

THREE BY TREE //

DECONSTRUCTABLE MODULAR HOUSE

DSGN



THE DESIGNER //

RONNY MATZAT

Ronny was born in former East Germany and describes himself as a world citizen and **creative superhero**. Designing in balance with nature and its resources and for people before profits is a given for him. He completed an apprenticeship as a financial planner at Dresdner Bank in Germany before completing a double master degree in architecture and engineering from the Technical University Berlin. He is now a freelance architect / designer and consultant under his own **ronnstar** label focusing on social architecture and on closing the gap between design and trade.

Ronny has a big passion for innovative, green and low cost building solutions. He has a reputation for entrepreneurial thinking and for leading projects in a variety of fields and disciplines. They range from architecture, business development, education, sales, furniture building, photography, project management, design and many more. Ronny is the founder and director of DSGN Kartell Pty Ltd, as well as board member and sustainable consultant for the Green Building Institute Australia.

Ronny's Granny Flat won the Innovation award at the 2014 Sustainable House Design competition in the professional category. He has conducted major building exhibitions in Germany, Australia and India as well as multiple seminars on green design for Inhouse Group 3, the Green Building Centre in Byron Bay and the Australian Green Development Forum. He has been published online and in print media in West and East Africa, and Australia.

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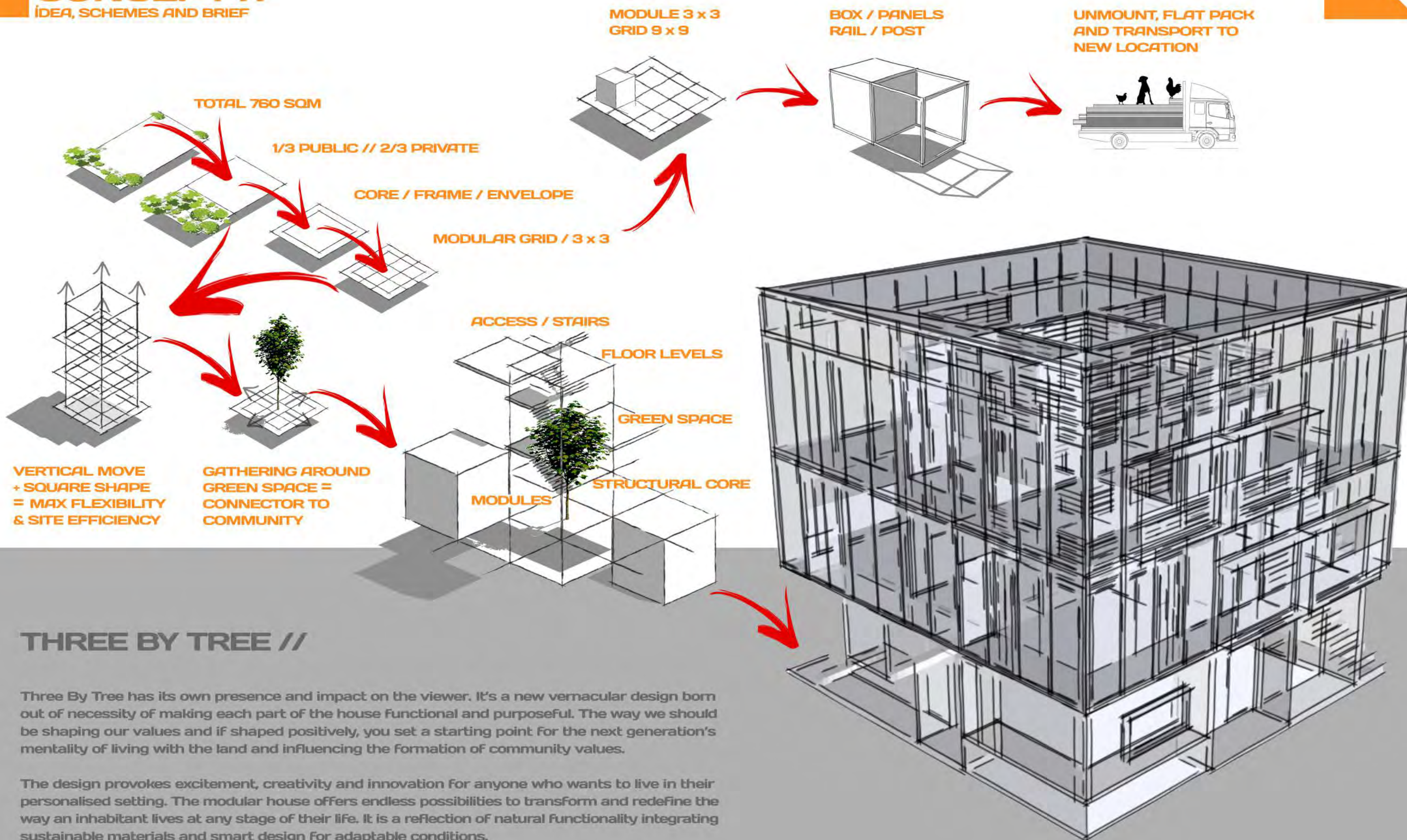
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CONCEPT //

IDEA, SCHEMES AND BRIEF

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SITE PLAN AND SKETCH PERSPECTIVE SHOWING ONE POSSIBLE VARIATION OF TWO MODULAR HOUSES ON SITE CONNECTING AND SHARING SPACE AND RESOURCES ON GROUND LEVEL



The Three By Tree modular house is designed to be fully self-sufficient, deconstructable and adaptable to life circumstances and needs of future owners. It combines ecological, social and economic sustainability to a holistic approach, but at the same time keeps the needs and lifestyle of each inhabitant at the forefront of all considerations.

Three By Tree is a 'system design' providing the framework to create and adjust the inhabitant's settings according to their personal needs, lifestyle and budget. It consists of three main parts and can be adapted to life circumstances and needs at any stage of life. It also can be multiplied vertically and horizontally to cater for various urban and rural situations.

The three main parts to Three By Tree are:

1. Frame – the main structure of the building offers access and supply or storage space. It is also a common space for community integration on the ground level (as connector to the community) where ideas and resources can be shared without imposing on the private areas of the house;

2. Envelope – the outer skin of the building creates a double PV ventilated façade harvesting the sun's energy for electricity and heating. It gives the possibility to use one or more sides of the façade as vertical gardens; and

3. Core – 81m² decks on individual levels consisting of nine 3x3 squares. The decks are the dynamic parts, which can be easily refitted and adjusted or adapted for the inhabitant's needs without having to change the frame or envelope.

