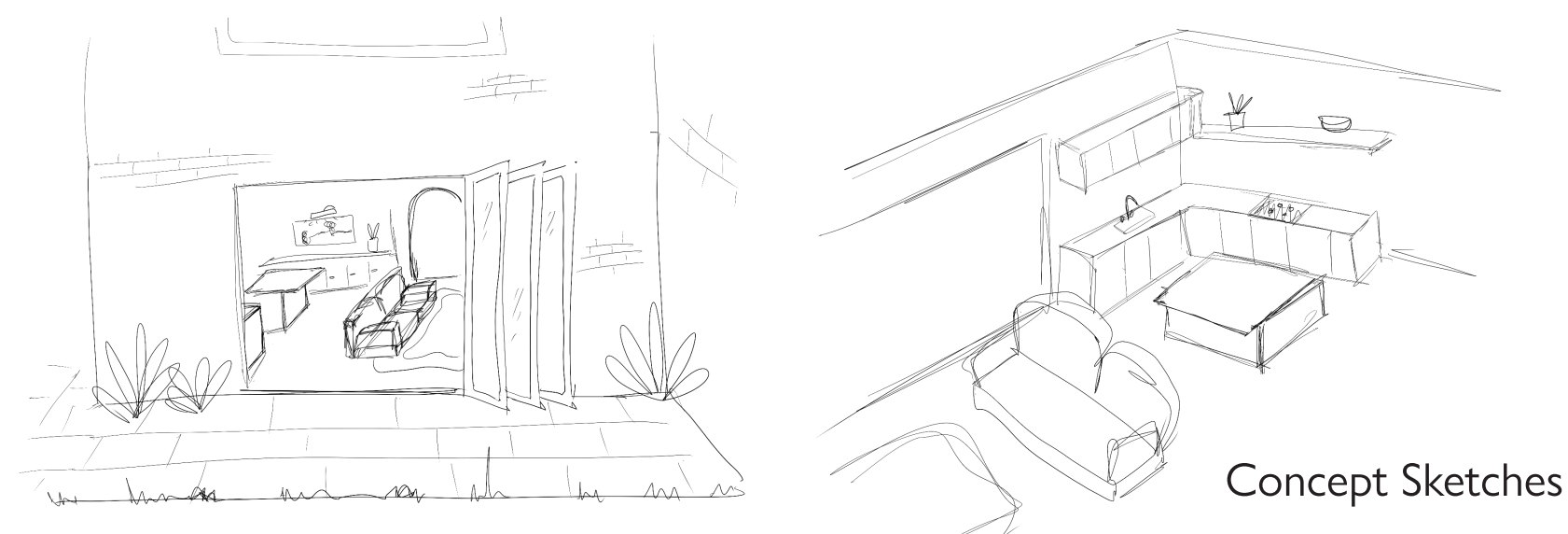


**INHALE, EXHALE** reimagines an existing home into a new healthcare typology for my dad, who suffers with a terminal respiratory conditions.

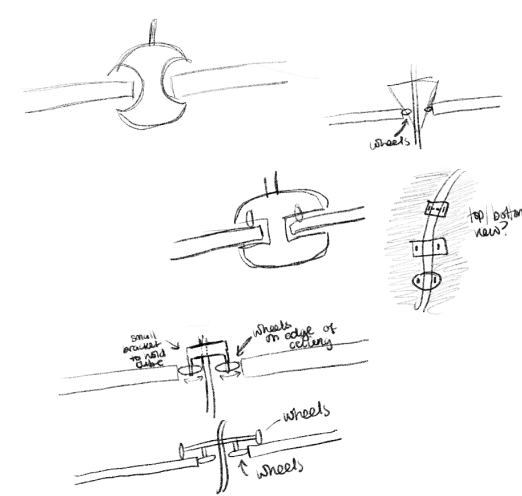
Responding to both his medical and emotional needs, the new design includes supplemental oxygen support, accessibility features, smart home technology, and spatial adaptability without harsh clinical aesthetics.

With an increasingly ageing population, overburdened healthcare systems, and rising long-term illnesses, the project offers a new way of thinking for at home medical care in a residential setting — bridging gaps between health and housing, while encouraging independence and restoring dignity to the individual.

Rooted in human-centred and inclusive design, it challenges conventional norms by creating a flexible, affordable, and empowering living space that addresses urgent social and healthcare shifts in domestic architecture.



Concept Sketches



Concept Collages

### Healthcare Spaces

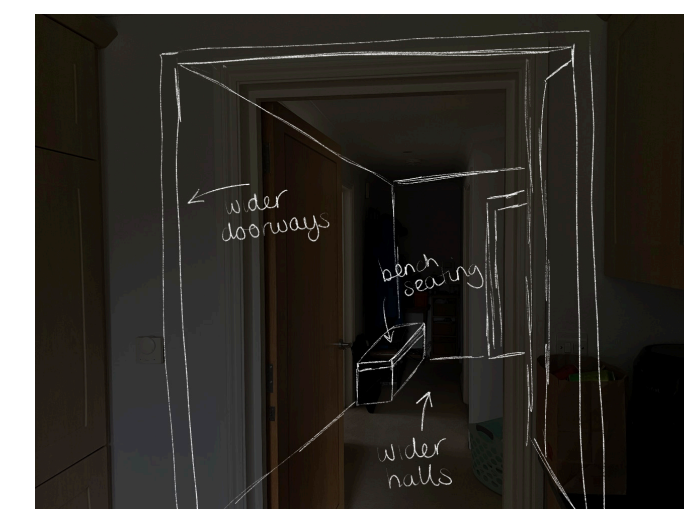
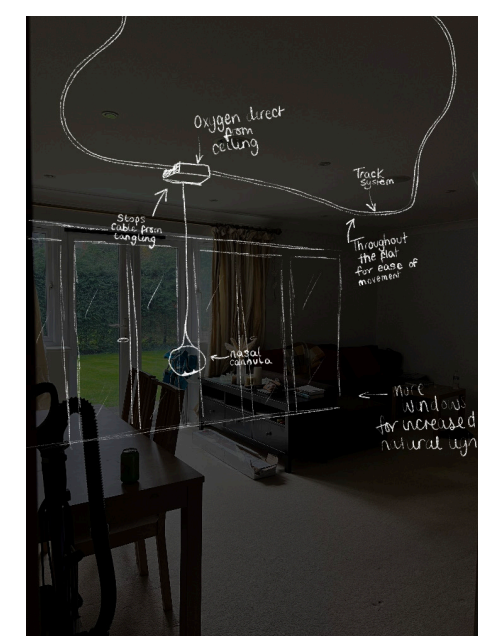
Hospitals  
Clinics  
GP Surgery

