's my power bill – got to turn light off"</i>	2
11. the quality of the professional services (information, attention) you received for using your assistive device? Comments: <i>Shown how to use it</i>	3
12. the follow-up services (continuing support services) received for your assistive device? Comments:	3

1	2	3	4	5
Not Satisfied At all	Not Very satisfied	More or less satisfied	Quite satisfied	Very Satisfied

Items that most influence satisfaction with an assistive device, rated by the participant

ASSISTIVE DEVICE	
How satisfied are you with,	
1. The dimensions (size, height, length, width) of your assistive device?	4
2. the weight of your assistive device? Comments: <i>A bit heavy in bed, ok otherwise</i>	3
3. the ease in adjusting (fixing, fastening) the parts of your assistive device? Comments: <i>stand on case very good</i>	4
4. how safe and secure your assistive device is? Comments: <i>other people access it, staff use (every 2 months) to control blinds</i>	4
5. the durability (endurance, resistance to wear) of your assistive device? Comments: <i>Dropped from 3 ft. – ok – screen not damaged</i>	5
6. how easy it is to use your assistive device? Comments: <i>Find it hard to increase volume (need to look at it, not by feel)</i>	4
7. how comfortable your assistive device is?	4
8. how effective your assistive device is (the degree to which your device meets your needs?)	4
SERVICES	
How satisfied are you with,	
9. the service delivery program (procedures, length of time) in which you obtained your assistive device? Comments:	4
10. the repairs and servicing (maintenance) provided for your assistive device? Comments: [Tech contractor] rebooted straight away (ask for Annecto to call or grab tech contractor)	5
11. the quality of the professional services (information, attention) you received for using your assistive device?	5
12. the follow-up services (continuing support services) received for your assistive device?	4

1	2	3	4	5
Not Satisfied At all	Not Very satisfied	More or less satisfied	Quite satisfied	Very Satisfied

Items that most influence satisfaction with an assistive device, rated by the participant

RESIDENTIAL ENVIRONMENT IMPACT SURVEY (REIS)

Date: 18/12/13

Evaluator: L Callaway

Residence: Participant A

III.b: OBJECTS**Information Obtained Via Group Interview of Participants/Residents**

Below is a list of personal objects that may or may not be found in the residential home. For each object check whether it is readily available to the participants or not available to them.			Next, for objects that are not available, check whether each object is important to the interviewees (optional section).		Check if object was observed in the home.		Add any additional comments in this section
Object	Not Available	Available	Not Important	Important	Yes	No	Comments
Activities of Daily Living (ADL)							
Grooming Supplies/Makeup (shampoo, soap, deodorant, feminine products)		✓			✓		Good but carer is available. if pushed by carer will do by self.
Grooming Tools (razor, toothbrush, nail clippers)		✓					
Clothing		✓					
Adaptive equipment: special eating utensils, dressing aids.		✓					
Leisure/Recreation							
Your own television		✓			✓		
Your own VCR/DVD player and videos/DVDs		✓			✓		
Your own music player or radio		✓			✓		
Your own materials for your hobbies, like art & craft supplies (paints, markers, paper, scissors, glue, yarn, craft kits), gardening tools, camera (if relevant)		✓					Using storage cage in carpark basement. Looking into fishing and would store items in cage.
Your own educational materials (worksheets, pencils, workbooks, textbooks)							Not applicable
Your own money		✓					
Your own books	✓						
Your own photographs	✓						
Your own "stuff"		✓					
Other: Fish tank							Participant holds interest in having large fish tank in home but does not feel he

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RESIDENTIAL ENVIRONMENT IMPACT SURVEY (REIS)

Date: 18/12/13 Evaluator: L Callaway Residence: Participant A

III.a: SPACE**Information Obtained Via Group Interview of Participants/Residents**

Listed below are places in and around the home environment. For each statement, mark how the residents respond when questioned about whether they have access to be in and use the space				Next, for items that are not always accessible, mark how important accessibility is to the residents.		Add any additional comments in this section.
	Not accessible	Sometimes accessible	Always Accessible	Not Important	Important	Comments
Physical spaces						
Bedroom			✓		✓	Unable to adjust split system timer by either standard remote control or smart home app.
Kitchen			✓		✓	Oven / microwave unable to be safely used, due to reduced hand function and sensation. Participant reports he would like to be able to get under kitchen sink and cooktop whilst seated in wheelchair.
Laundry room			✓	✓		Participant reports he tends to use clotheshorse rather than dryer in order to save electricity costs. Support staff complete laundry most often, due to increased time taken for participant to complete. Participant is able to load washer, but finds unloading difficult due to impaired upper limb function.
Living room			✓		✓	Uses both manual and motorised wheelchair and finding circulation space good. Surround sound AV system installed. Measured spaces for furnishing prior to moving in.
Bathroom		✓		✓		Participant reported he is unable to reach into and gather items from vanity cupboards but given he receives full staff support for personal care access to this area was rated as not important for him.
Storage area for personal items (clothes, money, grooming items) such as closets, drawers, or containers		✓		✓		Support staff gathering clothing whilst participant is seated on commode for personal care. Access an issue due to participant's impaired upper limb function.

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RESIDENTIAL ENVIRONMENT IMPACT SURVEY (REIS)

Date: 21/1/14

Evaluator: L Callaway

Residence: Participant B

III.b: OBJECTS**Information Obtained Via Group Interview of Participants/Residents**

Below is a list of personal objects that may or may not be found in the residential home. For each object check whether it is readily available to the participants or not available to them.			Next, for objects that are not available, check whether each object is important to the interviewees (optional section).		Check if object was observed in the home.		Add any additional comments in this section
Object	Not Available	Available	Not Important	Important	Yes	No	Comments
Activities of Daily Living (ADL)							
Grooming Supplies/Makeup (shampoo, soap, deodorant, feminine products)		✓		✓	✓		Stored on window sill in bathroom
Grooming Tools (razor, toothbrush, nail clippers)		✓		✓	✓		
Clothing		✓		✓	✓		
Adaptive equipment: special eating utensils, dressing aids.		✓		✓			Pick up sticks hung on end of mobile kitchen bench.
Leisure/Recreation							
Your own television		✓		✓	✓		
Your own VCR/DVD player and videos/DVDs		✓		✓	✓		DVD cabinets in place with significant number of DVDs
Your own music player or radio		✓			✓		Noted
Your own materials for your hobbies, like art & craft supplies (paints, markers, paper, scissors, glue, yarn, craft kits), gardening tools, camera (if relevant)		✓			✓		Currently stored in main living areas
Your own educational materials (worksheets, pencils, workbooks, textbooks)	✓				✓		
Your own money		✓			✓		
Your own books		✓			✓		
Your own photographs	✓				✓		
Your own "stuff"		✓			✓		Participant seeking more storage for personal items.

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RESIDENTIAL ENVIRONMENT IMPACT SURVEY (REIS)

Date: 21/1/14 Evaluator: L. Callaway Residence: Participant B

III.a: SPACE (con't)

Information Obtained Via Group Interview of Participants/Residents

Listed below are places in and around the home environment. For each statement, mark how the residents respond when questioned about whether they have access to be in and use the space				Next, for items that are not always accessible, mark how important accessibility is to the residents.		Add any additional comments in this section.
	Not accessible	Sometimes accessible	Always Accessible	Not Important	Important	Comments
Physical spaces						
Bedroom		✓			✓	Get some things but carers mainly gather. Robe area difficult to access.
Kitchen		✓			✓	Pick up stick used for much access. Tap difficult to access even with lever extension. Participant can't position himself under cooktop seated in motorised wheelchair. Limited accessible bench space. Participant cuts food items up for meal prep on either Stable Table on lap, or on mobile kitchen bench (fixed at set height). Need to make room on bench & put plates and bowls on so they can be accessed independently. Participant's fridge did not fit fridge space supplied. Fridge cavity currently being used for storage.
Laundry room		✓			✓	Staff put washing in as participant finds bi-fold doors inhibit his access. Participant finds putting powder in machine difficult (participant can't see or reach powder loading area). Can access laundry basin. Overhead storage good for staff's use, but not accessible to participant.
Living room		✓			✓	Access limited by participant's storage of personal items, some of which have not yet been unpacked post move.

RESIDENTIAL ENVIRONMENT IMPACT SURVEY (REIS)

Date: 21/1/14 Evaluator: L Callaway Residence: Participant C

III.b: OBJECTS**Information Obtained Via Group Interview of Participants/Residents**

Below is a list of personal objects that may or may not be found in the residential home. For each object check whether it is readily available to the participants or not available to them.			Next, for objects that are not available, check whether each object is important to the interviewees (optional section).		Check if object was observed in the home.		Add any additional comments in this section
Object	Not Available	Available	Not Important	Important	Yes	No	Comments
Activities of Daily Living (ADL)							
Grooming Supplies/Makeup (shampoo, soap, deodorant, feminine products)		✓		✓	✓		Shampoo is stored on ground in shower recess – participant able to reach it in sitting
Grooming Tools (razor, toothbrush, nail clippers)		✓		✓	✓		
Clothing		✓		✓	✓		Staff gather clothes.
Adaptive equipment: special eating utensils, dressing aids.							
Leisure/Recreation							
Your own television		✓		✓			TV in bedroom – standard remote. Large TV in lounge area.
Your own VCR/DVD player and videos/DVDs		✓		✓	✓		
Your own music player or radio		✓		✓	✓		
Your own materials for your hobbies, like art & craft supplies (paints, markers, paper, scissors, glue, yarn, craft kits), gardening tools, camera (if relevant)		✓		✓	✓		
Your own educational materials (worksheets, pencils, workbooks, textbooks)	✓						
Your own money		✓		✓	✓		Books in WIR. Book reading completed on height adjustable bench.
Your own books		✓		✓	✓		
Your own photographs		✓		✓	✓		
Your own “stuff”		✓		✓	✓		Posters

Was there anything I didn't ask you about that is important to you? Participant wanted to note that he felt fourteen powerpoints in bedroom was “overkill”.

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RESIDENTIAL ENVIRONMENT IMPACT SURVEY (REIS)

Date: 21/1/14 Evaluator: L Callaway Residence: Participant C

III.a: SPACE**Information Obtained Via Group Interview of Participants/Residents**

Listed below are places in and around the home environment. For each statement, mark how the residents respond when questioned about whether they have access to be in and use the space				Next, for items that are not always accessible, mark how important accessibility is to the residents.		Add any additional comments in this section.
	Not accessible	Sometimes accessible	Always Accessible	Not Important	Important	Comments
Physical spaces						
Bedroom			✓		✓	Participant reports he has "plenty of space to move"
Kitchen			✓		✓	Motorised wheelchair access is good, and a significant improvement on previous residence. Participant does not use oven.
Laundry room			✓		✓	Support staff complete laundry tasks, but participant can access laundry space. Finds difficulty with loading / unloading items.
Living room			✓		✓	Surround sound AV system very good.
Bathroom			✓		✓	Staff position shower chair and then participant is otherwise able to complete bathing tasks. Staff mop out floor after use.
Storage area for personal items (clothes, money, grooming items) such as closets, drawers, or containers		✓			✓	Wardrobe accessible, however can't reach all areas unless moving to standing.
Place to be alone			✓		✓	Participant enjoys having a "powernap" each day – can transfer onto and off bed independently.
Place for interaction with others (housemates, guests)			✓		✓	Family visits regularly – participant has a sofa bed in lounge room for guests.
Natural environment						
Yard			✓		✓	Mates cooked BBQ in development courtyard once.
Safe place to walk around outside the home			✓			Participants reported good access outside.

Fisher, G., Arriaga, P., Less, C., Lee, J. & Ashpole, E. REIS Version 2.0, August 2008

Duplication of this instrument is permitted by the Model of Human Occupation Clearinghouse, www.moho.uic.edu

Psychosocial Impact of Assistive Devices Scale (PIADS)**Client Name: Participant A**

Each word or phrase below describes how using an assistive device may affect a user. Some might seem unusual but it is important that you answer every one of the 26 items. So, for each word or phrase, put an "X" in the appropriate box to show how you are affected by using the smart phone.

	Decreases	-3	-2	-1	0	1	2	3
1) competence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
2) happiness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
3) independence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
4) adequacy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
5) confusion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) efficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
7) self-esteem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
8) productivity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
9) security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) frustration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) usefulness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
12) self-confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
13) expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
14) skilfulness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
15) well-being	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
16) capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
17) quality of life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
18) performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
19) sense of power	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
20) sense of control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
21) embarrassment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22) willingness to take chances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23) ability to participate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24) eagerness to try new things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
25) ability to adapt to the activities of daily living	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
26) ability to take advantage of opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x

Psychosocial Impact of Assistive Devices Scale (PIADS)**Client Name: Participant B**

Each word or phrase below describes how using an assistive device may affect a user. Some might seem unusual but it is important that you answer every one of the 26 items. So, for each word or phrase, put an "X" in the appropriate box to show how you are affected by using the iPad

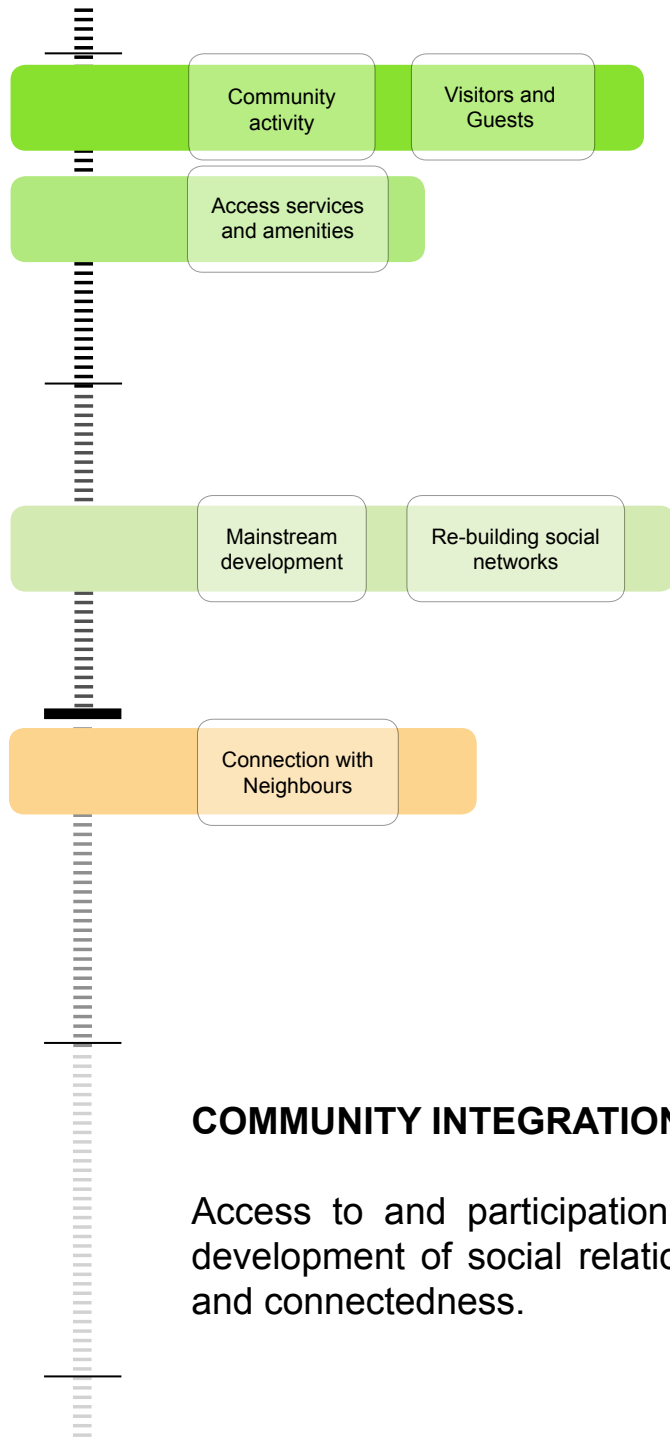
	Decreases	-3	-2	-1	0	1	2	3
1) competence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) happiness	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) independence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) adequacy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) confusion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) efficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) self-esteem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8) productivity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) frustration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11) usefulness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) self-confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14) skilfulness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15) well-being	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17) quality of life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18) performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19) sense of power	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20) sense of control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21) embarrassment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22) willingness to take chances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23) ability to participate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24) eagerness to try new things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25) ability to adapt to the activities of daily living	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26) ability to take advantage of opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Psychosocial Impact of Assistive Devices Scale (PIADS)

Client Name: Participant C

Each word or phrase below describes how using an assistive device may affect a user. Some might seem unusual but it is important that you answer every one of the 26 items. So, for each word or phrase, put an "X" in the appropriate box to show how you are affected by using the iPad.

	Decreases	-3	-2	-1	0	1	2	3
1) competence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2) happiness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) independence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4) adequacy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) confusion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) efficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) self-esteem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8) productivity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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12) self-confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13) expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14) skilfulness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15) well-being	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17) quality of life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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25) ability to adapt to the activities of daily living	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
26) ability to take advantage of opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



... I'm pretty happy with everything here [in this suburb]. Shops and public transport close - yes, just central to everything really. The city, parks, sport, clubs, pubs - yes, all of that ...

COMMUNITY INTEGRATION

Access to and participation in cultural, social, educational and productive tasks that offer the development of social relationships, engagement with mainstream services, community presence and connectedness.

A B C

Access services and amenities**Ability of residents to use local services and amenities as influenced by site selection.**

...We go through this process of the due diligence around a property. It's about finding out whether it's suitable from an access perspective; the shops, the public transport, the terrain....

ENABLER

The location of RIPL Project One in an inner suburb of Melbourne has had a significant positive impact on participants' community integration opportunities and use of local service and amenities, and these reports were supported by the mobility tracking data collected for the two consenting participants.

Close proximity to the CBD enables affordable travel to it by taxi, and numerous public transport options are located nearby, with train travel currently the most accessible option. Each of the participants reported some use of the train service (the train station is located in the same street as the apartments), however only one participant used the train without support staff present.

LIMITATION

The inner city location has also led to some concerns expressed by participants regarding perceived personal safety and security, which influences how and when they travel out into their community. Two participants reported that they would not go out into their local community at night, and also would not undertake train travel (day or night) unless with another, able-bodied person.

The suburb where the development is located has a range of footpath surfaces, which vary in quality. Two participants reported that they have had difficulty negotiating some of the footpaths and kerb thresholds. These residents have developed alternate travel routes to avoid these known problematic areas.

... I've got to be careful that the kerbs have to be... it can't be acute... then I can get stuck there...

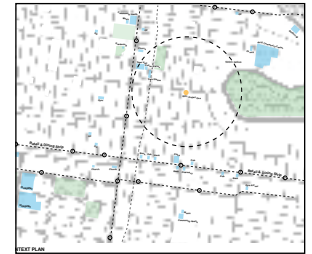
While the local train station offers accessible public transportation within close proximity of RIPL Project One, two of the three participants reported that they utilise TAC-funded taxi travels for rehabilitation-related community travel, as taxis are perceived to be a more efficient mode of travel than public transport.

Context plan

The Context Plan indicates the variety of opportunities within the local area, including accessible public transport, local supermarket and shopping, banks and other services and socialising and recreational spaces. All participants reported good use of basic amenities in the local area, with or without support. The use of amenities beyond local shops reported by participants varied, chiefly in terms of the level of confidence individuals expressed to negotiate local streets, familiarity and social connection with the environment.



MOBILITY TRACKING DATA



CONTEXT PLAN

PARTICIPANT A

...Shops and public transport close to - yes, just central to everything really. The city, parks... clubs, pubs - yes, all of that...

A**B****C****Access services and amenities**

...I wouldn't go out by myself at all now. Just because of the – yes - the people. I don't trust it. In a wheelchair I'm like a target to some. I can see that as well because, say the carer goes to the toilet or something, they just leave me alone for that little bit and, yes, people come up then and ask for money, cigarettes, drugs. I'm just like, "where's my carer?"...

Participant A started to broaden his use of local services and amenities over the period of the study and commenced attending nearby church services, and professional sporting events. Access to services and amenities was usually completed with other, able bodied, persons which increased his sense of safety and security.

PARTICIPANT B

...Oh yeah, the shops are close and all that sort of stuff. I can be in the city, the train's close, trams are close...

...The closest post office is just straight up this street... I wouldn't say it's that far down, but it's small... The width of it - the width of the post office is unbelievably small...

Participant B had explored a number of services and amenities in his local area, noting that wheelchair access to some individual shops is limited for him.

Mobility tracking data

Over the four-day sampling period, Participant B stayed home for two days and travelled by train on the other two days. He attended two different shopping centres in the northern suburbs of Melbourne, as well as local shops near his home (travelling in his motorised wheelchair).

PARTICIPANT C

While Participant C initially reported using taxis for longer distance community travel, at follow up interview he was beginning to see the benefits of the public transport available.

...[I spent] 10 minutes on my phone [to the taxi company] ... I said "don't worry about it. We'll catch the train" ... It was nice and good, quick...

Mobility tracking data

Over the four-day sampling period, Participant C stayed home for two days and travelled (by motorised wheelchair and taxi) on the other two days. He visited a local church, gym and shops in the community. Local community amenities allowed access using his motorised wheelchair – such access will build opportunity for him to develop community interests that can be accessed independently and without incurring significant travel costs.



MOBILITY TRACKING DATA



CONTEXT PLAN

...It's true integration into the community. You're facilitating an opportunity within a development where there's private investment, social housing. Now, people with disabilities are often peppered in that development so you're not building a true cluster or concentration... and that's part of the appeal...

ENABLER

Dispersing apartments for people with disability throughout a mainstream development, and thereby promoting community integration, was identified as an appealing prospect in the Phase One interviews of this project evaluation. Participants identified incidental opportunities to interact with others in the development.

Opportunities for integration within this local neighbourhood community have been made possible through the medium density of the development and the design of the common property spaces – these are mainly relevant to the development of social relationships and are shown in that sub-criteria.

Mainstream Development

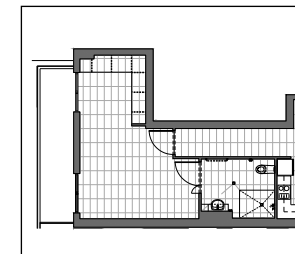
Foster inclusion and avoid segregation through the integration of housing for people with disabilities with other types of social and private residential housing.

LIMITATION

Base building plan

The four apartments in RIPL Project One are each on the ground floor, clustered around one foyer and lift core. Thus, RIPL residents do not access other internal foyers or shared areas in the development, restricting contact with the whole development community. While RIPL Project One is a mixed development of social and private housing, it is unclear as to the impact this clustering has had on the community integration of RIPL residents.

Further, the location of RIPL apartments in a single area surrounding the support worker office (influenced by the late stage of entry to this development) highlights a conflict between the efficient provision of support and the ambition to encourage integration of residents within a broader development. It is possible that a mixed but lower density development may offer other approaches to the resolution of this conflict, however this clearly cannot be evaluated at this stage.



BASE BUILDING PLAN

...I never see much of anyone, really. Sometimes I see someone going out or coming in or, but no, I might pass them out when I occasionally get out shopping somewhere...

...You're not really around anyone... there's definitely something, something's different if you've got to go out and see people I suppose...

ENABLER

The possibility of developing social relationships within the development exists through the use of accessible common areas. Owners' corporation efforts to engage the community through resident functions such as barbeques support this. At this stage participants appear to be encountering their neighbours and other community members by chance, without the development of stronger social relationships. It is difficult to determine whether this may change in time.

LIMITATION

Apartment living on one's own necessitates planning of social contact. This is in contrast to the incidental social contact offered through the group living that all three participants had previously experienced. The clustering of the RIPL apartments, coupled with the transient rhythms of apartment living, will impact contact with neighbours. Some people may require targeted skill development, or additional support, to engage with neighbours (e.g. planning for and attending resident social events) or alternatively to make contact with other community members for social support. This need for targeted intervention is well evidenced in existing research examining the impact of neurotrauma on social integration.

Connection with Neighbours

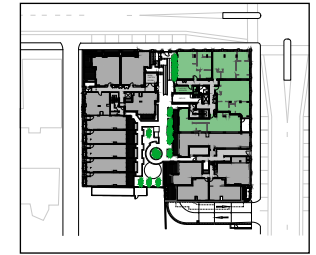
Interactions between residents, neighbours and community members, occurring within the development and community precinct.

Ground Floor Development Plan

The ground floor design of the development has two street entrances and four independent foyers for access to apartments. RIPL Project One, coupled with the two additional supported accommodation apartments developed by a non-government organisation (not yet occupied over the period of the study), represent a considerable proportion of residents using the common access spaces to the foyer of these apartments.

Common property of the development includes some outside space with a barbeque, bench seating and raised garden beds. One resident hosted a barbeque with family and friends. The owners' corporation has planned some resident barbeques. None of the RIPL participants reported attendance to date, although all were invited and were aware of the events being planned.

The outdoor shared spaces of the development are overlooked by apartments within the complex, reducing the sense of privacy. They are not a space 'passed through' by residents en route to apartment entries or foyers. The barbecue and seating are located on walkways, limiting privacy. Access for wheelchairs is limited to the edges of this space. These issues appear to limit the use of this space by study participants and also by other residents of building.



DEVELOPMENT PLAN

C

Opportunity for community activity

Meaningful connection to culture, religion, social networks, education and employment within the community precinct.

... A big driver to have this sort of housing in the city was for people to be able to be in the hub of a cultural Melbourne, wonderful culture, great things. They can still get around; they can still be part of that ...

A

ENABLER

RIPL Project One's urban location presents excellent opportunities for residents to connect to the wider community, evidenced by the Context Plan. The immediate area around the building is well serviced by cafes and a range of shops and parks. Local amenities include a wide range of spaces for socialisation, entertainment, recreation and participation in other community activities.

B

LIMITATION

Beyond built and technology design, the cognitive and physical capacity, personal goals and desires, of participants will influence the level of community activity. Participants have engaged with existing opportunities to connect to the wider community to a varying degree. Transition to a new housing model is a significant life event. It was evident that participants were taking time to establish home routines and begin to explore community activities. At the completion of post-occupancy evaluation this exploration was continuing and some increased community participation was noted, but this would benefit from further evaluation over time.



CONTEXT PLAN



MOBILITY TRACKING DATA

C

Opportunity for community activity

A

PARTICIPANT A

Perhaps the most meaningful social and cultural outcome of RIPL Project One for Participant A is the opportunity it provides him to entertain family and friends in his own home, and have them stay overnight or for extended periods. The provision of a second bathroom in the common area of the ground floor (required by Code) has assisted with this.

As noted in the Independence criteria, Participant A described some concerns about travelling in the community precinct alone. This may impact potential future independence in community activities, and connection to the wider community. Participant A is interested in investigating education within his local community, as well as 'getting out more' to connect with the culture of inner city living.

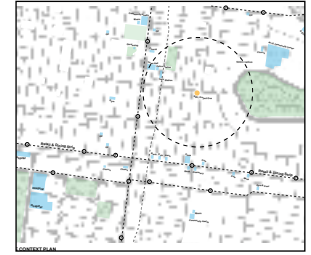
B

PARTICIPANT B

Participant B has shown familiarity with, and skill in using, the local public transport network as well as access to services such as a gymnasium and General Practitioner. Participant B reported he uses public transport to return to his previous home area. The extent to which Participant B is connecting with his new community is not clear. Participant B reported he prefers to visit friends in accessible community locations, such as shopping centres, rather than entertain friends in his home which he considers needs more home-making efforts.

PARTICIPANT C

Participant C has returned to living in an area that he is familiar with, with family and other social networks in close proximity. Participant C re-connected with the local area by joining community groups, including attendance at a local church and gym, investigating volunteer opportunities, and engaging with the local music culture. He entertains people at home, and is able to accommodate friends and family overnight in his lounge area on a folding sofa-bed. Participant C also regularly visits the homes of friends and family.



CONTEXT PLAN



MOBILITY TRACKING DATA

C

...The aim is to try and return TAC clients to their pre-accident address. We know a lot of clients... are displaced because there's a lack of appropriate accommodation, so TAC Claims identify that need and instruct RIPL...

Re-building of social networks

The maintenance and building of existing and new social networks afforded through development location and resident selection.

ENABLER

There is no evidence of resident selection on the basis of previous connection to the site area; however, one of the residents selected has a previous history of living in the area and has built strong local social networks. Others are using public transport to access previous networks, or are entertaining primarily within the home.

LIMITATION

Early interviews to identify criteria for the project evaluation included the identification of focus areas for the client population, and the possibility of locating developments on this basis. The site for RIPL Project One was selected primarily due to other perceived benefits and opportunities, and so does not respond clearly to this ambition. Individual residents have had a variety of experiences, however, as evidenced by interview data and the mobility tracking report.

A

B



MOBILITY TRACKING DATA

C

A

B

Re-building of social networks

PARTICIPANT A

Participant A has not lived in the local area before. Social networks are strongly influenced by family connections, so the location of the home has not had significant impact on this. However, the design of the home has had a significant positive influence on family connections, as indicated in other community integration subcriteria.

PARTICIPANT B

Participant B has not lived in the local area before. Social networks and activities are currently centred around the location of his previous home, or suburban settings he travels to. Access to public transport is helpful in this regard and used regularly by Participant B. Mobility tracking data demonstrates Participant B's travel out of the local neighbourhood to other suburbs for the primary purpose of shopping

PARTICIPANT C

Participant C has a strong historical link to his current neighbourhood, and good social networks in the area, so has been able to rekindle or strengthen those connections and enjoy local outings and activities. Mobility tracking data demonstrates Participant C's expanding local connections, including his attendance at a local church, gym and shops



MOBILITY TRACKING DATA

C

Visitors and Guests

The ability for residents to have visitors or guests in their home.

A

...Dad occasionally stays on the weekend. So it's good when he cooks. He stays for a couple of days - over the weekend - and then goes home..

B

... You still have a light switch and you can still have it on as automation because then you've got family and friends... So you want to be able to give everyone the control not just somebody with an iPad ...

Residents' opportunities to invite visitors and guests to their home relates to the ability to maintain existing social relationships as well as to develop new connections in the local community. These issues are also relevant to the provision of a homelike environment.

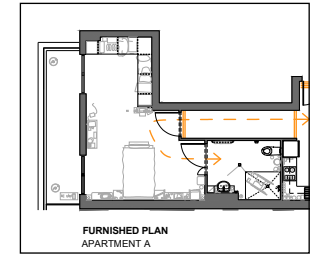
ENABLER

Although all apartments are one bedroom, large living spaces and provision for storage of spare beds, or the purchase of sofa beds, have allowed residents to have visitors and family members sleep overnight. One of the apartments has access to the bathroom from the bedroom as well as lounge. This has allowed visitor use while retaining privacy of the bedroom. A public accessible bathroom with hobless shower located adjacent to the support worker office, has proved useful for other visitors. One participant reported that at times it has acted as a second bathroom for visitors staying overnight. This is particularly useful given the extended time it takes participants to complete personal care tasks.

The installation of wall-mounted, or standard infrared remote controls as well as tablet or phone-based mobile assistive technology allows control of lighting, door and window opening, security, heating and cooling and other elements by the resident as well as their visitors.

LIMITATION

RIPL Design Brief calls for two bedrooms. The location of RIPL Project One in a medium density development has had an influence on the floor space available. The development was partially under construction at the time of RIPL involvement and apartment design, and this has also meant that options for plan layout were limited by the location of structural elements and plumbing connections. As a result, one bedroom apartments were designed.



FURNISHED PLAN

C

Visitors and Guests

A

PARTICIPANT A

Participant A reported great satisfaction with the ability to have family stay at his home. He reported receiving regular visitors at his home. The home automation system offered him the opportunity to allow visitors to enter the front gate as well as the apartment buildings and his apartment without assistance from another person.

B

A bed can be provided for visitors in the lounge area, and is stored in the nearby cupboard. Visitors are able to use the accessible bathroom in the common area nearby. This is helpful for privacy of both Participant A and his guests, as Participant A's bathroom has only a single entry point which must be accessed via his bedroom.

PARTICIPANT B

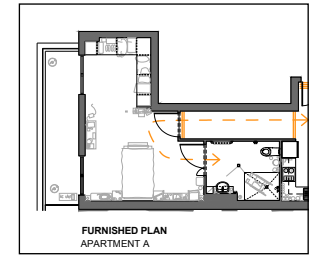
Participant B reported that he does not regularly receive visitors in his home. When he does have contact with people in his social network, he tends to travel to see others. This was apparent in both the interview and the mobility tracking data.

There is currently not enough room in the apartment to place a bed for visitors due to the location of furnishing and additional stored items. If this were to be possible in the future, visitors have the option to make use of the accessible bathroom in the hallway, which is convenient to the main door to the apartment. This would be helpful for privacy of both Participant B and his guests, as the apartment bathroom must be accessed via the bedroom.

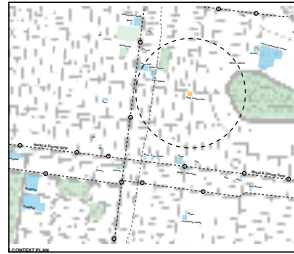
PARTICIPANT C

Participant C has family who stay overnight at his apartment on regular occasions, most often over weekends. Participant C expressed pleasure that these visits do not need to be planned in advance, or occur at a set time, but rather can occur as desired in his new home.

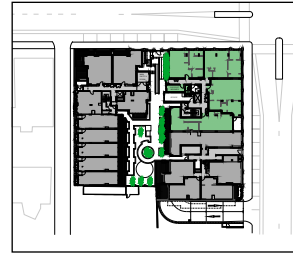
The plan indicates space to set out a bed in the lounge area, via a fold out sofa-bed already in place. The bathroom has access from both the bedroom and lounge area, so may be useful for visitors when it is available. Visitors are also able to make use of the accessible bathroom in the common area close to the support worker office.