A mature tree in the centre of the core originates from ancient societies where community gatherings and markets usually started around the biggest tree in the area. The tree creates a small courtyard in the centre of the construction supplying natural light into the entire building creating a community gathering point on the ground level, which can be tailored to connect with nearby sites and buildings.

The entire construction is designed to be deconstructable and can be flat-packed and transported to a new location as circumstances require.

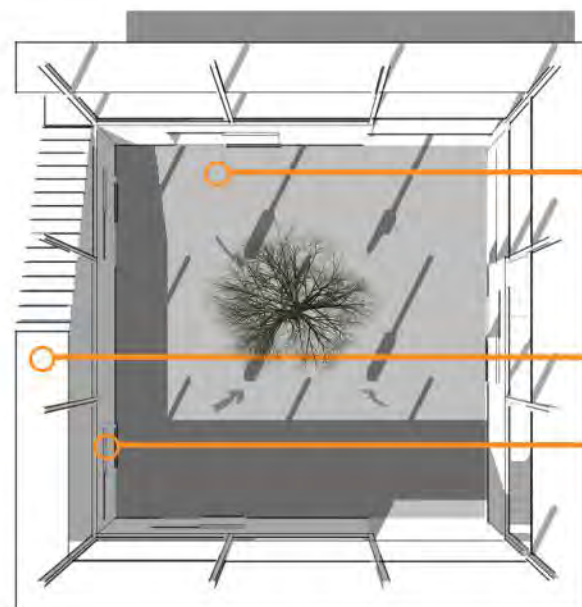
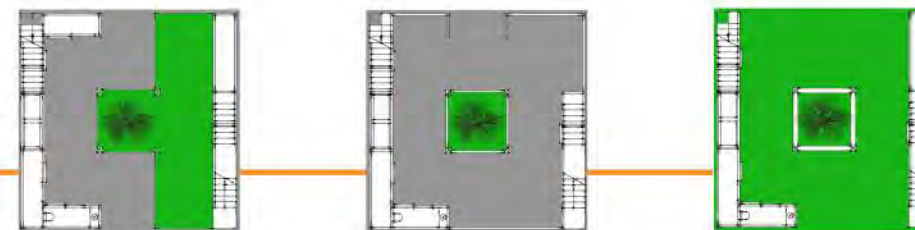
FRAME //

