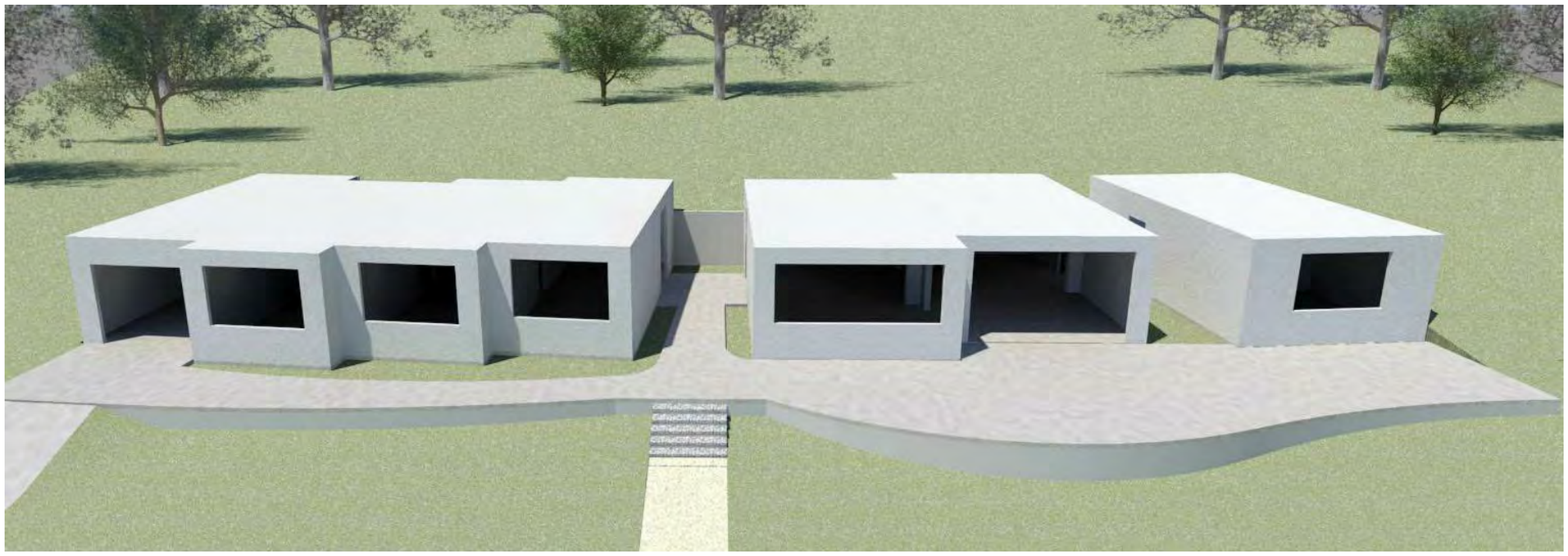
Designs for Extreme Environments

LIVIN MODULAR
DURABLE, STRENGTH AND SUSTAINABLE



SIMPSON ARCHITECTS

Resilient housing - Single story solution

LIVIN MODULAR
DURABLE, STRENGTH AND SUSTAINABLE

NORTH

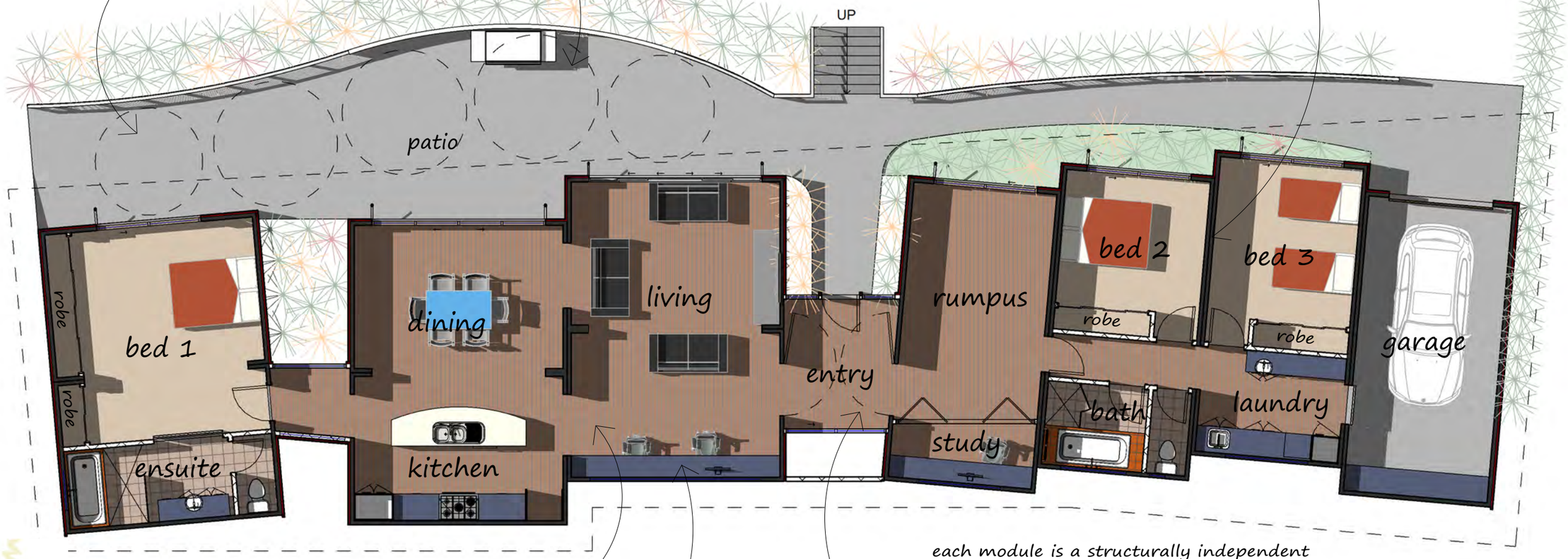
each module is capable of withstanding either,
and all of the five extreme weather threats
in it's own right, and as a combined structure

patio creates a buffer zone from
wind driven fire threat

rainwater storage tanks
below patio

standard modules 5m x 3.5m,
7m x 3.5m with mass of 12-17
tonne respectively

high density walls plus a 20mm air gap
between pods creates a superior
