The development of prefabrication has ensured safety and low cost in the increasingly overcrowded cities. Over the past five years there has been an attempt at spreading the use of recyclable and environmentally-friendly, low cost and rational houses, apartments and offices, which doesn't need to limit the space of these pre-fabricated buildings seemingly integrates into the urban fabric. The use of recyclable materials, unit construction and environmentally safe equipment is slowly taking over, which means that we are finally listening that it's time to adapt to global changes and ensure resiliency in the built and natural environment. Testing and implementing innovations in building techniques ensures that pre-fabrication is safe and environmentallu-friendly and allows for a diversity of demographic.

The modular apartments is designed to accommodate a wide variety of demographic. The ground floor is activated by the diversity of land use, combining commercial and residential. Including the Heritage Market Space, Click and Collect and the 24-hour mini mart. Having a 24-hour retail store open, people are aware that somebody is always awake and watching, is seen as natural surveillance. The feeling of "safe" in your own home or neighbourhood is vital into creating communities. The second floor and third floor are a mixture of 1 bedroom apartments and 2 bedroom apartments. The fourth floor accommodates 4 x 1 bedroom apartments and a shared garden space, available to the residents, a meeting place or a place just to relax.

As a team we first ask ourselves, "how modular can we go?" we wanted to test the boundaries to make modular buildings even more convenient that can easily be arranged and rearranged so that it can adapt easily to the space. Or could be stored and used in times of emergency. We designed one single module, there are 2 formations of 1 module. First when the module is closed its 14000mm wide x 5000mm depth x 3900mm height, as a rectangular box. Second when the module is open the elongated ide wings extends out and supported by a hinge column on both sides allows for the wing to be expanded and folded. There are 4 hinge columns in the 4 corners of the rectangle supporting the main timber frame. Both CLT and GLT used.

The module was designed as per truck dimensions, so it can be transported to and from the site. The use of the hinge column and the retractable wings allows for convenience when changing construction sites.

The module is constructed with circular economy materials like CLT BEAMS and GLT columns that are connected using bolted plates.

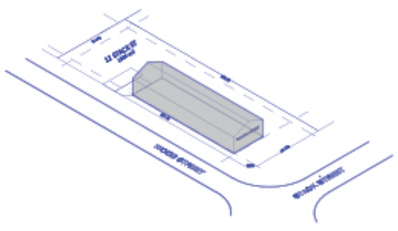
WEST ELEVATION | NTS

part one: module concept

CIRCULATION

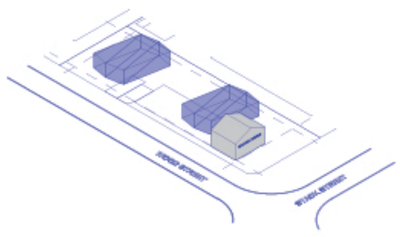
By organising the services in the centre, building users can move through the physical environment through a loop. Centering the services maximises the use of space. Each module contains only necessary services included in a traditional home. The floor plan is straightforward with an uncomplicated circulation flow that can accomodate a wide variety of building users, especially those who are blind or have low vision.

The external terrace is the same amount of space internally. The reason for this is to connect the building users to the outdoor environment. Especially now, environmental conditions can be questionable. The external space can provide more living space for visitors and users.



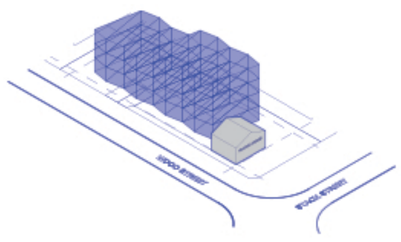
EXISTING STRUCTURE

Existing structure made of steel trusses and columns, lined with corrugated metal cladding as exterior lining. the warehouse was an old industrial building, the south facing wall is of heritage value and will be preserved.



INDIVIDUAL MODULE

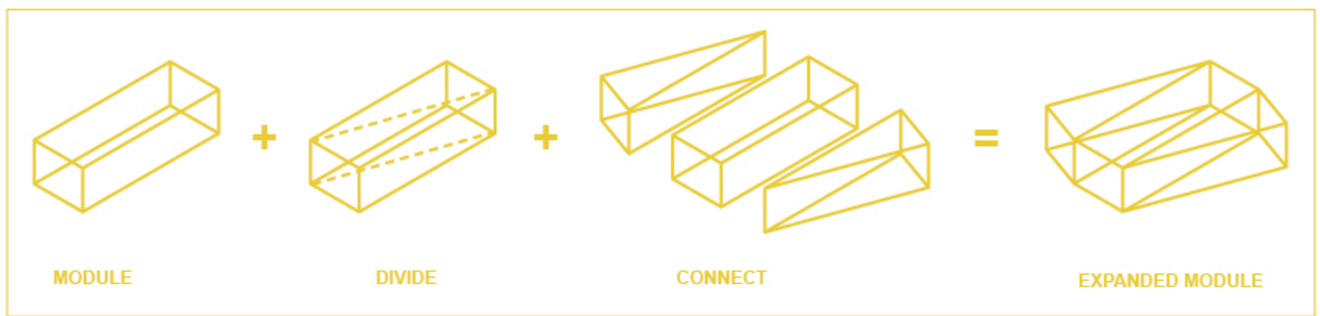
The southern section of the existing structure will be used for adaptive re-use to intergrate old with the new. To fully take advantage of the geometry of the site, the individual modules will be position in an elongated pattern.

