Architects perspective on the
ACTIVEHOUSE standard
and case study of
'Newhaven Green'
first accredited UK activehouse

Mirrors to increase solar production and winter sunlight
Solar energy generation
Rainwater harvesting
Heating with far infrared panels
Reducing overheating with solar panels on south facade
Enhancing water, energy and food security
Timber frame design
Reducing and offsetting carbon footprint through innovative, cost-effective design
Building without a negative impact on environment
Electric car charging points
Solar panels: for green energy production and energy income
Responding to Climate Change
Increasing prosperity through passive income
Reducing bills through exceptional design
An entirely new type of affordable housing: homes that generate income and savings
Income and savings of £10,476 a year per household: mostly tax free
Financial independence: moving from debt & rent 'slavery' to economic productivity
Income and savings equal to monthly mortgage payments
New build homes that pay most of their own mortgage
Possibility to be mortgage-free in half the time
Reducing need for housing benefits (aligned with national govt. priorities)
Smart 'Active Oxygen' appliances
Internal atmosphere cleaned and oxygenated by plants (a new method)
Paint that 'digests' pollution
Reducing Electromagnetic frequencies (EMF)
Improving indoor air quality
Air
Addressing local air pollution
Water
Smart water systems
Food
Living Herbal medicinal apothecary inside homes
Smart highly nutritious homegrown food systems
Healthy housing
Planning passed, and relevant planning conditions dispensed
Demolition and site set up complete
Project ready to implement and complete in 2019
Design specifications completed by our professional team (architects, quantity surveyors, project managers, structural engineers, mechanical and electrical engineers, health and safety)
Contractors in place
8 months build period
An exportable 'green growth' business
Aligned with priorities of Newhaven Regeneration Team
Contributing to the transformation of Newhaven's image
Unlocking job creation
Setting profitable green building standards
Proving eco is for everyone: Because it is more profitable than conventional build
Signalling to other developers to move towards ecological design
Symbolizing a positive, new vision of Newhaven
A new template for affordable high spec eco housing, based on 8 years of design and R&D
Building to the highest 'Active House' eco standard
Circular Economy
Reducing reliance on plastic packaging
Converting waste into asset
Converting bills into income
Converting pollution into nutrition
Reducing waste for landfill
Reducing food miles
Emphasising social inclusion
Multi-generational, multi-functional housing
Studio annex to each apartment providing space for extended family / grandparent(s) / carer / additional income
A range of cost-effective luxury features
Proving bigger is more affordable than smaller: homes with an annex, which pays most of the mortgage
Build Cost: the same as a typical budget Housing Association home Reducing build cost by around 25% by self-build


COMFORT
Thermal Environment
Indoor Air Quality
Acoustic Quality
Energy Demand
Primary Energy Performance
Energy Supply
ENERGY
Sustainable Construction
Freshwater Consumption
Daylight
ENVIRONMENT
1
2
3
4

BINS AREA PLAN
1:100
for client comment

Fence to site boundary

New drop kerb for refuse collection local authority waste management team to advise. Design by MbD. MbD to check 1:12 gradient

MbD to liaise with council on status of this area

Arrangement of bins to be designed by others

BIN 1100L BINS

BIN 1100L

BIN 1100L AREA

Block 2
+12.50m
Flats 8&9 GF
Flats 10&11 FF
Flats 12&13 SF

Block 1
+15.15m
Flat 3 GF
Flats 4&5 FF
Flats 6&7 SF
Flat 1 GF
Flat 2 FF

New retaining wall with impact barrier

NORTH LANE

New drop kerb crossing

Landscaping surfaces permeable, refer to drainage designs for further information

Two level bike stand 6no. bikes

occasional parking / turning area

1. Parking Here 2no. EV points

New kerb 2m radius

Crossing has max gradient of 1 in 40 across footway

Bin Area

New drop kerb for refuse collection local authority waste management team to advise. Design by MbD

Bin Area plan please see above for detail

no.19 Lewes Road (Folly Field)

Telephone Exchange

no.11 Lewes Road

no.10 North Lane

no.9 Lewes Road

no.7 Lewes Road

Resin bound porous gravel

Gravel

Planting

N

1:200 | 2m | 4 | 8 | 12

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Revisions:

			Checked
A	30.09.20	Non material amendment application	NS
B	12.10.20	Bin area shown 1:100 for client discussion with local authority waste management team. Drop kerb shown.	