acoustic performance



an infinite combination of openings between
adjacent modules can be achieved
virtually any size window and door opening
can be specified

end returns on modules are perfect for
containing benches, bookshelves etc.

floor area: 212m² (includes garage)

each module is a structurally independent
unit. The design utilises groups of these
structural modules to contain damage
by fire/flood to discrete area of the house

with the use of appropriate doors,
we are able to seal off various zones/pods
to contain the spread of damage

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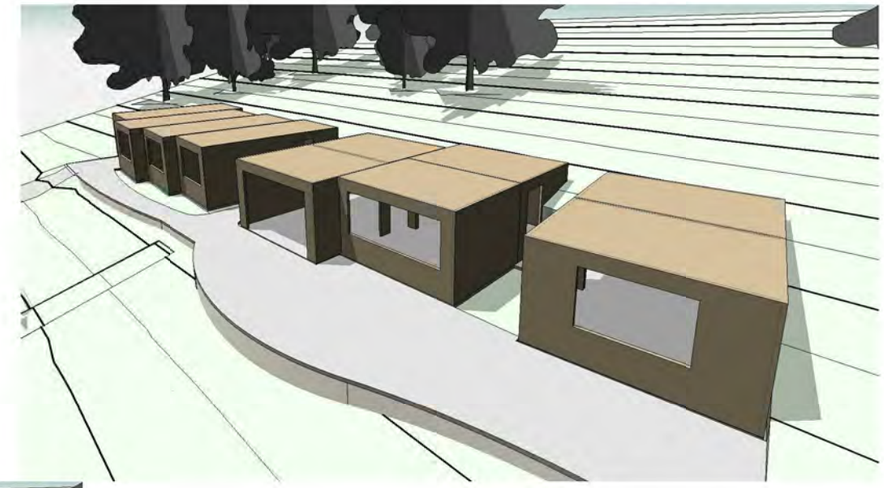
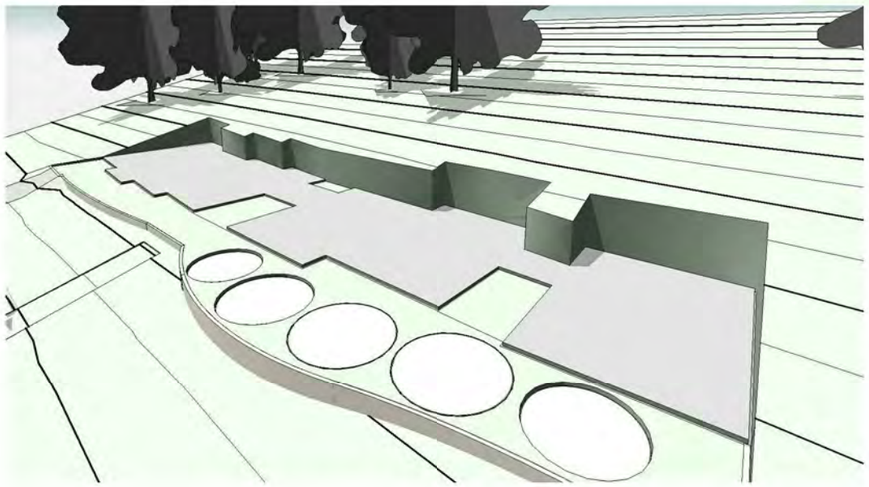