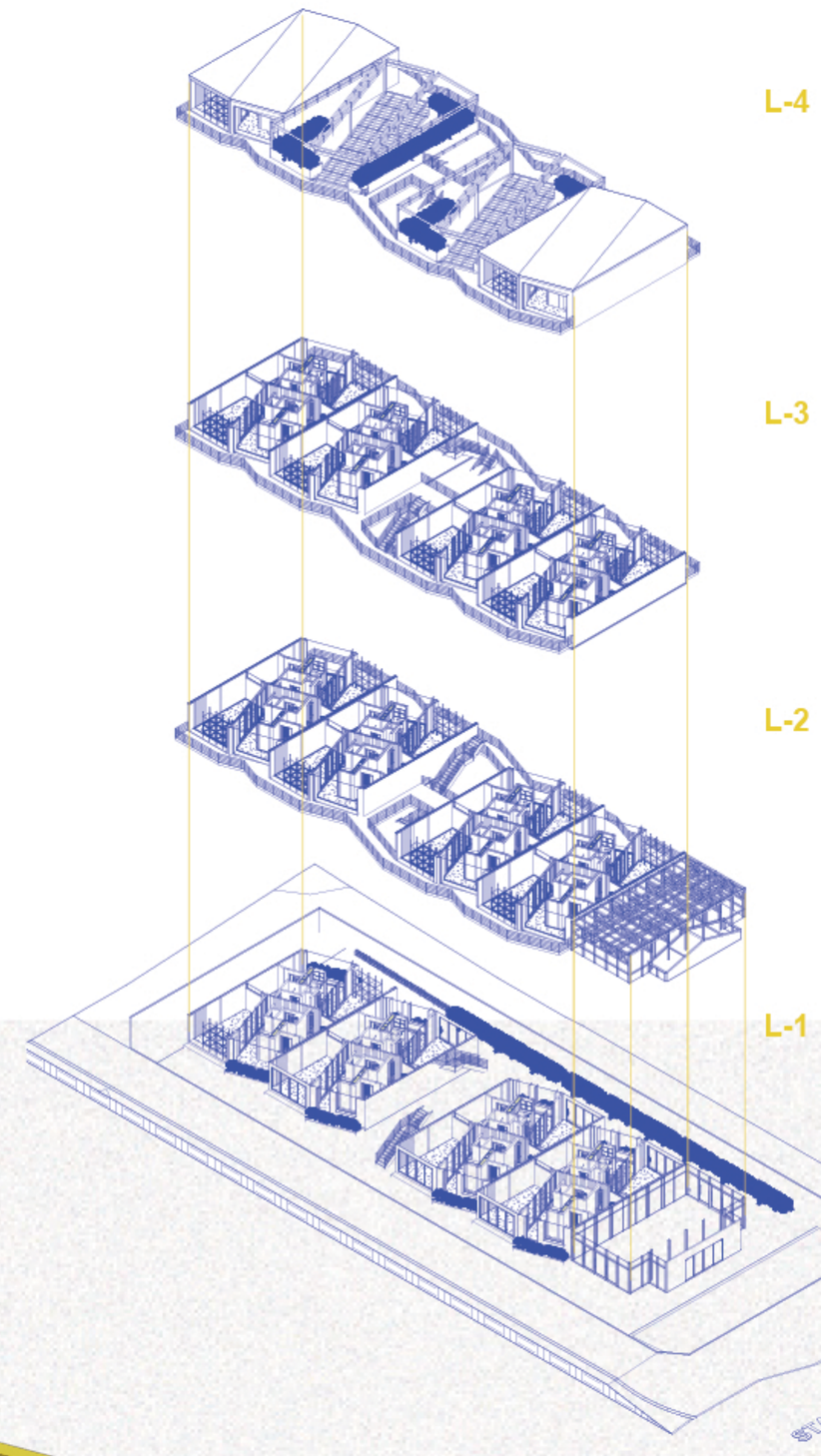


STACKED MODULES

The modules are stacked in an elongated pattern. The goal is to intergate the old with the new through a strong visual representation of Fremantle community culture.