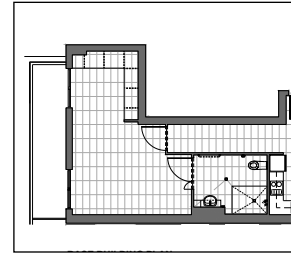
FURNISHED PLAN



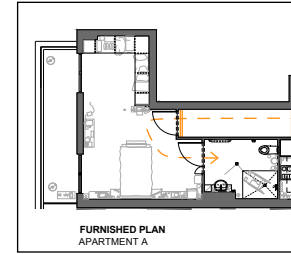
CONTEXT PLAN



DEVELOPMENT PLAN



BASE BUILDING PLAN

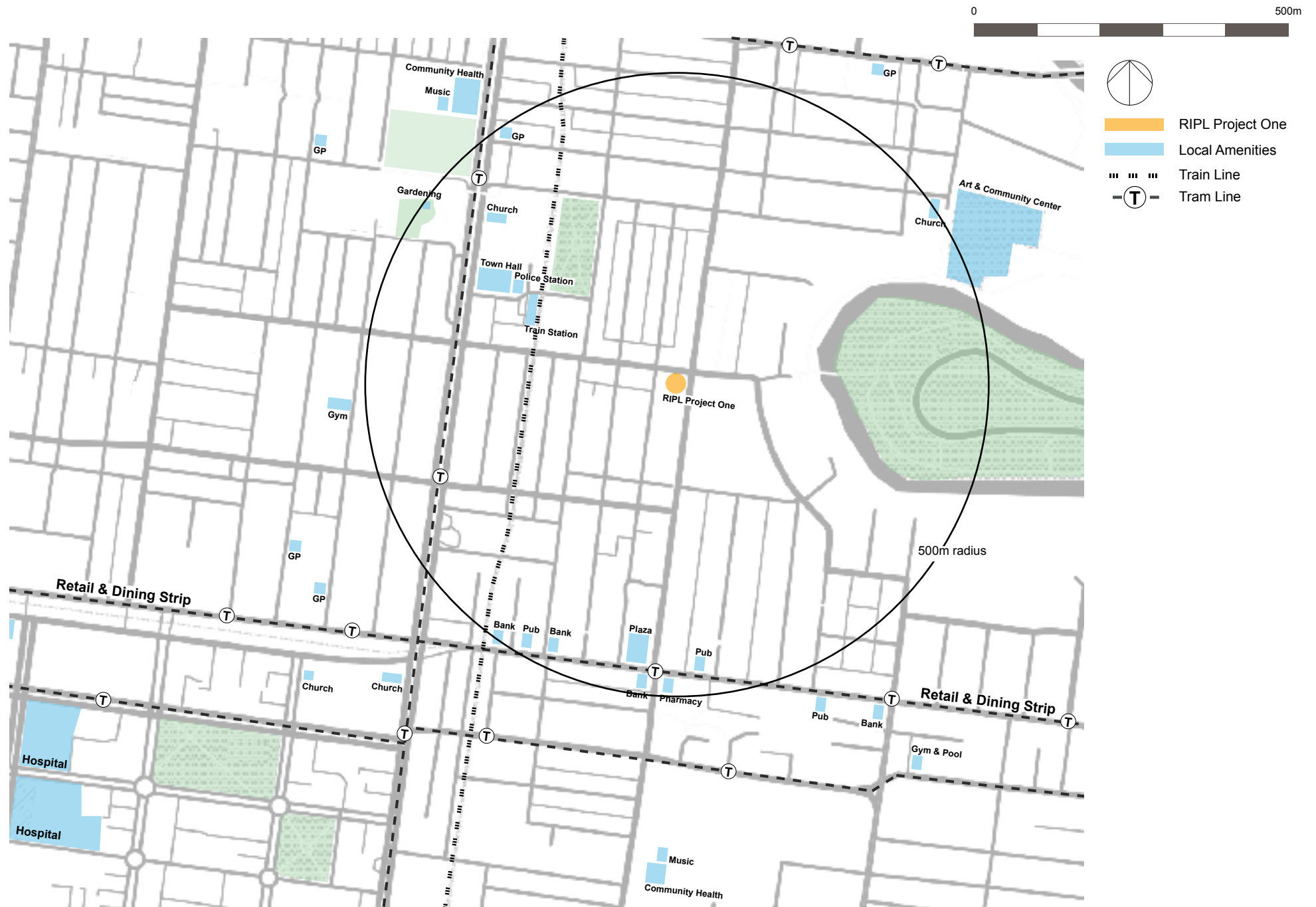


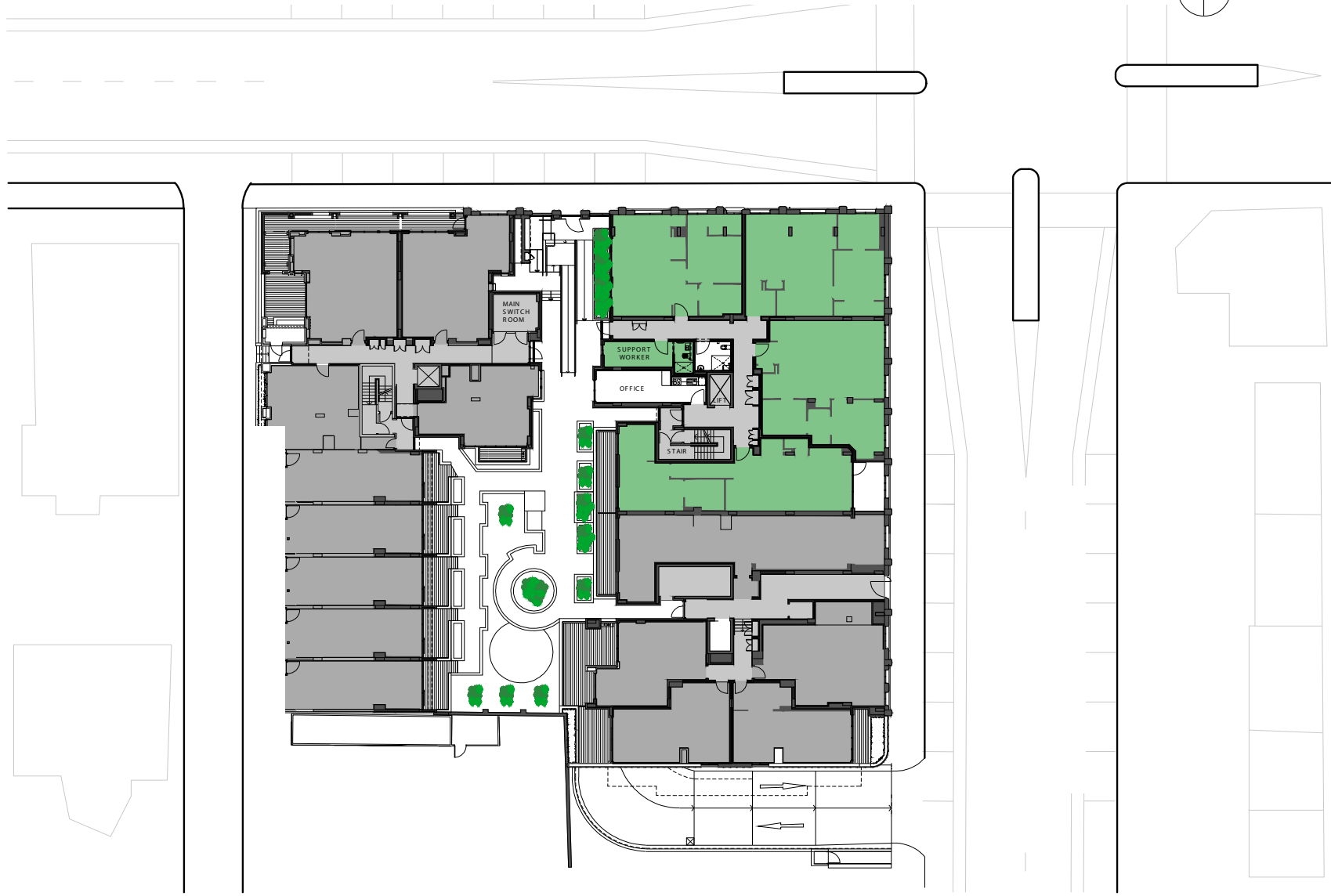
FURNISHED PLAN
APARTMENT A

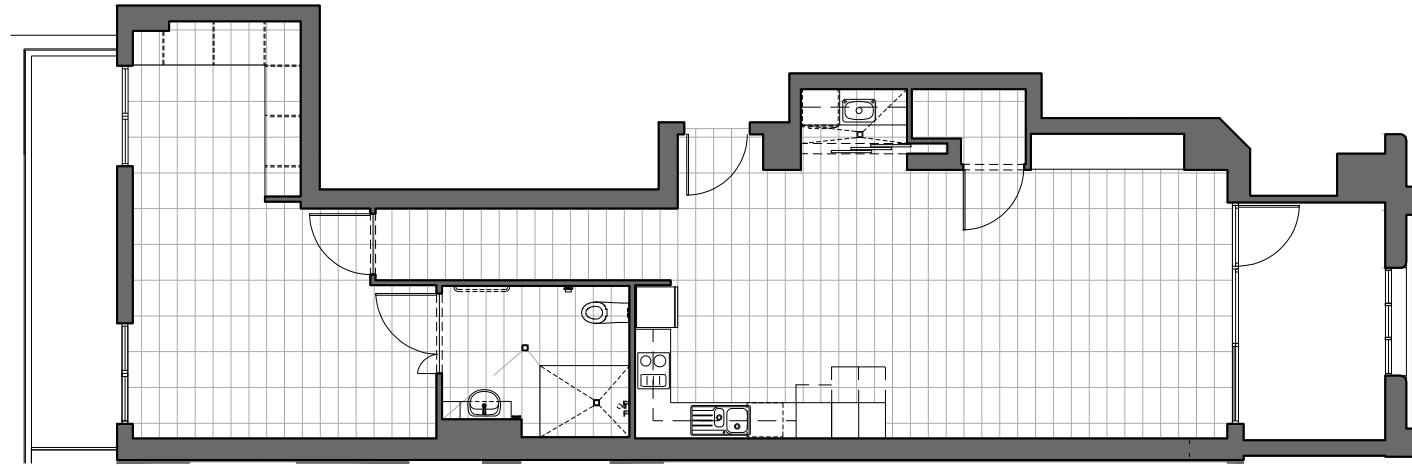


MOBILITY TRACKING DATA

The Evidence section includes relevant information for this criteria. Click on the links above to explore. The up / down keys on the keyboard will scroll through the pages included. Use the navigation toolbar on the right of the screen to return to this page via 'E' or to the criteria page via 'C'. Links to Home, Criteria Overview are also provided.



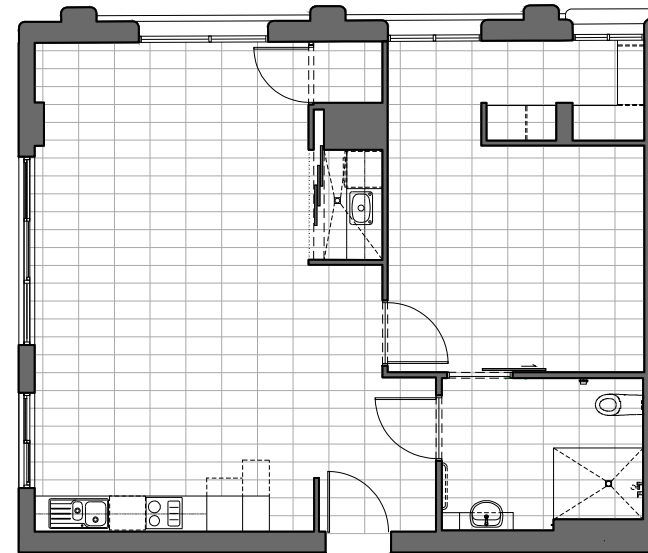




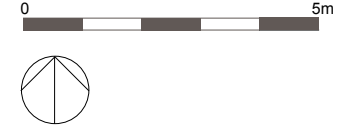
APARTMENT A

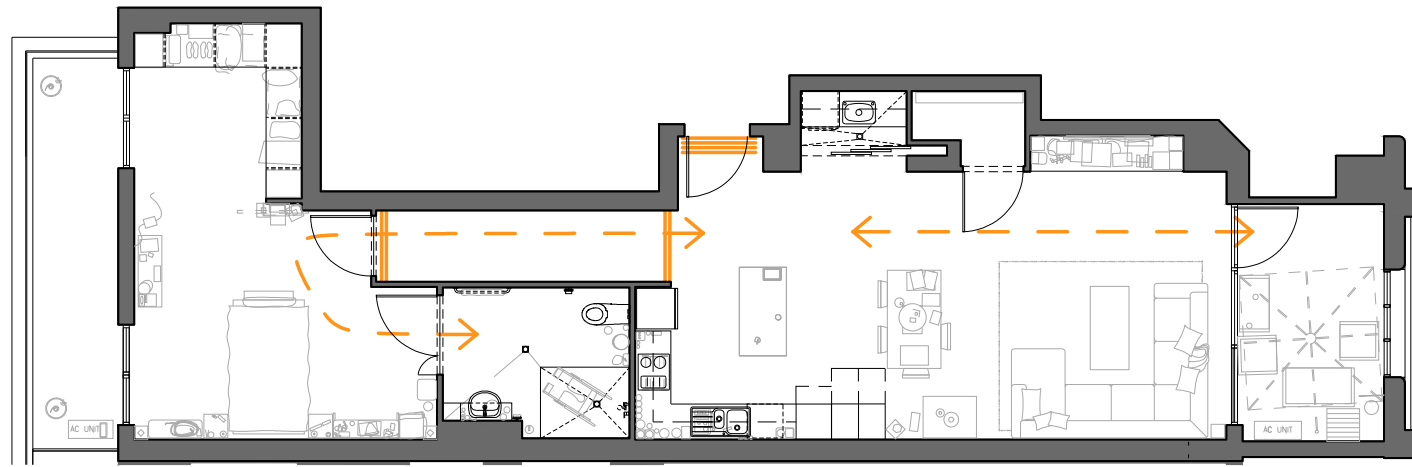


APARTMENT B

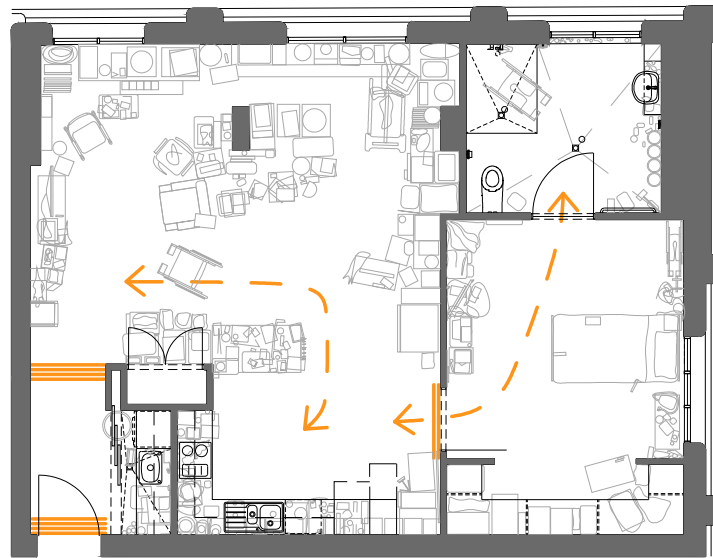


APARTMENT C

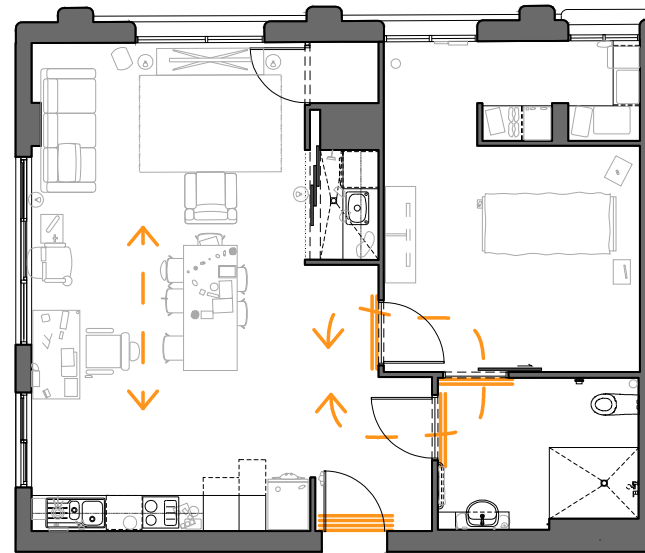




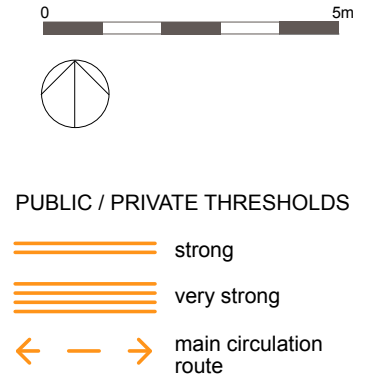
APARTMENT A

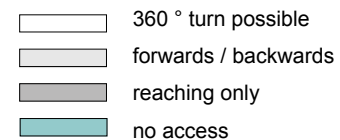


APARTMENT B



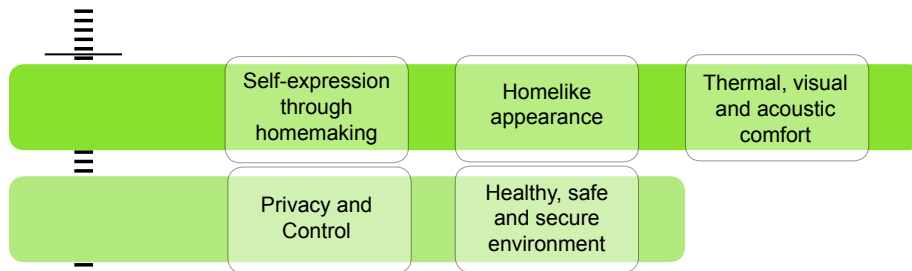
APARTMENT C





APARTMENT A





... It feels like a home ...

... I've got everything I want here. It's good ...

... It's sort of like your own home. You don't get everyone else's conversations going on and you're not really around anyone [co-residents] ...

... We knew that from day one that the oven wasn't going to be used. We sort of thought it was a little bit odd. It looks really nice but it can't be used by the person ...

HOMELIKE ENVIRONMENT

A residential environment that offers a sense of Home that responds to issues of security and comfort, agency and control, and self-expression. Primarily considered as a contrast to an institutional environment.

A

B

C

Self-expression through homemaking

The ability for residents to express their individuality through the furnishing and inhabitation of their home.

...Would people feel proud to show this place to someone else as their home? That's different for different people ... I think that's what we're trying to do...

Residents' opportunities to invite visitors and guests to their home relates to the ability to maintain existing social relationships as well as to develop new connections in the local community. These issues are also relevant to the provision of a homelike environment.

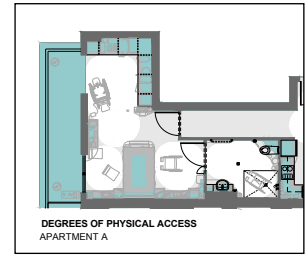
ENABLER

Participants were able to decorate and inhabit their homes in markedly different ways. The selection and location of furniture was an important aspect of this, as was the location of personal items.

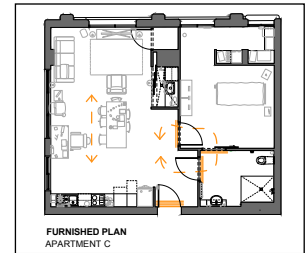
The Furnished Plans indicate that participants have taken different approaches to home decoration. All panoramas, but particularly the Socialising and Relaxing Panoramas offer good examples. One participant continues to consider where to place a considerable collection of personal items, and additional storage is being built for this. The style of furnishing is varied and appears to offer participants opportunities for personal self-expression.

LIMITATION

The location of major elements of furnishing (e.g. couch, television, television chair) generally conforms with typical arrangements such as might be seen in magazines or the media, or in standard homes. Researchers observed that there appeared to be a conflict between individuals' perception of 'home' and its appearance, and the home as a space to inhabit or use for the participant's personal purposes. A number of items were positioned in a 'standard' location (e.g. couch or armchair in front of the television area), but could not be used by residents comfortably, and impacted their comfortable use of the space. Unless residents were able to independently transfer into and out of the TV Chair, they located their wheelchairs alongside, and off the centreline of the screen. This is represented in Spaces of Supported and Independent Inhabitation in the relevant area. In this sense, the self-expression of participants is one of conformity to community standards, which may be done at the cost of access, personal comfort or individuality.



DEGREES PHYS. ACCESS



FURNISHED PLAN

NAME OF SPACE		DATE		INTERVIEWER		INTERVIEWEE		INTERVIEW DATE		INTERVIEW TIME		INTERVIEW LOCATION		INTERVIEW METHOD		INTERVIEWER'S SIGNATURE		INTERVIEWEE'S SIGNATURE	
Room	Area	Room	Area	Room	Area	Room	Area	Room	Area	Room	Area	Room	Area	Room	Area	Room	Area	Room	Area
Living Room	Living Room	Living Room	Living Room	Living Room	Living Room	Living Room	Living Room	Living Room	Living Room	Living Room	Living Room	Living Room	Living Room	Living Room	Living Room	Living Room	Living Room	Living Room	Living Room
Bedroom	Bedroom	Bedroom	Bedroom	Bedroom	Bedroom	Bedroom	Bedroom	Bedroom	Bedroom	Bedroom	Bedroom	Bedroom	Bedroom	Bedroom	Bedroom	Bedroom	Bedroom	Bedroom	Bedroom
Bathroom	Bathroom	Bathroom	Bathroom	Bathroom	Bathroom	Bathroom	Bathroom	Bathroom	Bathroom	Bathroom	Bathroom	Bathroom	Bathroom	Bathroom	Bathroom	Bathroom	Bathroom	Bathroom	Bathroom
Kitchen	Kitchen	Kitchen	Kitchen	Kitchen	Kitchen	Kitchen	Kitchen	Kitchen	Kitchen	Kitchen	Kitchen	Kitchen	Kitchen	Kitchen	Kitchen	Kitchen	Kitchen	Kitchen	Kitchen
Dining Room	Dining Room	Dining Room	Dining Room	Dining Room	Dining Room	Dining Room	Dining Room	Dining Room	Dining Room	Dining Room	Dining Room	Dining Room	Dining Room	Dining Room	Dining Room	Dining Room	Dining Room	Dining Room	Dining Room
Study	Study	Study	Study	Study	Study	Study	Study	Study	Study	Study	Study	Study	Study	Study	Study	Study	Study	Study	Study
Office	Office	Office	Office	Office	Office	Office	Office	Office	Office	Office	Office	Office	Office	Office	Office	Office	Office	Office	Office
Garage	Garage	Garage	Garage	Garage	Garage	Garage	Garage	Garage	Garage	Garage	Garage	Garage	Garage	Garage	Garage	Garage	Garage	Garage	Garage
Storage Room	Storage Room	Storage Room	Storage Room	Storage Room	Storage Room	Storage Room	Storage Room	Storage Room	Storage Room	Storage Room	Storage Room	Storage Room	Storage Room	Storage Room	Storage Room	Storage Room	Storage Room	Storage Room	Storage Room
Other	Other	Other	Other	Other	Other	Other	Other	Other	Other	Other	Other	Other	Other	Other	Other	Other	Other	Other	Other

REIS LONG FORM

A

B

C

Self-expression through homemaking

PARTICIPANT A

...I like music. Of course all this space was empty and I was just trying to figure out where I'd put things like that [audio system]. Yeah, and it's worked out well. We got a lot of things set up...

...I'd like to get some more things and make it look homely ... I got some other pictures which I haven't gotten around to putting up yet but I'm getting there ... Yeah, I'm pretty happy with the way things have been set up...

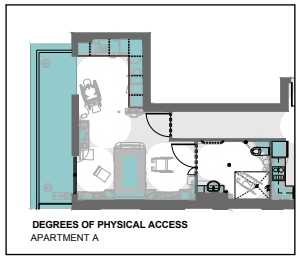
...It feels like a home...

REIS Long Form

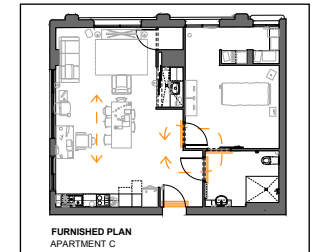
Participant A had the opportunity to measure the space for furnishings pre-move. He eats his meals using a Stable Table positioned on his lap whilst he is seated in a motorised chair, or uses the adjustable height bench (set at a fixed height) when in his manual chair, indicating the range of furnishing required to accommodate his two mobility devices used. Participant A was observed to make decisions around the running of his household (e.g. use of clothes horse instead of dryer, in consideration of utility bills).

Degrees of Physical Access

Contemporary furnishing is attractively located and well selected for quality and scale. Significant areas of the home, and selected furniture, are not currently used by the resident, and this is strongly influenced by the furniture layout as shown in the Degrees of Physical Access Plan. Participant C has planned the location of a large television and hi-fi system in the lounge area, and modifications to the space and some fittings have been made to accommodate a second television in the bedroom area where the participant spends considerable time.



DEGREES PHYS. ACCESS



FURNISHED PLAN

RESIDENTIAL ENVIRONMENT IMPACT SURVEY (REIS)									
Form 1 (Part 1) - General Information									
Participant Information									
Participant Name: [Name]									
Participant Address: [Address]									
Participant Phone: [Phone]									
Participant Email: [Email]									
Participant Occupation: [Occupation]									
Participant Age: [Age]									
Participant Gender: [Gender]									
Participant Disability: [Disability]									
Participant Mobility: [Mobility]									
Participant Vision: [Vision]									
Participant Hearing: [Hearing]									
Participant Smell: [Smell]									
Participant Taste: [Taste]									
Participant Touch: [Touch]									
Participant Cognitive: [Cognitive]									
Participant Emotional: [Emotional]									
Participant Social: [Social]									
Participant Financial: [Financial]									
Participant Health: [Health]									
Participant Education: [Education]									
Participant Employment: [Employment]									
Participant Income: [Income]									
Participant Assets: [Assets]									
Participant Liabilities: [Liabilities]									
Participant Net Worth: [Net Worth]									
Participant Credit Score: [Credit Score]									
Participant Insurance: [Insurance]									
Participant Legal: [Legal]									
Participant Tax: [Tax]									
Participant Social Security: [Social Security]									
Participant Medicare: [Medicare]									
Participant Private Health: [Private Health]									
Participant Life Insurance: [Life Insurance]									
Participant Other: [Other]									

REIS LONG FORM

A

B

C

Self-expression through homemaking

PARTICIPANT B

...It's still a bit hard to get used to [living in the new home] ... Probably just not sure about how to go about looking at things. Probably, I might have more confidence in ways of looking at things now...

Participant B was still adjusting to his new home, and in both the first and second post-occupancy interviews it was apparent his sense of a home-like environment was yet to be established as he continued to consider the location of personal items.

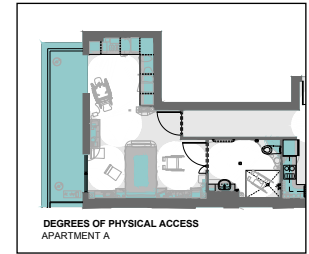
REIS Long Form

Although an armchair is positioned in front of the television, Participant C reported he cannot transfer to or sit comfortably in it. He is considering purchasing a recliner chair that will provide good physical support. He will need to transfer into this by hoist with staff support. There are a number of boxes and other personal items filling the apartment currently, which impact Participant B's use of various spaces. These items appear important to Participant C, the research team considered this an opportunity for self-expression albeit via unusual means.

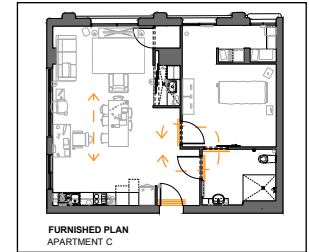
Degrees of Physical Access

The majority of the space is currently used for the storage of personal items, limiting the area for furnishings in the lounge / dining space of the apartment. Participant B expressed an interest in securing greater storage in his home, and this was being explored with the TAC building advisor. Participant B's zones of extended inhabitation are influenced by storage of personal items, as shown in the Degrees of Physical Access Plan.

The bedroom contains a smaller number of carefully placed personal items and comfortable furnishings.



DEGREES PHYS. ACCESS



FURNISHED PLAN

REIS LONG FORM		Information Obtained from Interview of Participant/Beneficiary	
Area	Access	Barriers	Notes
Living Room	✓	✓	
Dining Room	✓	✓	
Kitchen	✓	✓	
Bedroom	✓	✓	
Bathroom	✓	✓	
Entrance	✓	✓	
Storage	✓	✓	
Other	✓	✓	

Form 1.1 - Page 1 of 1 - 1.1.1 - 1.1.2 - 1.1.3 - 1.1.4 - 1.1.5 - 1.1.6 - 1.1.7 - 1.1.8 - 1.1.9 - 1.1.10 - 1.1.11 - 1.1.12 - 1.1.13 - 1.1.14 - 1.1.15 - 1.1.16 - 1.1.17 - 1.1.18 - 1.1.19 - 1.1.20 - 1.1.21 - 1.1.22 - 1.1.23 - 1.1.24 - 1.1.25 - 1.1.26 - 1.1.27 - 1.1.28 - 1.1.29 - 1.1.30 - 1.1.31 - 1.1.32 - 1.1.33 - 1.1.34 - 1.1.35 - 1.1.36 - 1.1.37 - 1.1.38 - 1.1.39 - 1.1.40 - 1.1.41 - 1.1.42 - 1.1.43 - 1.1.44 - 1.1.45 - 1.1.46 - 1.1.47 - 1.1.48 - 1.1.49 - 1.1.50 - 1.1.51 - 1.1.52 - 1.1.53 - 1.1.54 - 1.1.55 - 1.1.56 - 1.1.57 - 1.1.58 - 1.1.59 - 1.1.60 - 1.1.61 - 1.1.62 - 1.1.63 - 1.1.64 - 1.1.65 - 1.1.66 - 1.1.67 - 1.1.68 - 1.1.69 - 1.1.70 - 1.1.71 - 1.1.72 - 1.1.73 - 1.1.74 - 1.1.75 - 1.1.76 - 1.1.77 - 1.1.78 - 1.1.79 - 1.1.80 - 1.1.81 - 1.1.82 - 1.1.83 - 1.1.84 - 1.1.85 - 1.1.86 - 1.1.87 - 1.1.88 - 1.1.89 - 1.1.90 - 1.1.91 - 1.1.92 - 1.1.93 - 1.1.94 - 1.1.95 - 1.1.96 - 1.1.97 - 1.1.98 - 1.1.99 - 1.1.100 - 1.1.101 - 1.1.102 - 1.1.103 - 1.1.104 - 1.1.105 - 1.1.106 - 1.1.107 - 1.1.108 - 1.1.109 - 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1.1.710 - 1.1.711 - 1.1.712 - 1.1.713 - 1.1.714 - 1.1.715 - 1.1.716 - 1.1.717 - 1.1.718 - 1.1.719 - 1.1.720 - 1.1.721 - 1.1.722 - 1.1.723 - 1.1.724 - 1.1.725 - 1.1.726 - 1.1.727 - 1.1.728 - 1.1.729 - 1.1.730 - 1.1.731 - 1.1.732 - 1.1.733 - 1.1.734 - 1.1.735 - 1.1.736 - 1.1.737 - 1.1.738 - 1.1.739 - 1.1.740 - 1.1.741 - 1.1.742 - 1.1.743 - 1.1.744 - 1.1.745 - 1.1.746 - 1.1.747 - 1.1.748 - 1.1.749 - 1.1.750 - 1.1.751 - 1.1.752 - 1.1.753 - 1.1.754 - 1.1.755 - 1.1.756 - 1.1.757 - 1.1.758 - 1.1.759 - 1.1.760 - 1.1.761 - 1.1.762 - 1.1.763 - 1.1.764 - 1.1.765 - 1.1.766 - 1.1.767 - 1.1.768 - 1.1.769 - 1.1.770 - 1.1.771 - 1.1.772 - 1.1.773 - 1.1.774 - 1.1.775 - 1.1.776 - 1.1.777 - 1.1.778 - 1.1.779 - 1.1.780 - 1.1.781 - 1.1.782 - 1.1.783 - 1.1.784 - 1.1.785 - 1.1.786 - 1.1.787 - 1.1.788 - 1.1.789 - 1.1.790 - 1.1.791 - 1.1.792 - 1.1.793 - 1.1.794 - 1.1.795 - 1.1.796 - 1.1.797 - 1.1.798 - 1.1.799 - 1.1.800 - 1.1.801 - 1.1.802 - 1.1.803 - 1.1.804 - 1.1.805 - 1.1.806 - 1.1.807 - 1.1.808 - 1.1.809 - 1.1.810 - 1.1.811 - 1.1.812 - 1.1.813 - 1.1.814 - 1.1.815 - 1.1.816 - 1.1.817 - 1.1.818 - 1.1.819 - 1.1.820 - 1.1.821 - 1.1.822 - 1.1.823 - 1.1.824 - 1.1.825 - 1.1.826 - 1.1.827 - 1.1.828 - 1.1.829 - 1.1.830 - 1.1.831 - 1.1.832 - 1.1.833 - 1.1.834 - 1.1.835 - 1.1.836 - 1.1.837 - 1.1.838 - 1.1.839 - 1.1.840 - 1.1.841 - 1.1.842 - 1.1.843 - 1.1.844 - 1.1.845 - 1.1.846 - 1.1.847 - 1.1.848 - 1.1.849 - 1.1.850 - 1.1.851 - 1.1.852 - 1.1.853 - 1.1.854 - 1.1.855 - 1.1.856 - 1.1.857 - 1.1.858 - 1.1.859 - 1.1.860 - 1.1.861 - 1.1.862 - 1.1.863 - 1.1.864 - 1.1.865 - 1.1.866 - 1.1.867 - 1.1.868 - 1.1.869 - 1.1.870 - 1.1.871 - 1.1.872 - 1.1.873 - 1.1.874 - 1.1.875 - 1.1.876 - 1.1.877 - 1.1.878 - 1.1.879 - 1.1.880 - 1.1.881 - 1.1.882 - 1.1.883 - 1.1.884 - 1.1.885 - 1.1.886 - 1.1.887 - 1.1.888 - 1.1.889 - 1.1.890 - 1.1.891 - 1.1.892 - 1.1.893 - 1.1.894 - 1.1.895 - 1.1.896 - 1.1.897 - 1.1.898 - 1.1.899 - 1.1.900 - 1.1.901 - 1.1.902 - 1.1.903 - 1.1.904 - 1.1.905 - 1.1.906 - 1.1.907 - 1.1.908 - 1.1.909 - 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1.2.010 - 1.2.011 - 1.2.012 - 1.2.013 - 1.2.014 - 1.2.015 - 1.2.016 - 1.2.017 - 1.2.018 - 1.2.019 - 1.2.020 - 1.2.021 - 1.2.022 - 1.2.023 - 1.2.024 - 1.2.025 - 1.2.026 - 1.2.027 - 1.2.028 - 1.2.029 - 1.2.030 - 1.2.031 - 1.2.032 - 1.2.033 - 1.2.034 - 1.2.035 - 1.2.036 - 1.2.037 - 1.2.038 - 1.2.039 - 1.2.040 - 1.2.041 - 1.2.042 - 1.2.043 - 1.2.044 - 1.2.045 - 1.2.046 - 1.2.047 - 1.2.048 - 1.2.049 - 1.2.050 - 1.2.051 - 1.2.052 - 1.2.053 - 1.2.054 - 1.2.055 - 1.2.056 - 1.2.057 - 1.2.058 - 1.2.059 - 1.2.060 - 1.2.061 - 1.2.062 - 1.2.063 - 1.2.064 - 1.2.065 - 1.2.066 - 1.2.067 - 1.2.068 - 1.2.069 - 1.2.070 - 1.2.071 - 1.2.072 - 1.2.073 - 1.2.074 - 1.2.075 - 1.2.076 - 1.2.077 - 1.2.078 - 1.2.079 - 1.2.080 - 1.2.081 - 1.2.082 - 1.2.083 - 1.2.084 - 1.2.085 - 1.2.086 - 1.2.087 - 1.2.088 - 1.2.089 - 1.2.090 - 1.2.091 - 1.2.092 - 1.2.093 - 1.2.094 - 1.2.095 - 1.2.096 - 1.2.097 - 1.2.098 - 1.2.099 - 1.2.100 - 1.2.101 - 1.2.102 - 1.2.103 - 1.2.104 - 1.2.105 - 1.2.106 - 1.2.107 - 1.2.108 - 1.2.109 - 1.2.110 - 1.2.111 - 1.2.112 - 1.2.113 - 1.2.114 - 1.2.115 - 1.2.116 - 1.2.117 - 1.2.118 - 1.2.119 - 1.2.120 - 1.2.121 - 1.2.122 - 1.2.123 - 1.2.124 - 1.2.125 - 1.2.126 - 1.2.127 - 1.2.128 - 1.2.129 - 1.2.130 - 1.2.131 - 1.2.132 - 1.2.133 - 1.2.134 - 1.2.135 - 1.2.136 - 1.2.137 - 1.2.138 - 1.2.139 - 1.2.140 - 1.2.141 - 1.2.142 - 1.2.143 - 1.2.144 - 1.2.145 - 1.2.146 - 1.2.147 - 1.2.148 - 1.2.149 - 1.2.150 - 1.2.151 - 1.2.152 - 1.2.153 - 1.2.154 - 1.2.155 - 1.2.156 - 1.2.157 - 1.2.158 - 1.2.159 - 1.2.160 - 1.2.161 - 1.2.162 - 1.2.163 - 1.2.164 - 1.2.165 - 1.2.166 - 1.2.167 - 1.2.168 - 1.2.169 - 1.2.170 - 1.2.171 - 1.2.172 - 1.2.173 - 1.2.174 - 1.2.175 - 1.2.176 - 1.2.177 - 1.2.178 - 1.2.179 - 1.2.180 - 1.2.181 - 1.2.182 - 1.2.183 - 1.2.184 - 1.2.185 - 1.2.186 - 1.2.187 - 1.2.188 - 1.2.189 - 1.2.190 - 1.2.191 - 1.2.192 - 1.2.193 - 1.2.194 - 1.2.195 - 1.2.196 - 1.2.197 - 1.2.198 - 1.2.199 - 1.2.200 - 1.2.201 - 1.2.202 - 1.2.203 - 1.2.204 - 1.2.205 - 1.2.206 - 1.2.207 - 1.2.208 - 1.2.209 - 1.2.210 - 1.2.211 - 1.2.212 - 1.2.213 - 1.2.214 - 1.2.215 - 1.2.216 - 1.2.217 - 1.2.218 - 1.2.219 - 1.2.220 - 1.2.221 - 1.2.222 - 1.2.223 - 1.2.224 - 1.2.225 - 1.2.226 - 1.2.227 - 1