2. the modular concrete carapace

-the shell of the design is robust and durable
-can be trucked to site and installed within one day



1. the engineered solution

-modules can form part of the civil works, acting as engineered retaining walls
-in ground storage tanks are utilised in this design

3. lock up

-lock up achieved within days of module installation

4. finishes

-the carapace can be "dressed" up to suit any client and environmental requirements and finishes

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summer sun
(solstice)

external insulation protects the high thermal mass from heating or cooling with the outside temperatures, meaning that the internal temperature of the modules is very stable

north facing solar panels

metal roofing
sisilation under

powerpoints, plumbing and other fittings cast-in to modules in the factory and ready for fit-off as soon as they are installed on the slab

winter sun
(solstice)

truss are secured to the modular shell using M-16 oversized threaded inserts

a simple roof design reduces the opportunity for debris and embers to catch

operable panels

air movement

Pod Top
2800

insulation

hydraulically operated screens

pre-formed cornice line

precast concrete swale drain into storage tanks

fire threat

natural ground

19mm aggregate against pod wall

Floor
0

insulation

slotted drain

concrete raft slab
geo-thermal hydronic heating

no plasterboard in modules: walls are solid concrete with a "gyprock" equivalent finish, impervious to water

modules act to retain backfill - modules are rebated into the slab at the base and resist overturning by virtue of their mass

rainwater storage tanks

precast concrete panels provide protection from wind driven fire threat

the pod is a 3D monolithically cast element - a concrete module that eliminates construction joints (as in tilt up panels). four walls plus a ceiling is poured in one process leaving openings for windows, doors and services - hot and cold, electrical,data,hydronic heating, all cast into the product with an added capability for mass production from hydraulically controlled precision mouldings.

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Resilient housing - Double story solution