MODULE CONCEPT

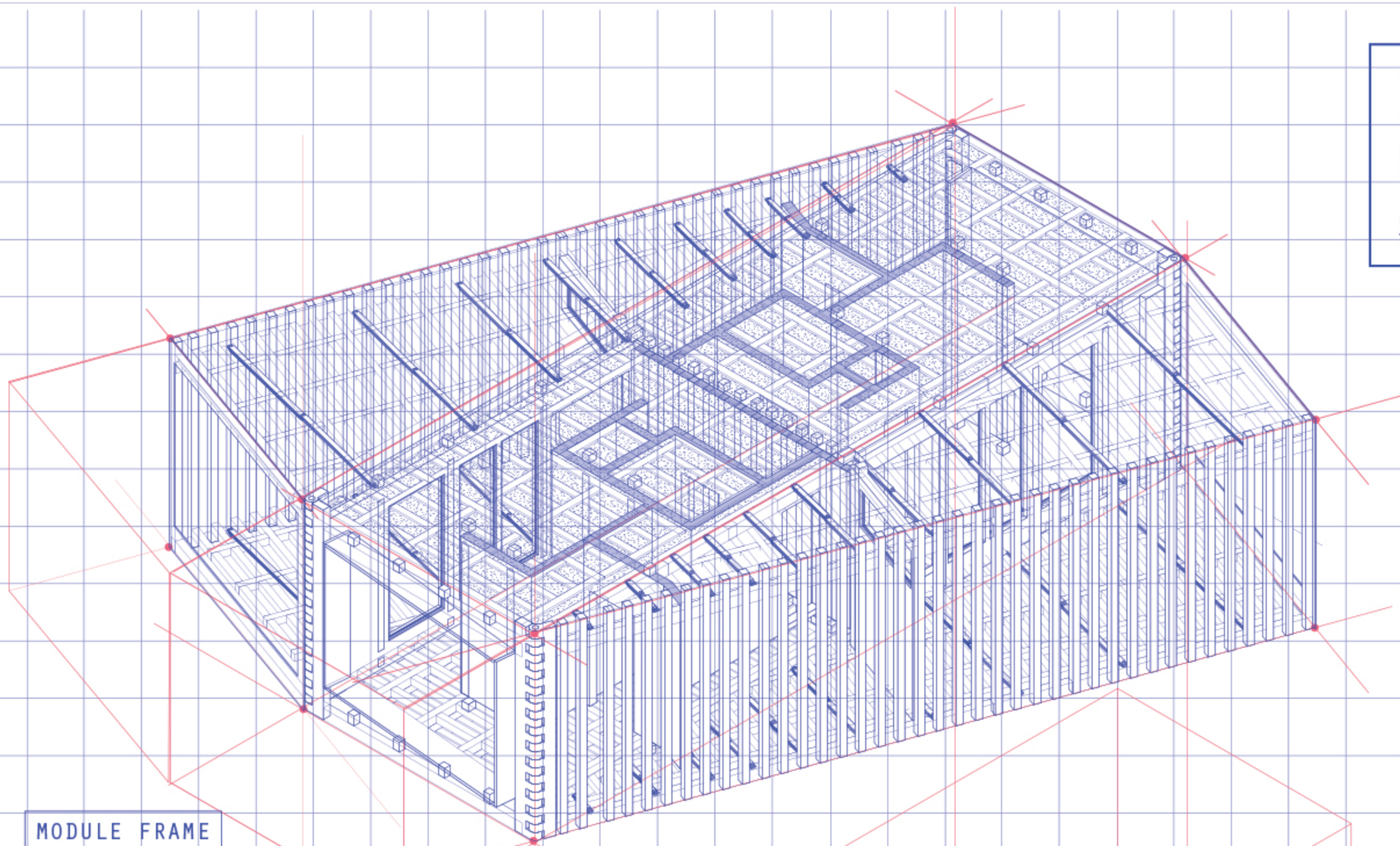




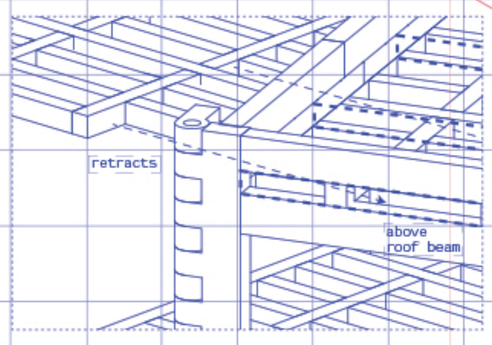
CHALLWELL WRECKS "MARKET SPACE"