A

B

C

Self-expression through homemaking

PARTICIPANT C

...I make sure everything is looking just right. It only takes me about five minutes if I'm on top of it though. I can do most things myself. I can stand up. I can do most things myself...

...Because everything is set up for me. That's so good. I'm going to get this so everything is so familiar. It makes my life so much easier...

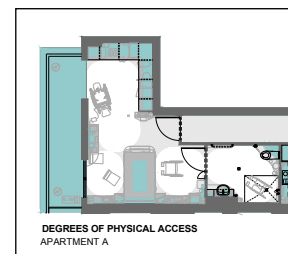
...The final say [as to where objects are placed] is up to me...

REIS Long Form

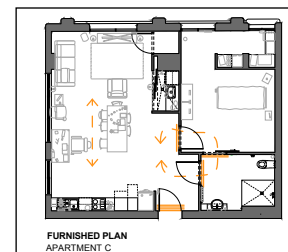
The amount and type of furniture is suitable for Participant C's use of the apartment and its spaces. Some furnishing choices have impacted mobility and have been detailed in the Independence criteria, as well as the Degrees of Physical Access Plan (below). There are a number of personal items on display, and Participant C is enthusiastic about the selection and location of these.

Furnishing Plan

As noted, the furnishing is well located and selected for quality and scale. Some areas of the apartment are not currently accessed by the resident, and this is influenced by the furniture layout as shown in the Degrees of Physical Access Plan.



DEGREES PHYS. ACCESS



FURNISHED PLAN

RESIDENTIAL ENVIRONMENT MEASUREMENT SURVEY (REIS)

Participant: [Name] Date: [Date]

Surveyor: [Name] Date: [Date]

Room	Access	Use	Comments
Living Room	✓	✓	
Dining Room	✓	✓	
Kitchen	✓	✓	
Bathroom	✓	✓	
Bedroom	✓	✓	
Storage	✓	✓	

Notes: [Notes]

REIS LONG FORM

REIS LONG FORM

C

...The main difference here is it's someone's own apartment. It's not just their room in [shared supported accommodation]. It's their own place and their own apartment and they don't have to let anyone in if they don't want to... which was really important to the three tenants ...I know a couple of them even said, "I want to choose who comes into my house"...

Privacy and Control

Residents' sense of privacy and personal control within their home, and its contribution to the sense of 'home' in the environment.

A

B

ENABLER

The design of the development includes a number of thresholds visitors will cross on a path from the street to the apartment interior. Participants were generally able to control entry access by the use of assistive technology, or a video intercom where accessible.

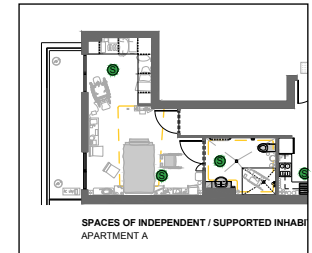
Particular note of resident privacy is made with regard to the use of the resident-staff communication system (speaker phone supplied in apartment ceiling). This system is activated via tablet or smart phone, personal alarm, or other wall or bed mounted systems. Staff receive a recorded message of the call, and must call back or visit the person to establish it was deliberately made, rather than by error. This is a procedure to safeguard privacy as a resident may call the support staff unknowingly.

Although the home is located on a public street, the height of the finished floor above pavement level and the installation of window tinting, blinds and screening devices provides for visual privacy for residents. The layout of private and more public spaces in the apartments, and the design of thresholds and entry spaces is relevant. Analysis of the apartments, and participants' demonstrations and descriptions of their use, highlighted particular areas where participants spent the majority of their private time when at home. Other areas were used primarily by support staff, or by the participant with the support of staff.

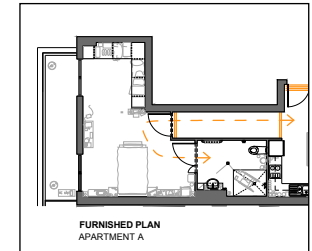
LIMITATION

Researchers observed inconsistent approaches by support staff to this issue, including staff knocking and being given access into the home by the participant, versus knocking and quickly entering, or entering using an access fob while calling to announce their presence. This is discussed further in the Support section of this document, but is relevant to resident privacy and control. A consistent practice of waiting for a resident to answer the door is necessary to respect the privacy and control of each resident in their own home, clearly excepting emergencies.

A ramp close to the main entrance to the development allows a view into one of the apartments at a particular location. To address this in the short term, this resident has chosen to install a small additional screening device to maintain privacy. Over time, plantings in place outside this window area will establish and should improve screening of the area.



INDEPENDENT LIVING PLANS



FURNISHED PLANS



CONTROL ACCESS POINTS

C

Privacy and Control

A

B

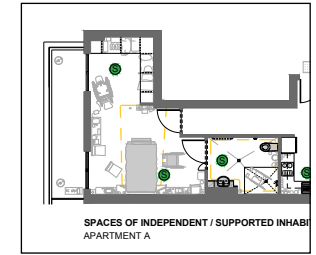
Spaces of Independent / supported living plans and Furnished plans

Furnished Plan drawings indicate the thresholds between differing levels of public and private space. These are also indicated on the Panoramas included. Thresholds are indicated at the entrance to the apartments, and between spaces contained within apartments at doorways and elsewhere. Plans and Panoramas also indicate major circulation routes with the current furniture arrangement. Spaces of Independent / Supported Living detail areas where support workers provide full support or partial assistance for particular activities. Support workers are also represented in the resident experience slider view of the Panoramas. The intersection of internal public and private spaces and support delivery demonstrates some of the issues relevant to this sub-criteria in each apartment.

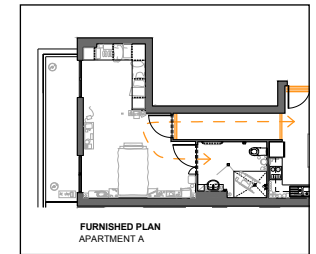
It is notable that although bedrooms with clothes storage and bathrooms are nominally 'private' spaces, the majority of the support for participants is provided in these spaces. Thus the more 'public' spaces including living and dining, are in fact the spaces where residents are best able to have time alone. Reconsideration of this arrangement, although it may conflict with ambitions for resale, may enable a different, but more appropriate spatial arrangement.

The apartments considered for this study all have very different arrangements of thresholds and major circulation routes, and residents have very different needs for support. The intersection of these issues, and the variation of success, is evident through the drawings and panoramas provided.

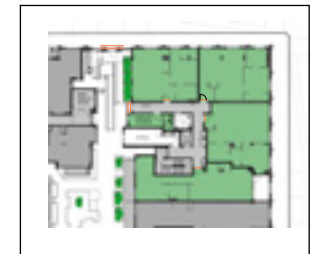
Residents' sense of privacy and personal control within their home, and its contribution to the sense of 'home' in the environment.



SPACES OF INDEPENDENT / SUPPORTED INHABITANTS
APARTMENT A



FURNISHED PLAN
APARTMENT A



CONTROL ACCESS POINTS

C

Privacy and Control

A

B

PARTICIPANT A

... Just like not having a room and having, you know, four or five residents sharing the one living space back at the supported accommodation [affected privacy] ... I'm getting used to living on my own. Yeah, I'm liking it. Yeah, it's much better than where I was before. Yeah, I can get used to it...

Spaces of Independent / supported living plans and Furnished plans

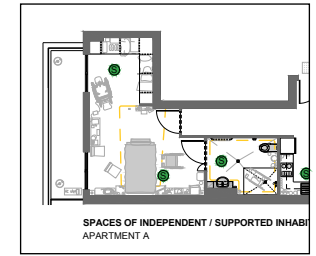
The threshold at the main entrance to Participant A's apartment is well defined, with a small foyer space implied by the walls. This continues the wall arrangement of the hallway in the building however, forming a linear link with travel patterns of support workers or visitors. The threshold loses some of its power to spatially interrupt circulation from the exterior approach through this arrangement.

It was observed by researchers in the first site visit that Participant A was unaware of the open / closed state of the front door on a number of occasions (relevant to intuitive use sub-criteria re assistive technology), particularly when in the bedroom. Support workers were observed entering the apartment directly. Upon follow up interview, Participant A reported this issue had been addressed as he had learnt to check the 'flag' on the home automation application on his smart phone, which indicated whether the door was open or closed.

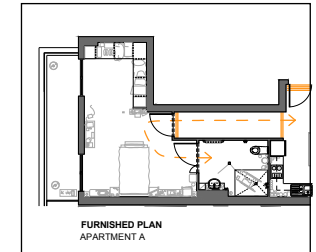
There are a number of thresholds within the environment but the apartment is clearly divided into more public / entertaining spaces and private spaces. Entry is into one corner of the public space, reinforcing the threshold from the interior in conjunction with the kitchen planning. Linear circulation patterns break at this point.

There is a threshold implied at the entrance to the internal hallway space that separates, and connects, to the bedroom and more 'private' spaces. A second threshold is located at the doorway to the bedroom and adjacent ensuite. As noted above, these nominally 'private' spaces are in fact the locations for the majority of support. Thus more thresholds are crossed by support workers to the 'private' spaces than to the more 'public' spaces within the apartment.

As a result of Participant A's arrangement of furniture, the living area is relatively private (at the end of the 'public' space). However, it must be crossed by support workers hanging washing or locating items in the courtyard. The selection and arrangement of furniture also means that the resident's wheelchair must be located close to the circulation route.



INDEPENDENT LIVING PLANS



FURNISHED PLANS



CONTROL ACCESS POINTS

G

A

B PARTICIPANT B**Privacy and Control**

...They're generally supposed to knock and all that sort of stuff... Some knock, some don't...

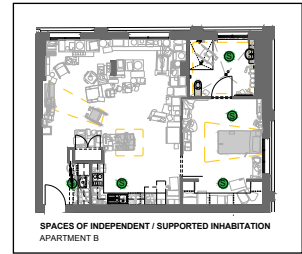
Spaces of Independent / supported living plans and Furnished plans

From the exterior of the apartment, the entrance of Participant B's apartment is on a corner of the shared hallway within the development, offset from the entrance to the support workers' office. This affords the entrance additional privacy. The threshold at the main entrance to the apartment is very clearly defined with a foyer space implied by the long party wall and opposing laundry space.

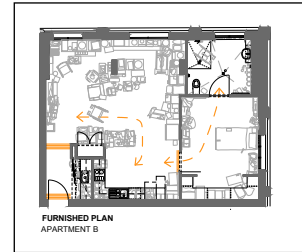
On entry to the apartment, and passing through the 'foyer' space discussed above, there is an additional threshold at the end of this passage when the main public space of the apartment is revealed, but requires a turn off this axis to do so. Thus the extended series of thresholds and required movement patterns provide considerable privacy to Participant B in this apartment. An additional threshold is implied at the entrance to the bedroom, adjacent to the kitchen space.

Despite this arrangement, the location of the apartment within a supported housing environment means that support workers must enter the 'deepest' areas of the apartment to deliver the required support, undermining the privacy aspects of the design, which is arranged according to more 'typical' needs. These nominally 'private' spaces are in fact the locations for the majority of support. Thus more thresholds are crossed by support workers to the 'private' spaces than to the more 'public' spaces within the apartment.

The opportunity for some of the living spaces to be more private, for example the northeast corner, which would be adjacent to, but not interrupted by, the circulation route is not currently available given storage and furniture arrangements by Participant B.



INDEPENDENT LIVING PLANS



FURNISHED PLANS



CONTROL ACCESS POINTS

C

Privacy and Control

A

B

PARTICIPANT C

...Sometimes the postie presses every apartment until he gets an answer – if that's the postie or someone I just go and have a look [out the window]. I don't use the video on the intercom ... I can't get to that one. It'd be good if the video for the intercom was on my iPad...

Spaces of Independent / supported living plans and Furnished plans

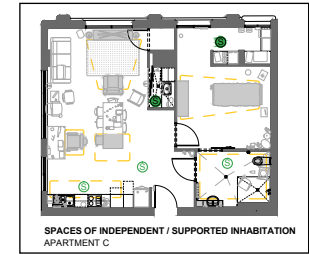
From the exterior of the apartment, the entrance to Apartment C is almost directly opposite the door to the support workers' office and close to the main entrance to the building. This appears to be a suitable arrangement for this resident who expressed much interest in maintaining social contact with support workers, and in general appears to enjoy multiple strong social connections.

It was noted that the ramp passing by the western windows allows passers by to have a limited view into the apartment at a particular point. Participant C has solved this problem by placing a poster over this area of glazing.

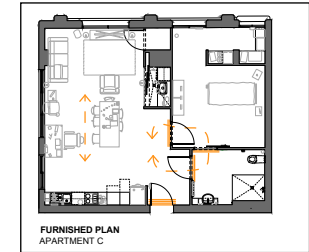
The threshold at the main entrance to the apartment is relatively defined in plan with wall returns implying a diagonal deviation toward the main living spaces. This is somewhat weakened by the location of a door into the bathroom, although it was noted on the second site visit by researchers that this participant had partly concealed this door with posters. This use of posters offered an implied foyer space and is reinforced by the position of the dining table, forming a fourth edge. Multiple thresholds are located within the apartment at the entrance to the bedroom and bathroom, however each of these requires a single crossing on most circulation routes.

In contrast to other apartment plans, support workers can deliver the majority of the required support close to the entrance to the apartment i.e., without entering more 'deeply' into the apartment. This is assisted by the less significant level of support required by Participant C compared with other study participants. Issues noted elsewhere regarding the planning of the wardrobe space mean that support workers must collect and arrange clothing, although another layout may allow more independent dressing for this resident given his unilateral upper limb function.

Furnishing decisions have provided a television space in the most private area of the apartment. Participant C is able to transfer independently into the armchair for television viewing without support. This furnishing appears very successful in building a private space, and may only be improved by some minor rearrangement to allow the participant to watch television while also having a view of the door.



INDEPENDENT LIVING PLANS



FURNISHED PLANS



CONTROL ACCESS POINTS

Homelike appearance

The appearance of the environment primarily as a 'home' rather than as an 'institution'.

The ambition to deliver a 'home-like' appearance influenced the design of components and spaces, selection of materials and fittings, and the layout of spaces in RIPL Project One. It is mentioned in several sections of the RIPL Design Brief primarily as a positive comparison to an 'institution'. Researchers noted that this sub-criteria conflicted with some other ambitions, primarily in relation to the functional aspects of the home for particular residents. Resolution of these conflicts may enable the design of an environment that does not appear to be institutional, but that might be used by particular residents more functionally as a home.

ENABLER

The selection of good quality finishes and fittings, the integration of fixed manual handling equipment (e.g. discreet ceiling mounted H-tracks for hoist transfer system) and the design of joinery have been important contributors to the homelike appearance apartments. Early interviews identified concerns that the installation of tiles throughout the apartment might be too 'institutional', however this has not been realised in post-occupancy evaluation. The selection of large format tiles in neutral colours matching joinery has been a successful strategy, and has reportedly improved participants' ease of mobility.

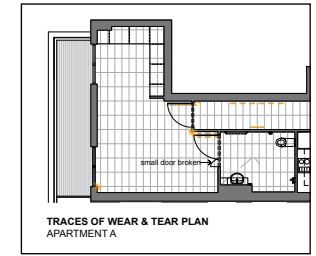
The layout of spaces is typical of contemporary apartments of a similar quality, although the spaces themselves are considerably larger than usual. The spatial arrangement conforms to community expectations of the planning and spatial arrangement of 'home', although this brings some functional challenges which have been detailed in other sub-criteria.

Participants' use of these spaces has resulted in some early minor damage to wall surfaces and corners. These traces and markings have offered useful evidence of the challenges for participants in negotiating some corners and spaces, and how these vary across apartments. The selection of typical materials would be expected to allow for low cost maintenance and fixing, however, in comparison to specialised covering, extended skirting boards, or institutional-type external corners.

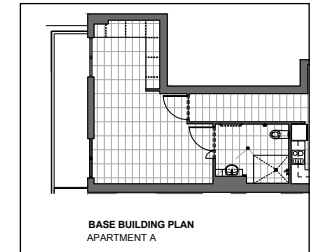
LIMITATION

The sub-criteria has been rated highly by the research group, however as detailed above there is some question as to the relevance of the sub-criteria in itself. There appears to be some conflict in terms of functionality. This is evidenced by the distribution of independent inhabitation within the home. It is the view of the researchers that if resident reach was known ahead of time for the design, different design of some items of joinery then would allow more independent use (e.g. in the kitchen). Delaying final joinery until resident selection is made has real capacity to increase resident access and therefore positively impact support need, without a move to an institutional appearance.

Further to this, the furnishing of the apartments by residents appears to take aesthetic cues from homemaking magazines or brochures and this is linked to the sub-criteria of self-expression through homemaking. The resolution of a vision of the appearance of 'a standard home' with the actual abilities of residents may lead to more effective home environments, and may in fact open possibilities for more authentic self-expression. The location of a 'TV chair' as detailed elsewhere is a good example.



TRACES, WEAR & TEAR PLANS



BASE BUILDING PLANS

... It's trying to look at this is an ordinary home, this needs to be functional and what on earth does functional mean across different groups? It needs to be really aesthetically pleasing and it needs to have resale value. It needs to look like every other unit in the building as much as possible ...

...To some extent you can control in some ways who comes in, but it depends on who presses the button...

A B C Healthy, Safe and Secure Environment

Resident health, safety, and personal security are supported by the design and material selections of the development. These decisions have impacted this sub-criteria for both the particular apartments and in the shared spaces of the building.

ENABLER

Considerable effort has been made to design and construct residential environments that comply with safety requirements. In general, this appears to have been very successful – particular areas of concern raised by study participants are noted below.

There were some concerns about the slipperiness of bathrooms tiles when wet, an issue for both residents and support staff. This is also reported under Effective Workplace sub-criteria. A non-slip coating was applied and tested during the study period, and appeared a satisfactory solution.

The close proximity of apartments to the support workers' office provided some passive security control, and the use of building security systems and further assistive technology has allowed individual residents to control access to the complex and their homes within the limits of the technology and its use as detailed

LIMITATION

Residents vary in their level of familiarity with assistive technology device operation, and some experience some limitations to accessing supplied security systems (e.g. wall mounted video intercom). Researchers observed participants providing access to people who rang their apartment bell without confirming who was ringing the bell. Participants did not express concern about this and no security issues had been experienced by interviewees to date.

For RIPL Project One, changes to ramp design after the construction of the main building commenced has impacted the width of ramps and this has been reported in the Independence criteria. One resident expressed some concerns about negotiating this ramp in a manual chair. Concerns were also raised by some residents about the use of wheelchairs on the ramp to the underground car park. This necessarily limits access to the car park by means of the lift when necessary.

The location of wall mounted duress buttons on splashbacks in the kitchen area were not accessible for two participants and other solutions were required, and provided, in the form of the duress button on the smartphone / tablet application, and call pendants. Participants flagged security concerns about taking smart phones or tablets into community settings, particularly when they may be stored on the person's lap or a customised wheelchair mount. Participant preference was to use a tablet when at home, and to store phones in bags when out in the community.

REIS LONG FORM

PIADS

...Yeah, well I can't lock the door... well it's not like I can lock the door and no-one comes in... Oh, I can lock the door if I'm here I suppose but they're probably wondering why they can't come in but if I go out I mean, workers can come and go...

A B C Healthy, Safe and Secure Environment

PARTICIPANT A REIS Long Form

Participant A reported he feels safe in the home environment. Initial problems with the duress alarm led the participant to request an additional back up solution, however, as detailed in other sub-criteria.

The gradient of the ramp leading to the main street entrance is quite steep, and not attempted by Participant A independently when he is using his manual wheelchair. Use of this ramp is manageable when using a motorised wheelchair.

PIADS

Use of the smart phone had no perceived impact on Participant A's sense of security (item 9), rated as 0 on the PIADS.

PARTICIPANT B REIS Long Form

Participant B did not identify any concerns for his personal safety in the home environment. He did however flag a sense that it was difficult to lock his home when out, given staff had access to all apartments via an entry fob.

PIADS

Use of the iPad had no perceived impact on Participant B's sense of security (item 9), rated as 0 on the PIADS.

PARTICIPANT C REIS Long Form

Participant C can stand to transfer and reach items in the home environment, and can walk short distances using a wheeled walking frame. Participant C reported that he has fallen 'a couple of times' since moving in to RIPL Project One, at an estimated rate of one fall every two months – falls may be impacted by changes in Participant's C level of use of a motorised wheelchair versus walking. This has been discussed in other sub-criteria. Participant C identified that the tiled flooring was slippery in wet areas, but a non-slip coating in the bathroom and a non-slip shower mat in the shower recess is assisting with this.

PIADS

Use of the iPad had some impact on Participant C's sense of security (item 9), rated as 1 on the PIADS.

REIS LONG FORM

PIADS

C

Thermal, visual and acoustic comfort

A

...It's lighter than the other place I was in...

...I go outside and get some sun in that [west facing] courtyard ... it's good for the sun out there. This side [eastern courtyard] is nice and cool...

The design and construction of the building, and the selection of systems for lighting, heating cooling and ventilation of apartments has generally provided for a very comfortable living environment. Issues relating to passive approaches to heating and cooling, ventilation and lighting are mentioned below as they have the potential for impact on the comfort of participants, and the cost of running the home. They are also relevant to consideration of issues of sustainability, however this was not an issue raised in RIPL reference documents so has not been included as a specific area of focus or concern.

ENABLER

The majority of the apartments have operable glazing on two sides, offering some cross ventilation and passive cooling.

Selection and installation of environmental control systems as listed above has been an important consideration and is particularly relevant to residents who spend a considerable amount of time at home. It has not been possible for the research group to validate the levels of use of this equipment, as control of temperature is via proprietary remote controls, and not logged by the assistive technology system that only offers on/off controls. These systems would appear to be relatively successful in most cases.

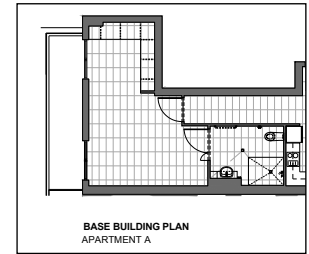
B

The installation of double-glazing has reduced both noise and interior temperature fluctuations, and the masonry construction of the main building has also assisted in this. Sleeping spaces in the majority of apartments are separated from the surrounding streets.

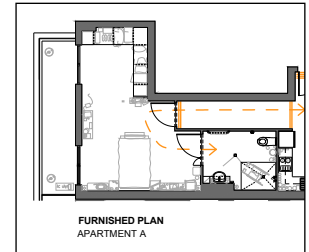
LIMITATION

One apartment has particular issues with regards this criteria as indicated. The majority of these are inherent to the planning of the main building. The location of the apartment on the corner of two adjoining streets has impacted noise levels. The corner has traffic lights, such that cars brake to a halt and accelerate from a standing start closeby. A pedestrian crossing has an auditory guide that also contributes significantly to intermittent and disruptive noise. The double-glazing may reduce the noise level somewhat however this also serves to reduce heat loss. The location of the bathroom space on a northern wall means that it receives sunlight throughout the day, absorbing heat in the tiled surfaces as a heat sink - heat that is then released back into the space in the evening. Opening the windows to encourage cooling then allows the noise level to increase further.

Maintenance of the environment at a comfortable temperature, without excessive glare or gloom, or problems related to noise.



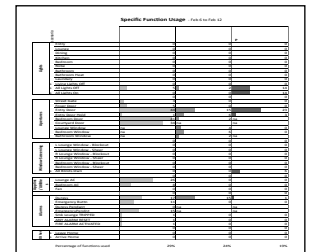
BASE BUILDING PLANS



FURNISHED PLANS



SITE ANALYSIS



ASSISTIVE TECH LOG

C

Thermal, visual and acoustic comfort

A

PARTICIPANT A

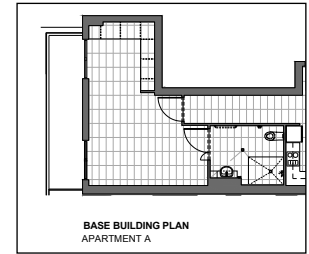
Base / Furnished Plans

The apartment layout provides for good cross ventilation throughout the space, and the inclusion of a courtyard assists with this. Ventilation is via operable doors, there are no operable windows installed. Kitchen and bathroom spaces are mechanically ventilated. The apartment is linear, running east-west therefore light access to the central spaces is somewhat limited, however not considered of particular concern. The bedroom space can become heated by the western sun in the afternoon, requiring the use of blinds and air conditioning in the summer months.

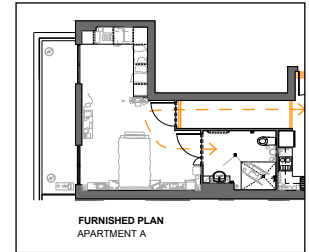
The apartment is set back from the street corner, on the quieter cross street and does not appear to have problems with noise from the exterior of the building, or from other residents of the development passing through the courtyard.

Climate control was identified as an issue for this resident, who was unable to set the unit's timer using the conventional remote. This feature had not yet been integrated into the smart home system and is detailed in other sub-criteria.

B



BASE BUILDING PLANS



FURNISHED PLANS



SITE ANALYSIS

Specific Function Usage		Assistive Tech Log	
Function	Usage	Assistive Tech	Log
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ASSISTIVE TECH LOG

C

Thermal, visual and acoustic comfort

A

PARTICIPANT B

...I still hear it [traffic noise] if I open the windows. I turn the tele up. Makes it harder to talk to people. So, that's when I shut them [the windows]. When I'm laying on the bed, I still notice the traffic a lot more. I still hear the traffic in the morning. If I wake up in the morning, I usually start hearing the trucks. Then the button, the little beeper thing on the crossing...

...I end up in my bedroom lying on the bed and it's like traffic noise and all the traffic noise and ... anyone walking past sometimes you might as well join in the conversation...

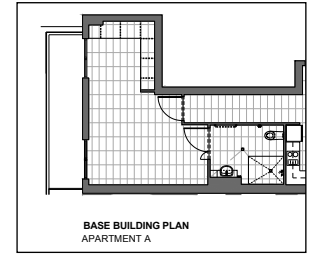
Participant B has experiences problems with traffic and pedestrian noise as a result of apartment location on the corner of two intersecting streets. The resident feels that noise can only be reduced sufficiently once windows and the bathroom door are closed, however, this also reduces air flow through the apartment.

The apartment provides good opportunity for cross ventilation, and natural light enters the space from the west and north. The location of the television avoids issues of glare. The location of the bathroom on an external wall allows ventilation to the exterior. The kitchen has mechanical ventilation.

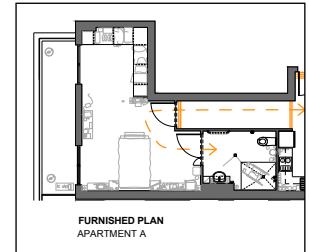
Apartment B can offer some relevant learning in terms of the impact of passive HVAC issues for residents spending the majority of their time in their home. The majority of these issues are inherent to the planning of the main building, and to the particularities of the RIPL Project One location and construction arrangements. A number of the arrangements of plumbing and orientation were already in place when the semi-constructed apartments were purchased. The resulting challenges are an outcome from their intersection or influence on each other rather than any of the decisions in isolation.

The location of the apartment on the corner of two adjoining streets has impacted noise levels more significantly than those located further from the corner, as detailed above. The double glazing installed would be expected to reduce this noise level however this also serves to reduce heat transfer through the glass. The location of the bathroom space on a northern wall means that it receives sunlight throughout the day, acting as a heat sink by absorbing heat in the tiled surfaces - heat that is then dissipated back into the space. Opening the windows to encourage cross-ventilation and cooling then causes the noise level to increase further. This is clearly more of an issue in summer months.

As noted, this set of circumstances is as a result of the intersection of a number of issues, and are relevant to residents who spend the majority of their time in their home. This offers useful learning for future design decisions, and highlights the relevance of early planning and layout spaces with regards to orientation.



BASE BUILDING PLANS



FURNISHED PLANS



SITE ANALYSIS

Specific Function Usage		Date and Time	
Function	Usage	Date	Time
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ASSISTIVE TECH LOG

C

Thermal, visual and acoustic comfort

A

PARTICIPANT C

...I only need to use the air conditioning when it's a scorching hot day...

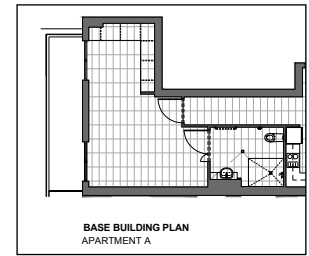
...I've got double-glazed windows which helps with noise...