Dwg No.	1506-P-NMA-003
Drawing Title	Proposed Site Plan
Address	North Lane, Newhaven
Client	Miracles by Design
Scale	1:200 @ A3
Stage	Planning
Drawn by	JE
Checked by	NS

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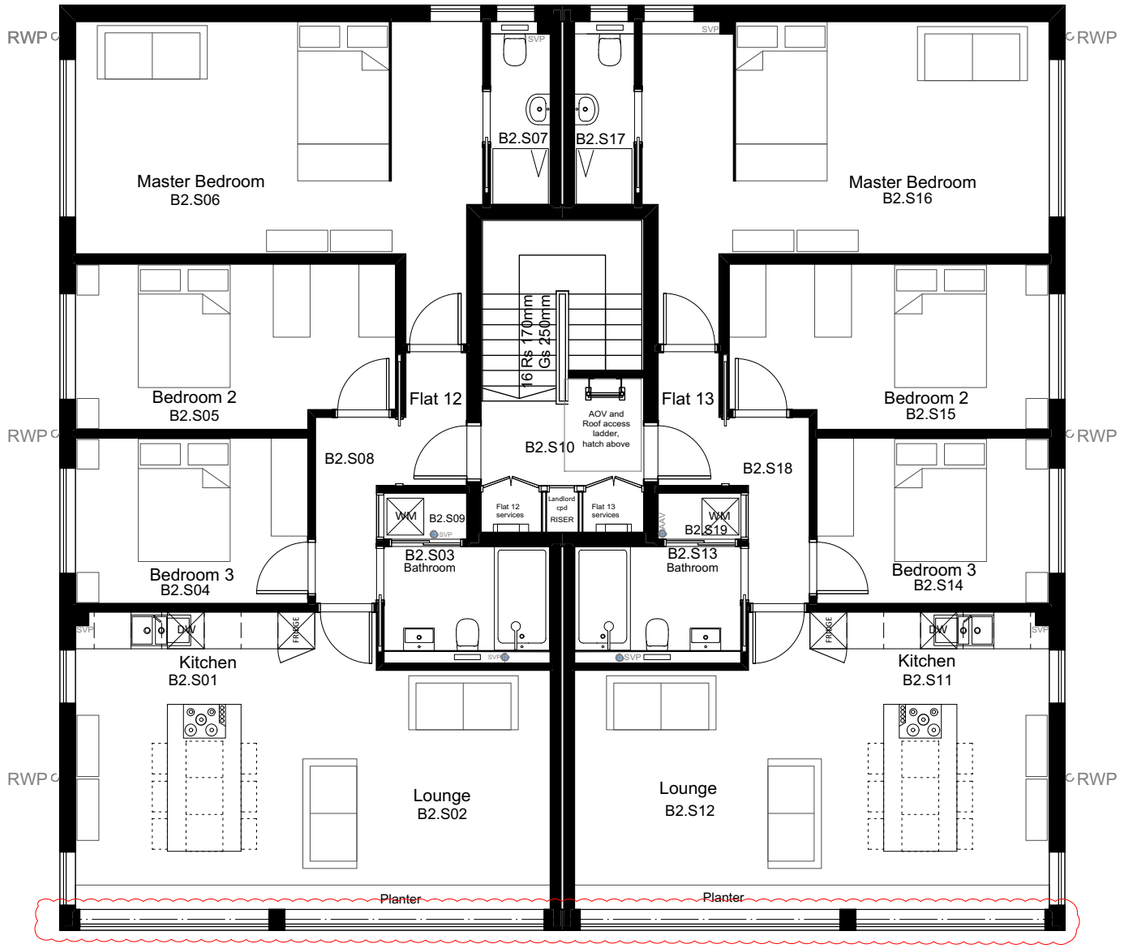

Proposed Second Floor - Block 2

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Revisions:

			Checked
A	30/09/20	Non material amendment application, change to south fenestration (refer to elevations), minor internal alterations, including addition of aeration planters.	NS