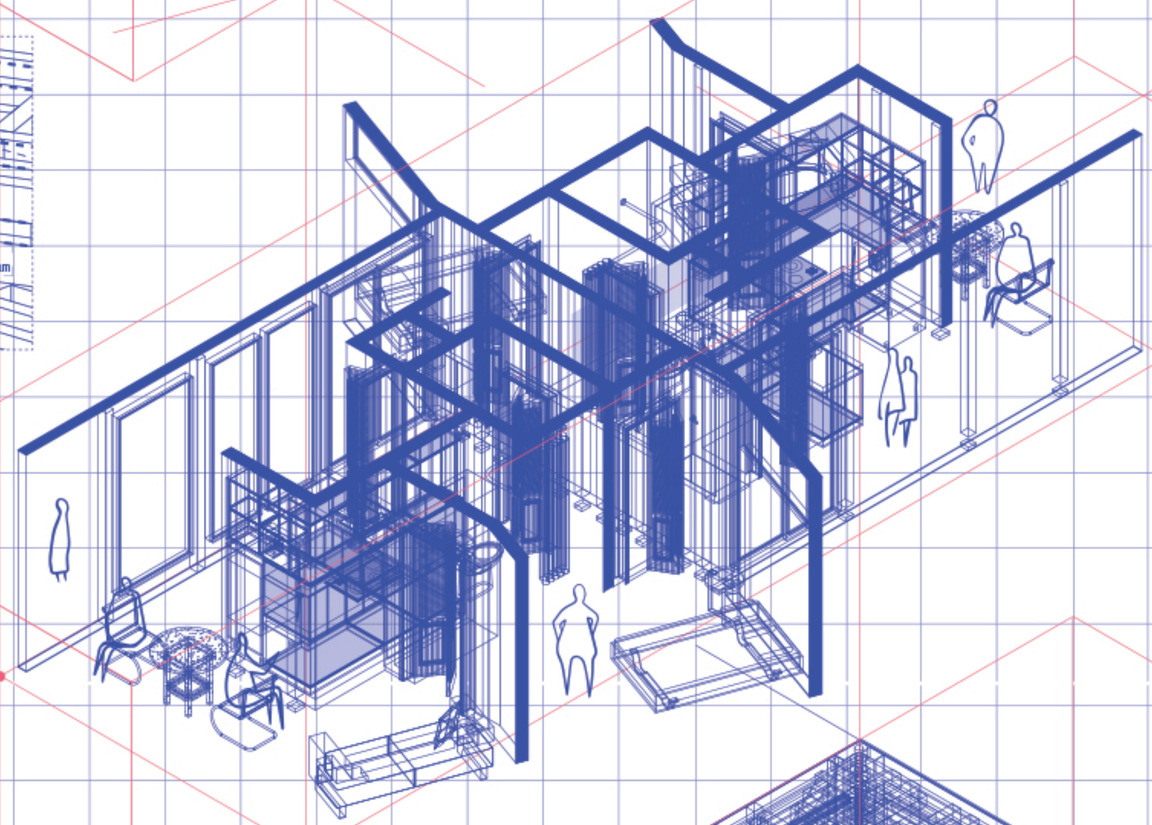
MARKET WAREHOUSE SOUTH ELEVATION

part two: module structure

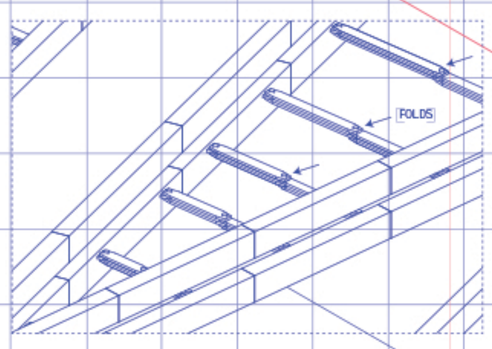


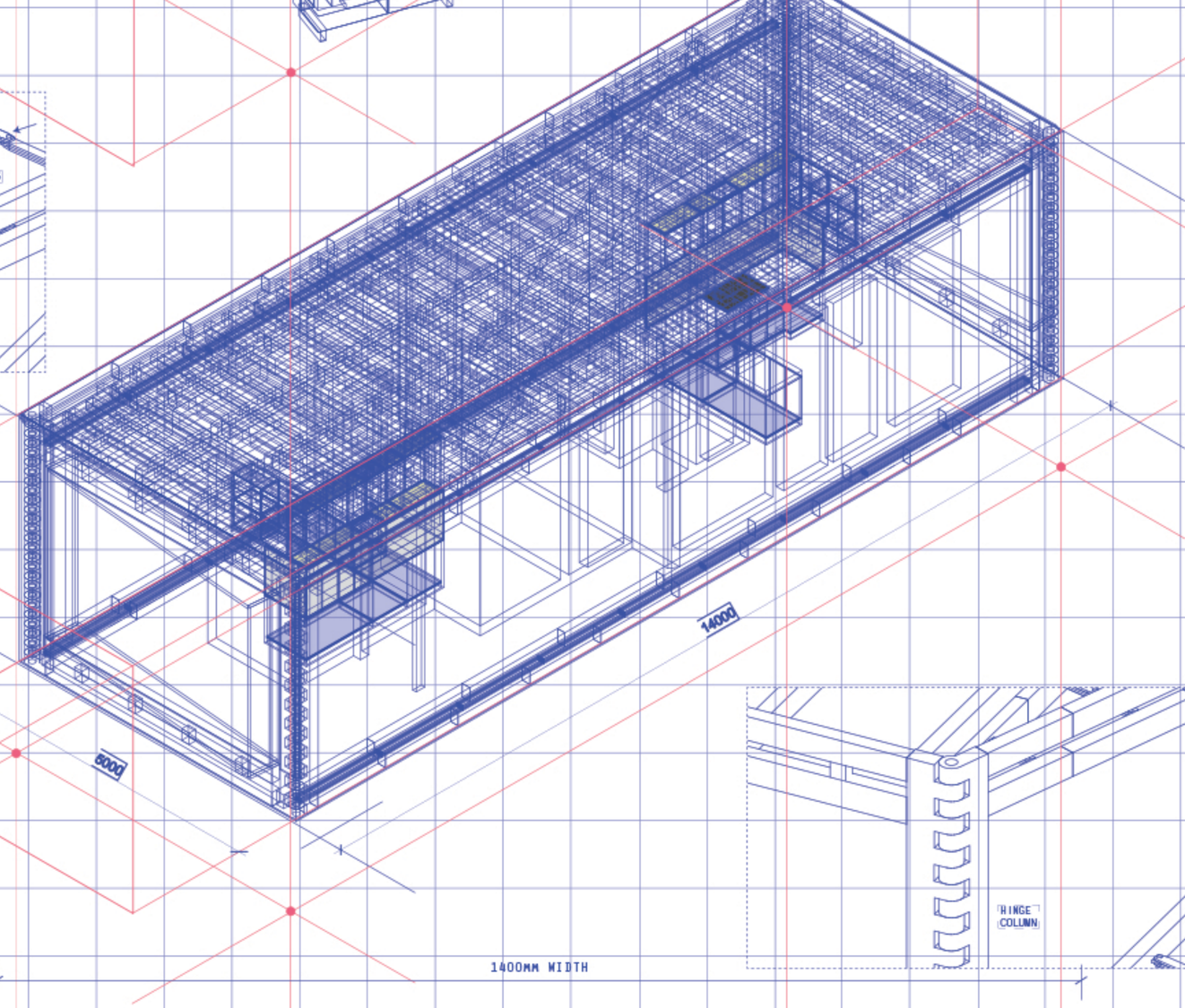
MODULE FRAME



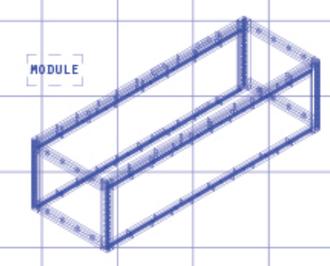


INSIDE MODULE

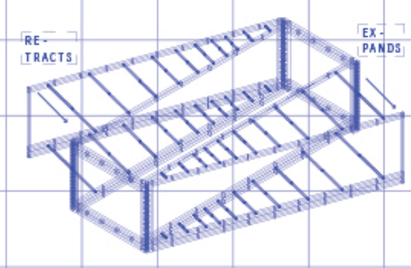




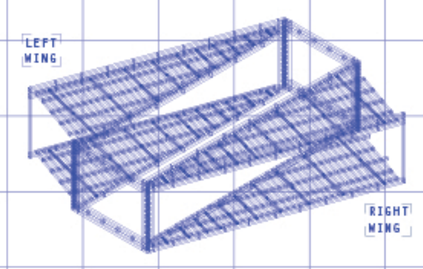