Base / Finished Plans

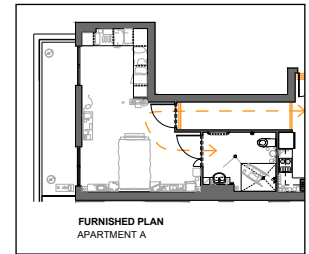
The apartment layout provides for relatively good cross ventilation throughout the main space, and some ventilation to the bedroom area. Kitchen and bathroom spaces are mechanically ventilated. The kitchen may have benefited from the ability to open an adjacent window. The living space can become heated by the western sun in the afternoon, requiring the use of blinds, but vines growing on an external trellis, coupled with tree plantings in the common entrance to the development is expected to provide shading in summer when more mature.

The apartment is set back from the street corner, and does not appear to have significant problems with noise from the exterior of the building, or from other residents of the development passing through the courtyard.

B



BASE BUILDING PLANS



FURNISHED PLANS

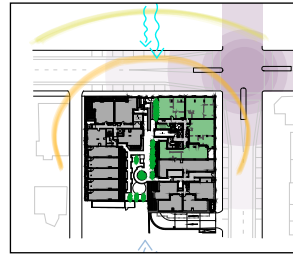


SITE ANALYSIS

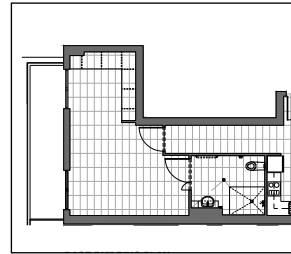
Specific Function Usage			
	Start Time	End Time	Duration
Living Room	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
Kitchen	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
Bathroom	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
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	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
Bedroom	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
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	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
Entry	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
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	08:00	18:00	10:00
Staircase	08:00	18:00	10:00
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	08:00	18:00	10:00
Storage	08:00	18:00	10:00
	08:00	18:00	10:00
	08:00	18:00	10:00
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	08:00	18:00	10:00
Laundry	08:00	18:00	10:00
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Garage	08:00	18:00	10:00
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Pool	08:00	18:00	10:00
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Office	08:00	18:00	10:00
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Meeting Room	08:00	18:00	10:00
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Reception	08:00	18:00	10:00
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Security	08:00	18:00	10:00
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Maintenance	08:00	18:00	10:00
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Landscaping	08:00	18:00	10:00
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Construction	08:00	18:00	10:00
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Delivery	08:00	18:00	10:00
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Waste Management	08:00	18:00	10:00
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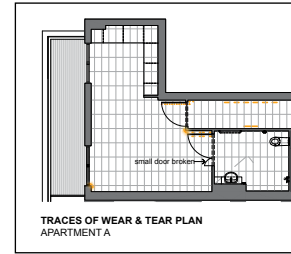
CONTROL ACCESS POINTS



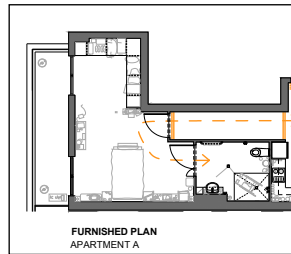
SITE ANALYSIS



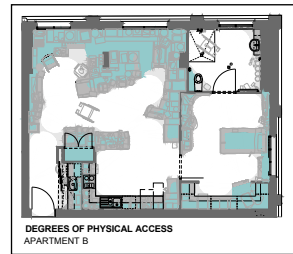
BASE BUILDING PLAN



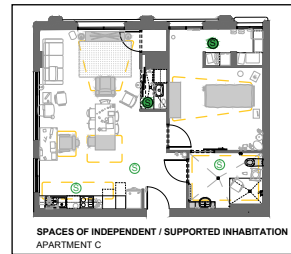
TRACES, WEAR & TEAR PLANS



FURNISHED PLAN



DEGREES PHYS. ACCESS



INDEPENDENT LIVING PLANS

Phone, put an "X" in the appropriate box to show how you are affected by using the iPad

Question	1	2	3	4	5	6	7	8	9
1.1. independence									
1.2. independence									
1.3. independence									
1.4. independence									
1.5. independence									
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1.100. independence									

PIADS

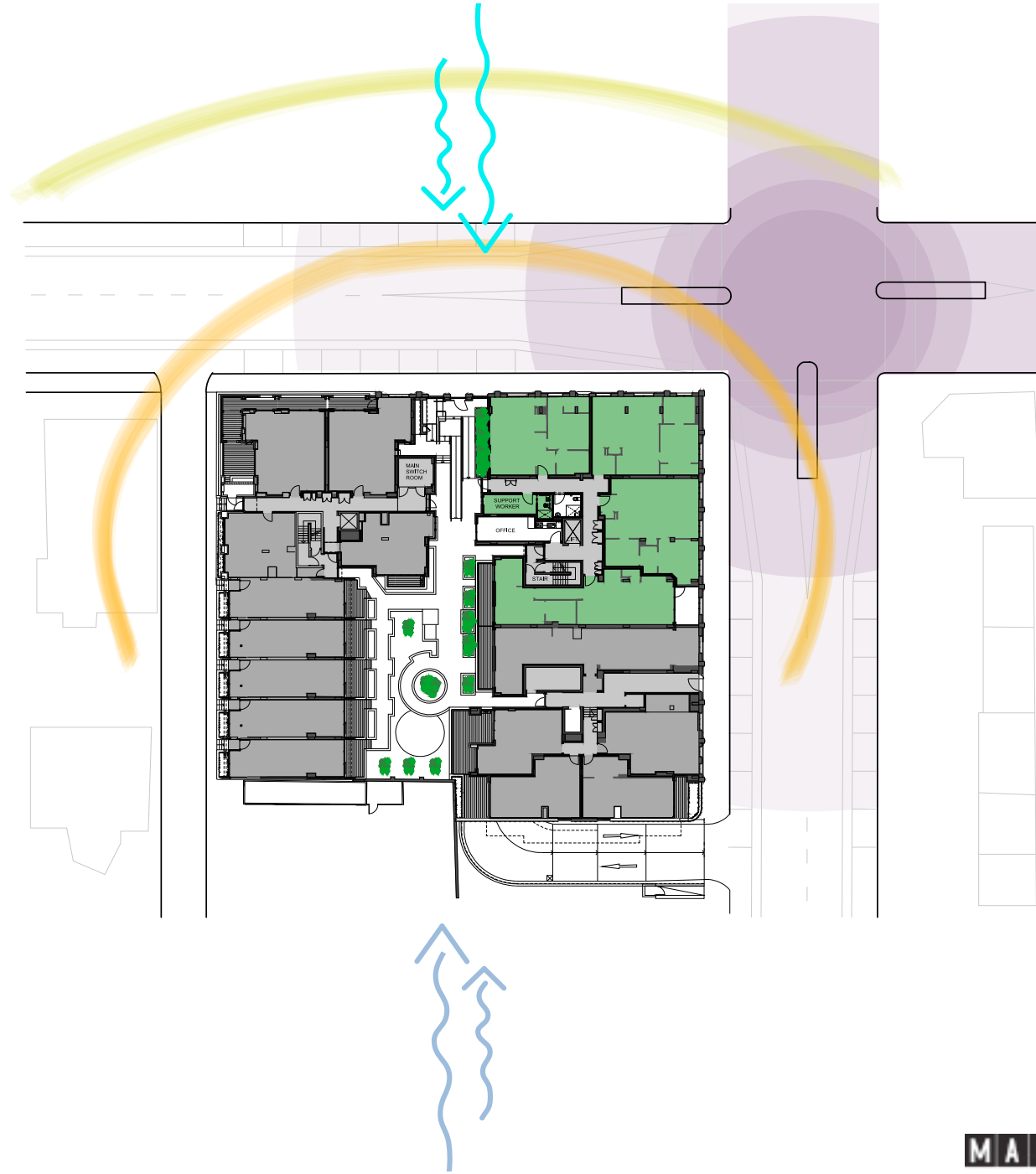
Specific Functionality Usage (Table 1 of Page 1)

Item	Frequency	Duration	Location	Notes
1.1. independence				
1.2. independence				
1.3. independence				
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1.99. independence				
1.100. independence				

ASSISTIVE TECH LOG

RESIDENTIAL ENVIRONMENT IMPACT SURVEY (REIS)						
Date: 10/10/10, Version: 1.0, Version 1.0						
Information Obtained Via Group Interview of Participant Residents						
	How	Frequency	Where	How Often	Where	Comments
1.1. independence						1.1. independence
1.2. independence						1.2. independence
1.3. independence						1.3. independence
1.4. independence						1.4. independence
1.5. independence						1.5. independence
1.6. independence						1.6. independence
1.7. independence						1.7. independence
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1.10. independence						1.10. independence
1.11. independence						1.11. independence
1.12. independence						1.12. independence
1.13. independence						1.13. independence
1.14. independence						1.14. independence
1.15. independence						1.15. independence
1.16. independence						1.16. independence
1.17. independence						1.17. independence
1.18. independence						1.18. independence
1.19. independence						1.19. independence
1.20. independence						1.20. independence
1.21. independence						1.21. independence
1.22. independence						1.22. independence
1.23. independence						1.23. independence
1.24. independence						1.24. independence
1.25. independence						1.25. independence

Notes: 1. 10/10/10, 1.0



0 15m



SUMMER SUN PATH

WINTER SUN PATH

SUMMER WINDS

WINTER WINDS

NOISE

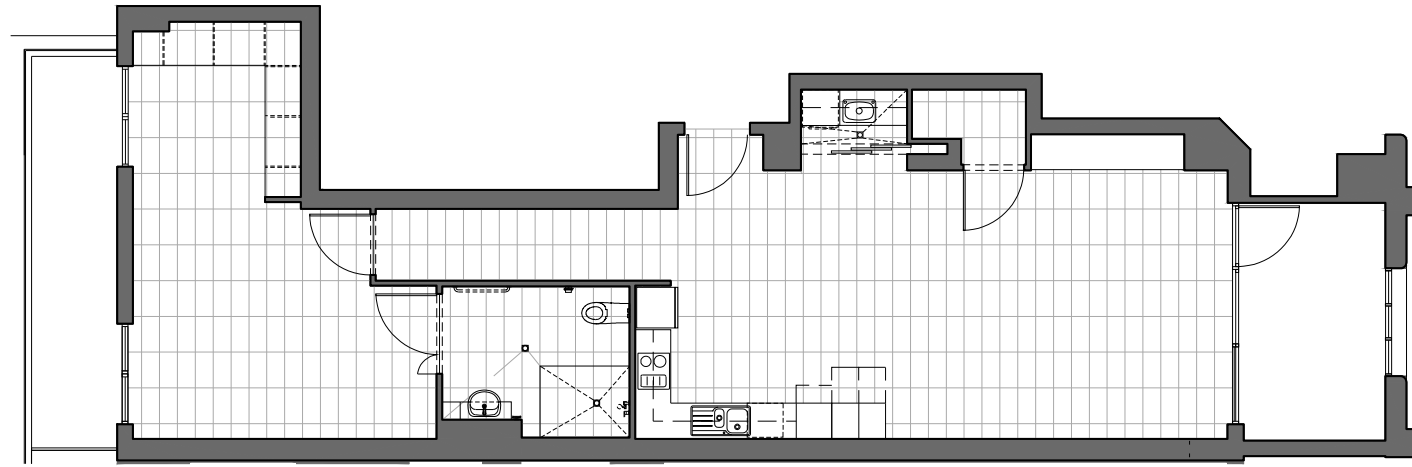




0 10m



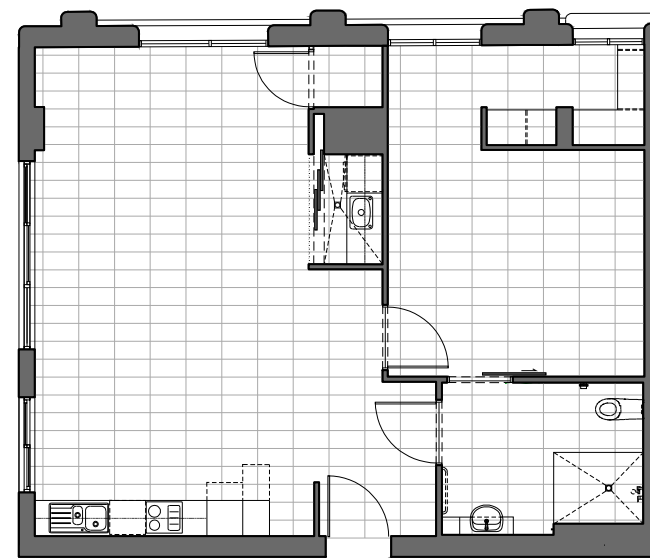
control of access by residents



APARTMENT A

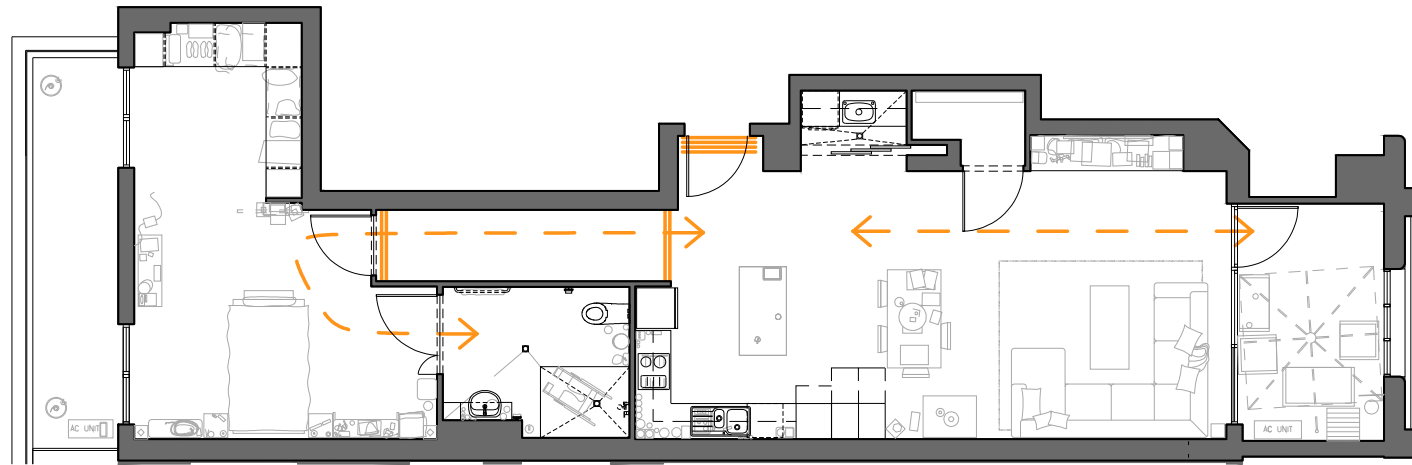


APARTMENT B

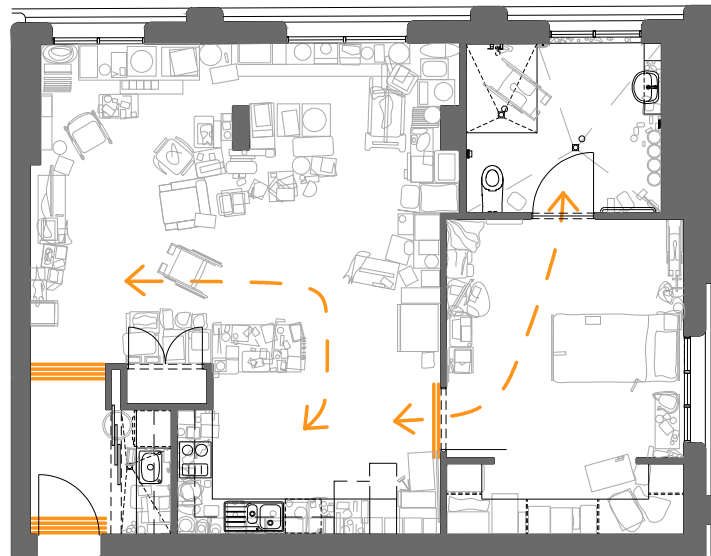


APARTMENT C

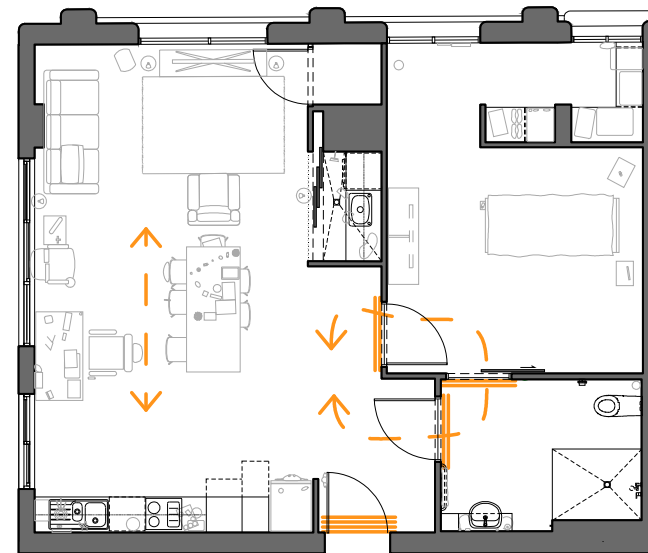




APARTMENT A



APARTMENT B

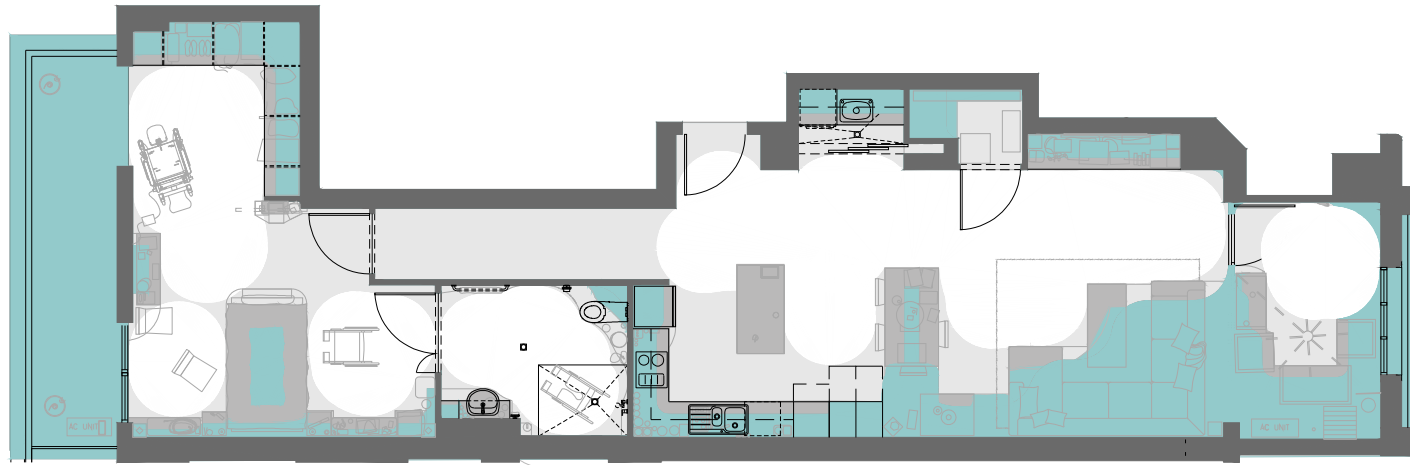


APARTMENT C

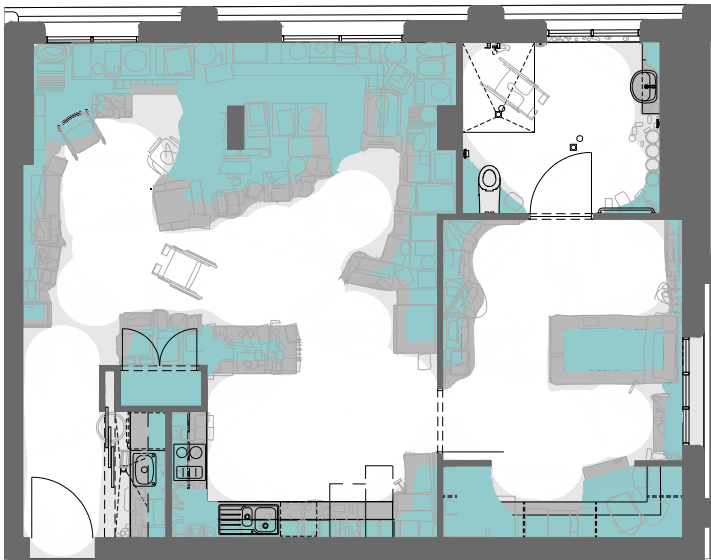


PUBLIC / PRIVATE THRESHOLDS

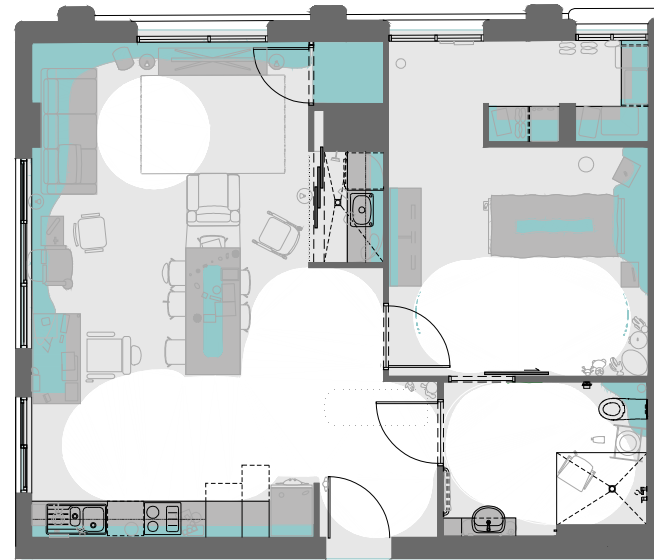
- strong
- very strong
- main circulation route



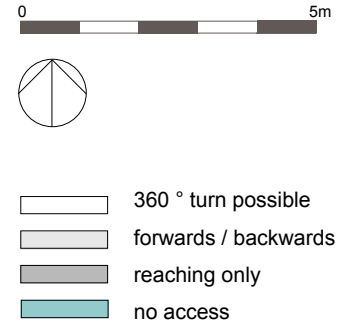
APARTMENT A

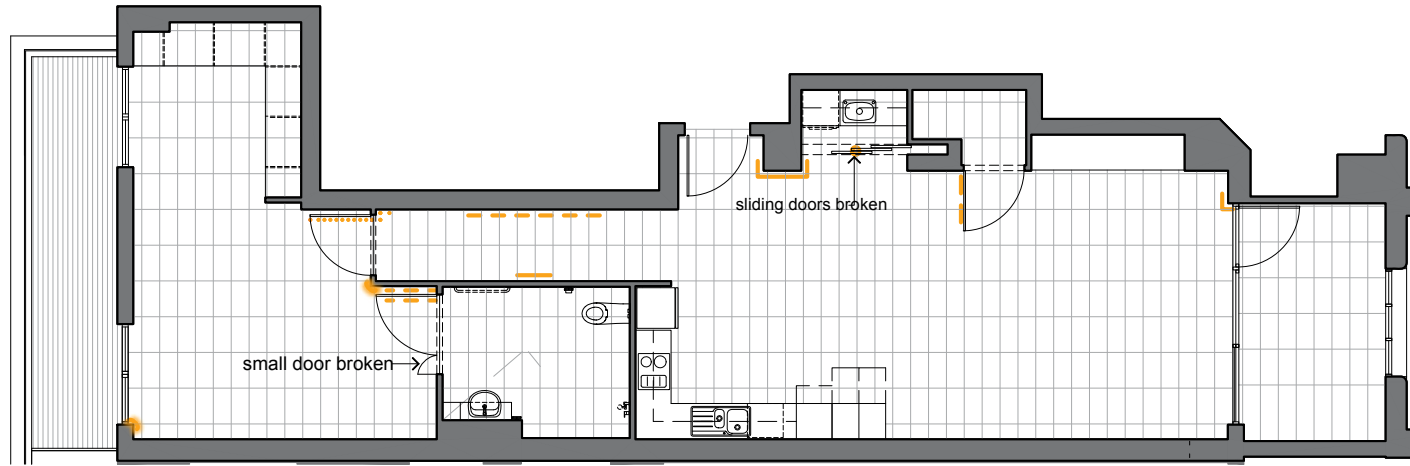


APARTMENT B

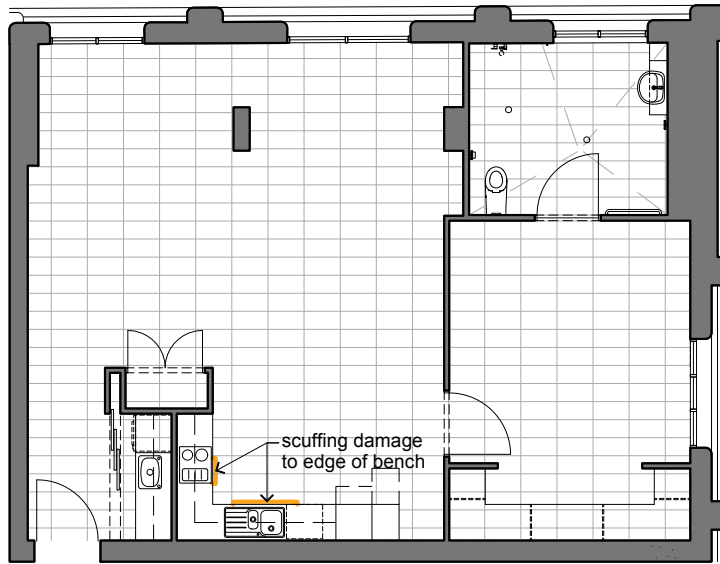


APARTMENT C

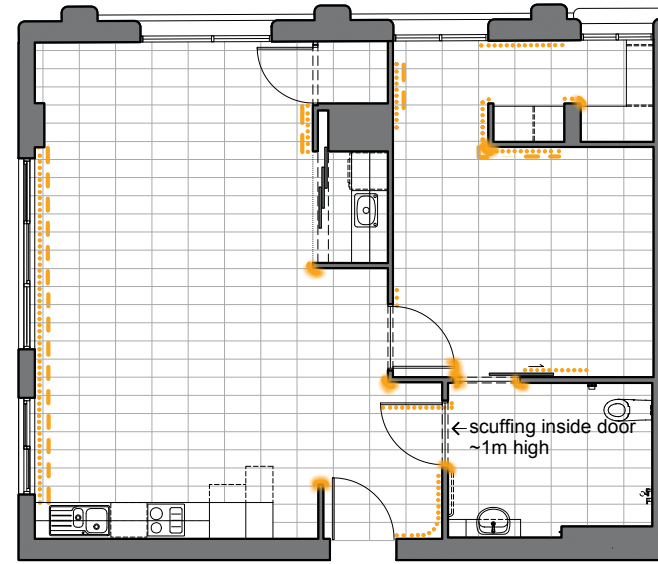




APARTMENT A



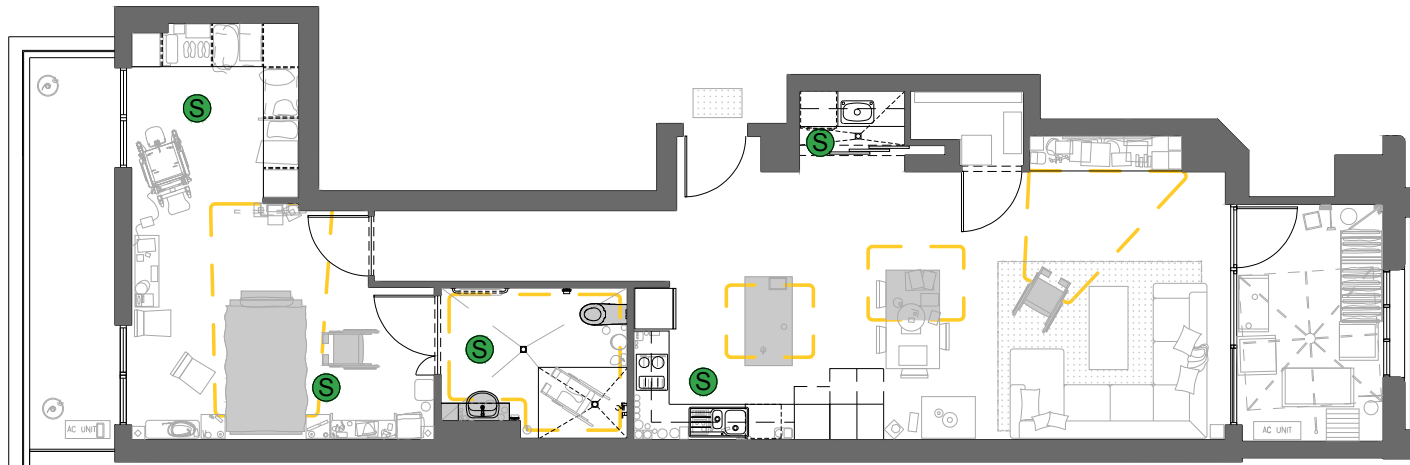
APARTMENT B



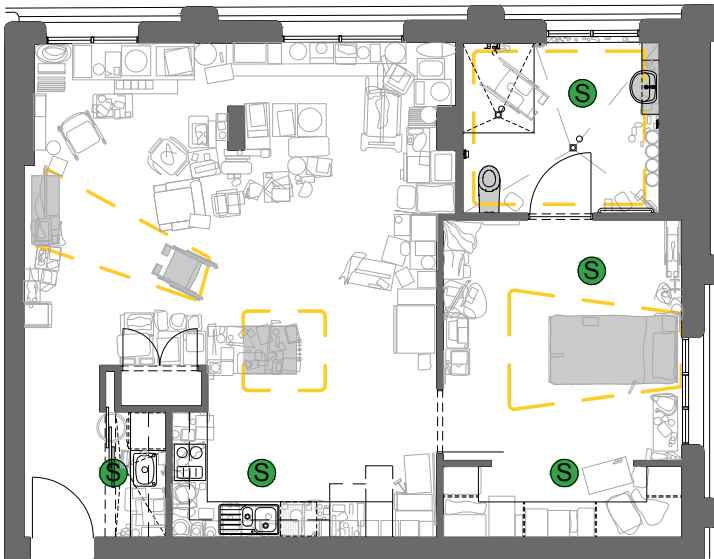
APARTMENT C



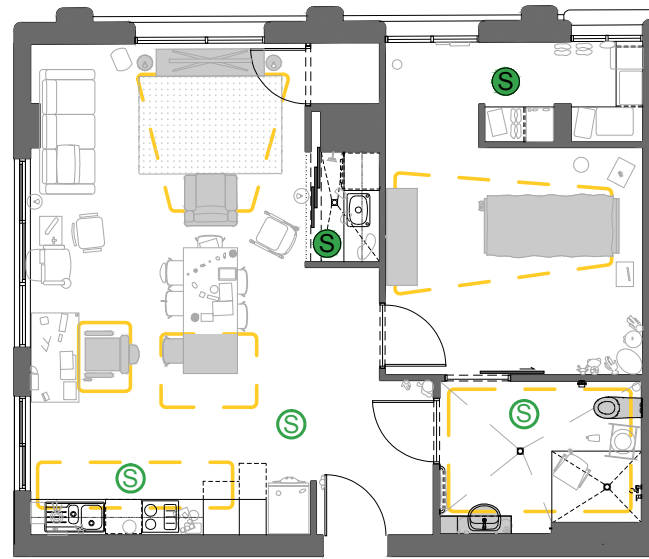
- damage to corner / nib wall
- mid level scuffing
- low level scuffing



APARTMENT A



APARTMENT B



APARTMENT C

0 5m



key zones
of habitation



some support
provided



full support
provided

Specific Function Usage - Feb 6 to Feb 12

scenario		A	B	C
Lights	Entry	0	0	0
	Lounge	0	0	0
	Dining	0	0	0
	Kitchen	0	0	0
	Bedroom	0	0	0
	Robe	0	0	0
	Bathroom	0	0	0
	Bathroom Heat	0	0	0
	Laundry	0	0	0
	s Living Lights Off	0	0	0
	s All Lights Off	5	2	14
	s All Lights On	0	0	14
		0	0	0
Apertures	Street Gate	3	0	0
	Foyer Door	5	0	0
	Entry Door	44	15	23
	Entry Door Hold	1	6	3
	Bedroom Door	41	2	na
	Courtyard Door	34	na	na
	Lounge Window	na	4	0
	Bedroom Window	na	6	0
	Bathroom Window	na	2	na
Window Screening		0	0	0
	L Lounge Window - Blockout	0	0	0
	L Lounge Window - Sheer	0	0	0
	R Lounge Window - Blockout	0	0	0
	R Lounge Window - Sheer	0	0	0
	Bedroom Window - Blockout	0	0	0
	Bedroom Window - Sheer	0	0	0
	s All Blinds Dwn	0	0	6
Applinc/ Utilities		0	0	0
	Lounge AC	26	0	0
	Bedroom AC	8	0	0
	Fan	0	0	0
Alarms		0	0	0
	Duress	17	15	1
	Emergency Buttn	11	0	0
	Duress Pendant	0	na	na
	EmergencyPendnt	15	na	na
	Smk Lounge TRIPPED	1	0	0
	ANY ALARM RESET	1	0	0
	FIRE ALARM ACTIVATED	1	0	0
		0	0	0
Other	s Leave Home	0	0	0
	s Arrive Home	0	0	0

Percentage of functions used

29% |

24% |

19%



RESIDENTIAL ENVIRONMENT IMPACT SURVEY (REIS)

Date: 18/12/13 Evaluator: L Callaway Residence: Participant A

III.a: SPACE**Information Obtained Via Group Interview of Participants/Residents**

Listed below are places in and around the home environment. For each statement, mark how the residents respond when questioned about whether they have access to be in and use the space				Next, for items that are not always accessible, mark how important accessibility is to the residents.		Add any additional comments in this section.
	Not accessible	Sometimes accessible	Always Accessible	Not Important	Important	Comments
Physical spaces						
Bedroom			✓		✓	Unable to adjust split system timer by either standard remote control or smart home app.
Kitchen			✓		✓	Oven / microwave unable to be safely used, due to reduced hand function and sensation. Participant reports he would like to be able to get under kitchen sink and cooktop whilst seated in wheelchair.
Laundry room			✓	✓		Participant reports he tends to use clotheshorse rather than dryer in order to save electricity costs. Support staff complete laundry most often, due to increased time taken for participant to complete. Participant is able to load washer, but finds unloading difficult due to impaired upper limb function.
Living room			✓		✓	Uses both manual and motorised wheelchair and finding circulation space good. Surround sound AV system installed. Measured spaces for furnishing prior to moving in.
Bathroom		✓		✓		Participant reported he is unable to reach into and gather items from vanity cupboards but given he receives full staff support for personal care access to this area was rated as not important for him.
Storage area for personal items (clothes, money, grooming items) such as closets, drawers, or containers		✓		✓		Support staff gathering clothing whilst participant is seated on commode for personal care. Access an issue due to participant's impaired upper limb function.