ACCESS, SUPPLY AND COMMON SPACE

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CORE VARIATIONS



CORE

KITCHEN / BBQ
COURTYARD
WORKSHOP

ACCESS

SUPPLY

WATER TANKS
TECH ROOM
STORAGE
COMMUNITY
SHARING

CARDBOARD CORE

CHANNEL

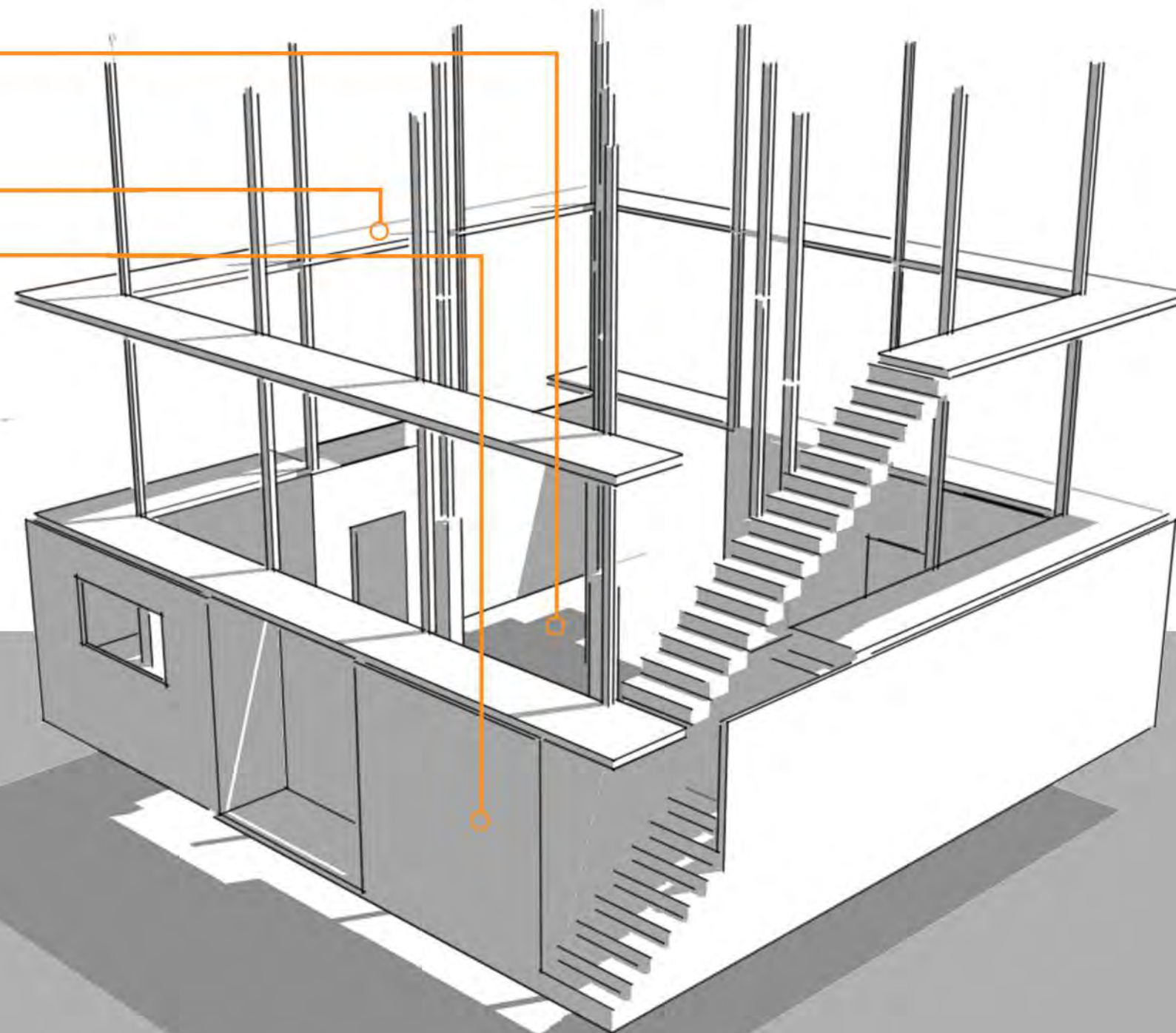
1. CONCRETE REINFORCEMENT
2. ELECTRICAL AND PLUMBING
INSTALLATIONS

SURFACE FINISH

INDIVIDUAL MATERIAL AND COLOUR

PANEL CONNECTOR
DRILLING FOR HOUSING

GROUND SCREW

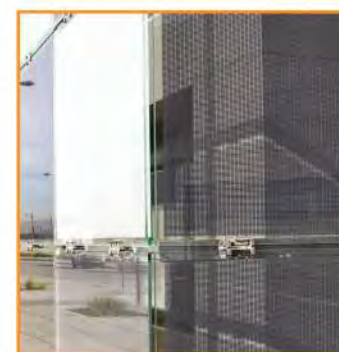




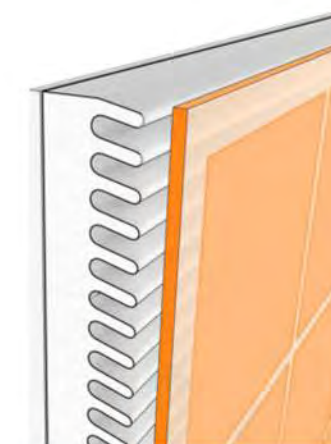
DOUBLE FACADE SYSTEM

(SEMI) TRANSLUCENT FIRST LAYER

THERMAL INSULATING SECOND LAYER



PV VENTILATED FACADE



WEST

LUCIDO ePLUS // SEMI TRANSLUCENT

SOUTH

OKATHERM // TRANSLUCENT

EAST

VERTICAL GARDEN AND OKALUX

NORTH

LUCIDO ePLUS



SUMMER

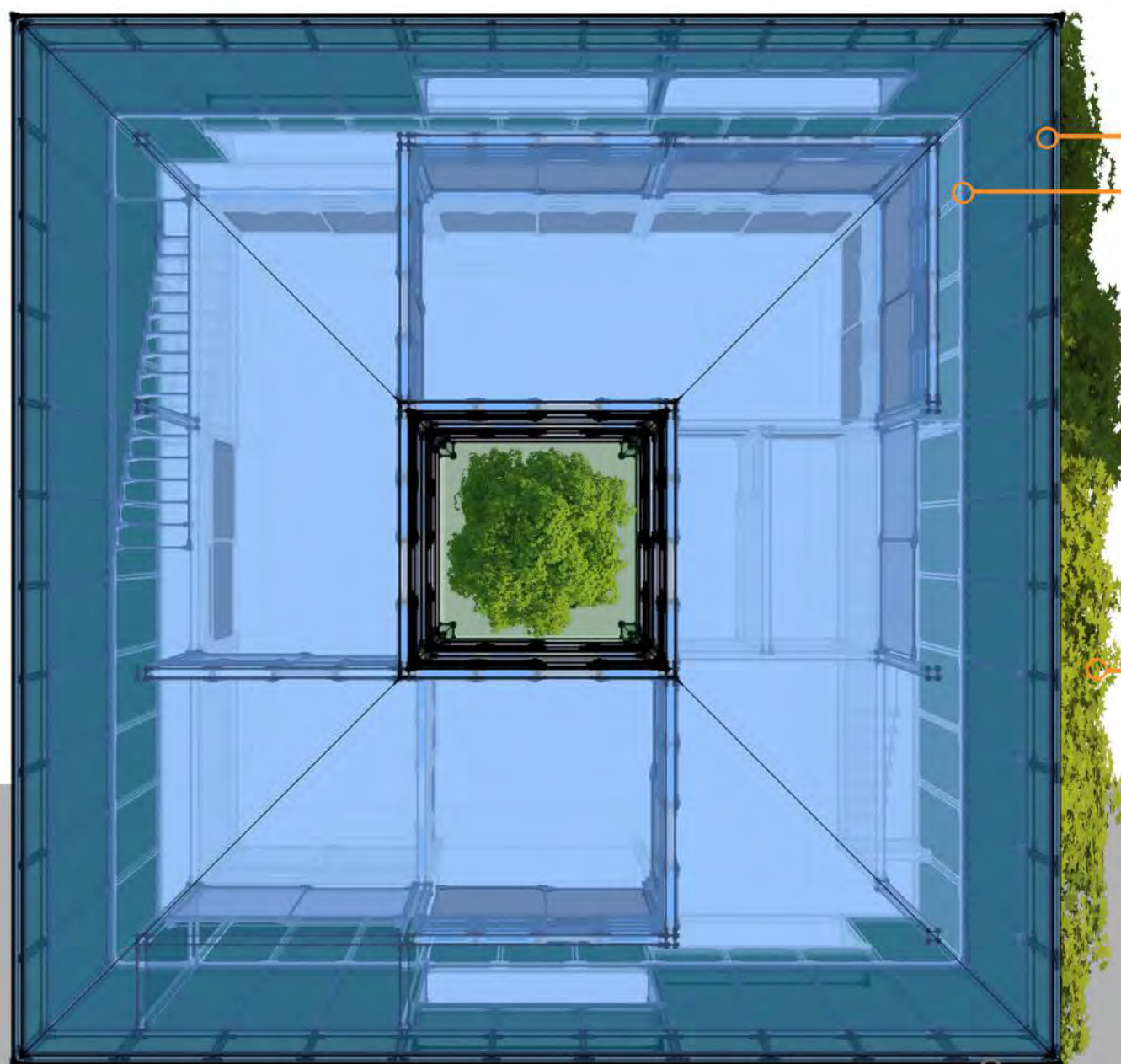


WINTER

ADVANTAGES //

PV VENTILATED FACADE

- ELECTRICITY PRODUCTION
- ENERGY SAVING DUE TO INSULATION (UP TO 40%)
- GREATER INSULATION PERFORMANCE
- ELIMINATION OF THERMAL BRIDGES
- THERMAL INNER COMFORT
- REDUCTION OF ACOUSTIC POLLUTION
- WALL AND ROOF PROTECTION
- GREATER ENERGY YIELD UNDER HIGH TEMPERATURE AS WELL AS UNDER LOW IRRADIATION CONDITIONS
- ENDLESS ATTRACTIVE AND INNOVATIVE DESIGN OPTIONS