1:100 | 1m | 2 | 3 | 4 | 5 | 6

N

Dwg No.	**1506-P-NMA-122**
Drawing Title	Block 2, SF Plan
Address	North Lane, Newhaven
Client	Miracles by Design
Scale	1:100 @ A3
Stage	Planning - NMA
Drawn by	JE
Checked by	NS

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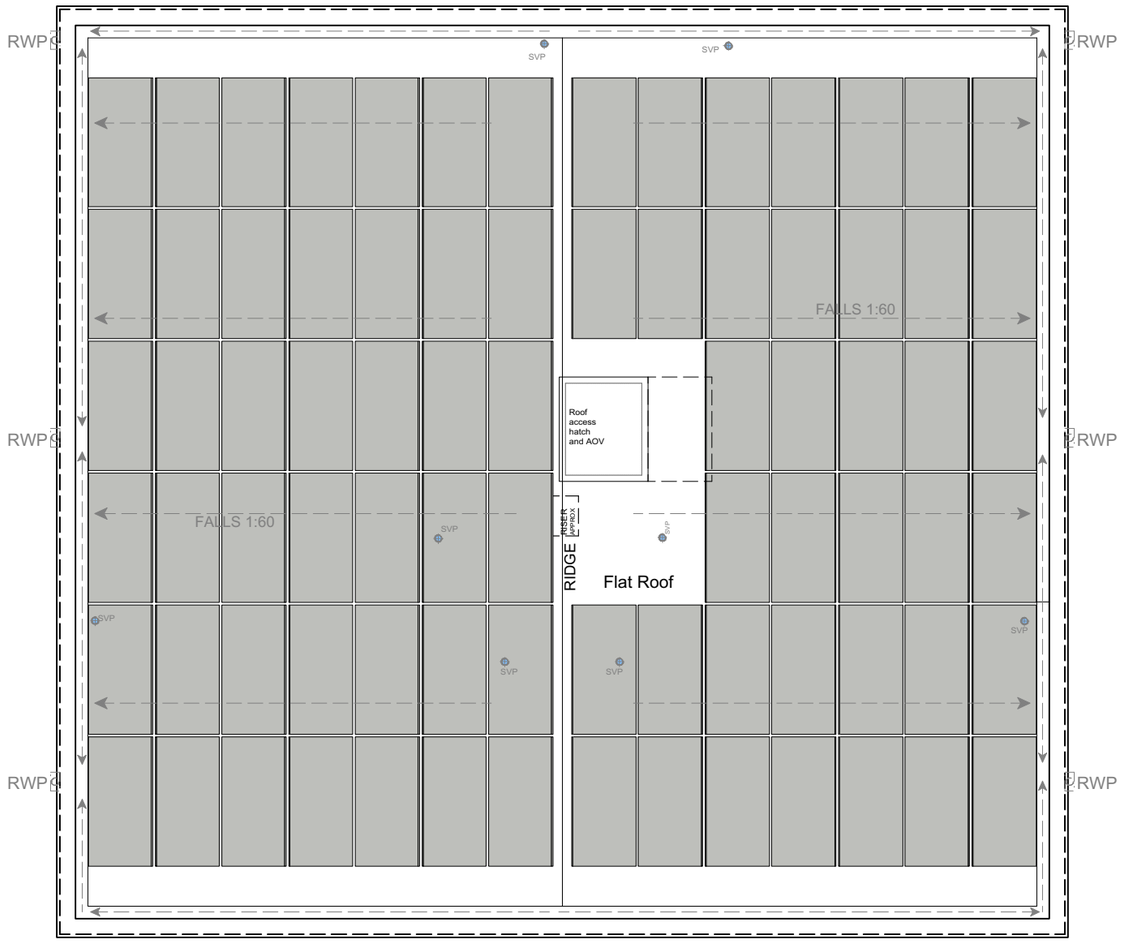

Note. design of PV Panel layout on roof and Fall arrest system entirely by others.