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RESIDENTIAL ENVIRONMENT IMPACT SURVEY (REIS)

Date: 18/12/13

Evaluator: L Callaway

Residence: Participant A

III.b: OBJECTS**Information Obtained Via Group Interview of Participants/Residents**

Below is a list of personal objects that may or may not be found in the residential home. For each object check whether it is readily available to the participants or not available to them.			Next, for objects that are not available, check whether each object is important to the interviewees (optional section).		Check if object was observed in the home.		Add any additional comments in this section
Object	Not Available	Available	Not Important	Important	Yes	No	Comments
Activities of Daily Living (ADL)							
Grooming Supplies/Makeup (shampoo, soap, deodorant, feminine products)		✓			✓		Good but carer is available. if pushed by carer will do by self.
Grooming Tools (razor, toothbrush, nail clippers)		✓					
Clothing		✓					
Adaptive equipment: special eating utensils, dressing aids.		✓					
Leisure/Recreation							
Your own television		✓			✓		
Your own VCR/DVD player and videos/DVDs		✓			✓		
Your own music player or radio		✓			✓		
Your own materials for your hobbies, like art & craft supplies (paints, markers, paper, scissors, glue, yarn, craft kits), gardening tools, camera (if relevant)		✓					Using storage cage in carpark basement. Looking into fishing and would store items in cage.
Your own educational materials (worksheets, pencils, workbooks, textbooks)							Not applicable
Your own money		✓					
Your own books	✓						
Your own photographs	✓						
Your own "stuff"		✓					
Other: Fish tank							Participant holds interest in having large fish tank in home but does not feel he

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RESIDENTIAL ENVIRONMENT IMPACT SURVEY (REIS)

Date: 21/1/14

Evaluator: L Callaway

Residence: Participant B

III.b: OBJECTS**Information Obtained Via Group Interview of Participants/Residents**

Below is a list of personal objects that may or may not be found in the residential home. For each object check whether it is readily available to the participants or not available to them.			Next, for objects that are not available, check whether each object is important to the interviewees (optional section).		Check if object was observed in the home.		Add any additional comments in this section
Object	Not Available	Available	Not Important	Important	Yes	No	Comments
Activities of Daily Living (ADL)							
Grooming Supplies/Makeup (shampoo, soap, deodorant, feminine products)		✓		✓	✓		Stored on window sill in bathroom
Grooming Tools (razor, toothbrush, nail clippers)		✓		✓	✓		
Clothing		✓		✓	✓		
Adaptive equipment: special eating utensils, dressing aids.		✓		✓			Pick up sticks hung on end of mobile kitchen bench.
Leisure/Recreation							
Your own television		✓		✓	✓		
Your own VCR/DVD player and videos/DVDs		✓		✓	✓		DVD cabinets in place with significant number of DVDs
Your own music player or radio		✓			✓		Noted
Your own materials for your hobbies, like art & craft supplies (paints, markers, paper, scissors, glue, yarn, craft kits), gardening tools, camera (if relevant)		✓			✓		Currently stored in main living areas
Your own educational materials (worksheets, pencils, workbooks, textbooks)	✓				✓		
Your own money		✓			✓		
Your own books		✓			✓		
Your own photographs	✓				✓		
Your own "stuff"		✓			✓		Participant seeking more storage for personal items.

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RESIDENTIAL ENVIRONMENT IMPACT SURVEY (REIS)

Date: 21/1/14 Evaluator: L. Callaway Residence: Participant B

III.a: SPACE (con't)

Information Obtained Via Group Interview of Participants/Residents

Listed below are places in and around the home environment. For each statement, mark how the residents respond when questioned about whether they have access to be in and use the space				Next, for items that are not always accessible, mark how important accessibility is to the residents.		Add any additional comments in this section.
	Not accessible	Sometimes accessible	Always Accessible	Not Important	Important	Comments
Physical spaces						
Bedroom		✓			✓	Get some things but carers mainly gather. Robe area difficult to access.
Kitchen		✓			✓	Pick up stick used for much access. Tap difficult to access even with lever extension. Participant can't position himself under cooktop seated in motorised wheelchair. Limited accessible bench space. Participant cuts food items up for meal prep on either Stable Table on lap, or on mobile kitchen bench (fixed at set height). Need to make room on bench & put plates and bowls on so they can be accessed independently. Participant's fridge did not fit fridge space supplied. Fridge cavity currently being used for storage.
Laundry room		✓			✓	Staff put washing in as participant finds bi-fold doors inhibit his access. Participant finds putting powder in machine difficult (participant can't see or reach powder loading area). Can access laundry basin. Overhead storage good for staff's use, but not accessible to participant.
Living room		✓			✓	Access limited by participant's storage of personal items, some of which have not yet been unpacked post move.

RESIDENTIAL ENVIRONMENT IMPACT SURVEY (REIS)

Date: 21/1/14 Evaluator: L Callaway Residence: Participant C

III.b: OBJECTS**Information Obtained Via Group Interview of Participants/Residents**

Below is a list of personal objects that may or may not be found in the residential home. For each object check whether it is readily available to the participants or not available to them.			Next, for objects that are not available, check whether each object is important to the interviewees (optional section).		Check if object was observed in the home.		Add any additional comments in this section
Object	Not Available	Available	Not Important	Important	Yes	No	Comments
Activities of Daily Living (ADL)							
Grooming Supplies/Makeup (shampoo, soap, deodorant, feminine products)		✓		✓	✓		Shampoo is stored on ground in shower recess – participant able to reach it in sitting
Grooming Tools (razor, toothbrush, nail clippers)		✓		✓	✓		
Clothing		✓		✓	✓		Staff gather clothes.
Adaptive equipment: special eating utensils, dressing aids.							
Leisure/Recreation							
Your own television		✓		✓			TV in bedroom – standard remote. Large TV in lounge area.
Your own VCR/DVD player and videos/DVDs		✓		✓	✓		
Your own music player or radio		✓		✓	✓		
Your own materials for your hobbies, like art & craft supplies (paints, markers, paper, scissors, glue, yarn, craft kits), gardening tools, camera (if relevant)		✓		✓	✓		
Your own educational materials (worksheets, pencils, workbooks, textbooks)	✓						
Your own money		✓		✓	✓		Books in WIR. Book reading completed on height adjustable bench.
Your own books		✓		✓	✓		
Your own photographs		✓		✓	✓		
Your own "stuff"		✓		✓	✓		Posters

Was there anything I didn't ask you about that is important to you? Participant wanted to note that he felt fourteen powerpoints in bedroom was "overkill".

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RESIDENTIAL ENVIRONMENT IMPACT SURVEY (REIS)

Date: 21/1/14 Evaluator: L Callaway Residence: Participant C

III.a: SPACE**Information Obtained Via Group Interview of Participants/Residents**

Listed below are places in and around the home environment. For each statement, mark how the residents respond when questioned about whether they have access to be in and use the space				Next, for items that are not always accessible, mark how important accessibility is to the residents.		Add any additional comments in this section.
	Not accessible	Sometimes accessible	Always Accessible	Not Important	Important	Comments
Physical spaces						
Bedroom			✓		✓	Participant reports he has "plenty of space to move"
Kitchen			✓		✓	Motorised wheelchair access is good, and a significant improvement on previous residence. Participant does not use oven.
Laundry room			✓		✓	Support staff complete laundry tasks, but participant can access laundry space. Finds difficulty with loading / unloading items.
Living room			✓		✓	Surround sound AV system very good.
Bathroom			✓		✓	Staff position shower chair and then participant is otherwise able to complete bathing tasks. Staff mop out floor after use.
Storage area for personal items (clothes, money, grooming items) such as closets, drawers, or containers		✓			✓	Wardrobe accessible, however can't reach all areas unless moving to standing.
Place to be alone			✓		✓	Participant enjoys having a "powernap" each day – can transfer onto and off bed independently.
Place for interaction with others (housemates, guests)			✓		✓	Family visits regularly – participant has a sofa bed in lounge room for guests.
Natural environment						
Yard			✓		✓	Mates cooked BBQ in development courtyard once.
Safe place to walk around outside the home			✓			Participants reported good access outside.

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Psychosocial Impact of Assistive Devices Scale (PIADS)

Client Name: Participant A

Each word or phrase below describes how using an assistive device may affect a user. Some might seem unusual but it is important that you answer every one of the 26 items. So, for each word or phrase, put an "X" in the appropriate box to show how you are affected by using the smart phone.

	Decreases	-3	-2	-1	0	1	2	3
1) competence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
2) happiness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
3) independence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
4) adequacy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
5) confusion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) efficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
7) self-esteem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
8) productivity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
9) security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) frustration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) usefulness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
12) self-confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
13) expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
14) skilfulness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
15) well-being	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
16) capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
17) quality of life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
18) performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
19) sense of power	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
20) sense of control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
21) embarrassment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22) willingness to take chances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23) ability to participate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24) eagerness to try new things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x	<input type="checkbox"/>
25) ability to adapt to the activities of daily living	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
26) ability to take advantage of opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x

Psychosocial Impact of Assistive Devices Scale (PIADS)

Client Name: Participant B

Each word or phrase below describes how using an assistive device may affect a user. Some might seem unusual but it is important that you answer every one of the 26 items. So, for each word or phrase, put an "X" in the appropriate box to show how you are affected by using the iPad

	Decreases	-3	-2	-1	0	1	2	3
1) competence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) happiness	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) independence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) adequacy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) confusion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) efficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) self-esteem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8) productivity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) frustration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11) usefulness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) self-confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14) skilfulness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15) well-being	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17) quality of life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18) performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19) sense of power	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20) sense of control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21) embarrassment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22) willingness to take chances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23) ability to participate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24) eagerness to try new things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25) ability to adapt to the activities of daily living	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26) ability to take advantage of opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Psychosocial Impact of Assistive Devices Scale (PIADS)

Client Name: Participant C

Each word or phrase below describes how using an assistive device may affect a user. Some might seem unusual but it is important that you answer every one of the 26 items. So, for each word or phrase, put an "X" in the appropriate box to show how you are affected by using the iPad.

	Decreases	-3	-2	-1	0	1	2	3
1) competence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2) happiness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) independence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4) adequacy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) confusion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) efficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) self-esteem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8) productivity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) frustration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) usefulness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) self-confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13) expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14) skilfulness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15) well-being	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) capability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17) quality of life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
18) performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19) sense of power	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20) sense of control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21) embarrassment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22) willingness to take chances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23) ability to participate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
24) eagerness to try new things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
25) ability to adapt to the activities of daily living	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
26) ability to take advantage of opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24 Hour on
site or remote
support

Support worker
engagement

Impact on level
of support

Sub-criteria unable to be rated at this stage.
Notes are provided.

... It's really about facilitating, through the built environment, a home-like environment for each tenant that complements the shared support model. When we say shared support, we mean the ability for clients to share a portion of their support needs...

... As part of the client selection, we've looked at client support requirements and looked at what their one-on-one care needs are, which we call the non-negotiable needs, and then everything outside of that one-on-one, we consider shared support; the ability to share some of that support...

SUPPORT

Scheme-funded assistance that is delivered onsite or via remote support, which is both effective (offering the type and amount of support required by residents), and efficient in the way it is delivered (such that support can be shared by residents across dwellings).

24 hour on-site or remote support

The infrastructure in place that allows 24/7 support delivery, whether this support be delivered face to face or via remote communication and access to assistive technology.

...It may well be that some of those clients, or even all of them, might not require on-site support. They might be able to make a call and talk to the carer, and they can establish: well, yeah, I actually need to be on-site or do this, do that, yeah. We want them to be living in their environments as independently as possible...

At the time of this evaluation, shared support was delivered onsite, 24 hours a day, seven days per week. Communication and assistive technology systems were installed during project development to offer capacity for support to be delivered remotely, if appropriate, over time. Within interviews, participants spoke most often of face to face support delivery from staff. An additional research project, examining support worker use of space, experience of built design in delivery of support, and alignment of the support model with key criteria, is indicated.

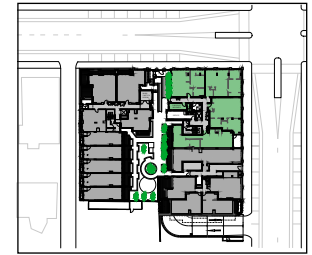
Ground Floor Development Plan

This plan indicates the location of the support workers' office in relation to the other apartments. The office is located reasonably centrally to the apartments evaluated and may in fact increase residents' frequency of accessing support based on close proximity to apartments. Support workers were observed in all apartments several times during researchers' visits to the site.

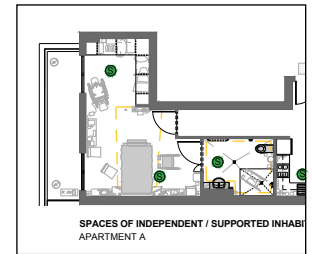
Space of Independent / Supported Inhabitation

These plans show a range of support being accessed by participants. The varied location of full support for some activities vs some support in others indicates the range. Some activities, notably laundry, are receiving full support in all cases. There is a wider range of supported or independent activities taking place in the kitchen, as outlined in Independence - tasks of daily living sub-criteria.

The impact of the design on the level of support appears to the research group to be influenced in part by the expectation that these activities be distributed in all apartments independently. Further investigation of this issue may include reconsideration of the relationship of parts of this supported residential model, notably support 'infrastructure' and accommodation. It may be possible to consider a range of solutions (e.g. kitchenette versus full kitchen) or centralising tasks (e.g. laundry). In all of these cases, the design of the spaces, and provision for later conversion to more independent accommodation may be achievable with forward planning of plumbing supply and drainage, without the installation of fittings where not yet needed. This may free space and furnishing options further.



DEVELOPMENT PLAN



INDEPENDENT LIVING PLAN

...I guess that's what we're aiming for. Obviously depending on tenant's needs and things like that, but down the track as the skills increase and they're more confident and dependent that they've got the capability, you would expect that the staffing support would drop off. I think they will all still need individualised support to do things, absolutely, but it may be that that shared component may not be required...

This sub-criteria has not been rated by the research team, as it is too early in the RIPL Project One development to determine impact of built and technology design on grading of support needs over time. However, a number of observations stemming from data collection are detailed below. This sub-criteria would benefit from further evaluation in the next 12 months.

The current shared support model allows efficiencies in the type, amount and mode of support to residents in their own homes. Staff can offer hands on assistance for the duration of an activity, hands on assistance for a distinct part of an activity (e.g. removing hot items from the oven), in person verbal prompting, and verbal prompting remotely (from the support worker's office or by mobile phone from another location).

Impact on Level of Support

Sub-criteria unable to be rated at this stage.
Notes are provided.

The model of support delivered seeks to maximize client independence. When coupled with the installation of reliable remote communication systems, on-site supports may be reduced over time, where suitable.

As outlined in Independence - tasks of daily living sub-criteria, the self-contained home environment has presented some residents with the opportunity to build participation in activities previously undertaken for them by support workers or family. While this has enhanced their home integration outcomes, in some cases this has meant that one-to-one support needs have increased to complete these activities (e.g. evening hot meal preparation). With skill building and / or exploration of resident preferences for alternatives to daily direct support (e.g. preparation of a number of meals in one support worker shift, which can be heated by the resident at a later time), hands on assistance may be graded to less intensive modes of assistance over time. However, this cannot yet be assessed in the current development.

Furthermore, the ability of residents to participate in activities of daily living is impacted on a day-to-day basis by a number of factors, including secondary health conditions experienced by the individual, and the balance of time available to undertake these activities versus other valued role participation. These factors will influence the support model and needs over time. Skill-building and exploration of potential changes in support model will require ongoing collaboration between the client, support agency and client's therapy team.

Support Worker Engagement

Engagement of support staff in active and integrated delivery of support across residences, rather than segregating staff to the support worker office space.

... Staff are not doing their job if they're sitting in there watching television, and it becomes more like a cluster-home environment or a shared supported accommodation where if you want the staff, you've got to call the staff. They [staff] should be there out and about ...

The active engagement of support workers with residents is a key component of the model developed at RIPL Project One. The use of the design, and the provision of a small office space, was an attempt to encourage this behaviour. Of note, the location of RIPL Project One in an inner suburb of Melbourne has also meant that space was limited and expensive.

ENABLER

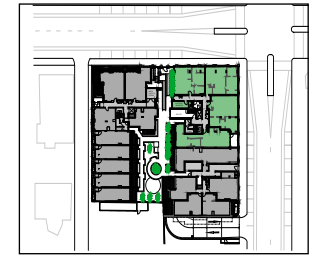
Assistive technologies and communication systems have been designed to allow resident contact with support workers wherever the staff are located on the site. The location and size of the office does not appear to encourage support workers spending extended periods in the office. .

LIMITATION

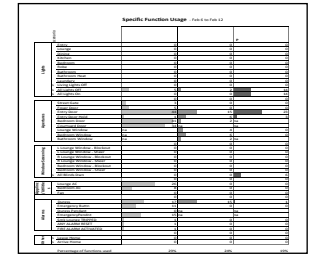
It is notable that residents also seek out support workers for conversation or social contact when staff are in their office, or invite the support workers to socialise in the apartments. This will benefit the establishment of rapport between staff and residents, but may conflict the grading of support over time, or impact staff's ability to complete work functions.

Ground Floor Development Plan

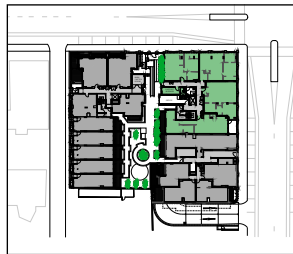
This plan indicates the location of the support workers' office in relation to the other apartments. The office is located centrally to the apartments evaluated. Support workers were observed in all apartments several times during researchers' visits to the site. As this supported residential environment is located within a medium density development, the grouping of the apartments and support space in this way may be seen to conflict somewhat with the ambition for Community Integration through connection with neighbours. A more distributed arrangement may allow for more integration, and also a sense of personal independence. It might also however be expected to lead to a trade off in terms of support worker efficiency and potential effectiveness.



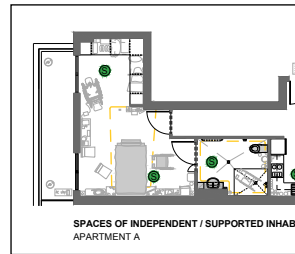
DEVELOPMENT PLAN



ASSISTIVE TECH. LOG



DEVELOPMENT PLAN

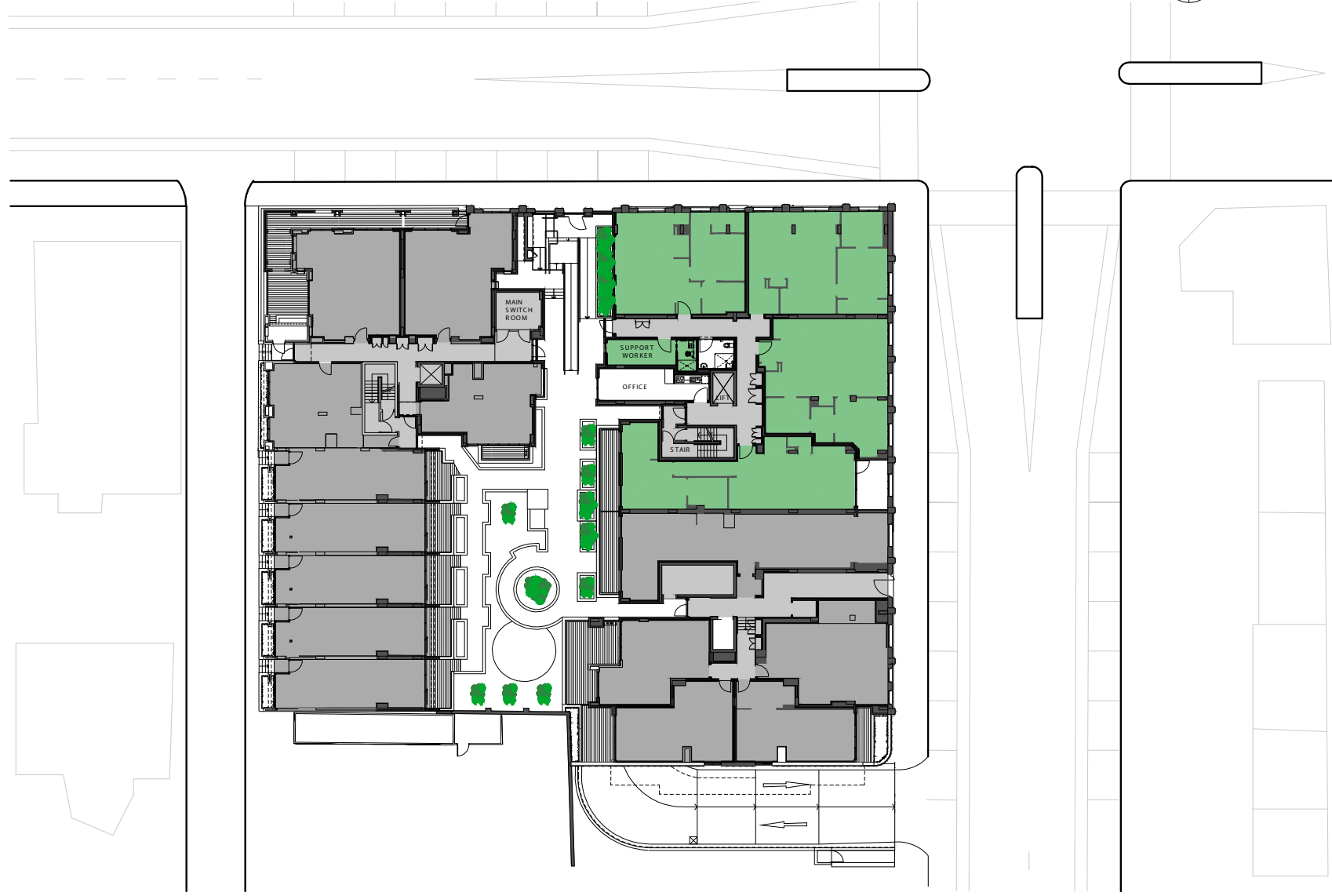


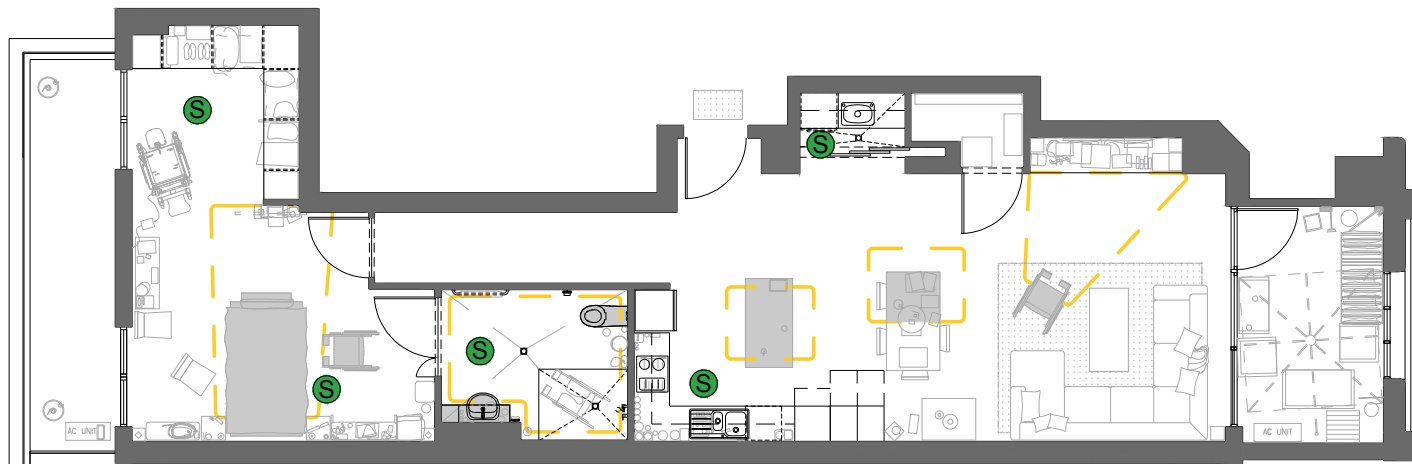
INDEPENDENT LIVING PLAN

Specific Function Usage - 10/10/2020			
Device	Function	Usage	Notes
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52
53	54	55	56
57	58	59	60
61	62	63	64
65	66	67	68
69	70	71	72
73	74	75	76
77	78	79	80
81	82	83	84
85	86	87	88
89	90	91	92
93	94	95	96
97	98	99	100

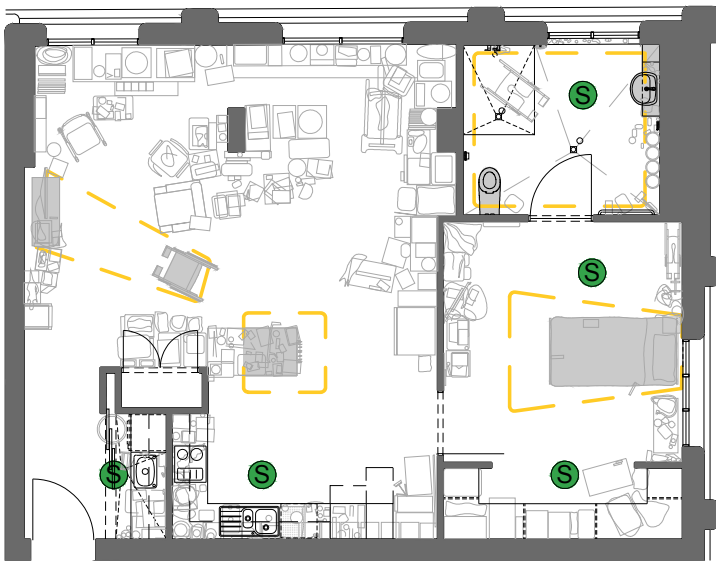
ASSISTIVE TECH LOG

The Evidence section includes relevant information for this criteria. Click on the links above to explore. The up / down keys on the keyboard will scroll through the pages included. Use the navigation toolbar on the right of the screen to return to this page via 'E' or to the criteria page via 'C'. Links to Home, Criteria Overview are also provided.

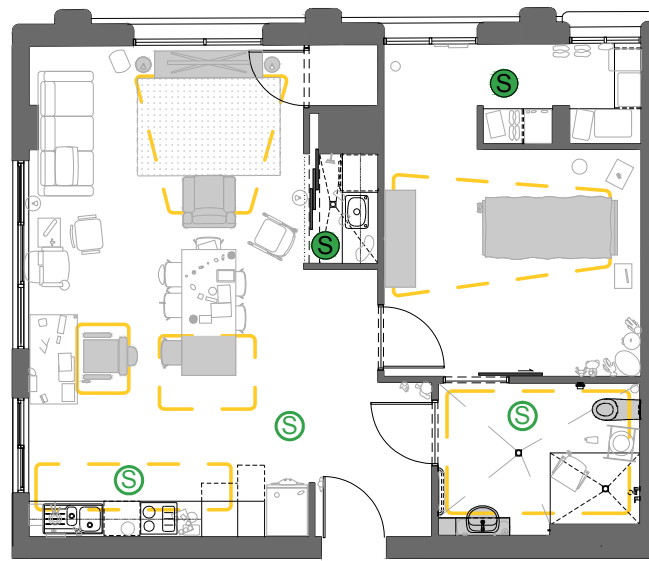




APARTMENT A



APARTMENT B



APARTMENT C

0 5m



- key zones of habitation
- some support provided
- full support provided

Specific Function Usage - Feb 6 to Feb 12

scenario		A	B	C
Lights	Entry	0	0	0
	Lounge	0	0	0
	Dining	0	0	0
	Kitchen	0	0	0
	Bedroom	0	0	0
	Robe	0	0	0
	Bathroom	0	0	0
	Bathroom Heat	0	0	0
	Laundry	0	0	0
	s Living Lights Off	0	0	0
	s All Lights Off	5	2	14
	s All Lights On	0	0	14
		0	0	0
Apertures	Street Gate	3	0	0
	Foyer Door	5	0	0
	Entry Door	44	15	23
	Entry Door Hold	1	6	3
	Bedroom Door	41	2	na
	Courtyard Door	34	na	na
	Lounge Window	na	4	0
	Bedroom Window	na	6	0
	Bathroom Window	na	2	na
Window Screening		0	0	0
	L Lounge Window - Blockout	0	0	0
	L Lounge Window - Sheer	0	0	0
	R Lounge Window - Blockout	0	0	0
	R Lounge Window - Sheer	0	0	0
	Bedroom Window - Blockout	0	0	0
	Bedroom Window - Sheer	0	0	0
	s All Blinds Dwn	0	0	6
Applinc/ Utilities		0	0	0
	Lounge AC	26	0	0
	Bedroom AC	8	0	0
Alarms	Fan	0	0	0
		0	0	0
	Duress	17	15	1
	Emergency Buttn	11	0	0
	Duress Pendant	0	na	na
	EmergencyPendnt	15	na	na
	Smk Lounge TRIPPED	1	0	0
	ANY ALARM RESET	1	0	0
Other		1	0	0
	s Leave Home	0	0	0
	s Arrive Home	0	0	0

Percentage of functions used

29%

24%

19%



Rehabilitation
and skill
development

Work
Environment

... There was a lot of work that went into it beforehand about making sure it was safe for staff to come in and work because if it's not, then they can't obviously ...

... We did a lot of work around training the staff in how to use things safely, so the hoists and things like that, so they had that knowledge and experience. I think possibly one of the issues with the access, is if they forget their fob or they lock themselves out of the apartment, then that's an issue because if they can't then get back in, so we're looking at having a key safe out the front for things like that ...

... The staff would find it a lot better in the bathroom now because it didn't matter what sort of footwear they had on they won't be slipping around since the tiles were treated ... [staff] do it with little tiny steps to move around in the bathroom so they don't slide anywhere. It didn't matter in the past whether they wore safety boots and all that ... it shouldn't slip now ...

EFFECTIVE WORKPLACE

The individual dwellings, support worker space, and internal and external shared or common spaces of the development that form an effective work environment for RIPL support staff.

Rehabilitation and Skill Development

Community-based therapy programs can be implemented either at home, or through utilisation of available resources within the community precinct.

...Because then there's also that line of, this is for people for independent living and if everything's at the push of a button, not saying that you shouldn't have it as a push of a button, but mobility is also an important part of therapy, getting up to answer the door instead of opening it via a button, if you can do that... Giving them that ability to go and open the door themselves more so than going okay we're just going to put automatic openers on all the doors, straight away. We will see how the client works and if it's definitely required, put it in, if not, obviously they develop in time and maybe able to eventually open the door themselves.

I've got goals of being able to transfer onto the bed or onto the couch and a car. I'm doing it with two people at the moment but until my confidence gets better, yeah, I'm going through with a physio at the moment. ...

ENABLER

Transition to a new home can offer opportunity to adjust model of support, or focus on key areas relevant to the new homemaker role. During interviews, all participants reported opportunity for goal settings for skill development, and consideration of opportunities to build independence. It was apparent that each participant had identified areas they wanted to progress, now they were living on their own. Some were receiving in-home allied health support to work towards these. All three residents were attending local community gyms, accessible by public transport, for gym and / or hydrotherapy programs. One participant reports that he is 'keen to do more' of his physical therapy now that he has a private space to undertake this in.

LIMITATION

The accessibility of the apartment has meant extra attention is needed by therapists to ensure physical de-conditioning does not occur for one client.

... I'm not walking as good as I was...

... My physio is going to take me through floor exercises tomorrow. There are some others for me to do. But, I must do my walking though. I've become a bit lazy...

Work Environment

Promotion of the health and wellbeing of workers, within the support delivery environment.

...The support workers' office is not a palatial apartment. But it's certainly got to meet the needs of workplace environment, for wellbeing as well, for them and for others. So I think it's got to be welcoming to some extent...

...All of our clients are going to require somebody to shower them, so the tap moves to the other side so the carer doesn't have to stretch across the water to turn it off and on...

ENABLER

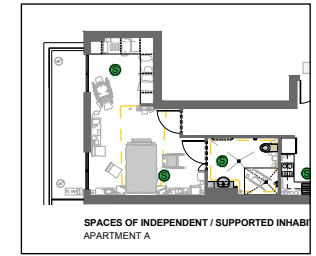
From the perspective of the support provider, the workplace provided within RIPL Project One is a safe one. An initial concern, the slipperiness of bathroom tiles when wet (also reported with regards safety in Homelike Environment) appears to have been resolved since the application of a non-slip coating.

Ceiling track hoisting systems in two participants' apartments are reported to be working well, and the H-track system offers flexibility of the location in the bedroom where the person is transferred, assisting with manual handling for staff.

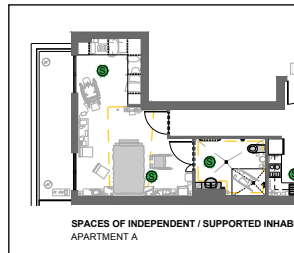
Interviewees felt that the office is located at an appropriate distance to resident apartments, and that staff can respond to residents in a timely manner. This is particularly important in the case of a health issue arising for a resident, which requires urgent attention. Soon there will be two additional residents occupying the apartments on the second floor of the development who will share support with the four ground floor residents. Staff will be required to work across both floors to deliver a model of shared support.