MODULE CLOSED



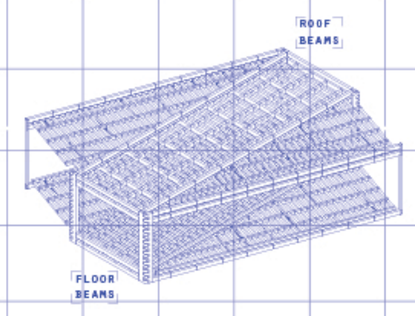
1



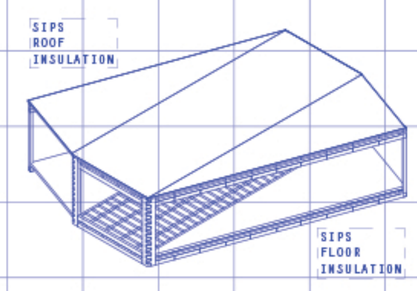
2



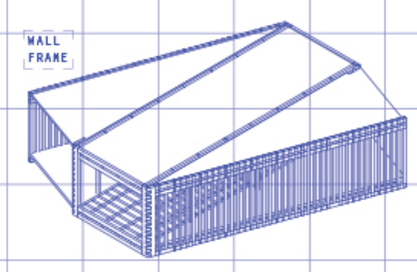
3



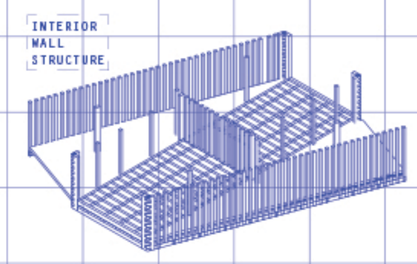
4



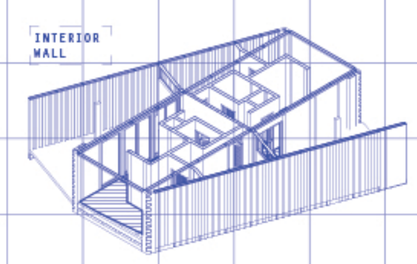
5



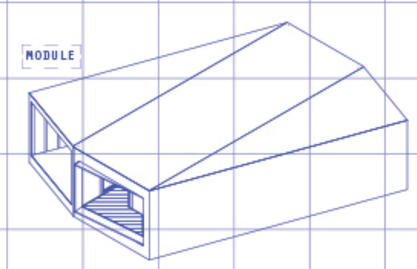
6



7

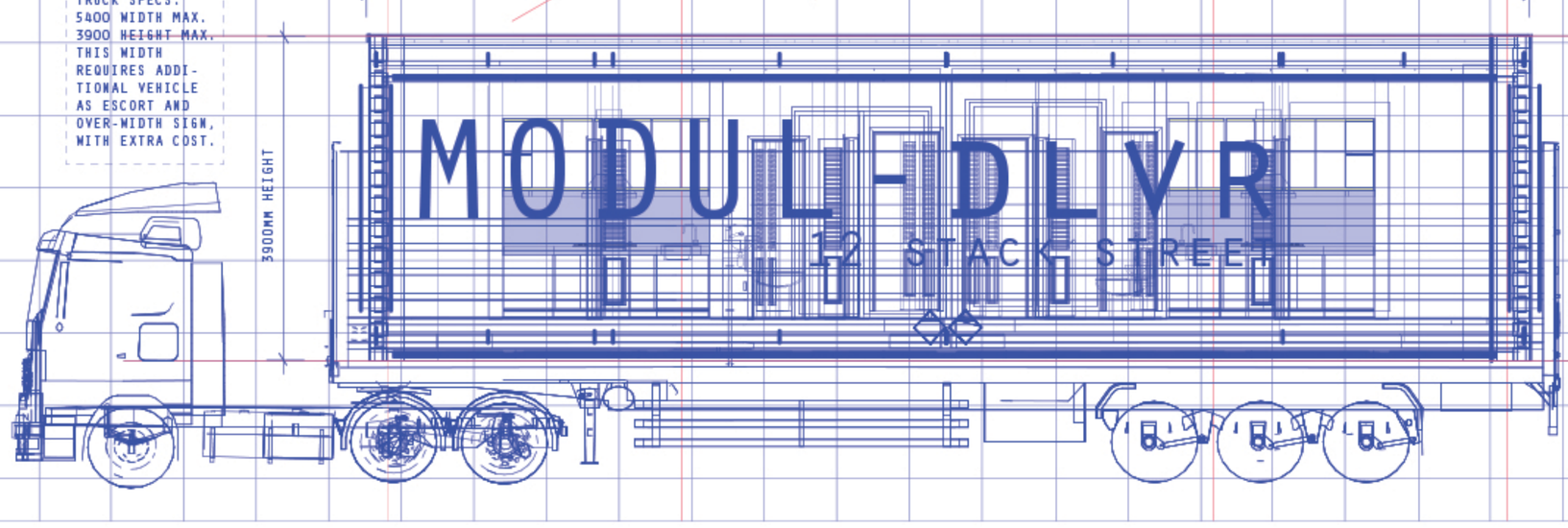