### Residential Design

Houses  
Flats  
Hotels



My Project  
Hospices  
Care Homes

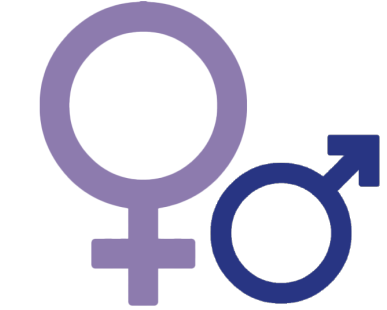




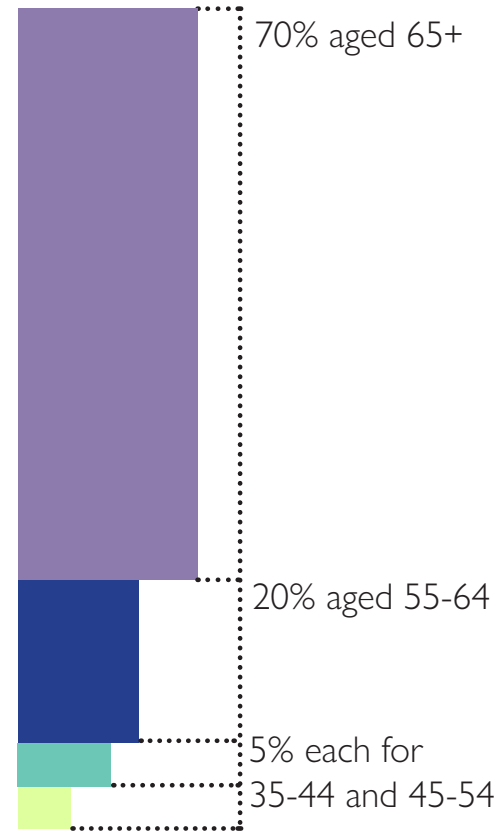
RESEARCH AND SITE ANALYSIS

40

survey responses from patients with lung conditions



62% of respondents were Female, vs 38% Male



40% of participants live alone or with one other person

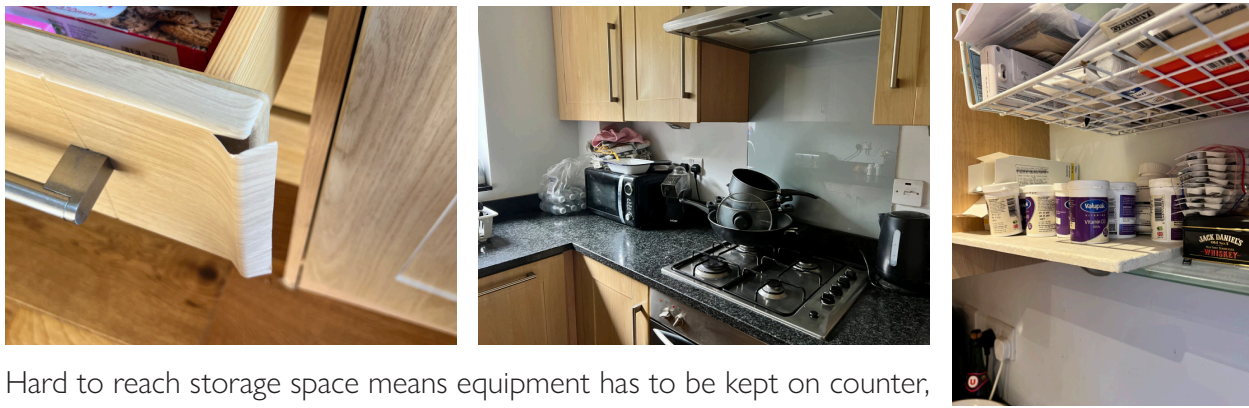


63% of participants require daily supplemental oxygen

Survey results show a need for independence, medical support and accessibility features