LIMITATION

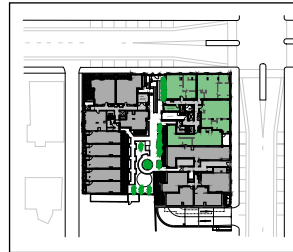
Staff do not currently have a spare key if they lock themselves out of the development. The support agency is considering the installation of a key safe.



INDEPENDENT LIVING PLANS

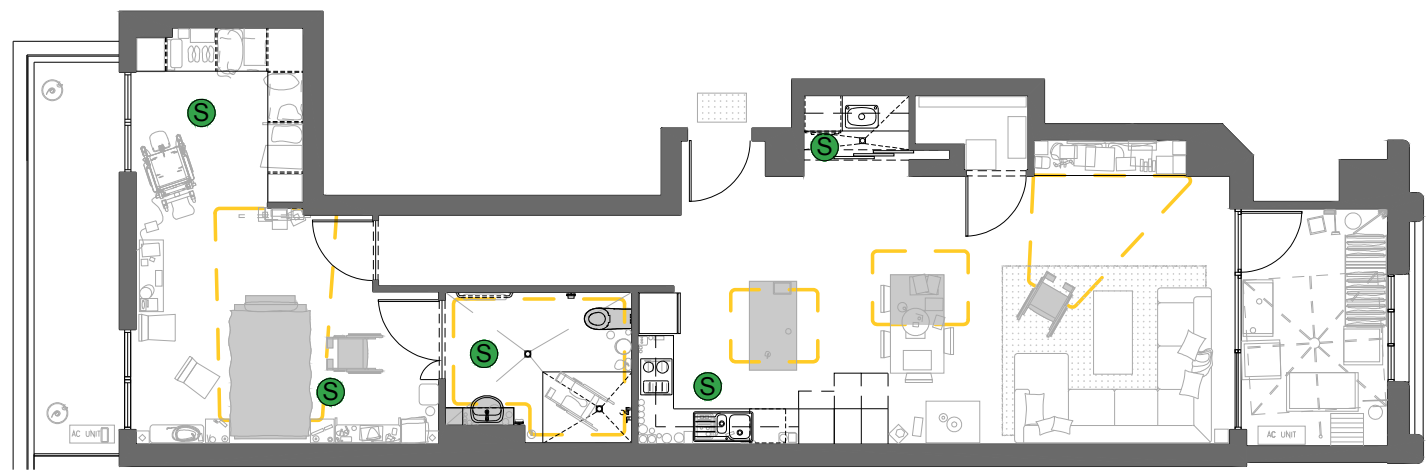


INDEPENDENT LIVING PLAN

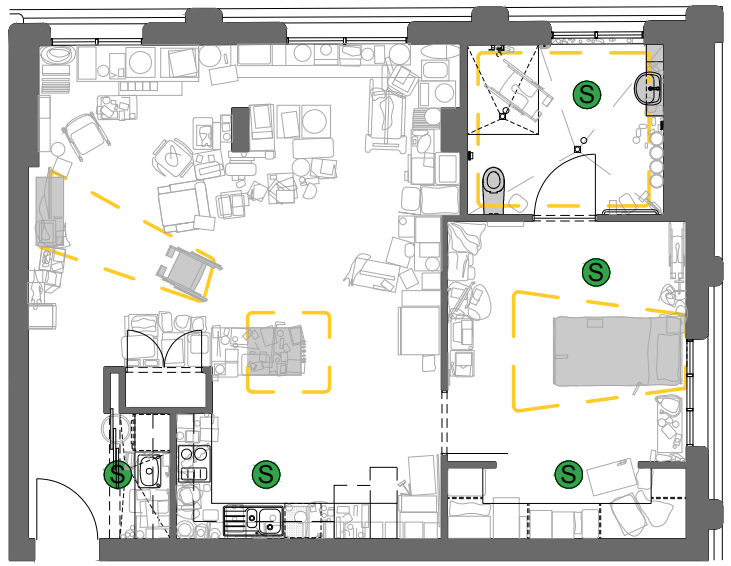


DEVELOPMENT PLAN

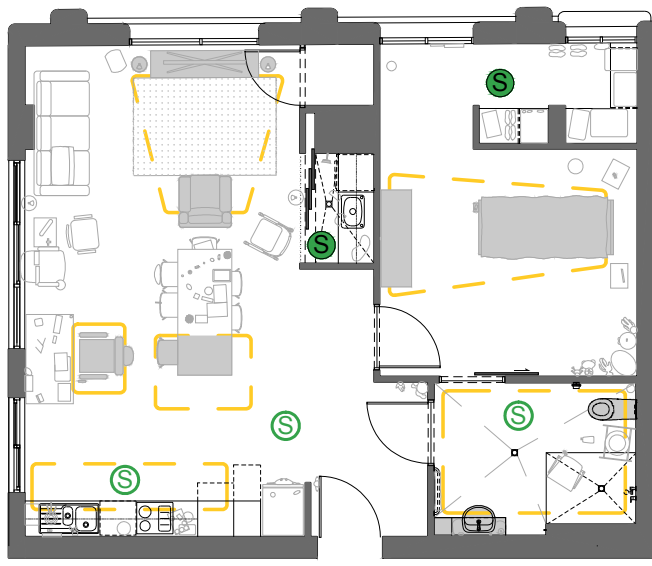
The Evidence section includes relevant information for this criteria. Click on the links above to explore. The up / down keys on the keyboard will scroll through the pages included. Use the navigation toolbar on the right of the screen to return to this page via 'E' or to the criteria page via 'C'. Links to Home, Criteria Overview are also provided.



APARTMENT A



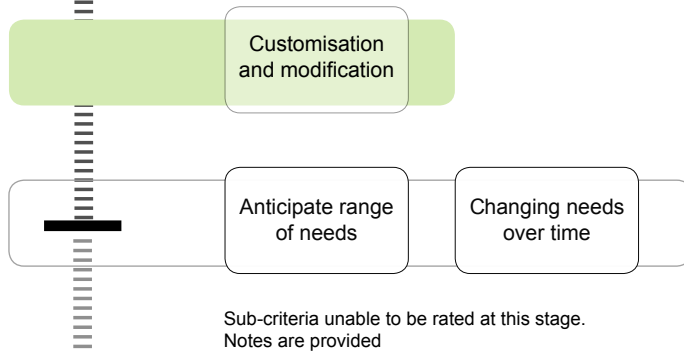
APARTMENT B



APARTMENT C



- key zones of inhabitation
- some support provided
- full support provided



... I know just to make the smallest modifications takes time. So I think - I don't know how that could be done differently but - I guess, the same as I said before really, tailor that to that individual need. So if it can't be used, why is it there and what can we use instead?...

... We've moved the microwave and he can use his kettle and things like that. So we're working through the minor things but there is limited access ...

... We got the OT in to get the little pulley things so he can open the drawers ...

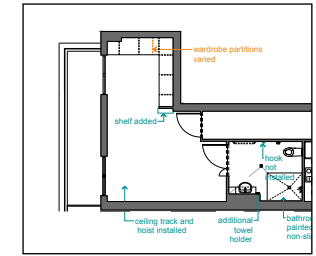
FLEXIBILITY

The design of built and technology environments such that they allow for customisation and modification, adjust to and anticipate individual resident's current or future needs.

...So the client has a clinical need for a grab rail... an OT would make a recommendation they need this grab rail. A payment for that grab rail is made against their particular claim for compensation. RIPL wouldn't pay for the grab rail, but RIPL would sheet the bathroom out so that they can put the grab rail wherever they like...

ENABLER

Some modification of each apartment has occurred already, and enhanced the accessibility and functionality for each resident. Bathroom walls had been sheeted out with structural ply during construction to allow flexibility in the location of grab rails. Two of the three participants have installed ceiling hoists, making use of the allowance for this in the design of the ceiling and slab over.



MODIFICATIONS PLAN

A B C

Customisation and Modification

The capacity to adjust and adapt elements within built and technological environments to meet a resident's current needs, via his or her compensation claim.

A number of modifications were evidenced by differences between the contract documentation and the built outcome and noted by the research team. These are recorded on the Modification Plans for completeness. These include the relocation of sinks, some changes to the building envelope (perhaps resulting from some measurement or drawing inaccuracies), and some changes to internal doors. A number of customisations or minor modifications have also been made by residents, primarily to enable easier use of handles on joinery suitable to the physical function of the person. Participants all valued the height adjustable mobile bench that was designed to offer additional bench top space accessible by wheelchair.

LIMITATION

As outlined in the Independence – intuitive use sub criteria, the smart home technology interface cannot be modified in its current form, despite some difficulties with the interface for some participants. A simplified interface, which may be modified over time as residents' skills develop should be investigated.

While each apartment was provided with an adjustable height mobile bench, post-occupancy evaluation revealed that at this stage participants have generally left them in a single position, and at a set height. Participants were unable to adjust the height of the bench themselves (via manual crank handle). The bench height was therefore either adjusted by another person, or left in place. Residents who use a number of mobility devices during the day may be limited to using the bench when seated on a wheelchair suitable for the fixed height of the bench.

Consideration of the supply of a customised height mobile bench matched to an individual, rather than an adjustable one, may be a more cost effective and suitable option for some residents, whilst others may continue to benefit from having access to the height adjustment feature.

PARTICIPANT A

Modification Plan

This participant has made a number of modifications to the environment. Minor customisations have included cords and straps on cupboard doors to assist with opening of joinery doors in the kitchen. The adjustable bench remains in the kitchen, but had been turned 90 degrees between researchers' first and second visits. The shear panel has been removed by the participant to allow access to either side of the bench – it was noted to Participant C that this will weaken the structural stability of the bench so care should be taken, and the installation of a new (perhaps central) panel should be investigated.

A ceiling hoist has been installed in the bedroom. A shelf has been added to take a television and associated DVD and stereo. This has created a zone around the bed that can be comfortably inhabited over extended periods, as indicated in the Independent and Supported Inhabitation Plans, and the Dressing and Resting Panorama. An additional towel rail has been installed in the bathroom.

A

B

C

Customisation and Modification

PARTICIPANT B

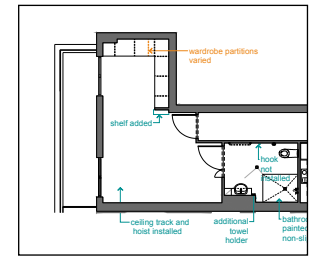
Modification Plan

This participant has made limited modifications to the environment. Access issues are apparent for Participant B, and have been detailed in the Independence criteria. Minor customisations have included the addition of prosthetic handle to assist use of the tap and rubber grips for oven knobs in the kitchen. The adjustable bench remains is used for a range of different activities. It contains paperwork, telephones and equipment for other tasks. Hooks stored at the end of the bench are used to support long handled pick up sticks, and straps to assist access to cupboards or low items that the participant would be otherwise unable to reach. The bench is also used for meal preparation and eating. The iPad used to control the home automation technology is located on the bench in its open box. A ceiling hoist has been installed in the bedroom. Further modifications are planned following assessment by a building consultant.

PARTICIPANT C

Modification Plan

This participant has made a number of minor modifications to the environment. Minor customisations have included notes and reminders on cupboard doors to assist with remembering tasks or activities. The adjustable bench remains close to the kitchen, and is used for passive leisure activities. The drawers are used for storage of kitchen implements. The bench top is used to house a telephone, books and papers, and a computer for administrative tasks or emailing. Several grab rails have been installed in the bathroom for use by Participant C.



MODIFICATIONS PLAN

...The inner sense you know that their needs could change across time as well. Their lifestyle could change, their family structure can change ...

Residents may experience short-term changes in their needs as a result of accident or ill health, or longer-term changes in function as a result of either skill development, or degenerative processes such as aging, pain or other progressive conditions. Broadly, this sub-criteria considers approaches that can allow for a 'long life loose fit' approach to planning, and preparation for future installation of particular fixtures.

This sub-criteria has not been rated by the research team as full evaluation is not possible without observation over a more extended time period. It is possible to make some general comments about some of the relevant strategies that have been adopted however, and some of the modifications undertaken.

ENABLER

The spaces are generally large in scale, and respond to the requirements of AS1428 as well as other relevant legislation. The *RIPL Design Brief*, section 8.2, makes particular note of the perceived ability of large spaces to accommodate a range of activities.

Changing needs over time

Sub-criteria unable to be rated at this stage.
Notes are provided

The built and technology environment has the capacity to respond to the needs of a resident in a flexible and customised manner over time.

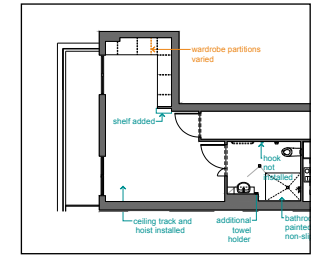
The planning as realised at RIPL Project One opens the possibility for rearrangement of furniture to some extent. The installation of structural plywood lining behind tiles in the bathroom allows for installation of additional grab rails in future, although it is unclear how these areas may be 'made good' if a grab rail is no longer required. As noted elsewhere, the capacity for the later installation of ceiling hoists has been provided.

LIMITATION

The scale, layout and planning of the apartments limits opportunities for changes to the space beyond furniture layouts. In RIPL Project One, planning was considerably restricted by the location of plumbing points and structural supports at the time of purchase of the apartments. Relocation of kitchens, and reconsideration of circulation routes may have allowed more flexibility for future small study or sleeping spaces. As it stands, inclusion without considerable replanning would be likely to significantly compromise existing spaces.

Modifications Plan

Modification plans show the range of modifications made to apartments to date. Further investigation will be needed of this sub-criteria at a later stage for full comment on the ways in which residents modify these spaces over time.



MODIFICATIONS PLAN

This sub-criteria illustrates RIPL's aspiration for flow-through of residents to more independent living models as suitable skills are developed. New clients can then be offered the opportunity of residence.

This sub-criteria has not been rated by the research team as a full evaluation is not possible at this early stage of inhabitation. However, it is possible to make some general comments about some of the strategies available, and some of the modifications undertaken. As elsewhere, broad approaches to this issue are necessary.



KITCHEN COMPARISONS

ENABLER

A generally spacious layout has been helpful to respond to this sub-criteria, although more opportunities could be offered in future projects where there is greater time and flexibility for planning, particularly around the location of plumbing points and circulation routes.

The linear galley kitchen layout presents fewest limitations in the form of difficult to access corners and comparison of the three participant's reach within the Apartment C galley kitchen is informative. Cooking and Eating Panoramas with resident experience slider are also relevant.

Anticipate range of needs

Development of a supported environment that anticipates a range of future resident needs.

Sub-criteria unable to be rated at this stage.
Notes are provided

LIMITATION

A standard approach to kitchen design recognises a possible range of residents, however, in effect means that all current residents interviewed find cooking, particularly hot meals using the oven and cooktop supplied, very difficult. The layout of the kitchen has also had an impact. Resident location of the mobile bench has exacerbated this problem in some cases. The design and layout of wardrobe spaces has also had a range of success. Resident slider view in Dressing and Resting Panoramas demonstrates this issue very effectively. Arrangements in which storage space can be accessed by either hand, or that are open along the face into a deep space appear to be most effective for a range of residents.

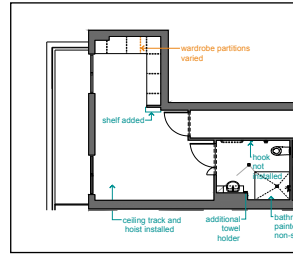
Kitchen Comparisons

The research group selected a particular kitchen, and used the data gathered about the reach of the three study participants to compare the range of accessible areas. Clearly this is not a representative sample, but merely a convenient representation of the current range of reach available across participants. It should be noted that this presents only one aspect of residents' experience and agency in the space. Extension of the project to the next RIPL site will allow further investigation of this issue across a broader range of participants and in consideration of other issues such as the type of mobility device used, the person's upper limb strength and hand function, and whether a person has capacity to stand, even if only for short periods.

... In this we had to try and make it accessible for a whole range [of clients]...

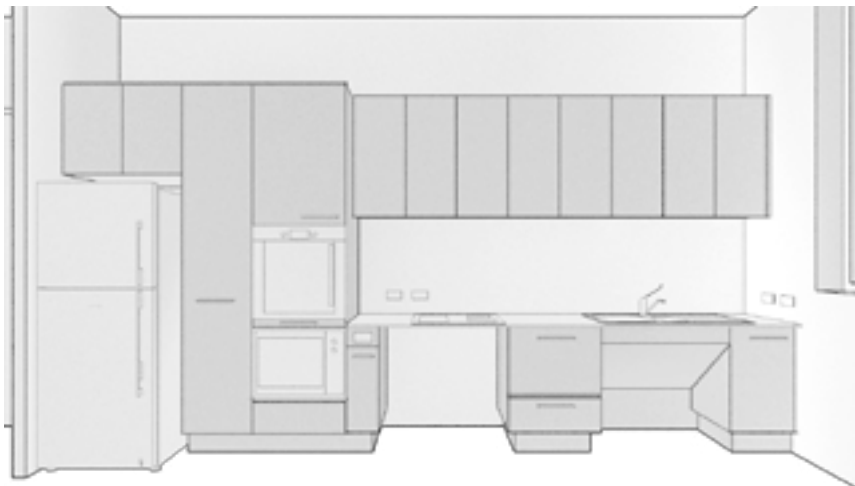


KITCHEN COMPARISONS

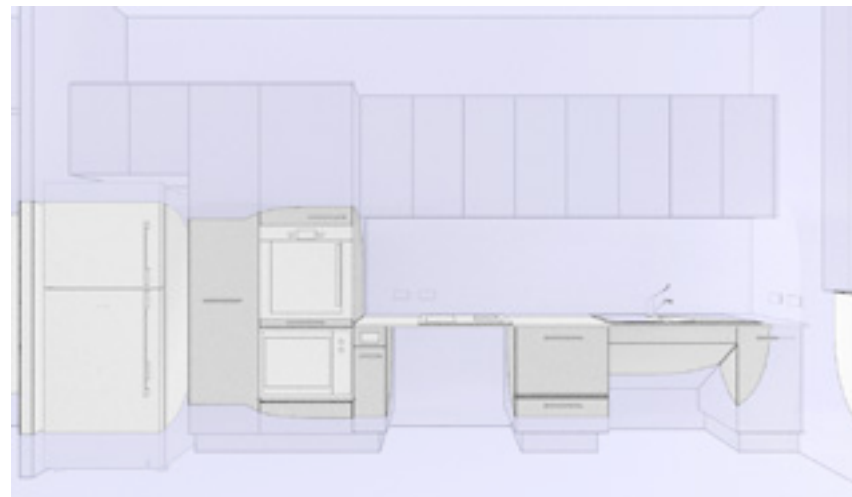


MODIFICATIONS PLAN

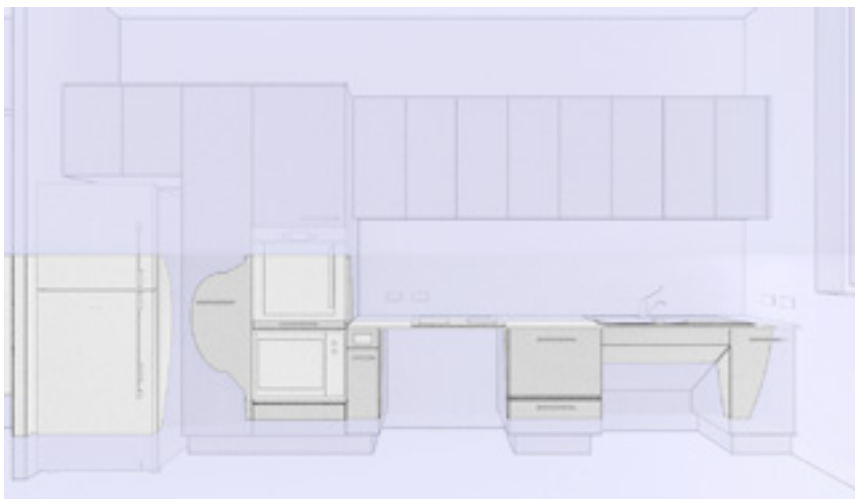
The Evidence section includes relevant information for this criteria. Click on the links above to explore. The up / down keys on the keyboard will scroll through the pages included. Use the navigation toolbar on the right of the screen to return to this page via 'E' or to the criteria page via 'C'. Links to Home, Criteria Overview are also provided.



KITCHEN ELEVATION



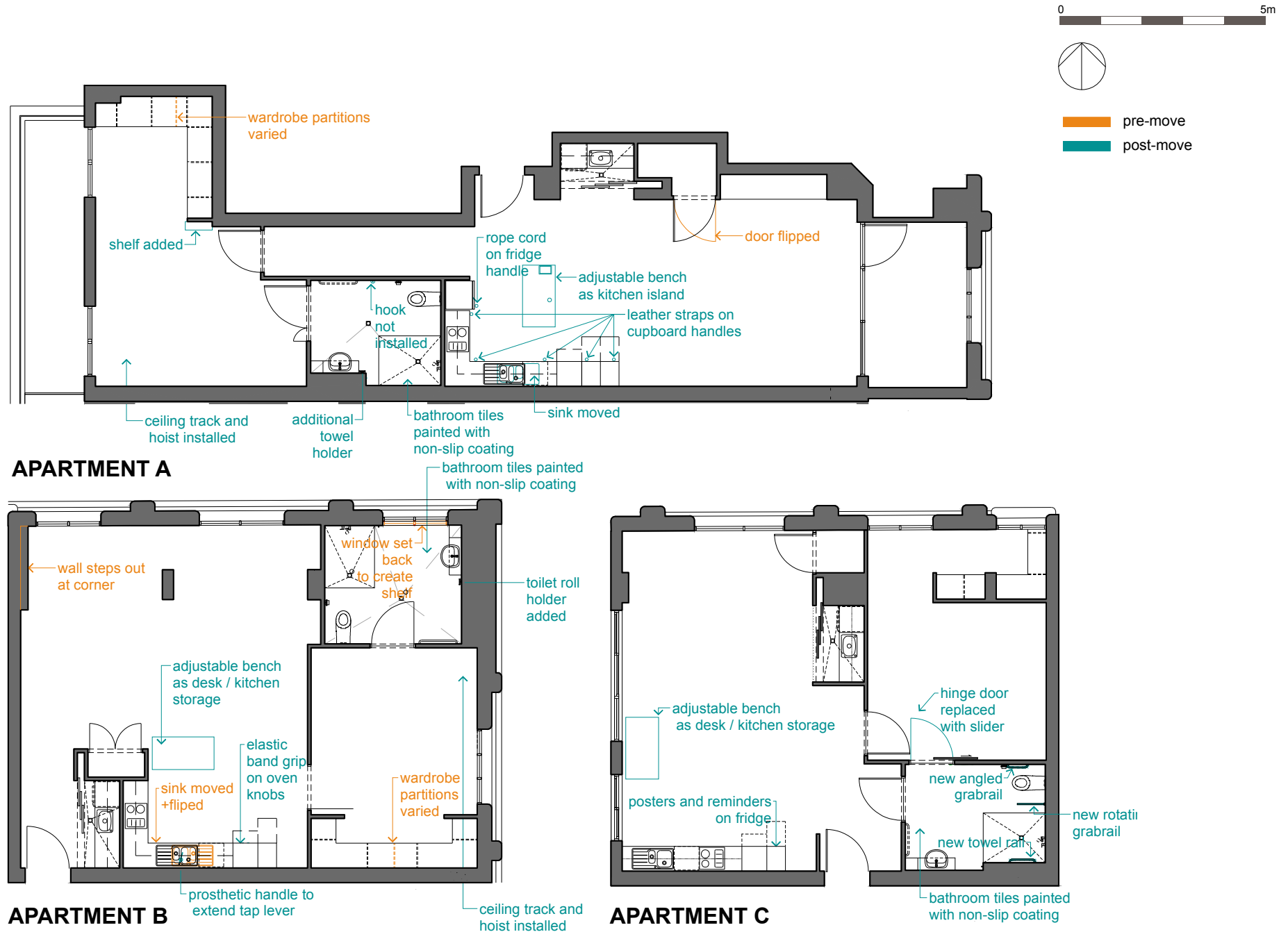
PARTICIPANT A Comfortable Reach

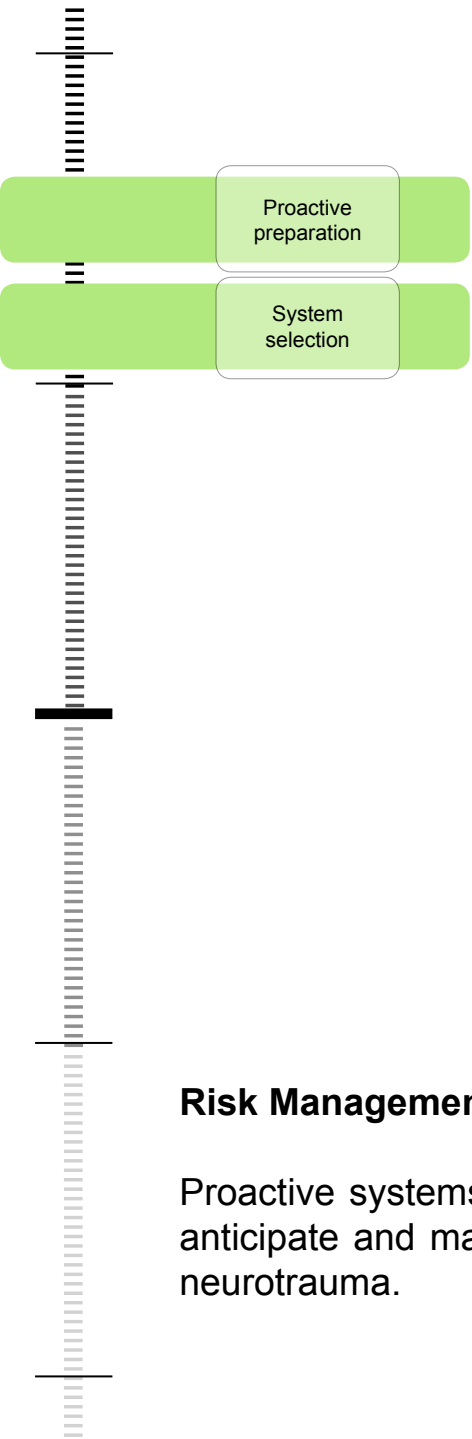


PARTICIPANT B Comfortable Reach



PARTICIPANT C Comfortable Reach





Proactive
preparation

System
selection

... [The home automation installer] has already done that group of sessions or training sessions, trying to do everything to make sure that the residents are safe and we get our calls answered ...

Risk Management

Proactive systems and strategies that aim to provide reliable response, and flexible monitoring, to anticipate and manage unexpected events experienced and secondary health conditions following neurotrauma.

... [RIPL] would take a higher floor [above ground level], but it needs to have two lifts and two doors that can take a stretcher... and battery back-up of the lift ...

Pro-active preparation

Safe management of 'out of the ordinary' events through the selection and inclusion of relevant systems and procedures.

Living with neurotrauma necessitates the management of a range of possible secondary health conditions or health events which can be life threatening. For participants these may include, for example, autonomic dysreflexia or epilepsy. These issues need to be proactively managed within community settings.

Coupled with these health events, the mobility impairments experienced by a person may call for additional assistance to evacuate from a building in the case of fire or other emergency. These additional needs were identified as requiring proactive management, and a built, technology and support model that assists a quick response if required. On this basis RIPL selected only ground floor properties at the Project One site.

For all developments it is important that the building classification is determined by a properly qualified person to determine the sections of the Building Code of Australia, and the Standards and legislation that will apply.

ENABLER

The RIPL Design Brief indicated the requirement for ground floor apartments where a second lift is not available. This allows for evacuation of residents without the need for use of lifts or stairs. This is achieved in Project One. This limited choice of apartments for RIPL, and led to the concentration of apartments in a single ground floor zone. This is relevant to the mainstream development sub criteria. Generally open planning of the apartments allows for greater maneuverability and options to manage health events on floor spaces if required. Multiple egress was available from the foyer of the apartments, in the case of fire or a health event.

LIMITATION

Teething issues with the installation and operation of the assistive technology led to some loss of confidence in the capacity of the technology to assist with resident health needs. One participant had raised specific concerns about the delay between the duress alarm being activated, and connection and dialling to the staff office. This was subsequently addressed by the home automation installer.

Two participants reported reversion to more traditional methods of contacting staff (calling them by phone; going to the staff office space) as a more reliable option, particularly if they required urgent attention and wanted to be sure that staff had received their call – this issue is also addressed in Independence and Support criteria. One resident reported having access to at least five different attendant / emergency call devices.



... If there is anything that I'm concerned about, it's the pendant alarm that I use, it doesn't work some of the time. I've found the phone duress alarm works better than the pendant. But I also sleep with my phone on charge, just in case the pendant doesn't work. So I've got backup. TAC have agreed to put in a buzzer, because I've voiced my concern about that. Yeah, they're doing stuff to make it work...

System Selection

Communication and emergency response systems that are reliable with backup protocols in place. The expected response time must be appropriate, and understood by both residents and support workers.

As detailed in the RIPL Project One overview, the duress call button and staff communication system can be accessed via smartphone or tablet, worn-on-the-body or wall-mounted buttons or call pendants. One participant has chosen to have the SnapLink application installed on their smartphone such that it runs through the mobile phone network.

ENABLER

RIPL staff undertook considerable investigation before selecting a home automation and communication system for Project One residents. The selected system offers personalised support from a home automation company, and staff and residents most often deal with the owners of the company directly. Participants report that service and support has been very good to date, as evidenced by QUEST ratings (see link).

The support agency staff report they were provided with clear direction for the escalation of responses in the case of an individual resident emergency.

LIMITATION

There appears to have been incidences of 'duress alarm' failure. These instances have required considerable input from the technology provider. There have also been some concerns for participants who use the mobile 3G network for SnapLink given the network's potential unreliability, especially on the ground floor of a multiple storey masonry and concrete building.

Currently, the intercom system at the main street entrance is not integrated within the assistive technology system. Residents who cannot reach the wall-mounted intercom interface before the video feed drops out cannot see or communicate with a person waiting at the gate. This leaves residents at risk of letting people into the development who are not known to them as the SnapLink application only includes operation of the gate, without video or voice connection

QUEST

Please see 'Independence - Ability to easily control your own environment' for comments on resident satisfaction with effectiveness of technology.

QUEST - Resident Satisfaction				
1. How satisfied are you with the system?	5	4	3	2
2. How easy is it to use the system?	5	4	3	2
3. How reliable is the system?	5	4	3	2
4. How easy is it to get help if you need it?	5	4	3	2
5. How easy is it to get help if you need it?	5	4	3	2
6. How easy is it to get help if you need it?	5	4	3	2
7. How easy is it to get help if you need it?	5	4	3	2
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99. How easy is it to get help if you need it?	5	4	3	2
100. How easy is it to get help if you need it?	5	4	3	2

QUEST

QUEST

O
P
C

ASSISTIVE DEVICE	
How satisfied are you with,	
1. The dimensions (size, height, length, width) of your assistive device? Comments: <i>iPad mini trialled but not as easy to use</i>	5
2. the weight of your assistive device?	5
3. the ease in adjusting (fixing, fastening) the parts of your assistive device?	4
4. how safe and secure your assistive device is?	4
5. the durability (endurance, resistance to wear) of your assistive device? Comments: <i>No protective case currently</i>	3
6. how easy it is to use your assistive device? Comments: <i>Not learnt fully</i> - <i>Not easy to dismount if going out</i> - <i>Not easy to put aside, uses memory foam pillow. Does not want pillow on when driving</i>	5
7. how comfortable your assistive device is?	5
8. how effective your assistive device is (the degree to which your device meets your needs?)	5
SERVICES	
How satisfied are you with,	
9. the service delivery program (procedures, length of time) in which you obtained your assistive device? Comments:	5
10. the repairs and servicing (maintenance) provided for your assistive device?	5
11. the quality of the professional services (information, attention) you received for using your assistive device?	5
12. the follow-up services (continuing support services) received for your assistive device?	5

1	2	3	4	5
Not Satisfied At all	Not Very satisfied	More or less satisfied	Quite satisfied	Very Satisfied

Items that most influence satisfaction with an assistive device, rated by the participant

ASSISTIVE DEVICE	
How satisfied are you with,	
1. The dimensions (size, height, length, width) of your assistive device? Comments: <i>Samsung HTC used due to better screen size than iPhone. Smaller device can be easily positioned on leg or armrest with strap in power chair.</i>	5
2. the weight of your assistive device?	5
3. the ease in adjusting (fixing, fastening) the parts of your assistive device?	5
4. how safe and secure your assistive device is?	5
5. the durability (endurance, resistance to wear) of your assistive device? Comments: <i>Has dropped & screen hasn't cracked. Standard case</i>	5
6. how easy it is to use your assistive device? Comments: <i>Loading of app – disconnects / takes time to load. if service absent, can't use app (Vodafone prepaid)</i>	4
7. how comfortable your assistive device is?	5
8. how effective your assistive device is (the degree to which your device meets your needs?)	5
SERVICES	
How satisfied are you with,	
9. the service delivery program (procedures, length of time) in which you obtained your assistive device? Comments: <i>[Tech contractor] very responsive. Annecto contacts tech contractor who comes in a day or two.</i>	4
10. the repairs and servicing (maintenance) provided for your assistive device?	4
11. the quality of the professional services (information, attention) you received for using your assistive device?	5
12. the follow-up services (continuing support services) received for your assistive device?	5

1	2	3	4	5
Not Satisfied At all	Not Very satisfied	More or less satisfied	Quite satisfied	Very Satisfied

Items that most influence satisfaction with an assistive device, rated by the participant

ASSISTIVE DEVICE	
How satisfied are you with,	
1. The dimensions (size, height, length, width) of your assistive device? Comments: Needs repositioning. Need mounting device for wheelchair / bed lying down. Still in box – no where else to put it	3
2. the weight of your assistive device? Comments: awkward to get out of box to charge. Someone else puts on charge	3
3. the ease in adjusting (fixing, fastening) the parts of your assistive device? Comments: "Laying down is the bit that is killing me." Positioning – curling of fingers means mishit of button.	3
4. how safe and secure your assistive device is? Comments: Wouldn't have it on chair. Couldn't use it outside home – does not work out of building	2
5. the durability (endurance, resistance to wear) of your assistive device? Comments: Concerned about screen breakage. Charger lead tiny – tried 1-2 times, get someone to do it.	2
6. how easy it is to use your assistive device? Comments: Find it hard to increase volume (need to look at it, not by feel)	2
7. how comfortable your assistive device is?	2
8. how effective your assistive device is (the degree to which your device meets your needs?) Comments: Don't think they get that section to work. Distress alarm does not go through. Happens quite often – last happened last night. Tends to call office via Nokia mobile as easier than going through app. Tag does not connect through to office	2
SERVICES	
How satisfied are you with,	
9. the service delivery program (procedures, length of time) in which you obtained your assistive device? Comments: Picked it up pretty quick – shown a few times. Don't like to use phone but have to.	3
10. the repairs and servicing (maintenance) provided for your assistive device? Comments: Staff need to notify [tech contractor], other times blocked out for ½ a weekend. "It's my power bill – got to turn light off"	2
11. the quality of the professional services (information, attention) you received for using your assistive device? Comments: Shown how to use it	3
12. the follow-up services (continuing support services) received for your assistive device? Comments:	3

1	2	3	4	5
Not Satisfied At all	Not Very satisfied	More or less satisfied	Quite satisfied	Very Satisfied

Items that most influence satisfaction with an assistive device, rated by the participant

ASSISTIVE DEVICE	
How satisfied are you with,	
1. The dimensions (size, height, length, width) of your assistive device?	4
2. the weight of your assistive device? Comments: <i>A bit heavy in bed, ok otherwise</i>	3
3. the ease in adjusting (fixing, fastening) the parts of your assistive device? Comments: <i>stand on case very good</i>	4
4. how safe and secure your assistive device is? Comments: <i>other people access it, staff use (every 2 months) to control blinds</i>	4
5. the durability (endurance, resistance to wear) of your assistive device? Comments: <i>Dropped from 3 ft. – ok – screen not damaged</i>	5
6. how easy it is to use your assistive device? Comments: <i>Find it hard to increase volume (need to look at it, not by feel)</i>	4
7. how comfortable your assistive device is?	4
8. how effective your assistive device is (the degree to which your device meets your needs?)	4
SERVICES	
How satisfied are you with,	
9. the service delivery program (procedures, length of time) in which you obtained your assistive device? Comments:	4
10. the repairs and servicing (maintenance) provided for your assistive device? Comments: [Tech contractor] rebooted straight away (ask for Annecto to call or grab tech contractor)	5
11. the quality of the professional services (information, attention) you received for using your assistive device?	5
12. the follow-up services (continuing support services) received for your assistive device?	4

1	2	3	4	5
Not Satisfied At all	Not Very satisfied	More or less satisfied	Quite satisfied	Very Satisfied

Items that most influence satisfaction with an assistive device, rated by the participant

Ability to be
on-sold

Balanced
portfolio

Client
Selection

Sub-criteria unable to be rated at this stage.
Notes are provided

SCHEME VIABILITY

The management of claim liability through operational cost savings in order to deliver a viable and sustainable insurance scheme (TAC, 2011).