Proposed Roof Plan - Block 2

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Revisions:

			Checked
A	30/09/20	Non material amendment application, additional Solar PV Panels	NS

1:100 | 1m | 2 | 3 | 4 | 5 | 6

N

Dwg No.	**1506-P-NMA-123**
Drawing Title	Block 2, Roof Plan
Address	North Lane, Newhaven
Client	Miracles by Design
Scale	1:100 @ A3
Stage	Planning - NMA
Drawn by	JE
Checked by	NS

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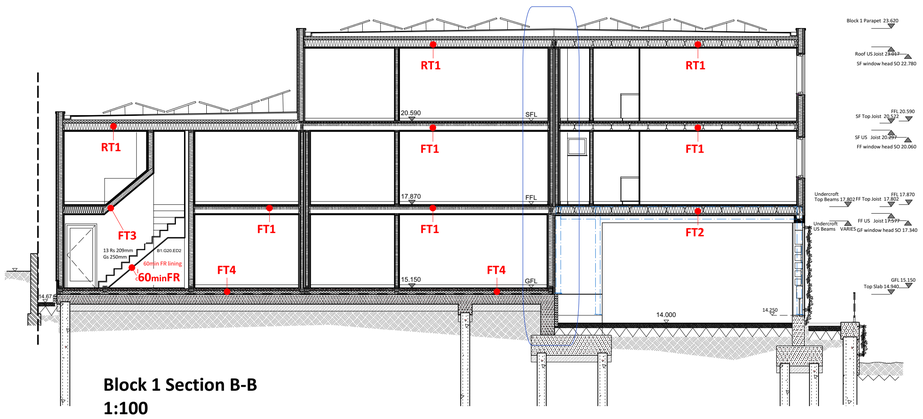
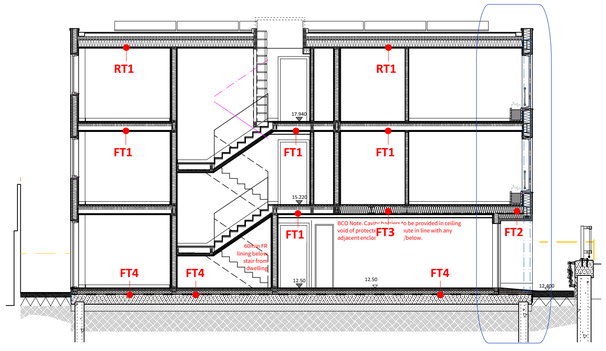
Vertua Concrete Pour - New Haven Case Study

Use of low carbon concrete

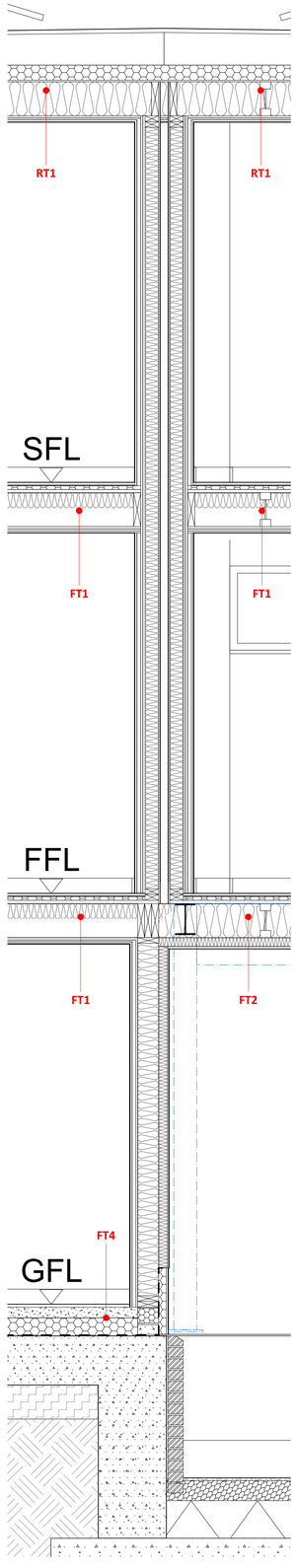


Block 1 Section B-B
1:100



Block 2 Section A-A
1:100

Specification of Natural and low embodied energy materials.