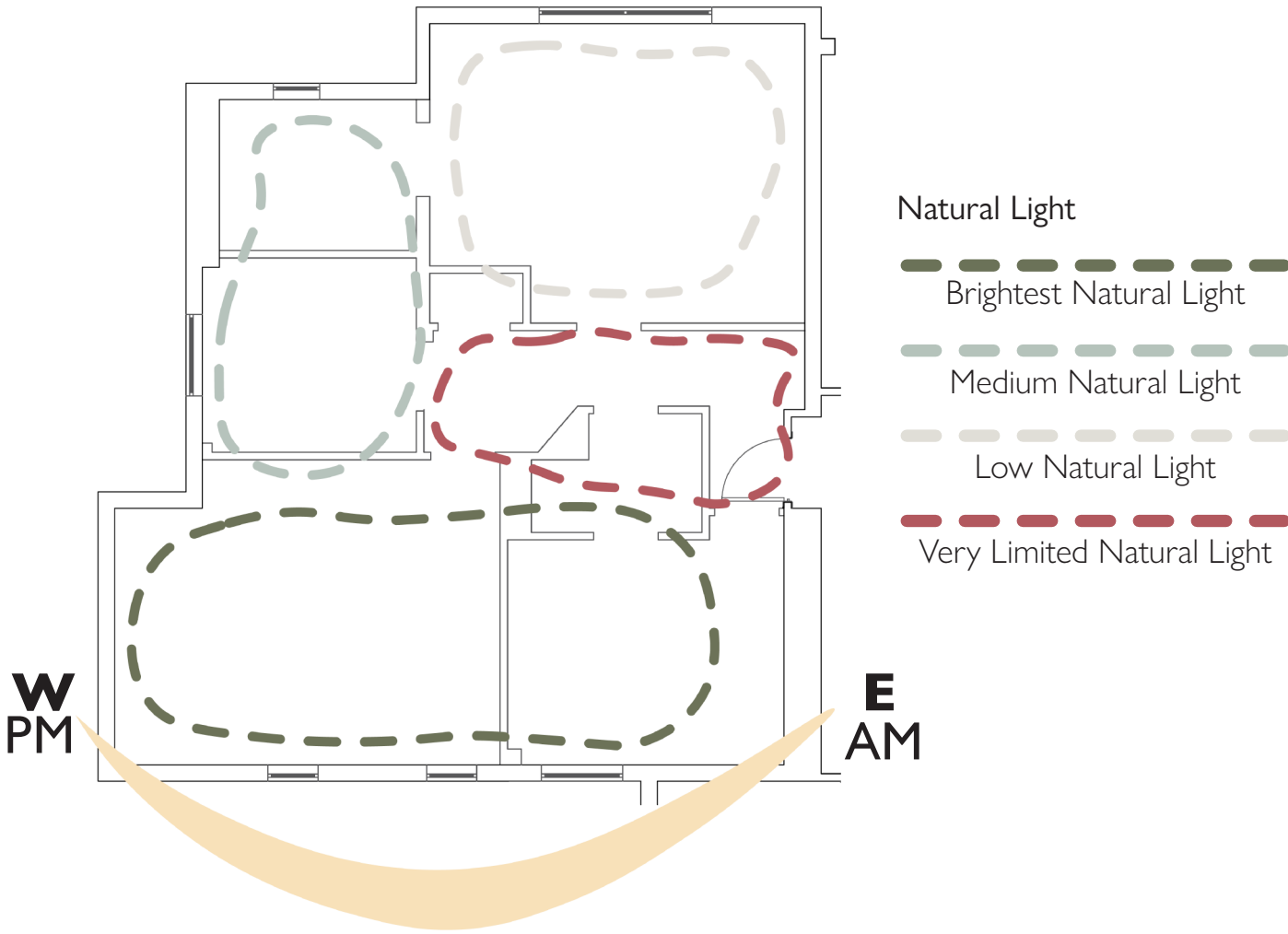
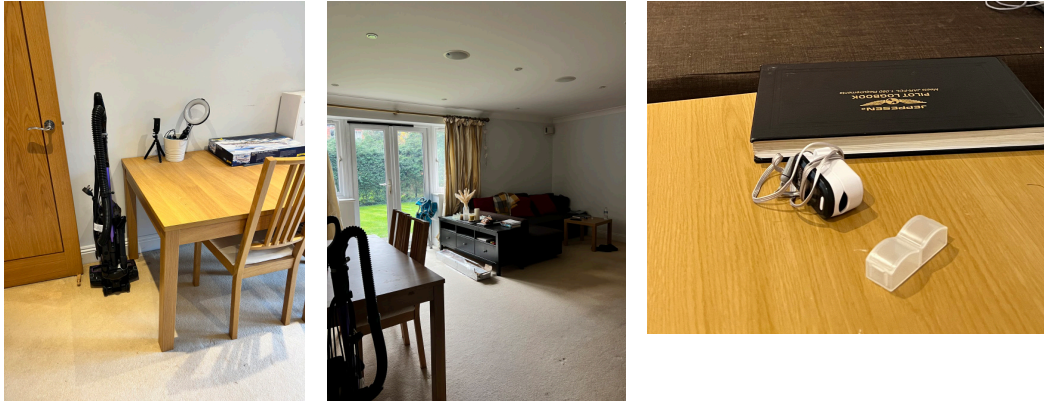


Hard to maneuver shower bath combo, with the panelling peeling off. Large oxygen machine taking up a lot of floor space

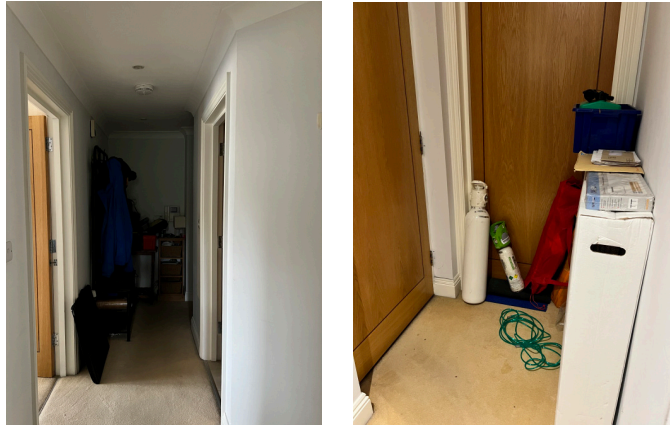
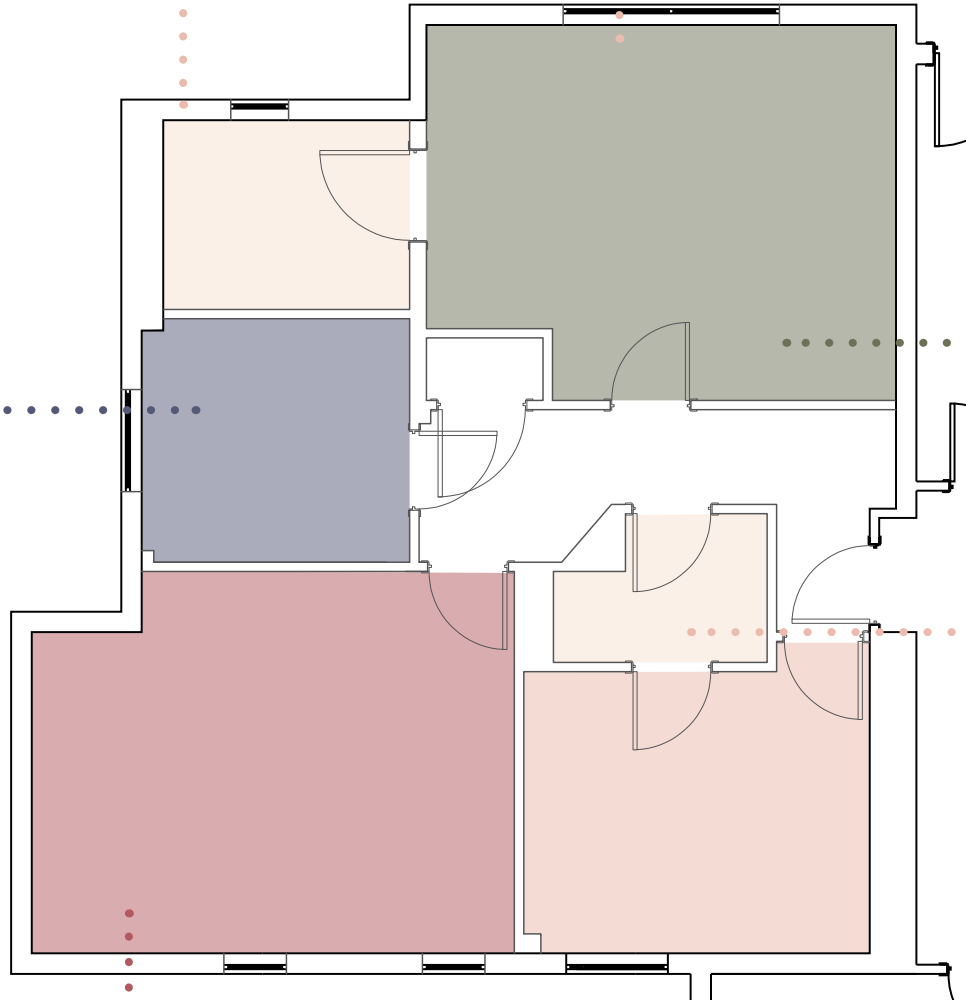