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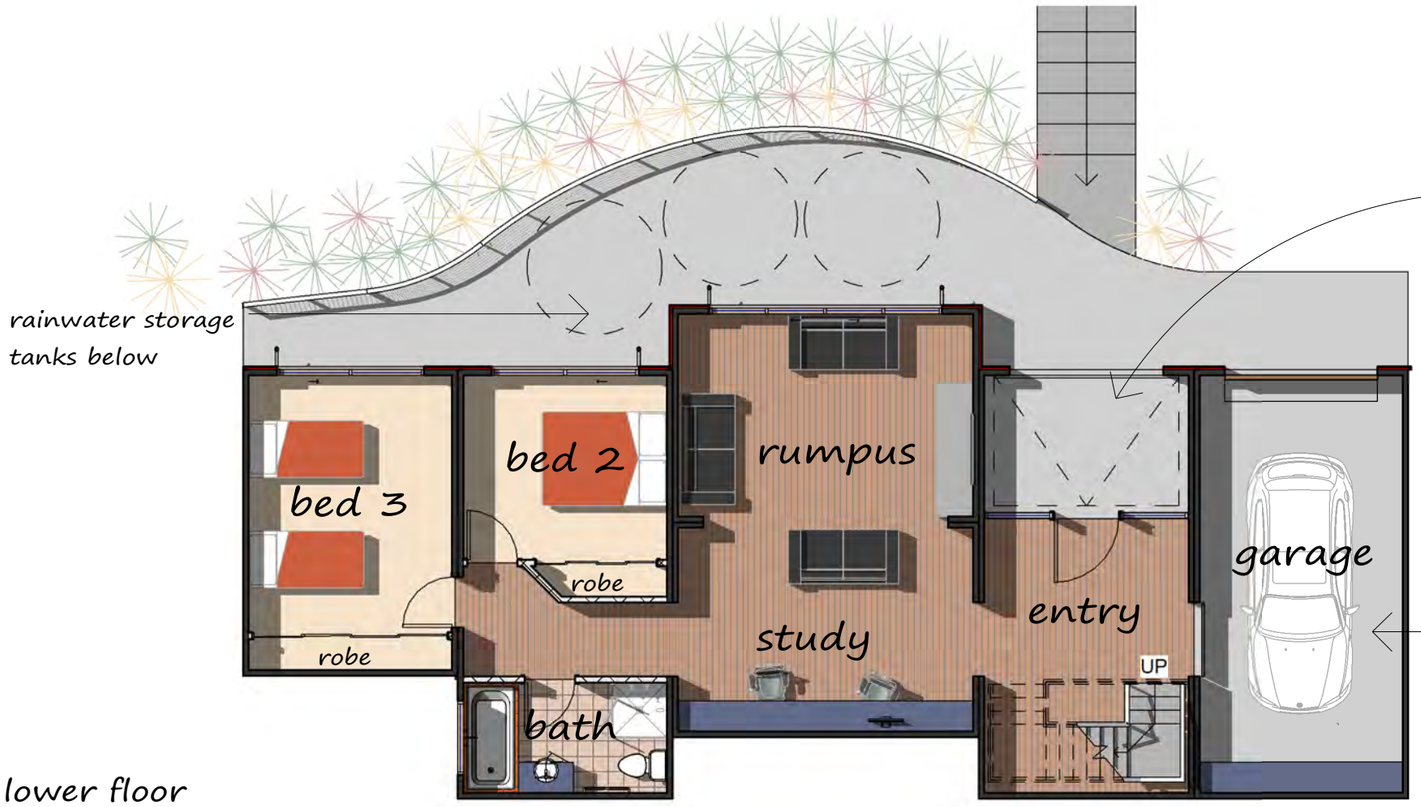


rainwater storage tanks below

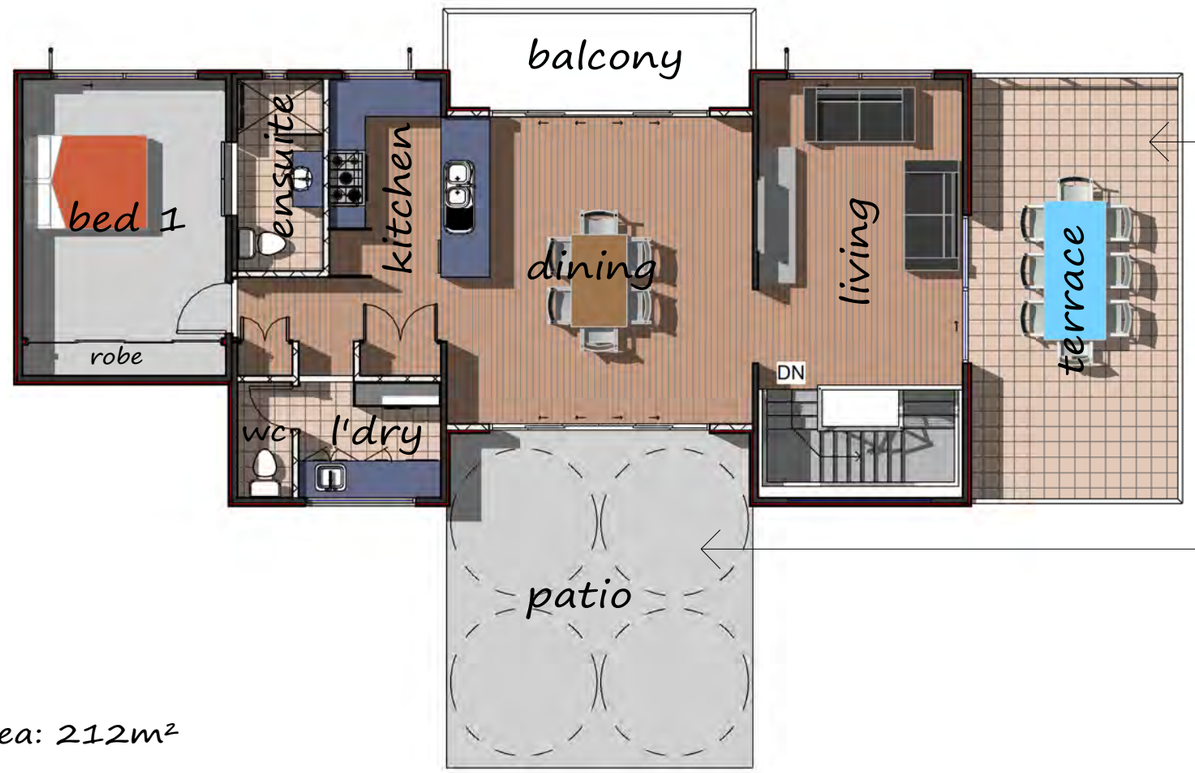
entry setback to protect it from the elements. a hydraulically operated screen seals opening in hazardous conditions