Block 1 Section Showing Build-Ups
1:20 @ A1

PENDING APPROVAL FROM BUILDING CONTROL

Block 1 and Block 2 - Roof and Floor Build-Ups

RT1 - Roof
U=0.13W/(m²K) FR=60min
Single ply membrane Roof, such as Danosa Danopol, to specialist design and to take account of all penetrations and fixing blocks (refer to details),
18mm wbp ply board on
100mm min, SW timber firrings 1:80 falls, ventilated at eaves,
Breathable Membrane (fixed to top noggins), on
100mm NBT Pavatherm Plus insulation, between noggins, noggins fixed to
225mm Joists, to structural engineers specification, filled with
219mm NBT Pavaflex insulation between rafters
12mm Econic fire resistant sheathing board fixed to underside joists,
taped at junctions with NBT airtight tape Pavatex 20-40 or Pavafix 60,
Casoline MF ceiling frame (or similar approved) sized to suit service cavity,
12.5mm Gyproc Plasterboard
with 2mm skim coat plaster

Note. Roof designed to take PVP array, framing for which must be fixed through to blocks that are securely screwed to principle roof structure and subsequently waterproofed around using a GRP roofing system. Details are provided elsewhere.

Roof penertrations will also include SVPs and cable ductingvia riser. Specialist advice on roof waterproofing must be sought and agreed with waranty provider.

FT1 - Intermediate floor (all internal floors including in communal ways)
AI=45dB airbourne & 62dB impact FR=60min
Finish floor to client's choice (assumed 18mm birch ply flooring), on
28mm Cellecta ScreedBoard 28 (dense acoustic composite overlay board) with
Yelofon FS50 perimeter flanking strip, on
(OR ALTERNATIVE JoistDeck Insulated Acoustic Floorboard, awaiting BBA.)
22mm t&g chipboard, fixed to
225x72 Easy posi joists @600mm centres (to structural engineers specification)
100mm Earthwool fabrication slab acoustic insulation between joists fitted on netting,
12mm Econic fire resistant sheathing board fixed to underside joists,
taped at junctions with NBT airtight tape Pavatex 20-40 or Pavafix 60,
Casoline MF ceiling frame (or similar approved) sized to suit service cavity,
2 layers of 12.5mm soundblock plasterboard fixed with with 25mm screws (second layer fixed with 42mm screws, joints staggered. Screws not to touch joists.)
Ceiling finished with 2mm Thistle Mulit finish

Note, to bathrooms use Wedi or similar water resistant board internally

Note, floors in communal areas generally to match FT1 or FT4. with carpet to stairway.

Note. ceiling cavities generally as follows (TBC ON SITE AND WITH M&E SPEC) :
Bathrooms where fan unit located - 140mm MF ceiling system
Bathrooms, cupboards and corridors generally - 80mm MF ceiling system
All habitable rooms - 35mm MF ceiling system, TO ACHIEVE 2350mm FL to CL HEIGHT
boxing out of ducting may be required, with predominantly ducting hidden above units with wall face mounted vents

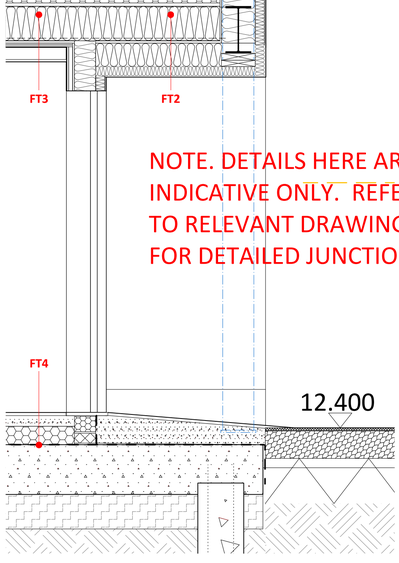
Note. communal areas including stairs to have Class C absorbers to whole ceiling area: use B.Gypsum, 'Gyptone QUATTRO 41 board' to manufacturers instructions to underside of ceiling. OR SIMILAR APPROVED WOOD WOOL PRODUCT.

FT2 - External floor to underpass, Flat 5 (also Flat 6&7 above entrance)
U=0.20W/(m²K) FR=60min
As per FT1, to
225x72 Easy posi joists @600mm centres (to structural engineers specification)
225mm full fill NBT Pavaflex slab insulation between joists,
12mm Econic fire resistant sheathing board fixed to underside joists,
Boxing out around steels where necessary and full fill with Pavaflex,
60mm external insulation - NBT Isolair Board T&G woodfibre boards, with
NBT Base coat render, and
NBT Top coat render, to NBT spec with all corner beads and membranes.