Hard to reach storage space means equipment has to be kept on counter, veneer peeling off cupboards and open shelving means cluttered medication storage

Odd shape means odd layout options, lots of open empty space and little storage means household items like the vacuum are visible at all times. Medical equipment also kept laying out



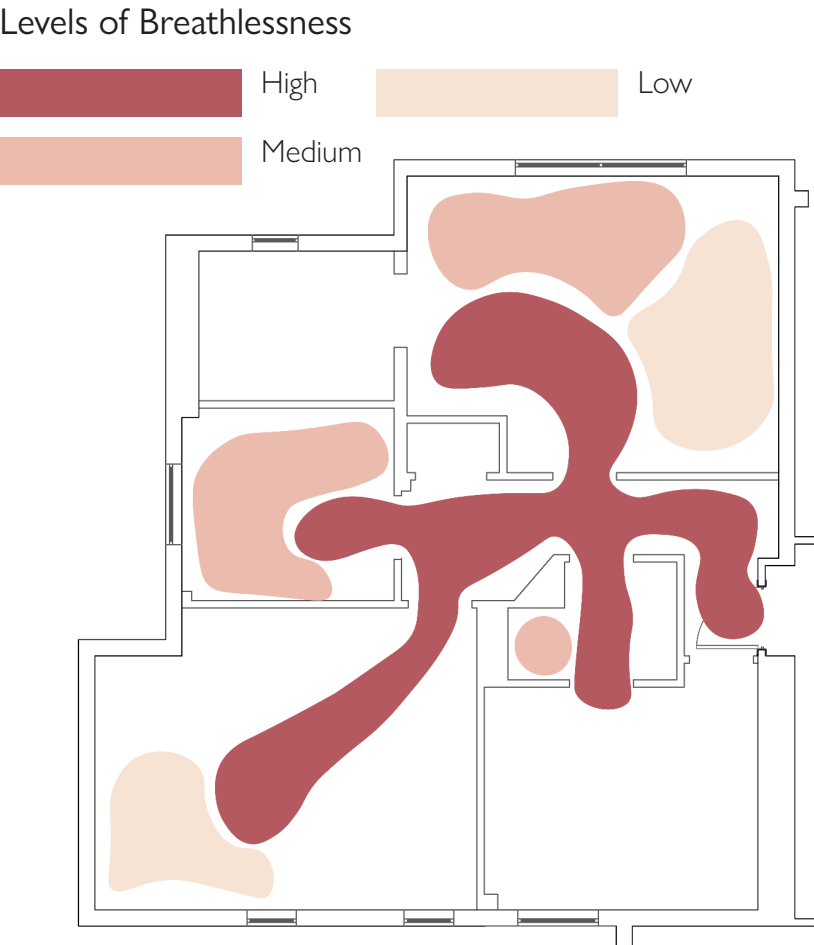
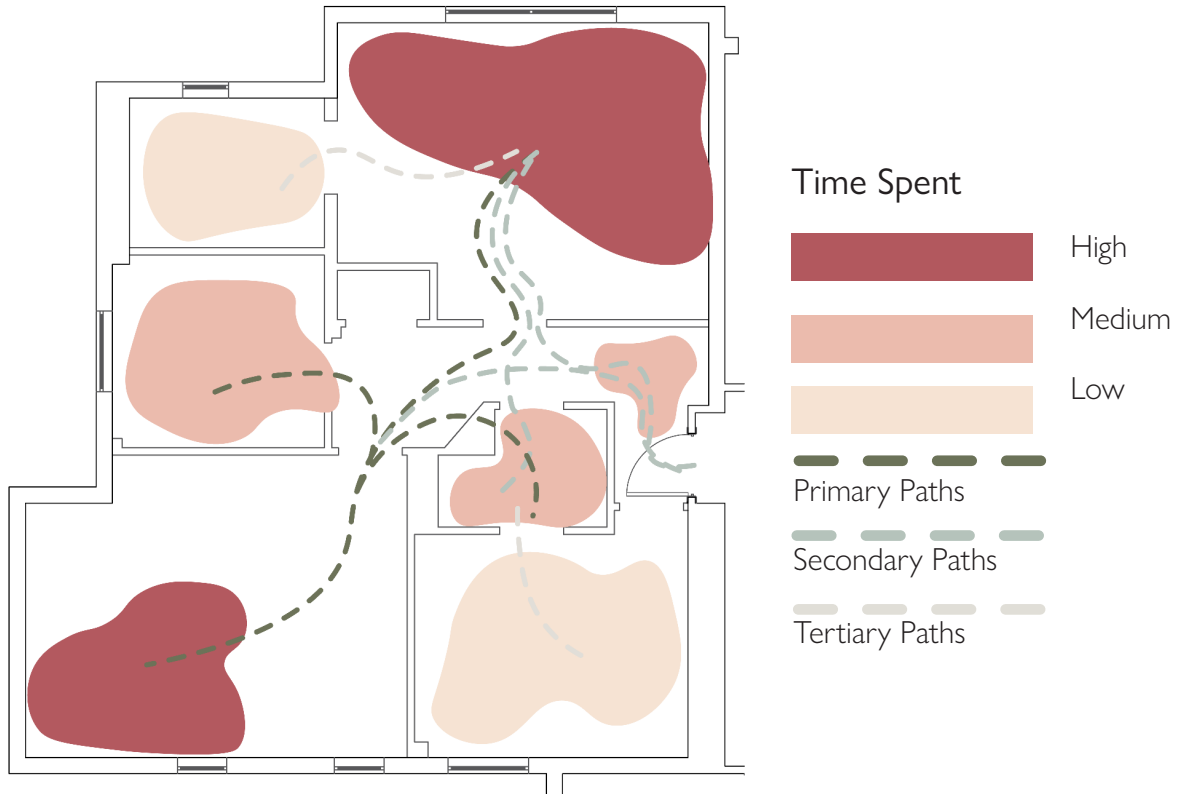
Existing Site Analysis and 'Pain Points'



Hallway is dark, cramped and cluttered due to lack of storage and windows. Creates pinch points that hinder movement and means mobility aids cannot be brought into the flat.