ROOF

OPAQUE PV PANELS (PARTLY)
ELECTRICITY
HEAT (ACTIVE)
COLD (ACTIVE)



SEMI TRANSPARENT PV DOUBLE GLAZED INSULATING UNITS



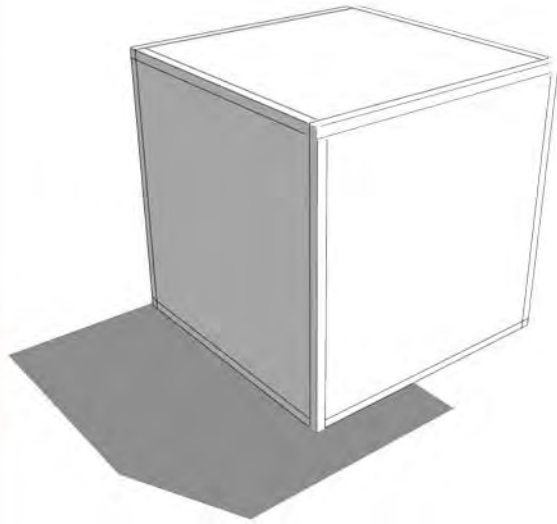
MODULE //

RAIL, POST AND PANELS IN 9 x 9 GRID

BOX //

BATHROOM

FIXED BOX INCL. WATER AND WASTE
WATER CONNECTIONS // VARIATIONS
ON WALLS AND FIXTURES POSSIBLE



PANELS //

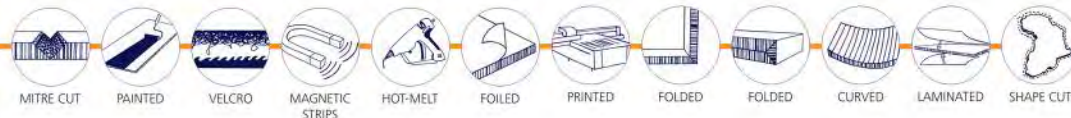
3 x 1 x 0.1 M

VERTICAL // WALLS

SOLID TIMBER
SOLID TIMBER WITH REINFORCED CORE
SOLID GLASS (FROSTED, CLEAR, COLOURED)
SLIDER GLASS (FROSTED, CLEAR, COLOURED)
SLIDER TIMBER
SLIDER MIXED (GLASS, TIMBER)

HORIZONTAL // FLOORS AND CEILINGS

TIMBER OUTDOOR DECK
TIMBER INDOOR
TILE
CORK



RAIL & POST //

STRUCTURAL FRAME // TIMBER CONSTRUCTION

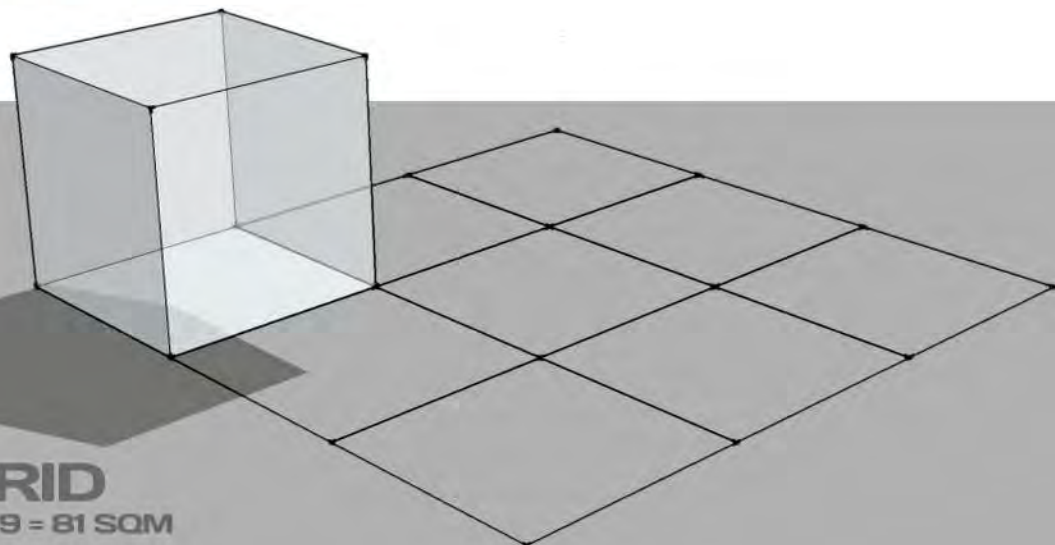


TORPEDO CSIS // CONNECTORS

- LOCAL, SELF - CLAMPING AND INTERLOCKING CONNECTION SYSTEM FOR WALL PANELS, POST AND RAIL CONNECTIONS
- ALLOWS FOR DECONSTRUCTIVE DESIGN
- MARINE GRADE QUALITY

MODULE //

3 x 3 = 9 SQM



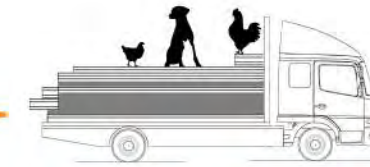
GRID

9 x 9 = 81 SQM



XANITA // LIGHTWEIGHT FIBREBOARDS

- HONEYCOMB CARDBOARD CORE / STANDARD THICKNESSES FOR CORE BETWEEN 8 AND 42 MM
- INDIVIDUAL SURFACE FINISH LIMITED ONLY BY AREA OF APPLICATION AND CLIENT CHOICE