pods, by default, create a larger than average garage. leaving space for a workbench, storage etc

lower floor

floor area: 120m² (including garage)

hebel blocks are used for all internal walls meaning all walls are impervious to water



each module includes a load bearing top, allowing us to claim floor space on the pod's roof

pod tops can be finished off, polished, at the pre-installation stage. speeding up the process once again

rainwater storage tanks below patio

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upper floor

floor area : 92m²

total floor area: 212m²

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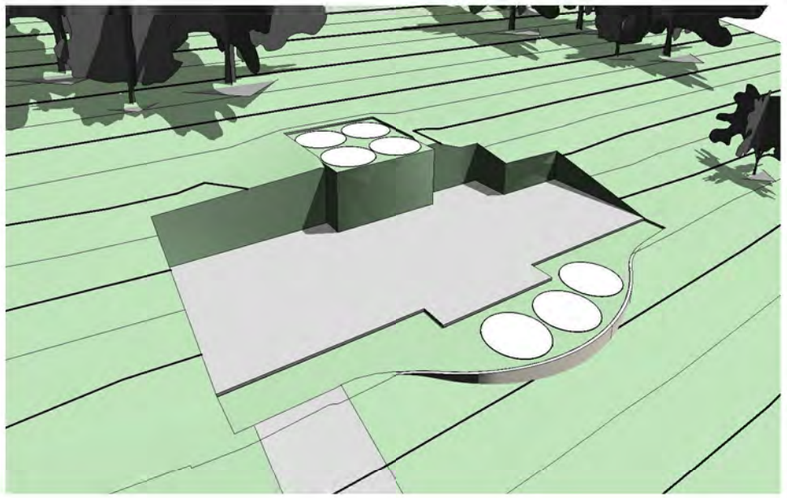