The only accessible shower in the property is in a small, cramped, dark bathroom with no natural light. Opening to the shower is small and double door layout compromises space.





# DESIGN MANIFESTO AND ACCESSIBILITY FEATURES

## Medical Integration

Incorporate oxygen delivery and filtration systems as architectural elements, not add-ons.

## User Consultation

Continuous involvement of dad provides real-time feedback for testing design decisions—supporting a Human-Centred Design methodology.

## Spatial Design

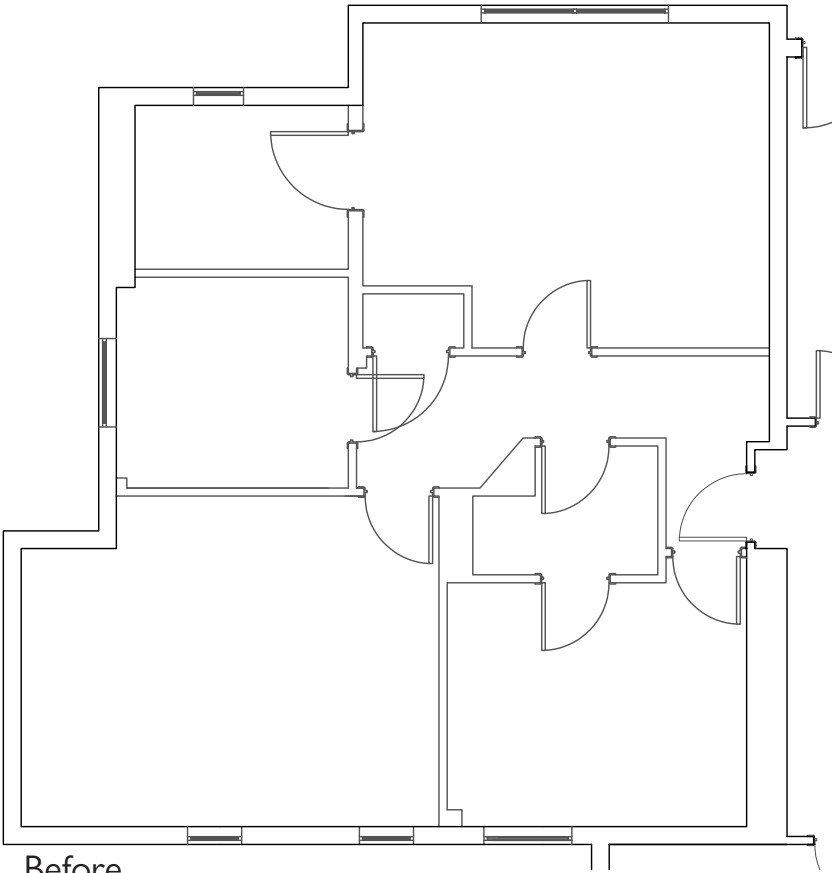
Reduce distances between frequently used zones, create opportunities for rest, and improve navigability.

## Aesthetic & Psychological Considerations

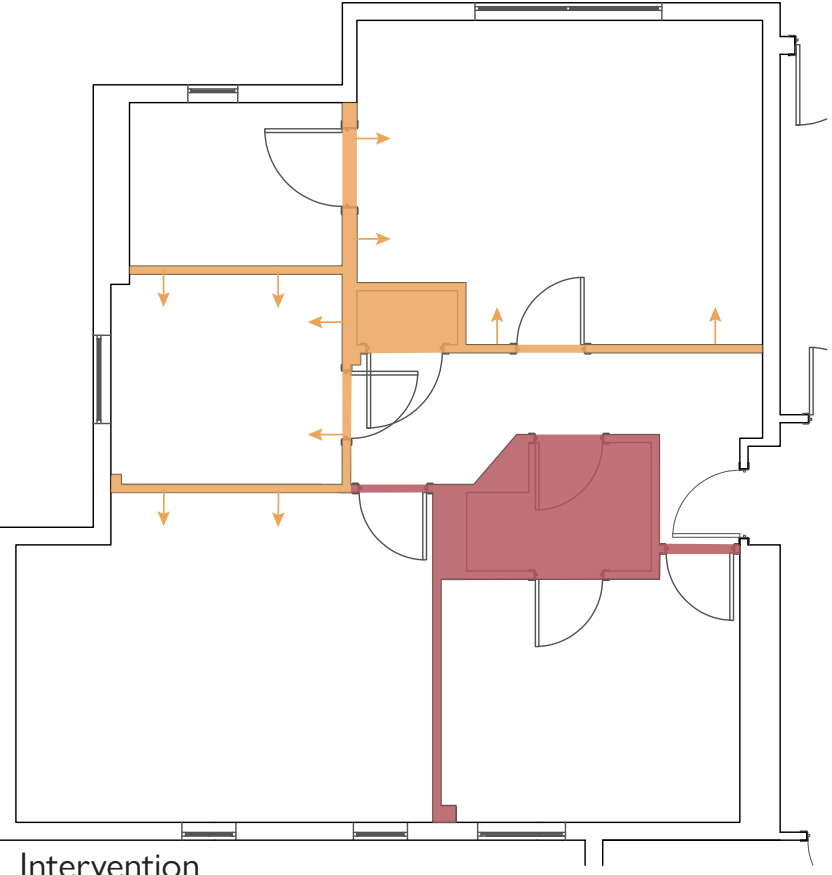
Design spaces that feel personal and dignified, not medical or institutional.