FT3 - Flat 6 & 7 Part Floor to entrance corridor Block 2 (also flat 2 above entrance)
U=0.20W/(m²K) AI=45dB airbourne & 62dB impact FR=60min
As per FT1, to
225x72 Easy posi joists @600mm centres (to structural engineers specification)
225mm full fill NBT Pavaflex slab insulation between joists,
12mm Econic fire resistant sheathing board fixed to underside joists,
Metal resilient bar fixed through to underside of joists (sized to suit service cavity)
1 layer of 12.5mm soundblock plasterboard fixed with with 25mm screws (second layer fixed with 42mm screws, joints staggered. Screws not to touch joists.)
1 layer *'Gyptone QUATTRO 41 board'* to manufacturers instructions, OR
SIMILAR APPROVED WOOD WOOL PRODUCT.
Ceiling finished with 2mm Thistle Mulit finish

Note, common parts to be heated spaces to reduce heat loss elements.

FT4 - Ground Floor build-up
U=0.15W/(m²K) FR=60min
Finish floor to client's choice (assumed 18mm birch ply flooring) on,
8mm acoustic underlay, on
65mm flow screed, on
1200 gauge Polythene seperation layer, on
120mm Jabfloor HP, on
Cordek Tri-Gas DPM, (bonded and sealed by specialist), formed over slab edge,
325mm Concrete Slab to SE specification,
225mm Heave protection, to SE specification, on
blinding and hardcore, to SE specification



Block 2 Section Showing Build-Ups
1:20 @ A1

1:20 1m 2 2.2 2.4
1:100 1m 2 3 4 5 6

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Revisions:

			Checked
**	07/11/2018	Draft issued for fermacell comment	MJ
A	16/12/2019	Issued to supplier and client for comment	NS
B	31/12/2019	Issued to BCO for plan check approval	NS
C	03/02/2020	62dB impact to partition floors	NS
D	05/05/2020	BCO note.	NS
E	08/07/2020	Value Engineering revisions, bubbled	FOR MBD COMMENT

Dwg No. 1506-C-203

Drawing Title	Wall Types Block 1
Address	North Lane, Newhaven
Client	Miracles by Design
Scale	1:20 @ A1
Stage	Construction
Drawn by	mj
Checked by	ns

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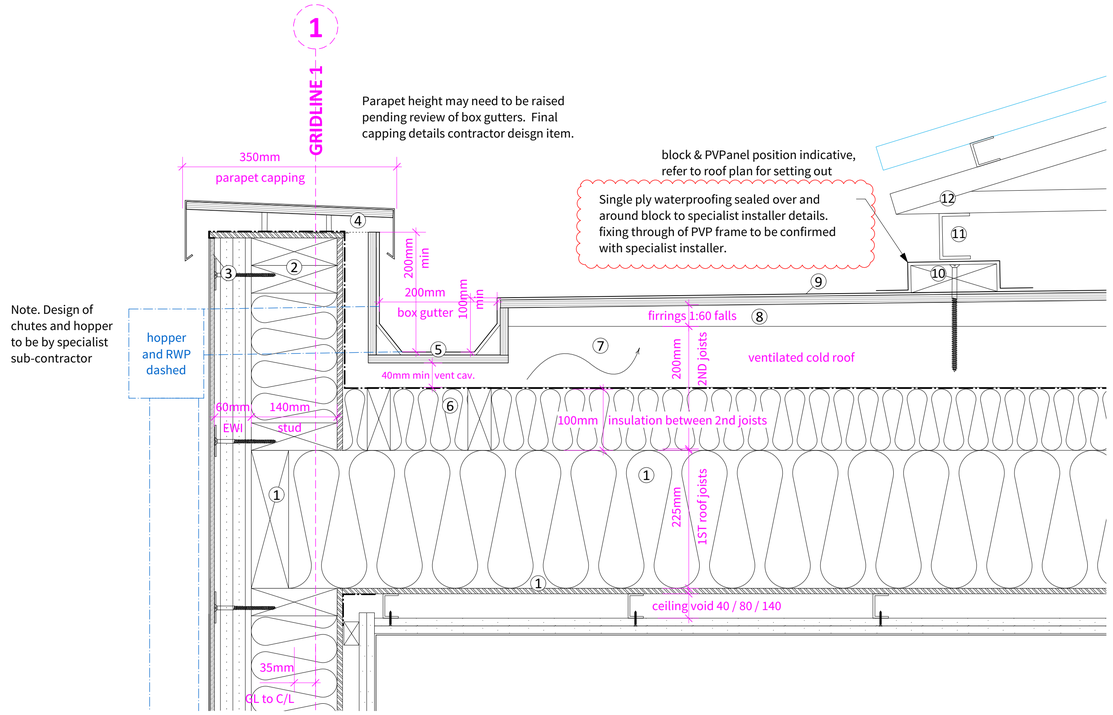
UPDATE AS PER NEIL COMMENTS