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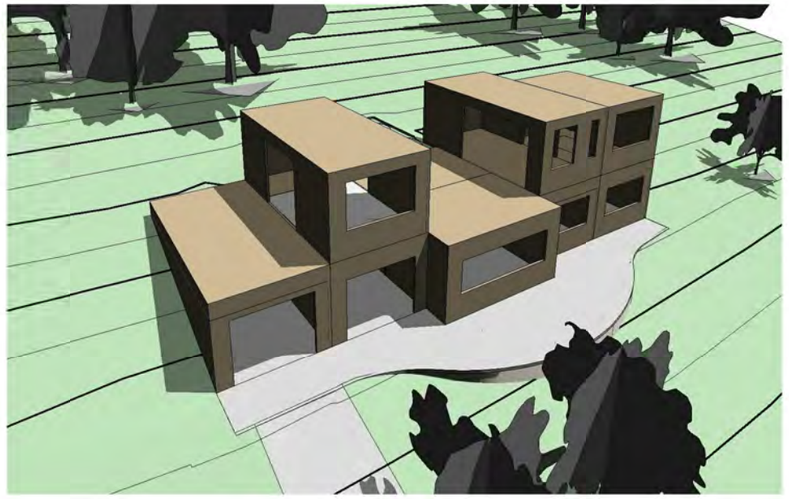
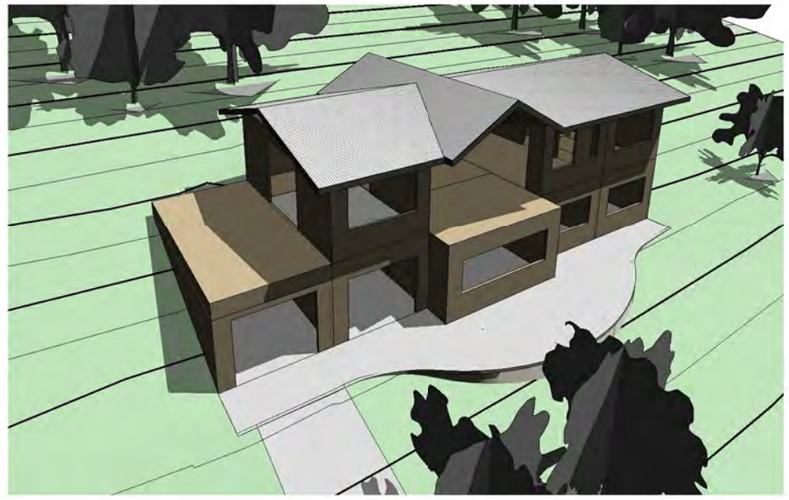
-in ground storage tanks are utilised in this design



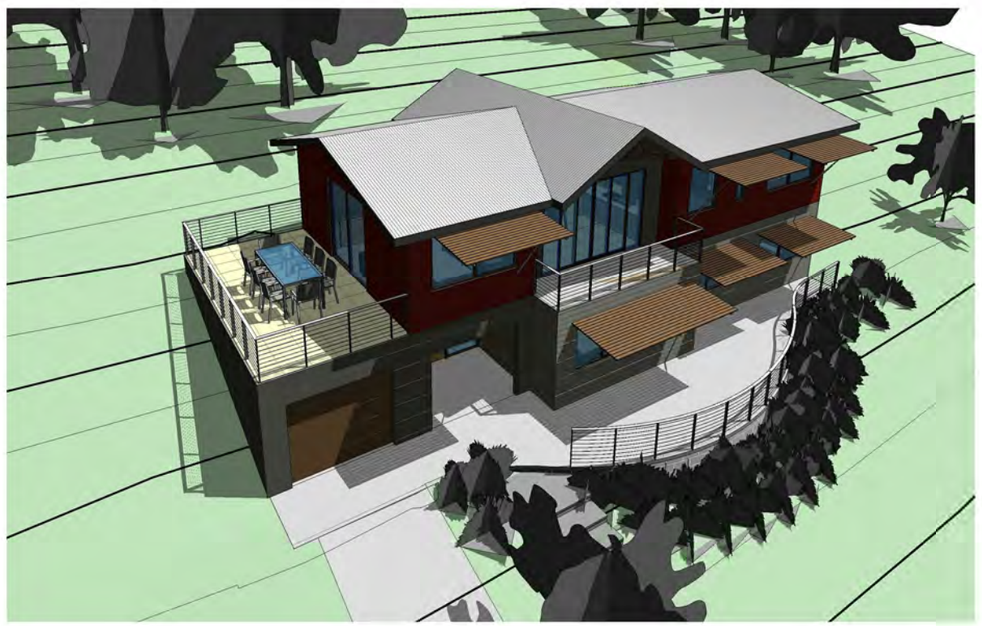
2. the modular concrete carapace

-the shell of the design is robust and durable
-a two story dwelling can be installed within two days



3. lock up

-lock up achieved within days of module installation



4. finishes

-the carapace can be "dressed" up to suit any client and environmental requirements and finishes

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no need to create an upper floor structure
- the lower pods roof is structurally capable

dining area is created as a result of
separating pods and spanning a
roof between

truss fixing points
cast-in

high density walls plus a
20mm air gap between
pods creates a superior
acoustic performance

hydronic heating in
ground floor roof slab

Pod Top
5600

stainless steel
balustrade

Upper Floor
2800

Floor
0

concrete raft slab
insulation under

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an infinite combination of openings between adjacent modules can be achieved. virtually any size window and door opening can be specified