## Materiality

Use low-VOC, hypoallergenic, and biophilic materials to support respiratory health.

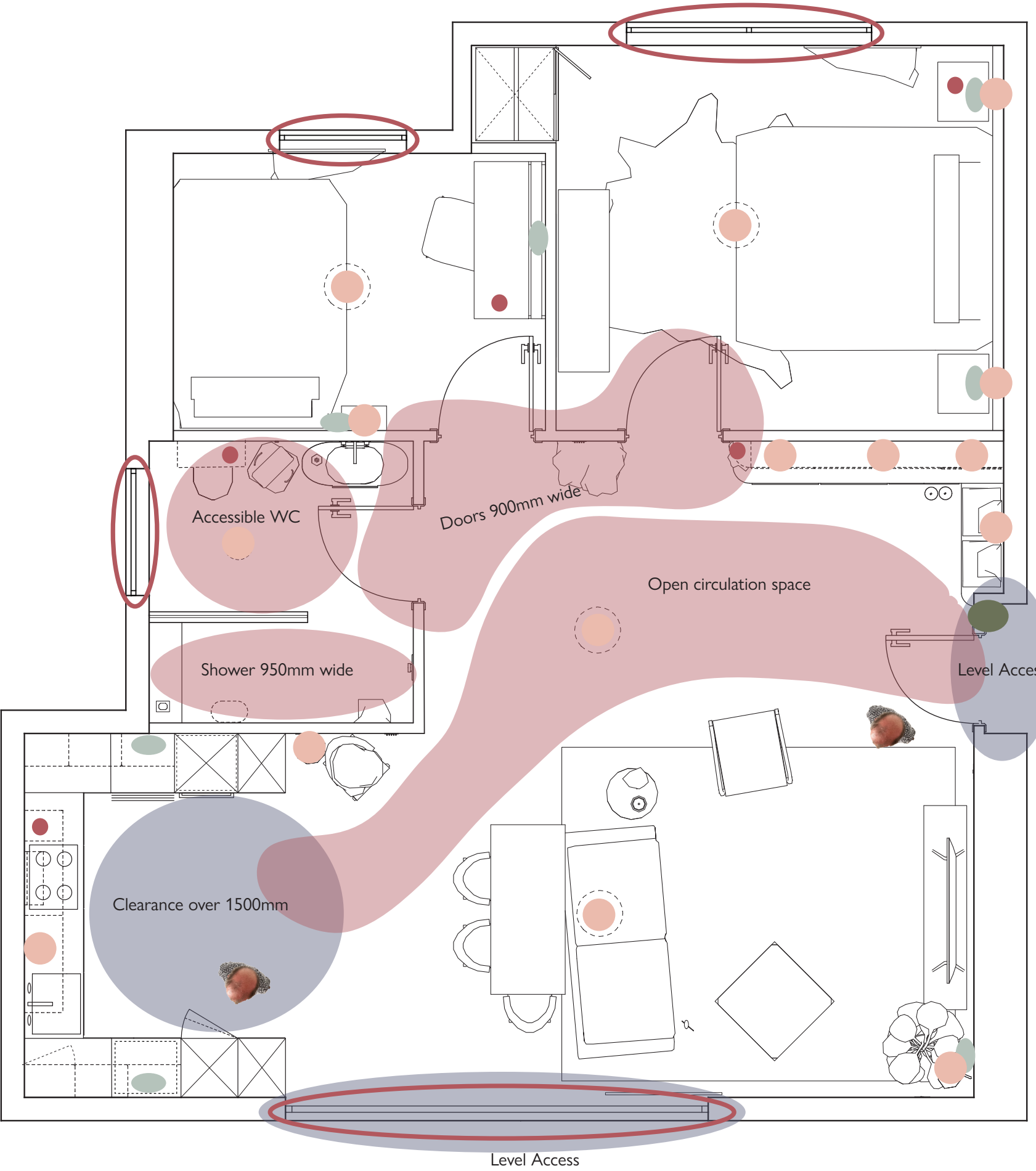


Before



Intervention

Removed walls   Moved walls   Movement direction



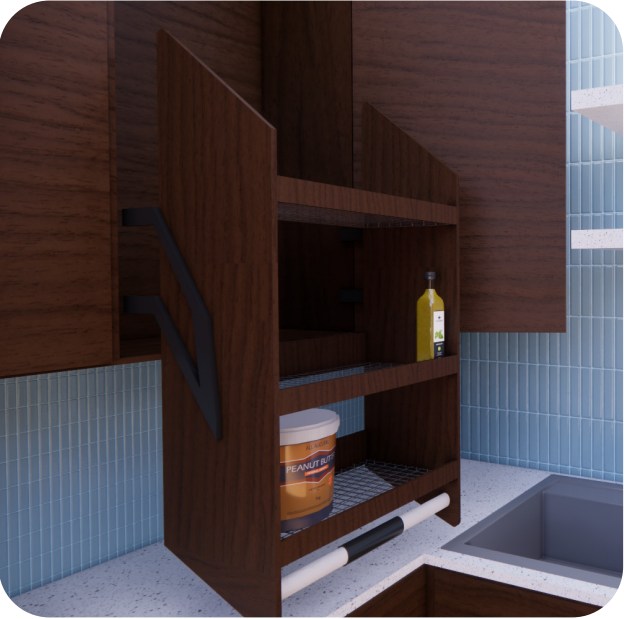
Smart home technology is extremely helpful when it comes to automating small tedious tasks and reducing time spent moving around unnecessarily.

Automated blinds can be opened and closed without having to leave the comfort of your seat, lights can be set to a schedule to help you relax and smart locks can assist users with dexterity issues to access their home without needing to turn a key.

Smart Blinds

- Smart Home Device
- Smart Plug
- Smart Bulb
- Smart Lock

The UK Government outline in Part M regulations the minimum accessibility requirements for dwellings. I closely referred to this when designing the floorplan and furniture layout. Labeled with text are the areas that are in accordance with Part M.