8

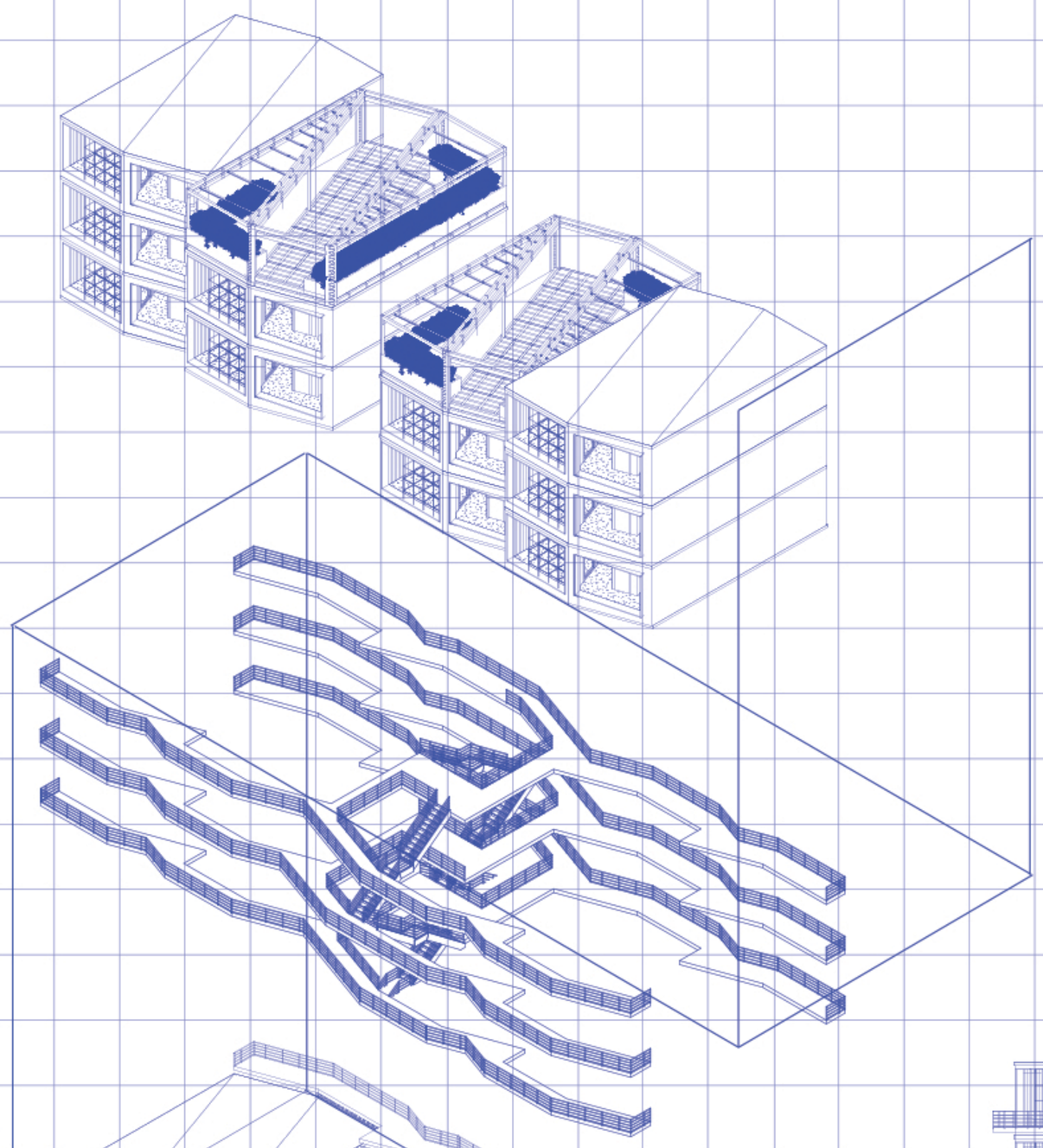


9

PER PICK-UP TRUCK SPECS. 5400 WIDTH MAX. 3900 HEIGHT MAX. THIS WIDTH REQUIRES ADDITIONAL VEHICLE AS ESCORT AND OVER-WIDTH SIGN, WITH EXTRA COST.



part three: module stacks



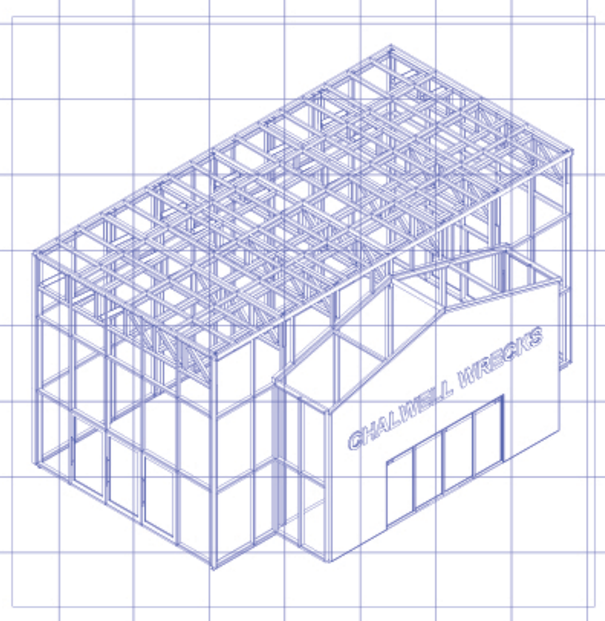
Each module includes the necessities found in a traditional home.