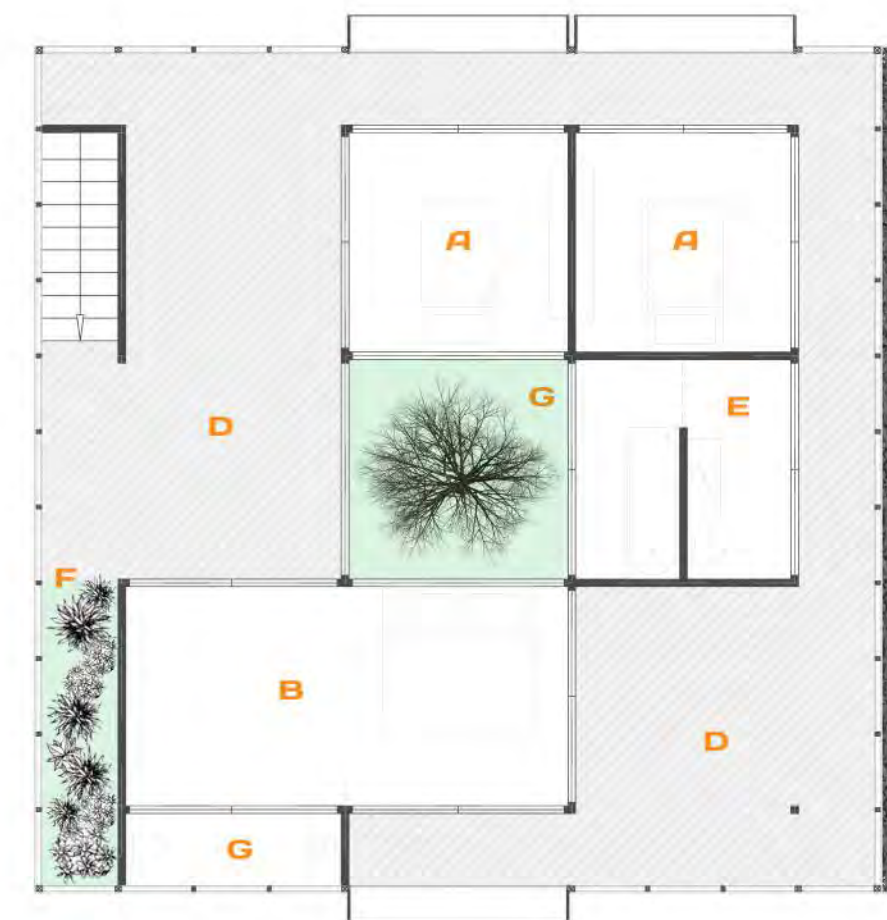
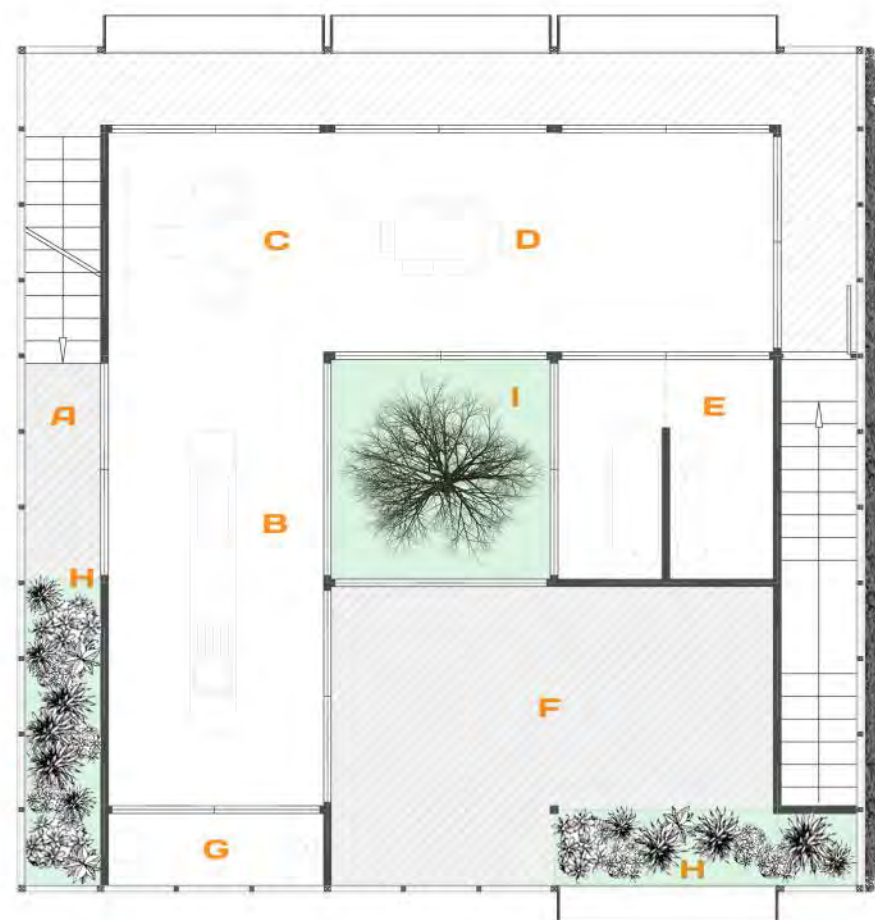
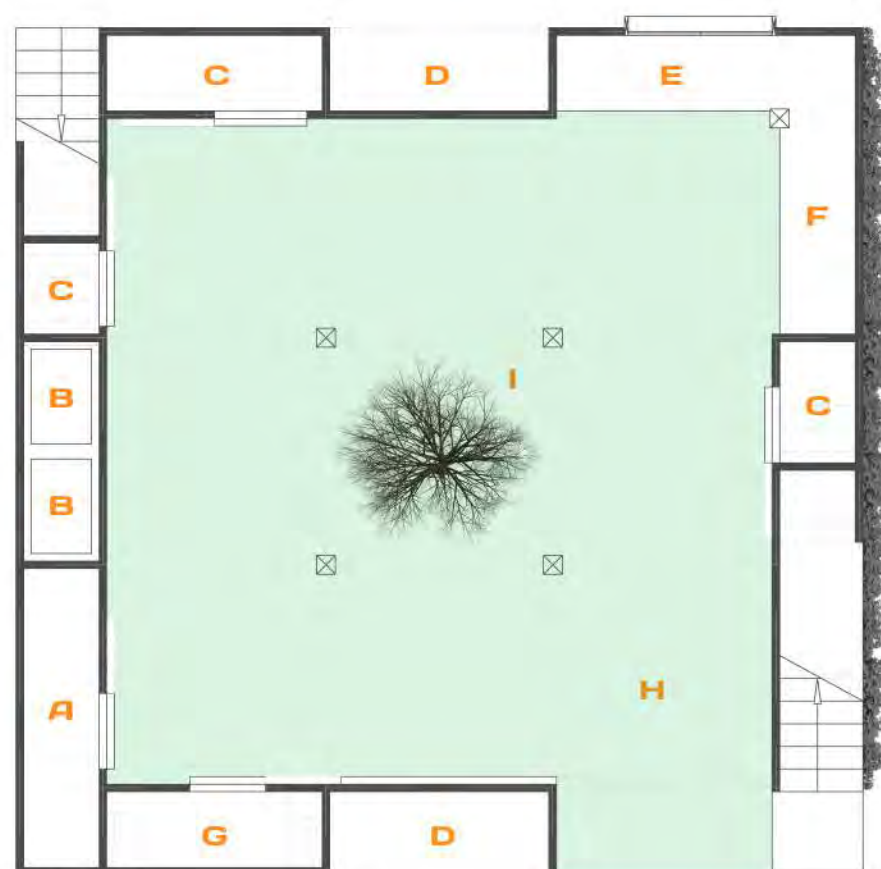