Pod Top
5600

external insulation with the addition of the high thermal mass of the pods help to create a very stable internal temperature all year round

Upper Floor
2800

hydraulically operated screens

Floor
0

kitchen

l'dry

bed 2

natural ground

bath

precast concrete swale drain into storage tanks

19mm aggregate against pod wall

slotted drain

mass of modules used to create retaining wall on sloping sites, thereby elimination extra site preparation

in-ground rainwater storage tanks

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LIVIN MODULAR
DURABLE, STRENGTH AND SUSTAINABLE

truss fixing points cast-in

mould allows for placement of opening virtually anywhere

3D monolithically cast modules
- 4 walls + ceiling in a single unit

cast-in door frames

load bearing walls
and roof

standard 7m module
(6980mm x 3480mm)

ceiling penetrations

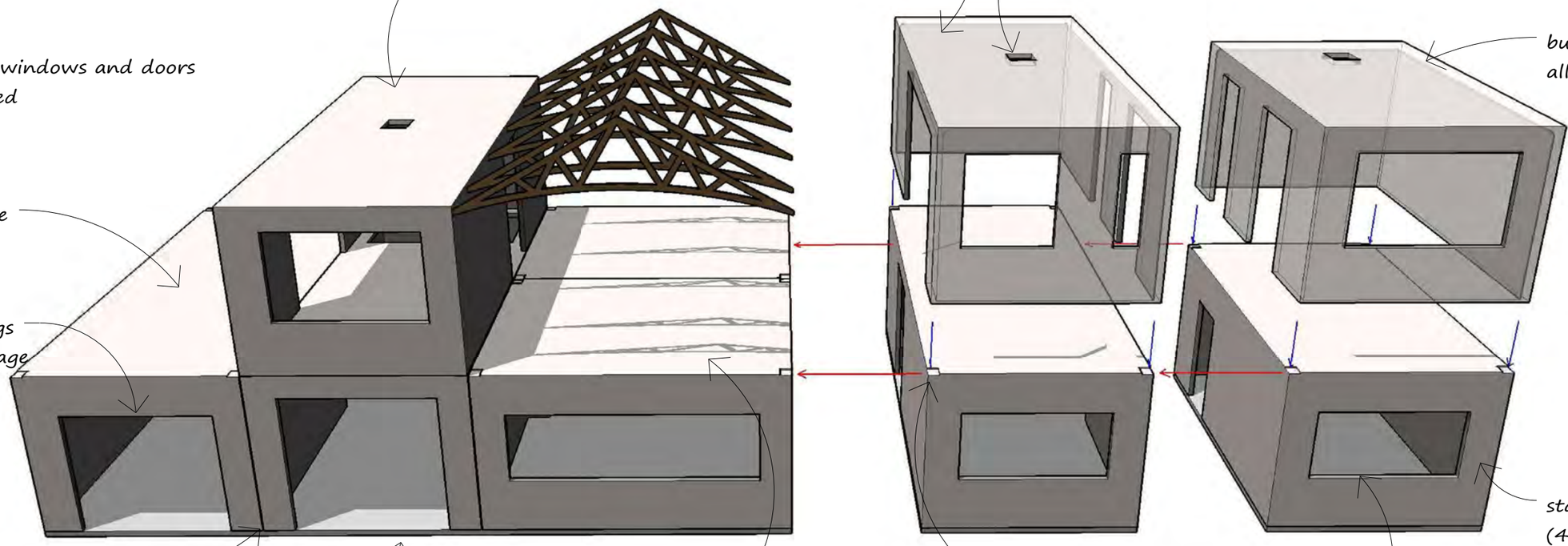
90mm concrete walls

lightweight walls, windows and doors
can be pre-installed

built in cornice line in
all modules

claimed floor space

large span openings
are possible ie garage



standard 5m module
(4980mm x 3480mm)

superior acoustic performance
with 20-40mm typical spacing
between modules

hydronic heating in
ground floor roof slabs

rebates for stitch plates
to connect modules

concrete raft slab
poured on site

window penetrations ready
for glazing to be installed

plumbing and electrical
rough-in pre-installed

high fire resistance
- 90/75/75 for a single concrete wall
(AS3600)

external module walls insulated
and clad with fibre cement weatherboard
or colorbond

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