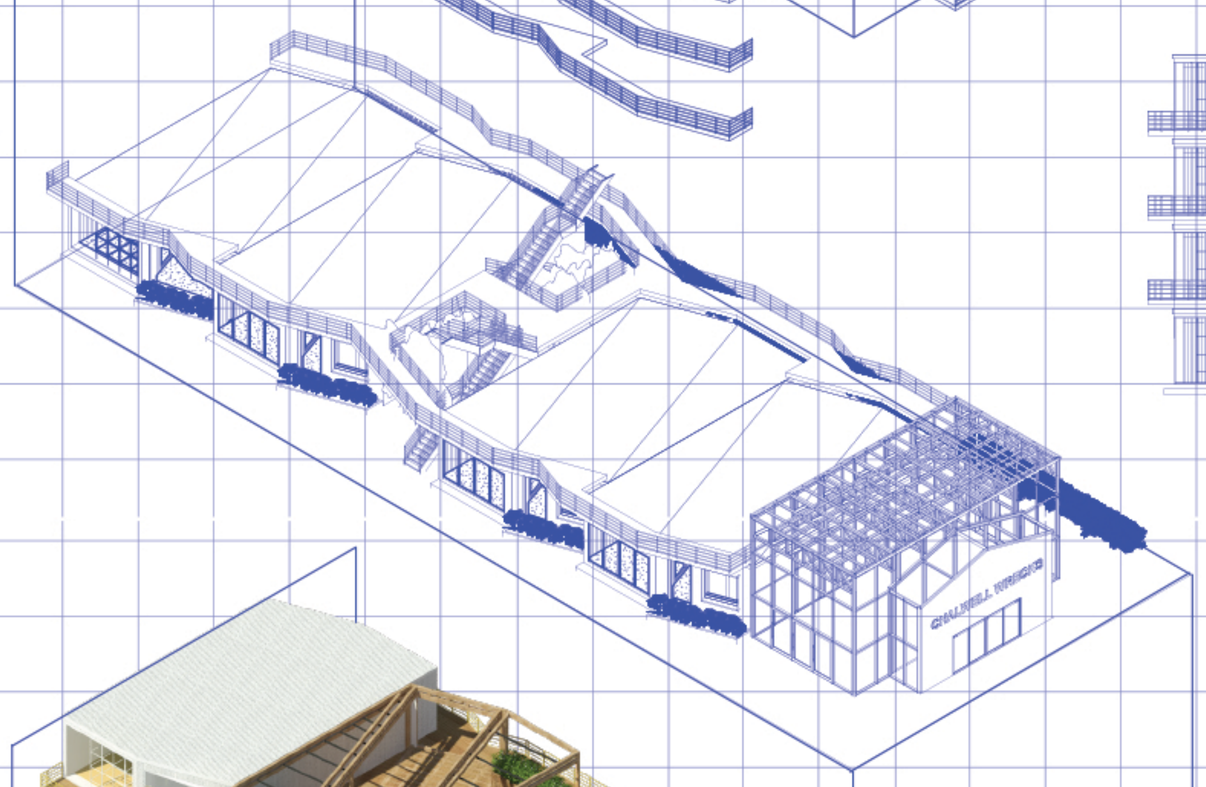
External space
Internal space
2 x Bedroom
1 x Bathroom
Laudry
Kitchen
Open plan living and dining area.

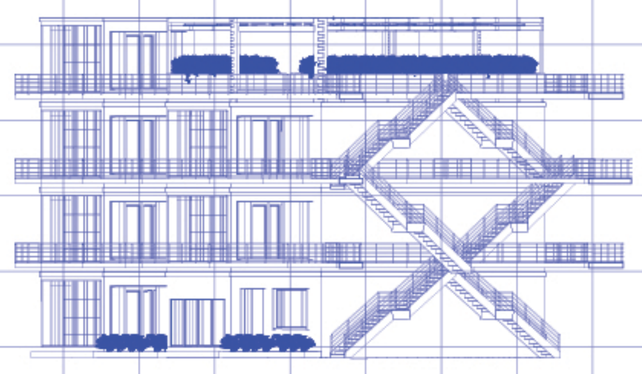
Same structure settings applies to the 2 x bedroom apartment. Every space in the module is designed to recieve natural light during the day. There is a window in every space, to decrease the use of artificial lighting during the day.

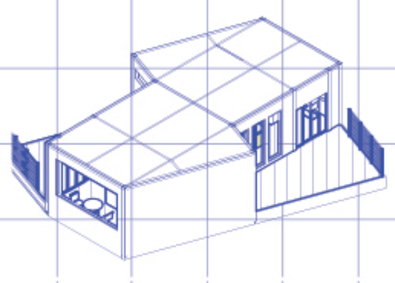
Horizontal circulation

The services are organised with the elongated geometry of the space. The 2 x bedrooms are adjacent to the living space and next to the toilet and laundry facility. The kitchen and living are the main space of the house therefore its right next to the window, where light enters the most.