FLAT PACK / DECONSTRUCTIVE DESIGN

FLOOR PLANS //

1:100

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GROUND LEVEL //

- A TECH ROOM
- B WATER TANK
- C STORAGE
- D COMMUNITY / SHARING
(TOOLS, FRUIT, WORM FARM ETC.)
- E WORK BENCH
- F KITCHEN / BBQ
- G TOILET
- H CAR PARK
- I INTERNAL COURTYARD

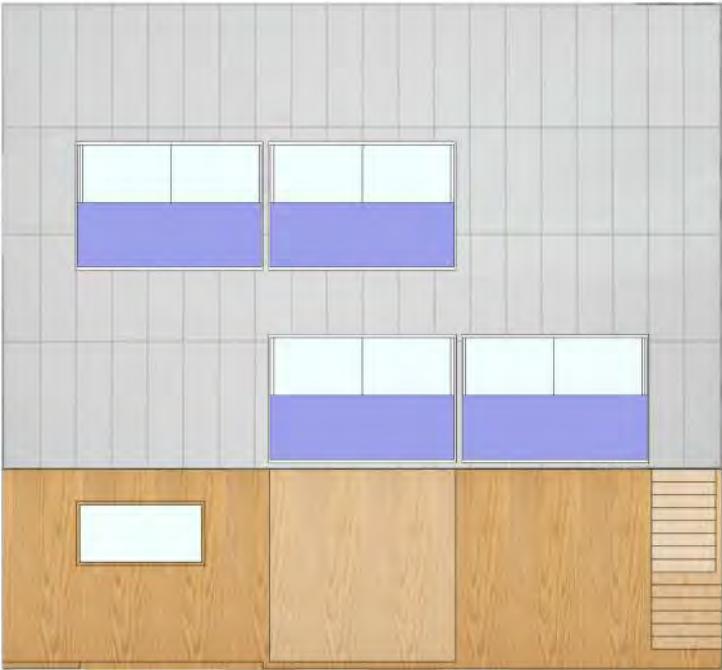
1ST LEVEL //

- A ENTRY
- B KITCHEN
- C LIVING
- D DINING
- E BATHROOM
- F DECK
- G TOILET
- H GARDEN
- I INTERNAL COURTYARD

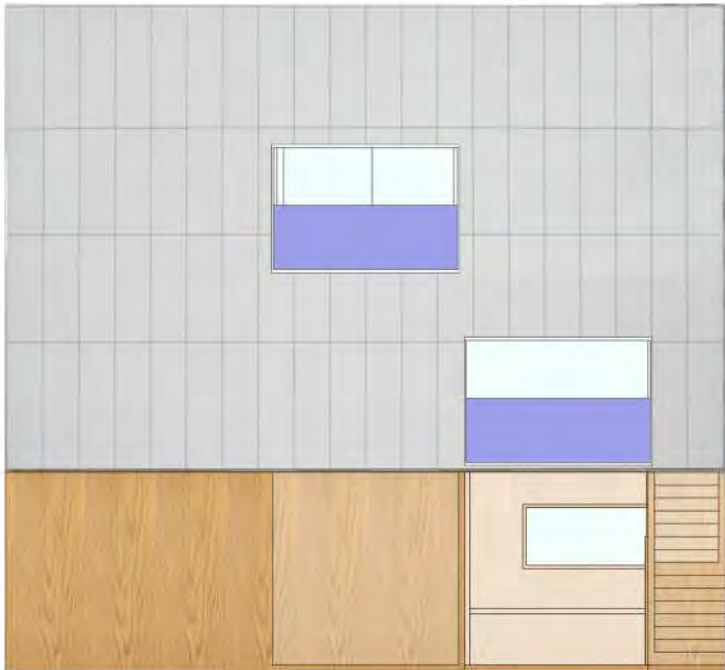
2 ND LEVEL //

- A BEDROOM
- B MASTER BEDROOM
- C BATHROOM
- D DECK
- E TOILET
- F GARDEN
- G INTERNAL COURTYARD

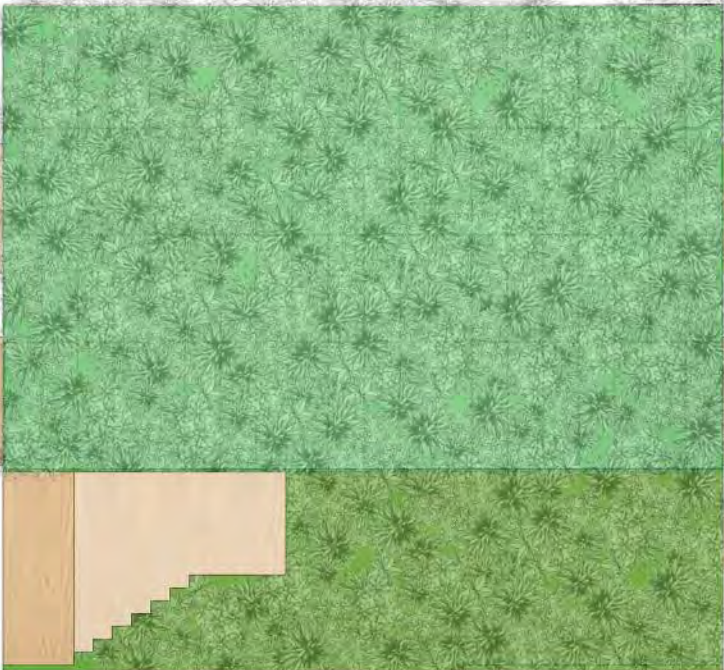
TRANSLUCENT
ELECTRICITY
DAYLIGHT
HEAT (PASSIVE)