Ability to be on-sold**On-selling of apartments on the open market as individual dwellings or as a parcel.**

The rating for this sub-criteria is the overall rating for resale of the group. Notes regards the sale of individual apartments are included below. A detailed analysis of issues affecting the real estate market is beyond the scope of this study or research team expertise, however comments and ratings are offered on the basis of general observations. Timing any sale will also be an important factor as maintenance schedules or planned replacement of joinery may address some issues raised.

ENABLER

Many material selections had been determined at the point of RIPL involvement, and consisted of good quality finishes in neutral tones. This would seem to offer some benefits in terms of broadening market appeal to a range of prospective buyers. The joinery and kitchen layout is likely to have general appeal. Some of the assistive technology elements are particular to the resident group, but the system is used in standard residential settings. The installation may have appeal across a broad market.

Apartment spaces are relatively large and ceilings are high. The construction and selection of fittings and fixtures appears to be of good quality and able to hold value with reasonable maintenance. Traces of wear and tear appear to be relatively easy to fix.

LIMITATION

Sufficient luminance contrast between surfaces is recommended for people with cognitive and / or visual impairment, but conflicts with the broad appeal of neutral finishes. Ceiling hoists or grabrails may need to be removed for resale with walls and ceilings repaired. Simple additional or replacement fittings in the large bathroom, such as glazed shower screens, may improve broad appeal

Ground Floor Development Plan

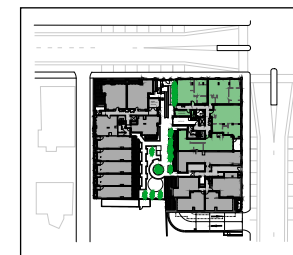
In terms of the separate on-selling of particular apartments, those at the 'edges' of the development appear to have more appeal than an apartment that is located 'within' the group. Apartments close to the support workers' office may have additional activity in the hallway, causing disruption or noise.

Traces of Wear and Tear Plan

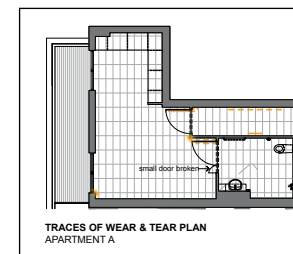
While there has been some wear and tear, including damage to corner walls and scuffing of walls and some doors, this is relatively minor at this stage and appears straightforward to repair.

Modifications Plan

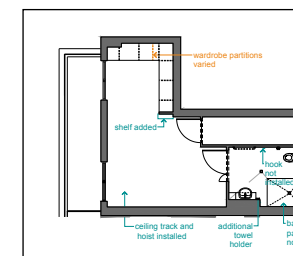
Modifications undertaken by participants during the research period are generally minor and may be removed easily for resale. It is also expected that hoists may be removed and repairs made to the ceilings as necessary. Removal of additional grabrails may be difficult or expensive if there is damage to tiles.



DEVELOPMENT PLAN



TRACES, WEAR & TEAR PLAN



MODIFICATIONS PLAN

... It needs to be really aesthetically pleasing and it needs to have resale value

...

...It is the basis of one client per unit even in the two bedroom units but we cater, where we can on the site, for a family. We've got at least one three-bedder - well, we've got one three-bedder at [site three] and one three-bedder at [site two]...

...We need to acknowledge a lot of our clients might be married or live with a partner, and it's important that we accommodate for that ... Not all our clients are single and live by themselves...

Balanced Portfolio

On-selling of apartments on the open market as individual dwellings or as a parcel.

Sub-criteria unable to be rated at this stage.
Notes are provided

The capacity to offer apartments with more than one bedroom at RIPL Project One was restricted by the late stage at which TAC entered this development, and by the restriction of planning options by the location of existing plumbing points and structural supports. The inner suburban location has also impacted decision making with regards floorspace and the number of bedrooms that might be offered per dwelling in the area.

Other approaches to the provision of a range of accommodation for potential clients are raised elsewhere in the document, including options for the partial customisation of environments to suit particular resident needs.

This sub-criteria has not been rated by the research team, as RIPL Project One is the only project developed by RIPL to date.

...Basically they [RIPL residents] need to be high needs clients. That was the briefing that we were looking at – wheelchair accessibility for high support needs clients...

... the current sort of standards deal with the 80 per cent of people in wheelchairs, not the extra 20 who are outside the norms, and the that in terms of our target groups, that's part of the group we're dealing with ...

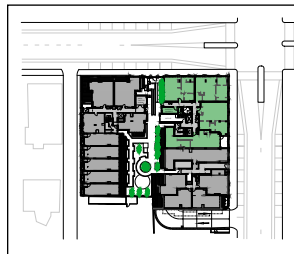
Client Selection

Sub-criteria unable to be rated at this stage.
Notes are provided

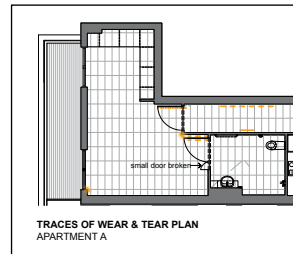
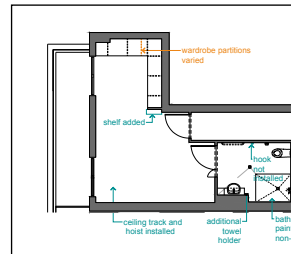
Scheme costs and viability are affected by the individual needs of a selected client and his or her capacity to develop greater independence using the supports provided at a RIPL development.

The TAC and RIPL have undertaken targeted business intelligence work to examine client selection and its impact on scheme viability, which is beyond the scope of this post-occupancy evaluation project. However, the detailed evidence provided in this evaluation report regarding impact of RIPL Project One on key criteria, including independence and support, may inform this further.

This sub-criteria has not been rated by the research team as the team does not have access to details of the operating costs or actuarial analysis of RIPL Project One.

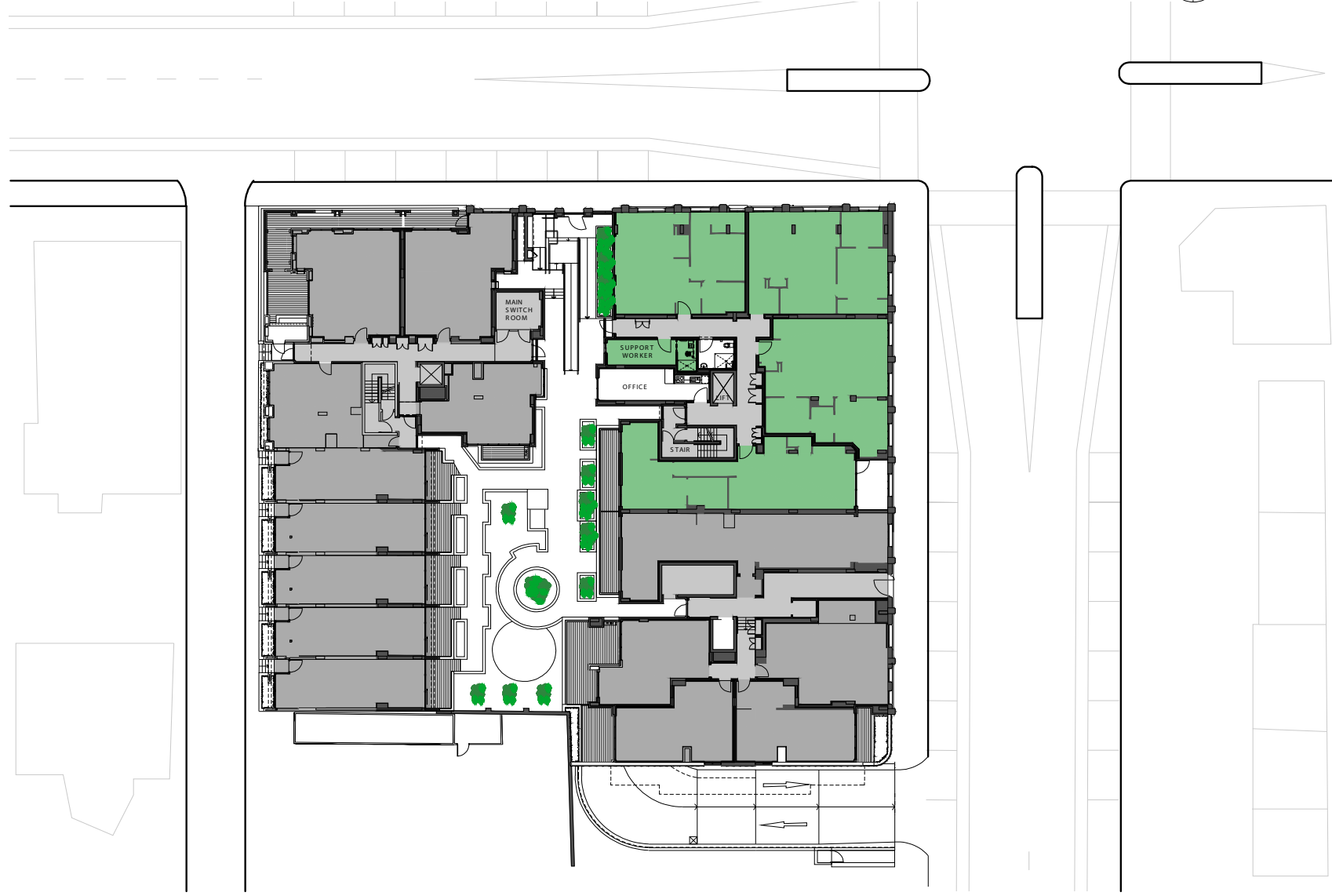


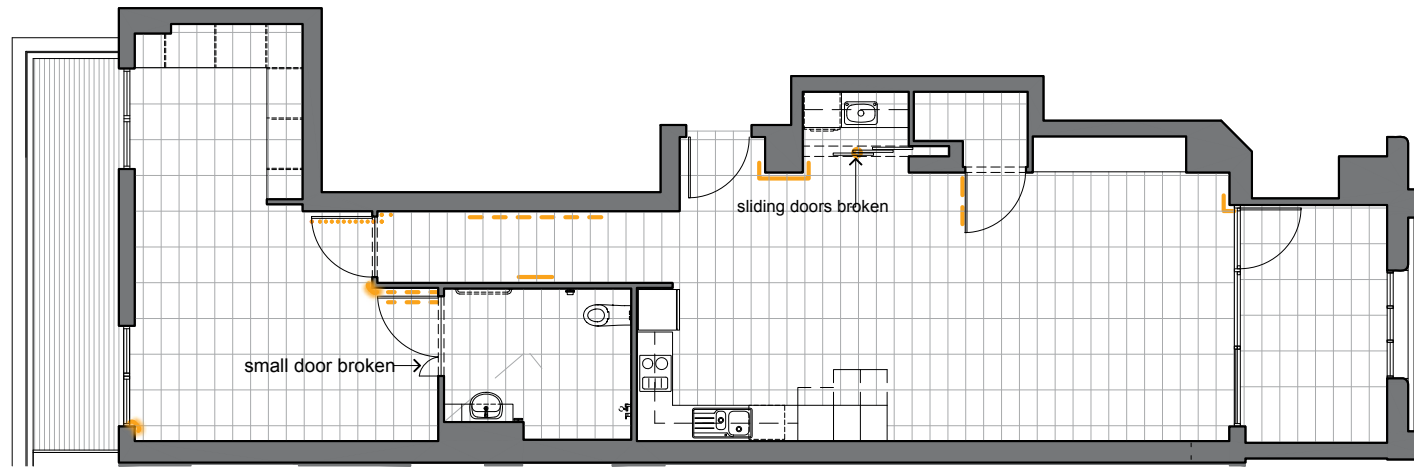
DEVELOPMENT PLAN

TRACES OF WEAR & TEAR PLAN
APARTMENT A

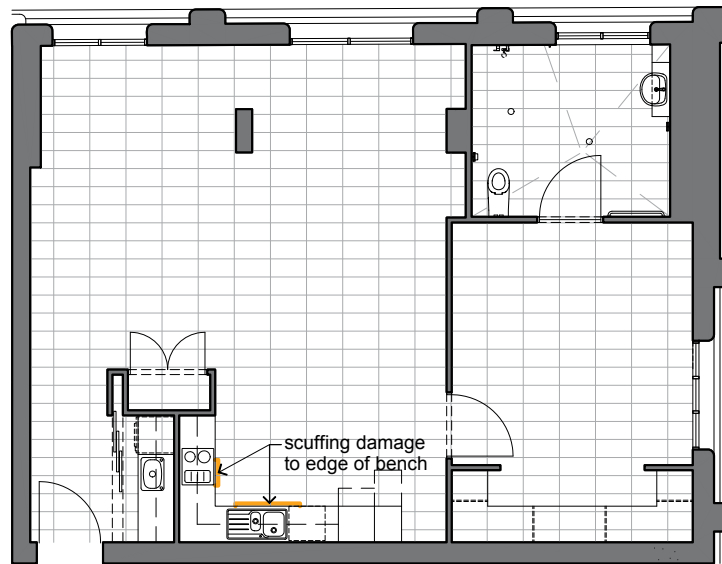
MODIFICATIONS PLAN

The Evidence section includes relevant information for this criteria. Click on the links above to explore. The up / down keys on the keyboard will scroll through the pages included. Use the navigation toolbar on the right of the screen to return to this page via 'E' or to the criteria page via 'C'. Links to Home, Criteria Overview are also provided.

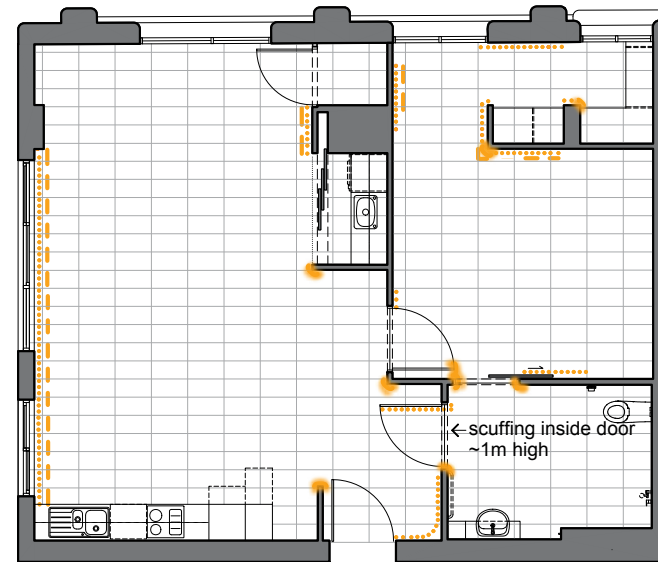




APARTMENT A



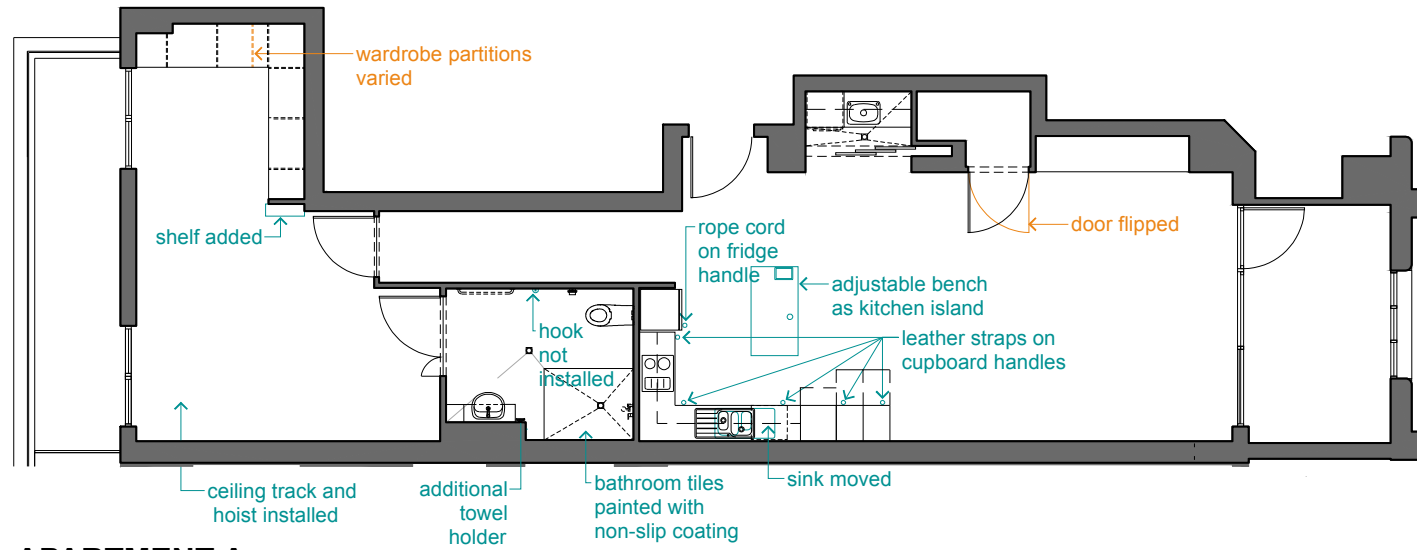
APARTMENT B



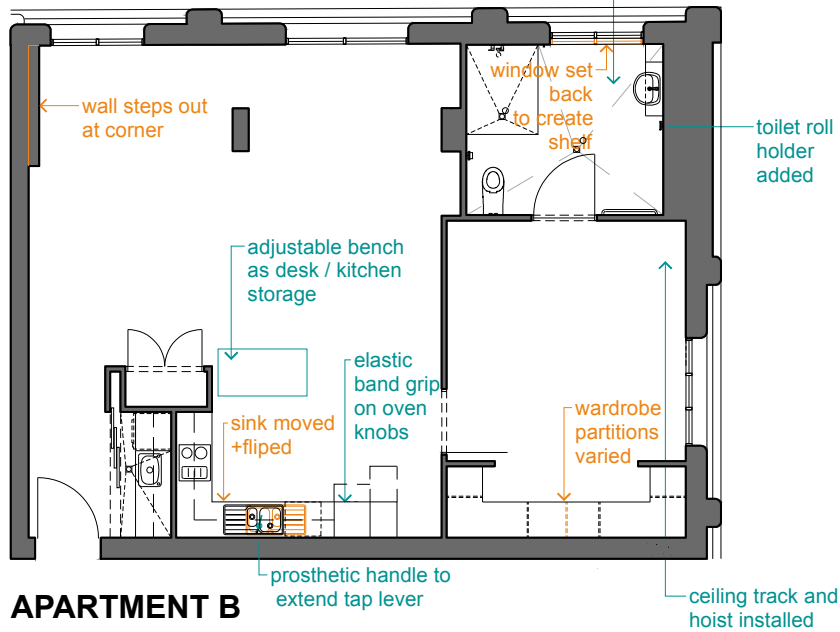
APARTMENT C



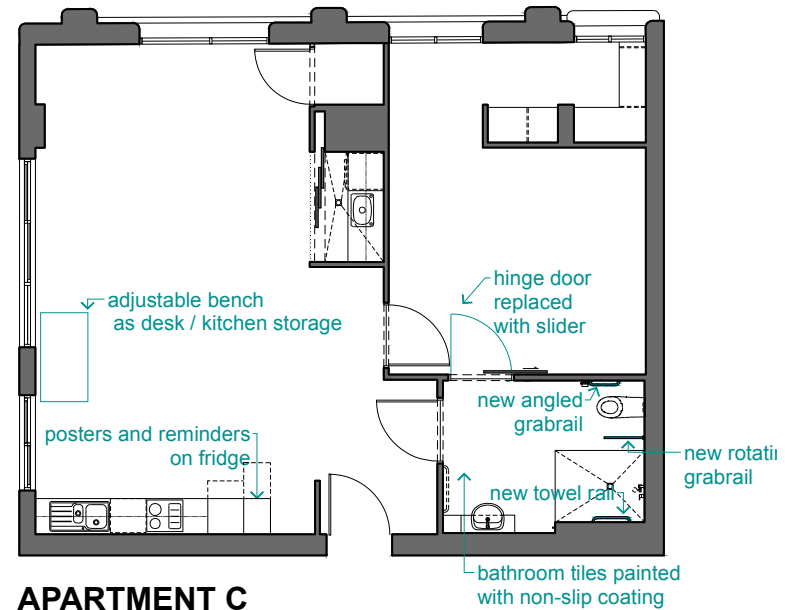
- Orange solid line: damage to corner / nib wall
- Orange dashed line: mid level scuffing
- Orange dotted line: low level scuffing



APARTMENT A



APARTMENT B



APARTMENT C

0 5m



pre-move
post-move



The innovative, customised and comprehensive post-occupancy evaluation of environment and technology design at RIPL Project One has identified both successes and challenges. These can inform further development of new models of housing and support for TAC and WorkSafe clients living with neurotrauma. This section focuses on key Recommendations and their relevance to future projects.

RIPL Design Brief

An early stage of the research project included the general review of the *RIPL Design Brief* (Version 1) (TAC, 2011) as it was translated in the design at RIPL Project One. It was found that most significant recommendations of the Brief were adhered to, details are provided in the Appendices. Most aspects of the project that did not follow the Brief appeared to be a result of the particularities of RIPL Project One location, construction progress at the point of project involvement, or the development type. While this confidential *RIPL Design Brief* is already a comprehensive document, it is recommended that further review of its content following this post-occupancy evaluation project would be helpful to refine it further. The recommendations listed below refer to relevant sections of the Brief where appropriate.

Site Planning and Context

RIPL Project One is located within a secure apartment building with good access to public transport and local services and amenities. Access from two street entrances and into four internal foyer spaces of the development is electronically controlled. The common central courtyard space also contributes to the separation of the development interior via social, spatial and formal means from the surrounding streets. Effective translation of these strategies through design can support a sense of community for development residents as a whole, or for groups that share particular access points. Strategies also run the risk of creating environments that are perceived as excluding others, without creating an internal sense of cohesion. The co-location of these apartments and support workers' office has created an additional precinct within the mixed development. The research team considered this additional layer reduces opportunities for the building of positive relations with neighbours within the development, but the ability for residents to electronically control access to their apartments is appropriate to this urban location. New stand-alone developments on suburban sites of lower scale and density, with very different edge conditions and approaches to security may also aim for a balance between connection and separation, but will call for different strategies to achieve it. Details included in the Report may inform further development of *RIPL Design Brief*, sections 5.2 and 5.3.

Layout and Planning

Environmental control issues, in terms of heating and cooling, ventilation, light access and acoustics were observed to be particularly important for residents who spend a relatively large proportion of time in the home. Heat gain, glare, noise or the intersection of these were all observed in different apartments. Residents managed these issues with varying levels of success, regularly using active systems (e.g., air conditioning) that impact consumption of electricity with related costs and implications. A focus on siting, orientation and other passive approaches to environmental control in developments where more flexibility is possible, could avoid these ongoing issues with little additional cost. Details included in the Report may inform further development of *RIPL Design Brief*, section 5.2 and 13.8. They are also relevant to ambitions for sustainable and energy efficient design, and for thermal, visual and acoustic comfort included in *RIPL Design Brief*, section 3.

Researchers observed a potential for conflict between the levels of privacy implied by a relatively typical apartment layout, and achievement of an accepted image of 'home' that includes circulation patterns that link spaces sequentially (e.g. Apartment A). In this pattern, 'private' spaces for bathing and toileting are located more deeply, or further along an expected circulation route, within the home. For these residents, these are no longer private activities as the home necessarily involves 'others', particularly support workers in these areas. By contrast, another apartment plan (Apartment C) has bathroom spaces located closer to the apartment entry. Apartment C provides examples of spaces where a resident can be most private (e.g., TV lounge) that are not interrupted by regular support worker circulation routes. Details included in the Report may inform further development of *RIPL Design Brief*, including section 4.6.

Researchers observed differing patterns of wear and tear in each apartment plan. Although there are many factors that influenced these including furnishing decisions and resident wheelchair selection and expertise, the pattern of usual circulation routes was also consistent with these marks. It was apparent that circulation patterns that were straight or with wider radius curves reduced wear and tear, particularly on external / protruding corners. Details included in the Report may inform further development of *RIPL Design Brief*, section 8.2.

Fitting the Fitout

A key finding of the research is the impact of particular residents' physical abilities on their use of the joinery installed in the home. This was influenced by the extent of reach on both sides of the body in all directions, as well as hand function, but also by the type and size of mobility device in use. The inclusion of relatively standard kitchen joinery in RIPL Project One provides useful comparison. Representation of all participants' reach overlaid on a single kitchen layout is included in the report and illustrates this point. Across all participants, the required side-on approach to surfaces such as benchtops over joinery, including those with recesses as installed in RIPL Project One, has also limited these activities. Similar issues were also observed with respect to the three different wardrobe layouts in combination with the differing physical abilities of residents of each apartment.

The issue of the detailed 'fit' of areas of focussed activity is relevant to the ability of particular residents to independently manage tasks of daily living, and therefore the level of support required for these. This may also usefully include provision for the delivery of different levels of support by reconsidering the relationship of support 'infrastructure' and dwellings (eg provision of full kitchens for cooking or kitchenettes for reheating of meals). An alternative approach, such as the design of joinery and completion of fitout after the selection of residents, and impact on support provision will need to be balanced against expectations for resale of apartments or potential for relocation of residents. Layouts with either internal or external corners also presented difficulties of access and effective use as residents needed to manoeuvre wheelchairs around these obstructions to access storage. Further investigation of these design issues and their implications is needed. Details included in the Report may inform further development of *RIPL Design Brief*, section 8.6 and 8.12.

Home-like Appearance vs Functional Effectiveness

A stated ambition of the scheme was for residents to have a sense of control over their environment, and the furnishing of the home is particularly relevant to this. Ambitions for developments to 'look like any other residential development' are included in the *RIPL Design Brief* (e.g., s5.2) and were also expressed in interviews. Expectations as to the appearance of 'home' were observed to conflict on occasion with effective function however. A good example includes 'TV chairs' placed directly in front of televisions. This is a very typical arrangement in homemaking magazines or media representations and was observed in all participants' furnishing choices. Two of the three participants were locating wheelchairs adjacent to these TV chairs when watching television, as they were unable to independently transfer between wheelchair and chair. General furnishing decisions also appear to have effectively reduced the occupied space of all apartments to some degree. Further investigation of these design issues and their implications is recommended, and could include providing some advice or assistance about alternative options to residents as part of this decision-making through transition planning. This may be supported by a more nuanced investigation of design differences between 'homelike' and 'institutional' in supported residential environments.

Further to this, it was observed that some residents brought previously owned furniture or belongings with them. In one case the space allowed in the layout for a fridge could not accommodate the appliance that arrived, impacting the remaining space in the apartment. Future developments where space is less of a premium may strategically aim for more flexibility for the installation of large appliances. This is particularly relevant as clients may not have the financial resources to replace large items to suit the space allowed. Implications of and for furnishing may be discussed in further development of the *RIPL Design Brief*, section 4.4, but may also be relevant to further development of transition planning approaches.

Customisation and Flexibility

The design and construction of RIPL Project One has allowed for modification of apartments to suit individual access needs via TAC claims management. This includes providing suitable structure for installation of ceiling hoists, and ply lining behind bathroom tiles to allow installation of grab rails in multiple locations. Other less significant customisations have also been made to cupboard handles and the like for ease of use. A height-adjustable bench on castors has been located differently by residents for particular uses, however once the height is set for the task it has not been further adjusted over the study period. The costs of providing for these levels of flexibility, and of allowing for further changes by future residents may be reviewed for future projects. This is distinct from the notion of 'small-scale robustness', although the design of spatial layouts with a view to the provision of future flexibility is also relevant. The particularly individualised needs of this client group make allowances for customisation at any stage of the project an important concern, with ramifications across many of the criteria identified. Decisions regarding investment by the TAC in personalisation of fitouts after client selection may also impact the need or opportunity for further customisation. Details included in the Report may inform further development of *RIPL Design Brief*, section 4.3.

Client Selection

Client selection is integral to the success of RIPL's aspirations to increase independence and impact support need. Matching of clients to designed environments will significantly influence customisation and modifications required, impacting independence outcomes and scheme costs. The level of support need has been the primary criteria used to identify potential residents to date. However, key factors that were observed to impact use of the built environment include the type of mobility device the person will use in the environment (e.g. wheelchair, walking) and its size; level / dominant side of upper limb function (e.g. one upper limb versus bilateral function); personal factors (e.g. willingness to share support; desire to build independence) and cognitive capacity (e.g. new learning ability; behaviours of concern).

This evaluation provides clear evidence of the increased independence and participation in tasks of daily living facilitated by matched fitout and access design, based on resident mobility and physical function. This is in contrast to the potential for a dwelling to inhibit independence where there is a mismatch of client physical function and the built environment – for example in the supply of an apartment with right side access to storage for someone who only has left upper limb control. The impact of matching potential residents to built environment is most starkly demonstrated through panoramas supplied in this project, which illustrate degrees of mobility offered. Although some physical impairments will continue to impact home access and independent use, the opening of whole developments offers further capacity to plan for the best resident-dwelling match.

Transition Planning

Once client selection is finalised, detailed resident transition planning and training within the new environment (or via familiarisation and practice with home automation and communication features offsite) is imperative to develop skills within the built and technology environment offered. This should happen as early as possible, preferably prior to the move to the new home. Structured cognitive supports, such as pictorial instructions or prompt sheets, may be necessary for the person to learn and retain new skills.

Living alone has brought a range of benefits, as well as new challenges, for participants. Transition from living with others to independent living has elicited some feelings of loneliness or isolation experienced by participants. Opportunities for independent home based leisure, social connections and community access which offers social contact is necessary to fill the void reported in the loss of incidental social contact that was available in participants' previous housing and support via family, co-residents and / or onsite support staff.

A Community Inclusion Facilitator role provided by the support agency has led to the quick and successful establishment of community life roles and participation opportunities for participants in this study within their new community. While people need time to settle into a new home, and also into a new neighbourhood (as is the case for these residents), the research team found that the Facilitator role has been highly successful in the short term in building community links. Site selection has further benefited this, with close proximity to public transport, and relevant services and amenities, as specified in the *RIPL Design Brief*. Sustained focus is required over time to ensure that residents can further build and maintain a range of community participation opportunities, or that existing options do not break down. This is particularly valuable given reported changes in social contact resulting from living alone that are detailed above.