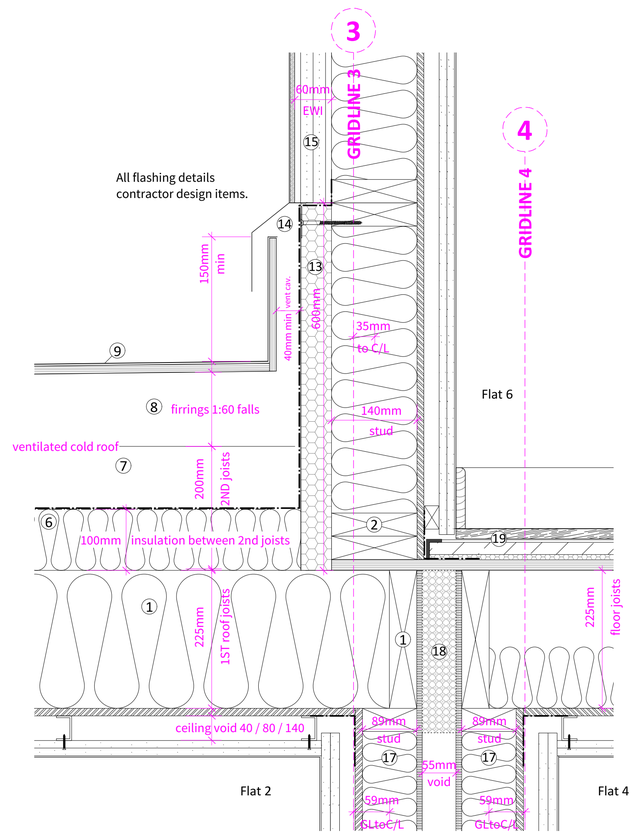


318.1 Section Detail Parapet
Block 1 West / General Box Gutter
1:5 @ A1

KEY

1. Wall plate and roof joists , econic sheathing board to underside of joists with ceiling service cavity and plasterboarding on resilient bars.
2. Parapet formed in 140mm studwork / 140mm studwork wall
3. 60mm Pavatex Isolair EWI with render system, fixed and sealed to suppliers details.
4. Metal coping over parapet, ventilated. Insect mesh to top of 25mm opening for ventilated cavity.
5. Box gutter formed in 18mm ply, lined in single ply membrane 25mm min ventilated cavity using firrings below.
6. 100mm NBT Pavatherm Plus insulation, between noggins (2nd joists) Breather membrane atop and lapped up parapet
7. ventilated cavity, typically 100mm secondary roof joists + firrings atop
8. Firrings, 1:80 falls towards parapet
9. Waterproofing system, Single ply membrane, Danosa Danopol, or similar approved
10. Blocks for fixing Solar PVPanel framing, bolted through to roof joists and waterproofed around using single ply membrane system.
11. INDICATIVE, PFC channel fixed to blocks to take Solar PVPanel framing.
12. PVPanel framing and panel, confirmation on detail and setting out tbc by light renewables.
13. NBT Perimeter board of similar approved, fixed to studs, to form upstand to flat roof abutment, BM wrapped up and sealed at top, 25mm ventilated cavity formed on face.
14. Flashing formed over 18mm ply upstand, with waterproofing system, to form ventilated cavity, insect mesh over top of ventilated slot.
15. 60mm Pavatex Isolai EWI with render system, sealed to flashing to suppliers details.
16. n/a
17. Party wall, mirrored 89mm studs with econic sheathing fire lining (detailed elsewhere).
18. Sealmaster firefoam to top of party wall void to create fire barrier from Flat 6 floor.
19. Flat 6 acoustic floor build up and floor finishes, detailed elsewhere.