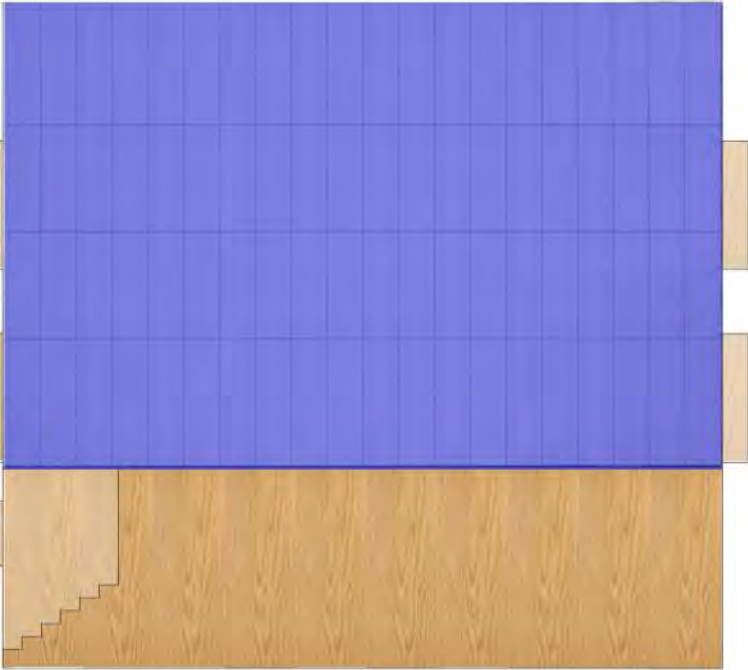
TRANSLUCENT
DAYLIGHT
HEAT (PASSIVE)



TRANSLUCENT + VERTICAL GARDEN
DAYLIGHT
HEAT (PASSIVE)
THERMAL INSULATION



SEMI TRANSLUCENT
ELECTRICITY
DAYLIGHT
HEAT (PASSIVE)



NORTH



SOUTH



EAST



WEST

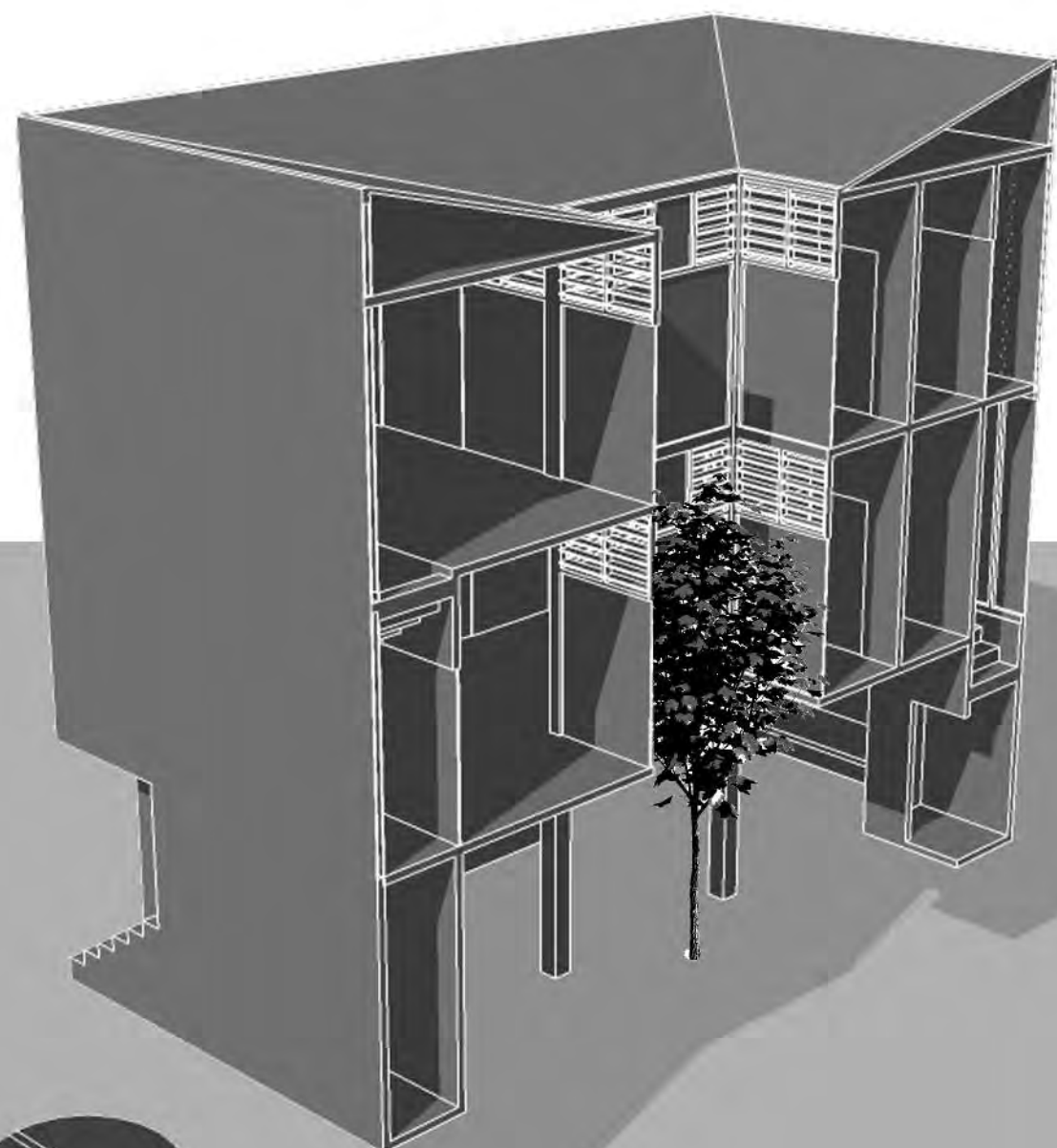
SECTION // A - A

DIMENSIONS AND MATERIALS

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INTERIOR MATERIAL IMPRESSION