Building Skills and Independence

RIPL Project One has positively impacted opportunities for residents to make choices regarding their daily routines. Post-occupancy evaluation indicated that participants in the study are mostly experiencing an increased sense of agency and control in their own homes, compared with past housing and support models. Contextualised slow stream rehabilitation has the capacity to influence community integration, role participation, and cost of care outcomes and lead to transition to more independent living over time (Sloan, Callaway, Winkler, McKinley & Ziino, 2012; Sloan, Callaway, Winkler, McKinley, Ziino & Anson, 2009). This research project included the collection of data from residents at two time points as set out in the Project Methodology section. Some changes to participant skills and independence were observed over that time demonstrating opportunities for contextualised rehabilitation. A continued focus on building skills and independence is necessary for RIPL residents. This is particularly important to build capacity for possible transition from RIPL Project One to more independent living, or the harnessing of housing careers currently lacking for this target group (Beer, Faulkner, Paris & Clower, 2013). Regular review of both the accommodation design and resident experience over a longer time period may be helpful to identify more significant changes. It will also demonstrate new opportunities and issues arising at RIPL Project One.

In order to further foster independence in tasks of daily living, structured routines for key home-based tasks including showering and dressing, laundry tasks, and cold and hot meal preparation should be developed prior to a move to the new environment and consistently implemented as planned. Associated weekly routines for task completion may need to be established (e.g. Monday and Friday = laundry tasks; Tuesday and Sunday = main meal preparation frozen for later use). In addition, planning acceptable meal preparation that is achievable with minimal support (e.g. heating healthy pre-purchased meals; planning of dinner recipes that only require microwave oven cooking) may be made in advance. Consistency of implementation of these procedures following the move, and reinforcement within the support model would then be required. With repetition and practice, it is highly likely that further skills will be developed. This will also allow support staff to maintain an appropriate level of input over time, or provide very targeted hours of 1:1 support to do specific tasks for the person (e.g. peeling and cutting vegetables for storage and later use by the resident).

Some negotiation will be required to obtain a balance between support staff 'doing tasks with' residents, rather than 'doing tasks for' them. Currently it is apparent that residents are making decisions about receipt of full support for some tasks (e.g. laundry) based on the increased time it takes the person with disability to complete the task. There is a conflict between the aspiration for resident independence and delivery of support, which may further impact the ability to grade support over time. By contrast, the efficient use of direct support hours, such as the worker completing laundry tasks after helping the resident to set up for bathing, and returning to assist completion of bathing routines is useful. This may allow for discretionary time for the resident for the pursuit of productivity or social roles. A balance must therefore be negotiated, while a focus on client choice coupled with the key aspirations of the RIPL model is retained. In order to harness windows of opportunity for skill development, regular reviews of resident support, equipment and rehabilitation needs are required and should be delivered within an interdisciplinary approach.



Assistive Technology Design

Investment in a comprehensive approach to assistive technology, incorporating controls for home automation and communication, has been a significant aspect of the development of RIPL Project One. The installation of this system has already built demonstrated efficiencies in the delivery of support into the project, as well as positively impacting residents' sense of independence and control. Installation of data cabling caused some difficulties given the progress of the building at the time of system selection, offering some learnings with regards procurement processes. The development and inclusion of relevant sections to the *RIPL Design Brief* would be helpful in this regard, but may best focus on intentions for performance, rather than detailed specifications, given the fast development of systems in this area. Significant use of certain automation systems (e.g., hydraulics for door opening) was beyond that of a typical home environment. This led to some wear and tear. Heavy use should be considered in product selection and installation.

Post-occupancy evaluation has provided significant findings regarding the current user interface design and its challenges for some participants. Some participants were unaware of a number of the functions available, despite training sessions provided and ongoing support by the supplier and installer. This is reflected in the logs of use included in the Report. Potential modification of the user interface is somewhat limited but the automation supplier and installer has already provided significant feedback on this to the manufacturer. The automation installation company has provided significant support to residents as above, and also including trouble-shooting and building further customisation to address specific resident needs where possible. This has led to a high level of satisfaction for residents with the service offered for the system. The resident-staff communication system is comprehensive, with a strong focus on managing resident privacy. Initial confidence in the system was reduced for some residents by early one-off system failures, however. This further points to the need for testing, training and practice prior to introduction to the user, and then with the user prior to the move into their new home.

Training input, and monitoring of use of the technology over time should be focused on skill development and retention for both the resident, as well as all support staff. Post-occupancy evaluation findings in RIPL Project One indicate that some residents would benefit from further training and support to understand the user interface and harness the full capability of the technology applied. Cognitive supports may be necessary for people to retain learning. Following on from this, it is apparent that staff require support to consistently reinforce the use of technology available, in contrast to reverting to provision of assistance, or use of less sustainable ways of harnessing support (e.g. a resident calling to support staff passing their apartment).

Support Model

Exemplary built and technology design cannot alone deliver the outcomes aspired to through the RIPL Trust. The model of support, particularly the attitudinal environment afforded by this model, will have a significant impact on the level of independence a person achieves, as well as their sense of agency in their own home. The TAC and project collaborators documented a comprehensive support framework for RIPL Project One, including a strong focus on Scheme aspirations.

Although this research did not set out to evaluate the model of support, observations regarding the impact of built design on delivery of support were identified. Expectations for, and a maintained focus on the delivery of a shared support staffing model that ensures respect, privacy and maximum independence of residents over the life of the development is key. The support provider contracted into RIPL Project One is acutely aware of this need, but variation in performance of day-to-day support staff was observed by the researchers and noted by participants. Instilling and retaining this focus with the staff delivering the direct support in the development will require ongoing monitoring by the contracted support provider. This is an important role for the support provider that traditionally may be overlooked once the model of staffing has been established, and has the real capacity to impact the level of independence a resident is able to achieve, as well as their experiences of privacy and control.

Work Environment

The location of a staff office on the development site offers flexibility in the delivery of the shared support model. The very close proximity of this office to the individual apartments has led to some residents 'visiting' staff for social contact however, or calling out to them for assistance when they hear staff passing their apartment or returning to the office space. Some staff were observed to enter apartments with minimal delay after knocking, or without knocking on residents' doors. Future developments with greater distance between the staff office and dwellings may promote a perception of residents' homes as independent environments, and may further contribute to the grading of support over time.

Some safety issues have been identified in RIPL Project One for staff in their workplace (e.g., the need for a key safe for staff in case they lock themselves out of the development), and some have been promptly addressed (e.g., non-slip treatment to bathroom tile flooring). There is an existing tension between offering residents their own home, and agency within it, whilst maintaining this same space as a safe working environment for support staff. In the early stages of this development, it would appear that this is being addressed. However, the current project has pointed to the real benefit of undertaking a comprehensive review of how support staff utilise the built spaces, and move between them, as well as their use of assistive technology. Such detailed research was beyond the scope of this project, but would provide further useful insights to the impact of effective built and technology design on the delivery of support, and the intersection of these factors on the experience of residents and the independence they can achieve in new models developed. Details of relevant sub-criteria included in the Report may inform further development of the *RIPL Design Brief*, including section 9.0. It is noted that staff work across a range of environments beyond the office at RIPL Project One, and would be expected to do so in future developments. Informed consideration of other spaces of work in RIPL developments may offer a valuable addition to the Brief.

These recommendations stem from the comprehensive Environment-Experience Evaluation Framework (E-EEF) developed and offer valuable application for future projects. They provide direction for further development of the *RIPL Design Brief*, as well as specific areas that should be addressed over the multiple phases of project design, procurement and occupation by residents.

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Semi Structured Interview Guide – Residents

Interviews will be semi-structured in nature and will cover the following topic areas:

Past experience of residential settings

Briefly explore previous built environments the person has lived in prior to the current setting – housing style, number of co-residents, location, design, accessibility and general contrast of that with current setting

Resident experience of built space

Explore those aspects of built design that the person thinks have worked well / as an enabler for them in their daily lives – living, kitchen, bathroom, bedroom, laundry, entry space, doorways, fittings and fixtures, switches, power supply etc

Explore those aspects of built design that the person thinks have worked as a barrier or have become a built design issue for them in their daily lives – living, kitchen, bathroom, bedroom, laundry, entry space, doorways, fittings and fixtures, switches, power supply etc

Resident experience of assistive technologies provided in the built space

Explore those aspects of technology design that the person thinks have worked well / as an enabler for them in their daily lives – hardware and software, home automation, staff call and communication system, other

Explore those aspects of technology design that the person thinks have worked as a barrier or have become a design issue for them in their daily lives – hardware and software, home automation, staff call and communication system, other

Resident experience of built design within the community precinct

Explore those aspects of the community within which the housing is located that the person thinks have worked well / as an enabler for them in their daily lives – shops, transport, road and footpath surfacing, medical and health services, facilities, proximity to family and friends, other

Explore those aspects of the community design within which the housing is located that the person thinks have worked as a barrier or have become a built design issue for them in their daily lives – shops, transport, road and footpath surfacing, medical and health services, facilities, proximity to family and friends, other

Other perspectives of residents

In an ideal world, what would the person change regarding built design in their home?

What would they categorically want to keep the same in future housing? Other comments the person would like to make?

Semi Structured Interview Guide – Stakeholders

Interviews will be semi-structured in nature and will cover the following topic areas:

- How the stakeholder's involvement in the RIPL collaboration came about
- How the environment was conceived before it was actually delivered
- How the organisation aimed to accommodate both residents with disability and service providers
- What the stakeholder wanted to achieve through their involvement in the project
- The information the stakeholder received and how it was incorporated into their discipline-specific practice
- How the stakeholder tried to achieve these elements with their collaborators
- Stakeholder learnings from the design and delivery process – what worked, what didn't and what could be done differently
- The stakeholder's perspective on the effectiveness of the delivered environment, and how it is experienced
- Key learnings in built and technology design



Mobility Tracking and Activity Monitoring

RIPL Project One post-occupancy built and technology design evaluation

Report prepared by

Dr Ross Clark PhD

Dr Gavin Williams PhD FACP

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INTRODUCTION

The TAC has established independent apartments for four clients with neurotrauma in an inner city location in Melbourne. An important component in the establishment of these residences is the ability to determine the impact of independent living on the client's health and quality of life. One of the important indicators of improved quality of life, which can lead to better health outcomes, is activity and community access. Restrictions in mobility following traumatic brain and spinal cord injury are common, and have been linked with restrictions in community integration. For clients who have spinal injury, activity within their living quarters as well as their activity outside their living environment is significant. For TBI clients, it is important to see whether living in independent living quarters results in an increase in the amount of activity they are doing. This pilot study is a trial program to evaluate post-occupancy activity levels and community access. The aims of this study were to identify which factors were associated with greater activity levels during the transition from inpatient discharge to home.

This pilot project is the first stage in designing and deploying a fully integrated hardware and software system to monitor the outdoor activity of TAC clients with neurotrauma moving into RIPL developments to support post-occupancy evaluation. A subsequent pilot in a second RIPL development will examine both pre- and post-occupancy activity levels. For the current study, we have implemented a system to track an individual outdoors that is portable, easy to use, has minimal participant burden, is capable of withstanding various weather conditions, delivers high quality data, has a long battery life and offers software which analyses various activity parameters (e.g., location, distance travelled).

RESEARCH PROJECT OBJECTIVES

The RIPL post-occupancy evaluation project had six key objectives. This pilot study is aligned with the objective to *identify elements of the built environment, both physical and technological, that act as enablers and / or barriers to independence, mobility, participation and autonomy for residents in this development.*

PRIMARY AIM

To record activity levels and community access and engagement of two consenting participants living in RIPL Project One.

METHODS

Human Research Ethics Approval was obtained from the relevant academic ethics committee prior to commencement of this study. Participants in the broader post-occupancy evaluation were offered the capacity to opt in or out of the mobility tracking and activity monitoring via a detailed explanatory statement and consent form.

Measurement of activity levels falls into two main categories: self-report and objective measures. Self-report of activity levels involves the use of questionnaires, diaries, activity logs and recall and has been found to be unreliable in general populations. Although not well investigated in neurological populations, the little evidence that does exist demonstrates self-report to be inaccurate, with greater discrepancies between activity monitor data and self-reported activity associated with more significant cognitive impairments. Given the frequency of memory problems experienced following TBI, self-report of activity levels in the TBI population is likely to be inaccurate. Objective measurement of activity levels can involve the use of heart rate monitors, direct observation, pedometers, accelerometers or global positioning systems (GPS).

Since the primary aim was to quantify community based activity levels, access and engagement, the preferred technology for this study was a GPS system. Many GPS systems are commercially available. For this study we used a SANAV Nano GPS tracker to log the outdoor position of the participants throughout the day (see Figure 1). The participants recruited into this study were both wheelchair dependent when outdoors. The SANAV Nano GPS tracker was fixed to the wheelchair of each participant using a magnet, and was programmed to log data at a rate of 1 sample per minute. These data were transferred to a secure internet site, from which the data could be tacked, downloaded and analysed at any stage during the data collection period. The SANAV Nano GPS tracker was used for 7 days to get a representative sample of community based activity levels. This device is a smaller and improved version of a model used in two similar community-based TBI studies conducted in Melbourne by the research team previously.



Figure 1. SANAV Nano GPS tracker

RESULTS

Data were collected for four days from each of the participants, including at least one weekend day. The original plan was to collect data for 7 days; however the devices were incapable of providing data for more than 3 days without recharging. Consequently we performed 2 separate data collection bouts with a recharging session in the middle to ensure that battery life was sufficient.

Both participants spent time outdoors on most days (Table 1 & 2). Most outdoor trips appeared to be leisure and not rehabilitation related. Multiple trips to shopping centres/districts were performed, some by wheelchair and others by train via the closest station to the residence (defined by both locations and the velocity of movement). Both participants travelled outside the suburb, including trips to shopping centres and a church in adjacent suburbs. A full list of the outdoor activity performed by the participants is provided in Tables 1 & 2.

Table 1: Participant 1 community based activity

DATE	DETAILS
8/03/2014	No outdoor activity, the participant stayed inside the residence all day.
14/03/2014	Departed the residence at 11am. The participant travelled by car to a leisure centre approximately 2.2km away in an adjacent suburb. They stayed there for 1 1/2 hours before arriving back at the residence at 1:20pm. They stayed inside for the remainder of the day.
15/03/2014	Departed the residence at 3:30pm and travelled to the closest shopping centre (approximately 400m away) by wheelchair. They stayed there for approximately 20 minutes, before returning back to the residence and not leaving the building for the rest of the day.
16/03/2014	Travelled from the residence to a church in an adjacent suburb approximately 450m away by wheelchair, where they stayed for 2 hours. Then returned to the residence and did not leave for the rest of the day.

Table 2: Participant 2 community based activity

DATE	DETAILS
8/03/2014	The participant caught the train from the closest station (approximately 300m from the residence) and arrived at a station 5 stops away (approximately 4.5km). They left the station and travelled to a major shopping centre at 2:32pm (approximately 400m). They stayed there for around 40minutes, before travelling back to the station and waiting for a train. They departed the train at 3:51pm at the closest station to the residence and returned back to the residence where they remained for the rest of the day.
9/03/2014	No outside movement was detected on this day.
14/03/2014	<p>The subject left the residence and went to closest train station. They caught the train at 3:01pm and departed at a station two stops away (approximately 1.8km) They travelled approximately 500m to a retail shopping strip, where they performed shopping as evidenced by their intermittent going inside and outside of multiple buildings in close proximity. They spent approximately 45 minutes in this area, before heading back to the station. During this time they spent 18 minutes stationary in the area of a park/leisure centre, before arriving at the station and travelling back to the closest train station to the residence. From here they travelled to the residence and stayed there for the rest of the day.</p>
15/03/2014	No outdoor activity, they stayed inside the residence all day.



Data for each subject was plotted on Google Earth (see Figures 2 & 3). The white cross represents a scale of 500m North-South and East-West. Both figures are the same scale.

Figure 2: Participant 1 community based activity

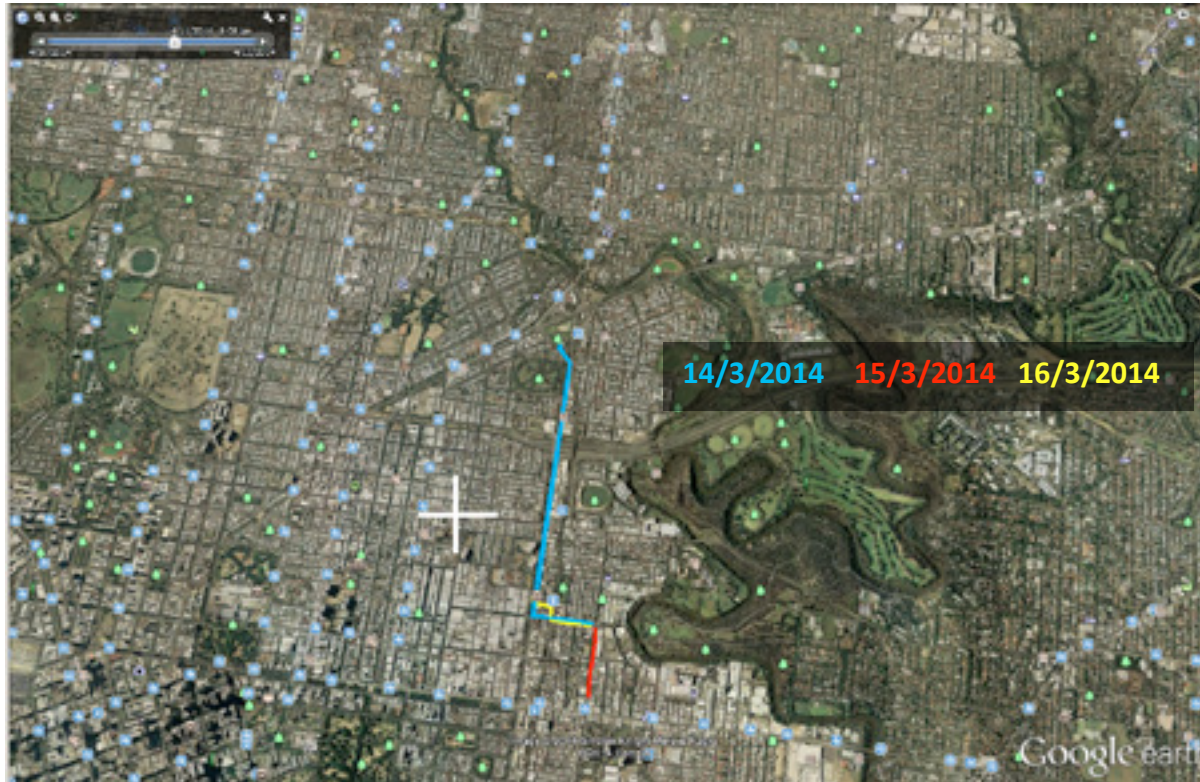
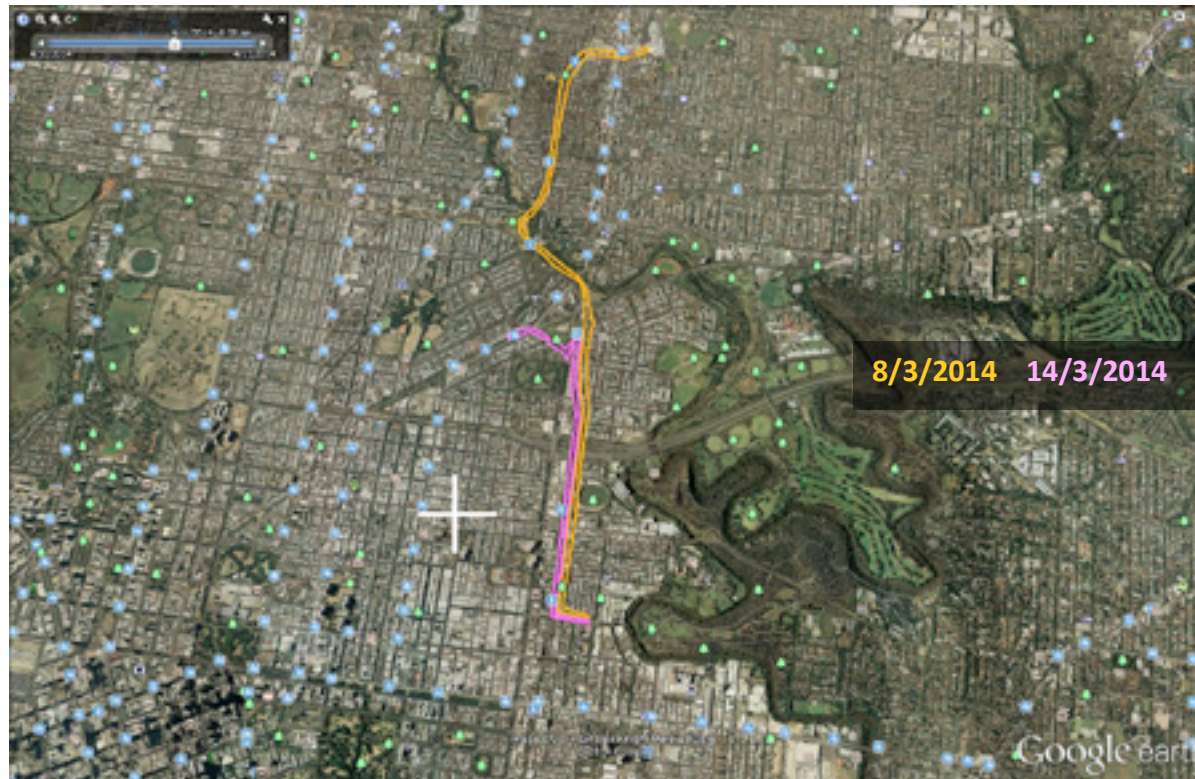


Figure 3: Participant 2 community based activity



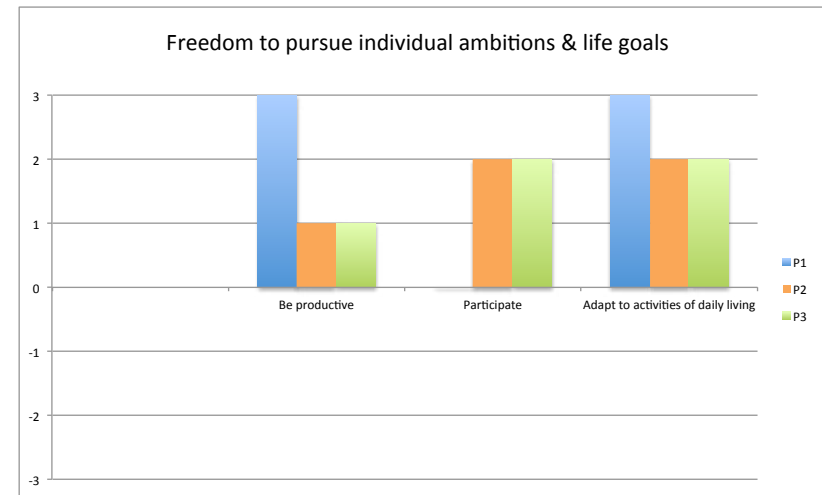
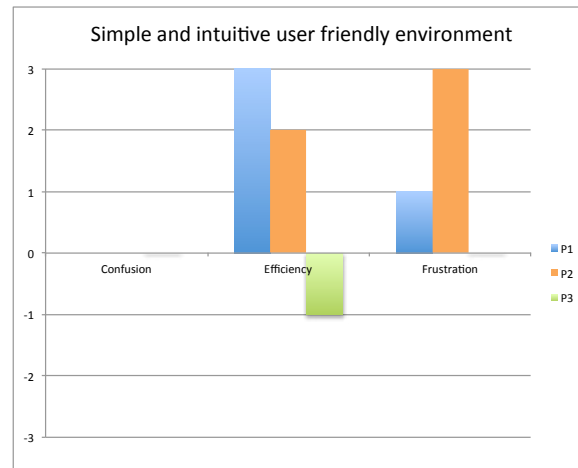
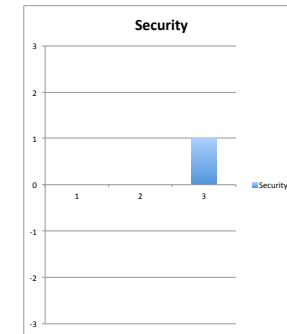
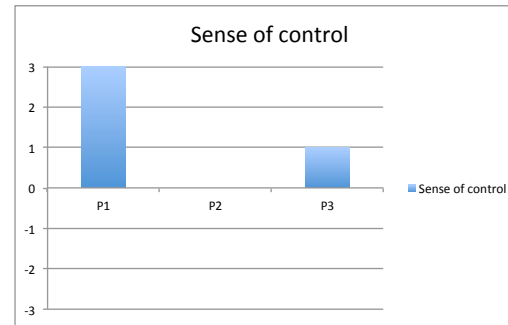
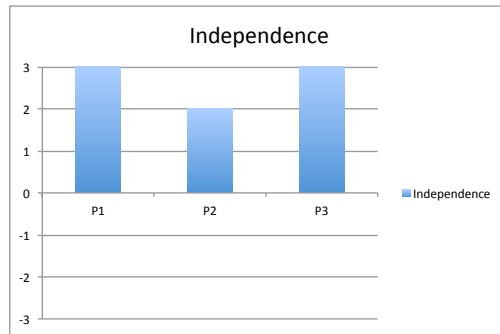
Conclusion

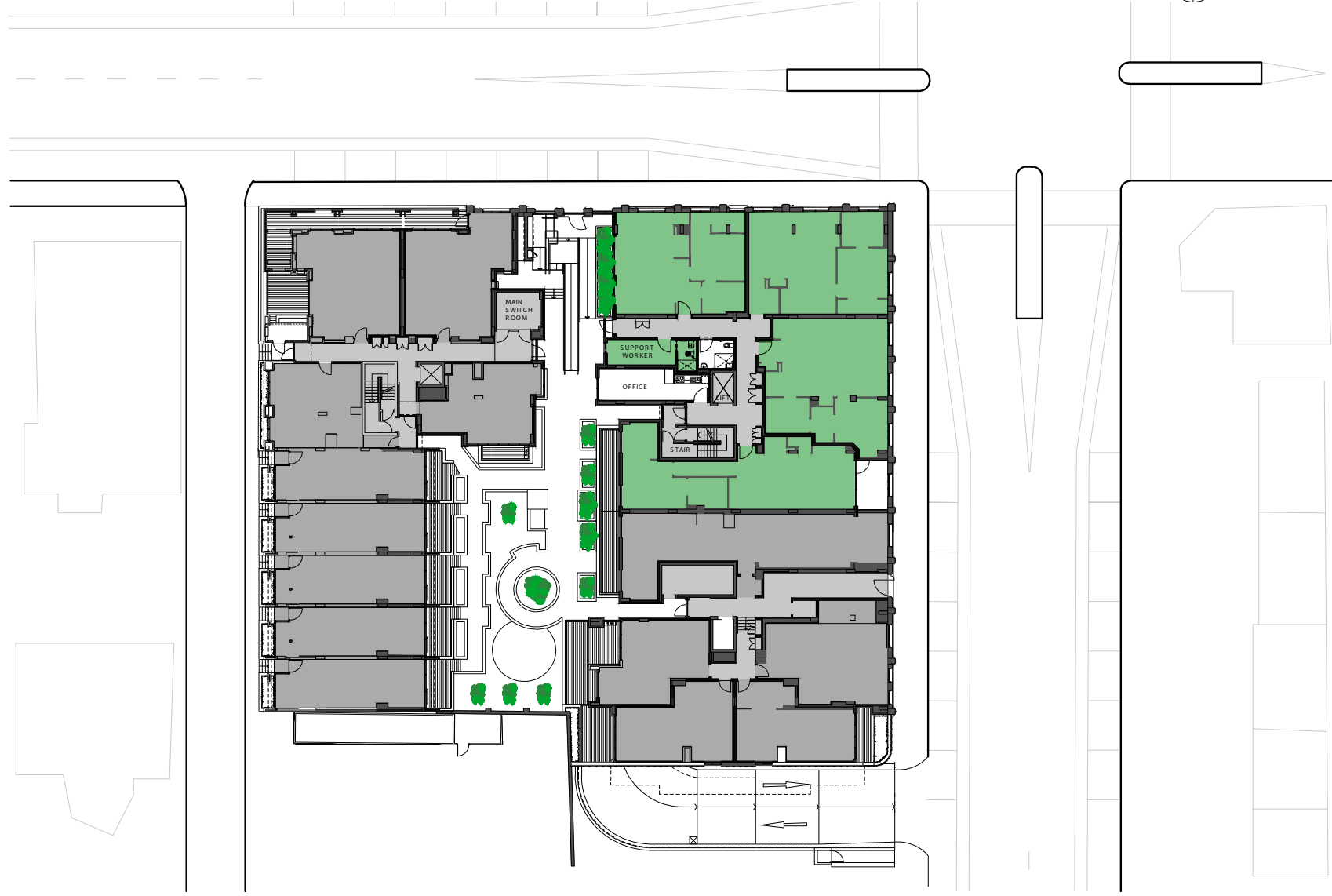
This preliminary study showed the GPS trackers could be used to determine outdoor activity in the TBI cohort. Outdoor activity was performed, and included trips to specific sites such as leisure and shopping centres and a church. The mode of transport varied, with short trips taken by wheelchair while longer trips were taken via car or train.

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Key Issues	RIPL Brief Item	Brief Section	Specifications	RIPL Project One observations / construction documentation review
Basic spatial provision	5.3	Privacy and Community	Each unit must have its own outdoor private space, with consideration to both visual and acoustic privacy	Only 1 of 4 apartments have private outdoor space
	6.1	Car Parking - Residents and Staff	To accommodate either a car or a van, the minimum overhead clearance to the car park shall be 3000mm	2 accessible carparks have an uninterrupted vertical clearance of min 3000mm, and 2 accessible carparks have obstructions such as air-conditioning ductwork which restricts the vertical clearance to approx 2600mm
			The car parking area must accommodate loading and unloading of a wheelchair from both the side and rear access of a van. This area must be maintained clear of all obstructions such as door swings, storage areas, etc.	Loading of wheelchairs or other equipment may take place in the open space in the basement carpark.
	6.3	Pick-up & Drop-off Areas	Accessible pick-up/drop-off area shall be located on site with regard to the amenity of other residents (e.g. noise).	Location at main street entry to the development.
	6.5	Gardens	Individual units shall be provided with private garden areas which allow for quiet and tranquility	Only 1 of 4 apartments has a balcony (not garden).
	7.5	Washing lines	...there shall be an area within each unit private outdoor area for an accessible washing line	Only 1 of 4 apartments has a private outdoor space. Clothes horses for drying of clothes located in apartment space.
	7.6	Pets	An appropriately secured outdoor area (for pet). Outdoor space for an animal shelter or kennel.	Only 1 of 4 apartments has a private outdoor space.
	8.2	Layout & Circulation Space	Entry foyer/airlock	Independent internal foyers offer privacy and airlock.
			Specifies a minimum of 2 beds for each unit. One unit to be 3 bed	All RIPL Project One apartments have one bedroom only.
			...a second bathroom shall be provided in a powder room arrangement (i.e. toilet and wash basin only)	Not provided
Detail/sizing/configuration	8.3	Carport/Garage	Storage space for a hobby bench and a window	Not provided
		Kitchen - Staff Support Unit	Consideration shall be given to features which allow for ease of adaptability in the future	No kitchen provided in staff room. Building manager's office kitchen not adaptable
	8.11	Bedroom	...at least one secondary bedroom	Not provided
			There shall be one three bedroom unit on the site, remaining units 2 bed	All apartments 1 bed
	7.7	External Storage	Specifies a storage area approx.. 1m deep 2m length, lockable roller door, adjustable shelving. Located in garage / car port	Unclear if basement cages have adjustable shelving, are as readily accessible (by couriers) as brief suggests is needed
	8.2	Layout & Circulation Space	Within the staff support unit there shall be one bathroom with a separate toilet	Toilet and bath not separated
			Minimum width of corridors shall be 1200mm	Walk-in robe in apartment C less than 1200m wide
	8.3	Carport/Garage	Secure and direct access into the unit	Parking spaces located in far corners of basement garage relative to lift 2 (which residents will use)
	8.4	Building Entrances	Continuous accessible path of travel from the allotment boundary	Entrance ramps vary between 1:8 and 1:14 (approx 1:11). 'Compliant' ramp is 1:14 with compliant landings at no greater than 9m apart, with fully compliant tactile ground surface indicators and handrails both sides (to AS 1428)
			The front entrance must be undercover and designed and located to provide weather protection from prevailing winds	Northern Street Entrance no weather protection.
			Provide a minimum clear floor space of 2250mm diameter to the front door landing to allow for a 360deg turn	Not provided at building or apartment entries. Space for turning in common courtyard space only.
			At the front door provide a solid door with glazing panel or a fully glazed door	Street entry has intercom system. Refer details re resident use of this.
			Provide lockable security mesh/fly screen doors to external doors	Specified by note: "allow for fly screen tracks to all sliding window systems"
			Give consideration to providing a parcel shelf and bench seat at the front door	Not provided
	8.5	Internal & External Doors	Within bathrooms, toilets and the like, locate doors, such that visual privacy from these areas to living/social areas is maintained	Privacy compromised in apartment C
	8.6.1	Sinks	Ensure doors to bathroom areas swing outwards (in case of emergencies)	Not achieved in apartment B
			Sinks to have 900mm clear width, knee clearance of 680mm clear height for 300mm depth, foot clearance of 290mm clear height for 200mm depth	All apartments provide less clearance. AS1428.1 referred in drawings.
			Taps located within 300mm from front edge of sink and bench	Accessible (lever) taps provided but located 485mm from front edge of sink/bench (all apartments)
			Provide a section of clear accessible reach space of no less than 900mm in length adjacent to the sink	None of the apartments provide this
		Worktops/Benchs	Within the kitchen benchtops that are suitable for both ambulant and seated users are provided	Not provided by inbuilt joinery, aside from small pull out work top above ovens. Provided by mobile benches.
	8.6.4	Appliances	Ample bench space and accessible power points for smaller benchtop appliances	Appears not provided by inbuilt joinery.
			Some power outlets horizontally accessible reach over work surface max 300mm from bench front	Appears not provided





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