Pull down inserts in kitchen upper cabinets for ease of access



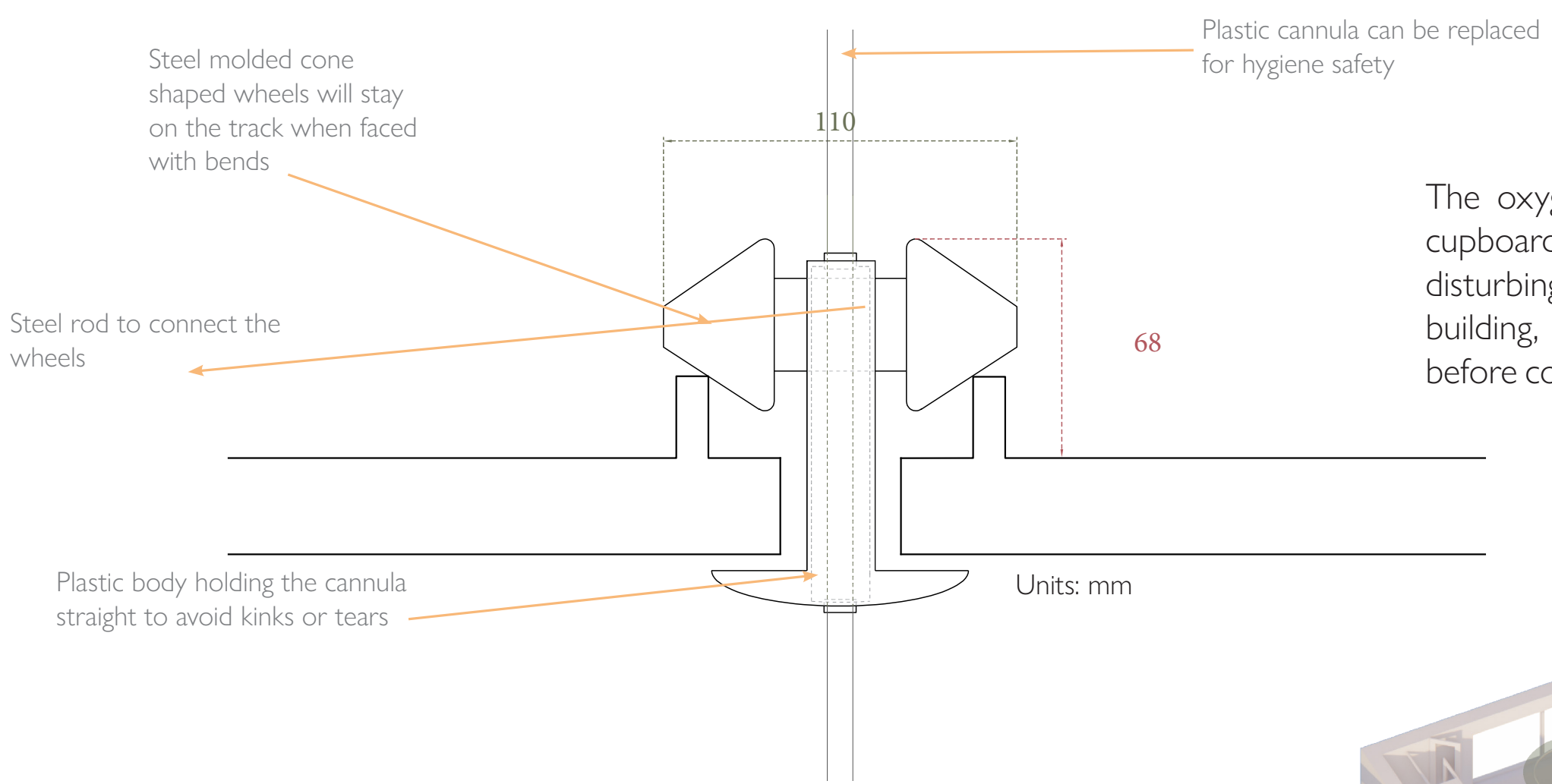
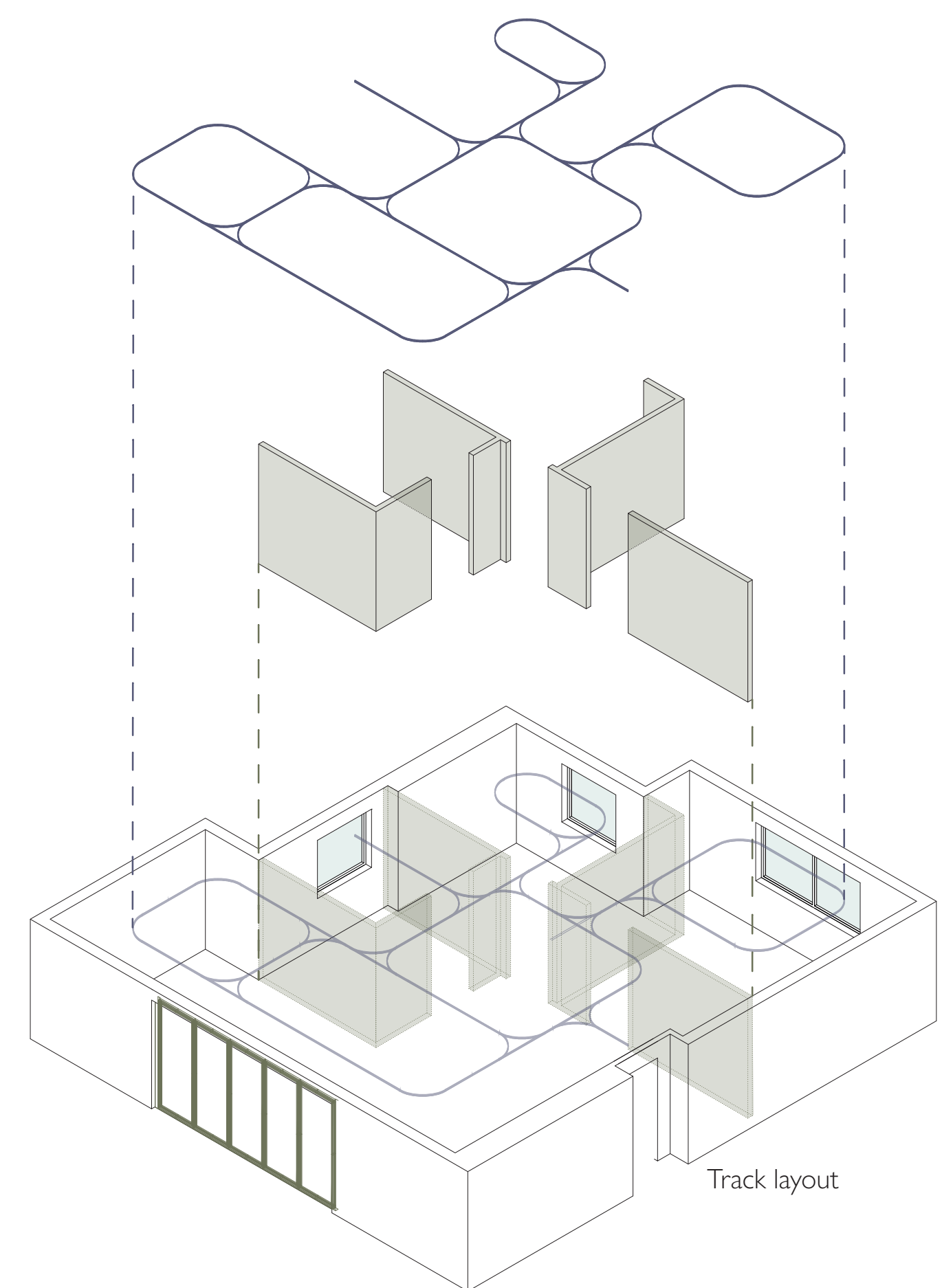
Pocket doors on lower cabinets to remove obstacles and increase mobility clearance