+ 9.00 M

+ 8.10 M

+ 5.40 M

+ 2.50 M

+/- 0.00 M

- A WATER TANK
- B COURTYARD
- C STORAGE
- D ENTRY
- E KITCHEN
- F BATHROOM
- G TOILET
- H BACK ENTRANCE
- I DECK





SECTION // B - B

DIMENSIONS AND MATERIALS



EXTERIOR MATERIAL IMPRESSION



▽ + 9.00 M

▽ + 8.10 M

▽ + 5.40 M

▽ + 2.50 M

▽ +/- 0.00 M

0 1 2 3 4 5 10

- A COMMUNITY / SHARE
- B COURTYARD
- C DECK
- D DINING
- E BALCONY / DECK
- F MASTER BEDROOM
- G BEDROOM

B

B

MULTIPLY //

DOUBLE UP AND TRIPLE THAT

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ABOVE 9.00 M
HARVESTING SUN AND WATER

6.00 TO 9.00 M
REST AREAS

3.00 TO 6.00 M
FAMILY AND ENTERTAINMENT

UP TO 3.00 M
COMMUNITY AND SHARING

PUBLIC // VARIATIONS

GREEN ROOF / ROOF GARDEN
ROOF DECK
SOLAR ROOF
SKYLIGHTS

PRIVATE // VARIATIONS

BEDROOMS
GUESTROOMS
OUTSIDE DECK
(VERTICAL) GARDEN

PRIVATE // VARIATIONS

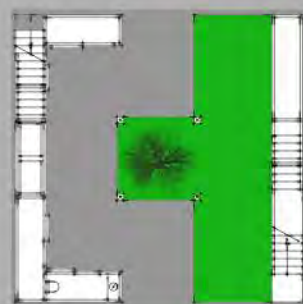
LIVING
KITCHEN
OUTSIDE DECK
BATHROOM
DINING

PUBLIC // VARIATIONS

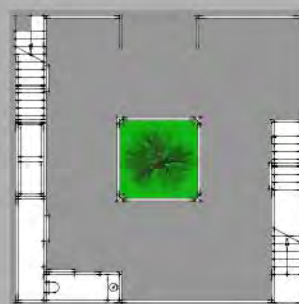
WORKSHOP
OUTDOOR KITCHEN
SHOP
MARKET STALL
URBAN FARM

GROUND LEVEL VARIATIONS //

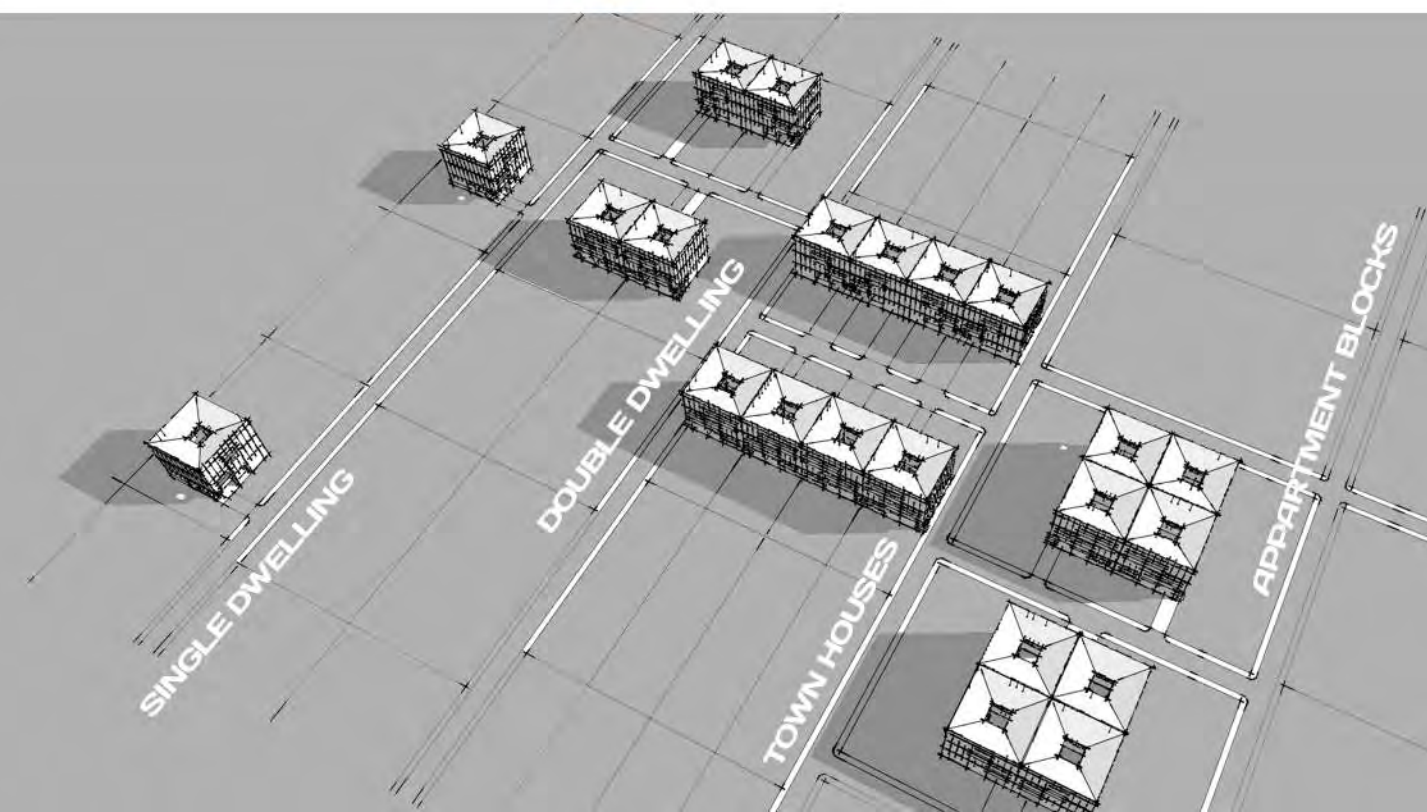
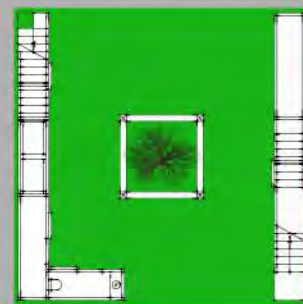
GARDEN / FARM



OFFICE / SHOP



PARK / COMMUNITY



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