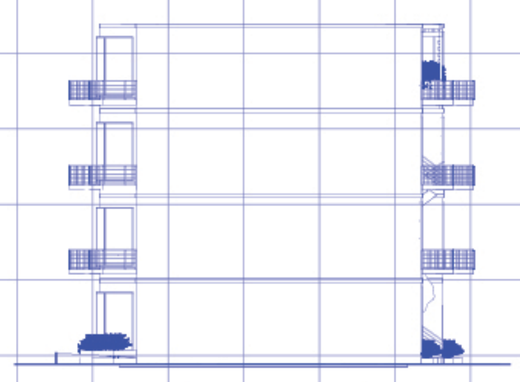




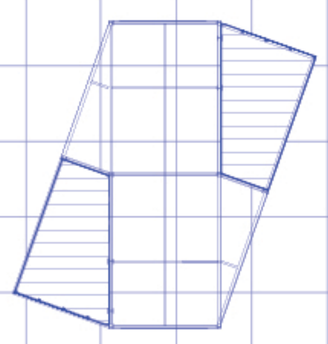




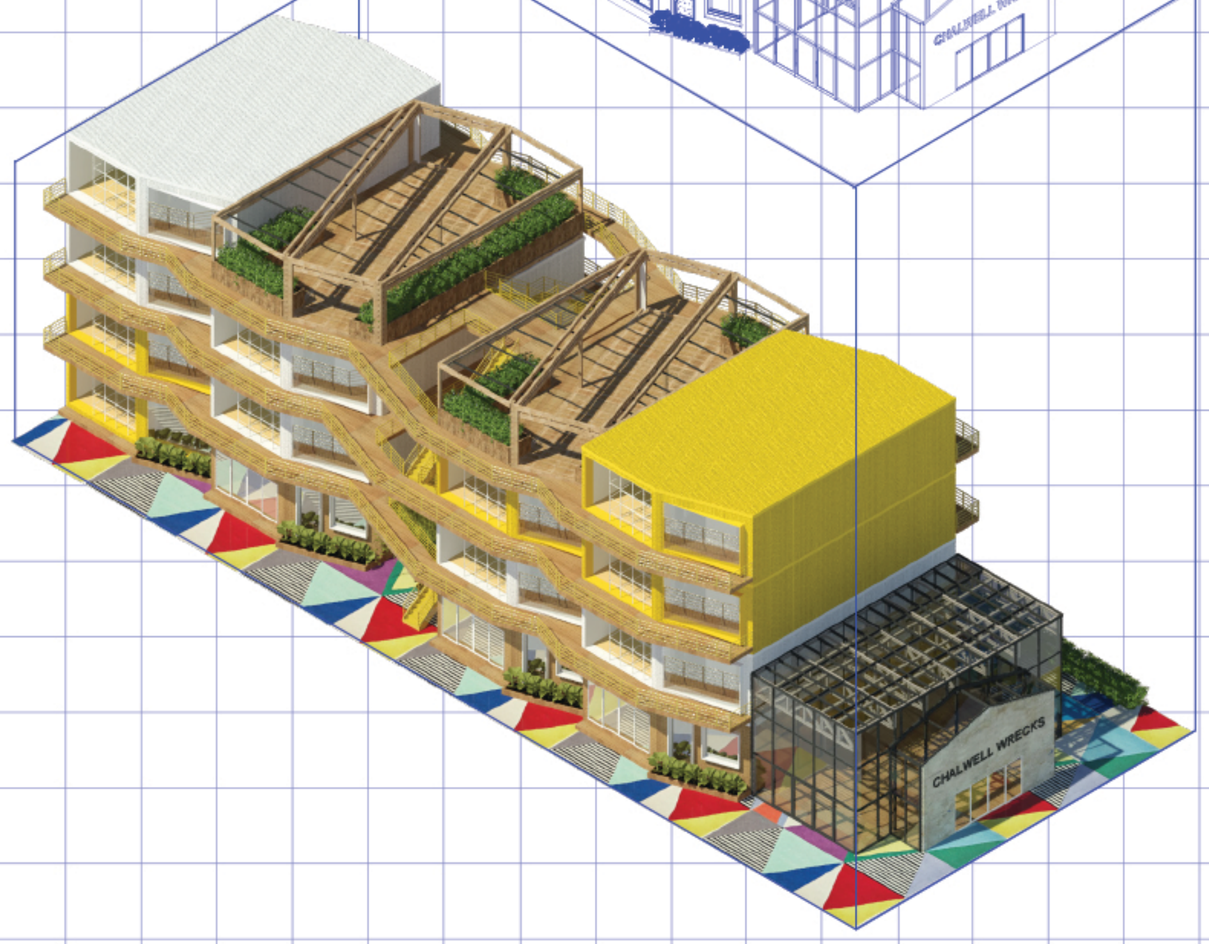
. ASSEMBLED SINGLE MODULE

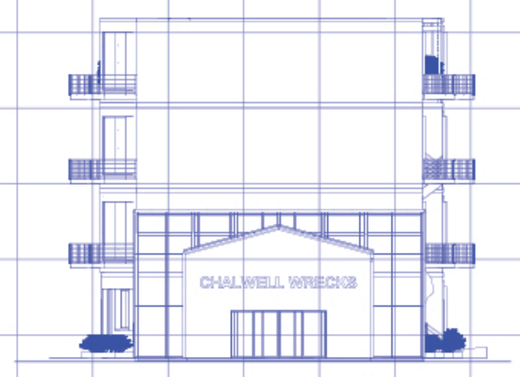


NORTH ELEVATION

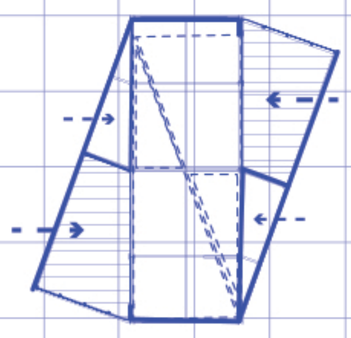


. ROOF TOP VIEW





SOUTH ELEVATION



. RETRACTING ELEMENTS