Bench and storage near entrance for easy rest, Sliding door storage for medical equipment.



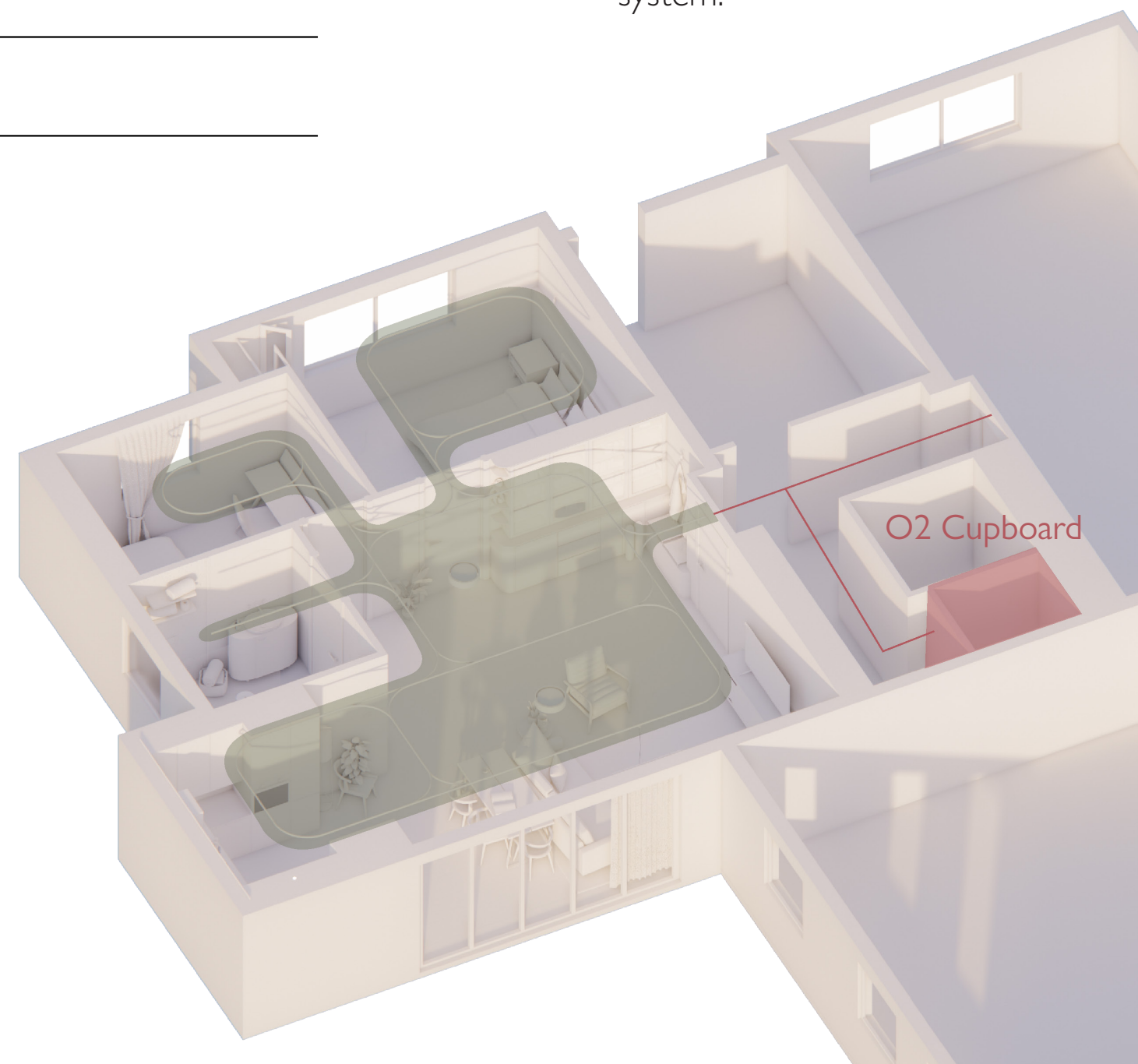
OXYGEN TRACK DETAIL



The oxygen will be centrally located in a maintenance cupboard so that staff can easily access for repairs without disturbing residents. These tanks will supply the whole building, and the pipes will run concealed in the ceiling before connecting with each individual flat's oxygen cabling system.

In my intervention, the main design feature is the integrated oxygen support and ceiling track. Designed to follow after the user on a smooth track, a small device holds the oxygen tubing and hangs it from the ceiling while being connected to a larger oxygen network within the building infrastructure.

This removes trailing cables that become a trip hazard from the floor, which is one of my dads biggest frustrations. In addition to removing hazards, this can extend the life of oxygen cannulas and improve airflow as they won't kink and knot, causing damage to the cable itself and obstructions within that hinder the speed of oxygen output.





Final Outcomes



The features I have incorporated into my design make it easy to replicate and scale, encouraging further adoption of these methods as a way of future proofing residential design. With climate change and rising international tensions increasing the likelihood of an atmospheric shake up, respiratory health could become a primary concern not just for those suffering with chronic illnesses, meaning my design features could be essential for all residential property, not just health focussed facilities.