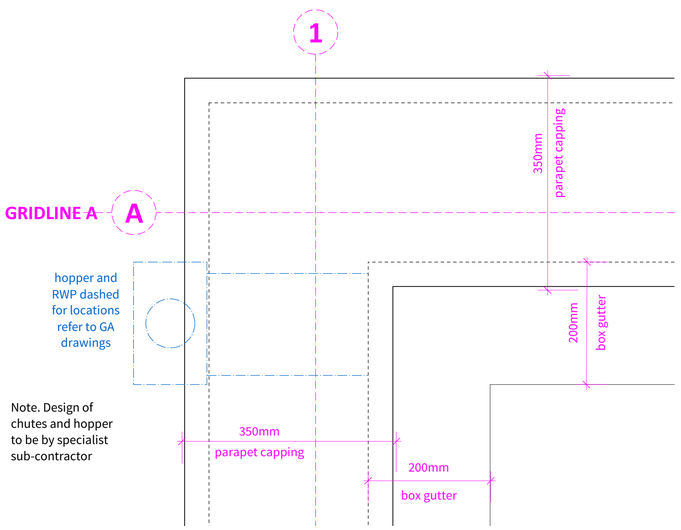
Note. roof is laid to falls 1:60 However box gutter is laid flat around perimeter of roof. Waterproofing details in accordance with manufacturers recommendations (suggested use of Danosa Danopol) and installed by specialist subcontractor providing all necessary guarentees, insurances etc. Assent (on behalf of ICW) to confirm if flat box gutters are acceptable prior to commencement of associated works. Client to confirm compliance.



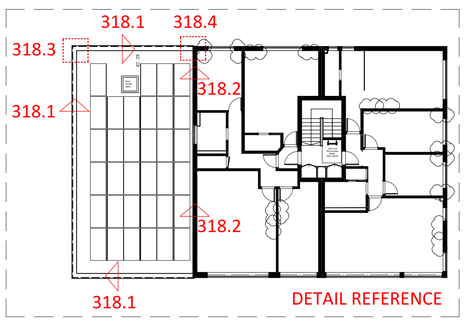
All flashing details contractor design items.

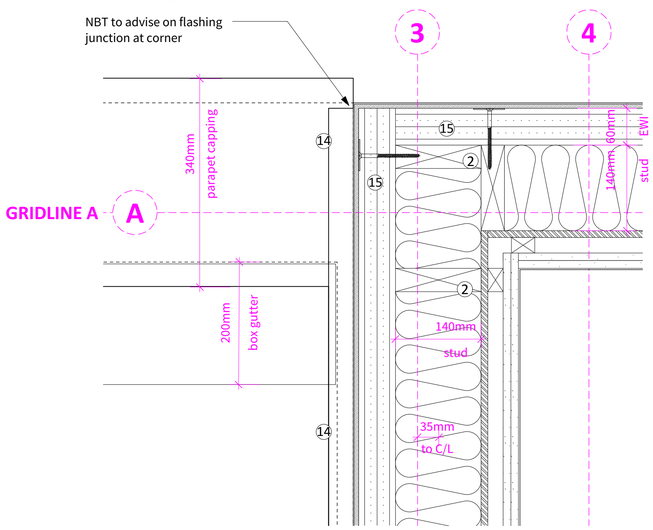
318.2 Section Detail FF Roof to SF Roof
Block 1 West
1:5 @ A1

Timber frame construction aiming for high standards of airtightness etc.



318.3 Plan Detail Roof Corner
Block 1 North West Corner
1:5 @ A1





318.4 Plan Detail FF Roof to SF Roof
Block 1 North
1:5 @ A1

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Revisions:

			Checked
//	30.12.19	Issued to BCO for plan check queries	NOT CHECKED FOR COMMENT ONLY
A	05.05.20	Notes for BCO plan check queries	NOT CHECKED FOR COMMENT ONLY
B	07.05.20	Note regarding box gutters and single ply roofing	NOT CHECKED FOR COMMENT ONLY

DRAFT PENDING APPROVAL FROM BUILDING CONTROL

1:5 0.1m 0.2 0.3

Dwg No.	1506-C-318
Drawing Title	Block 1 - Roof Details
Address	North Lane, Newhaven
Client	Miracles by Design
Scale	1:5 @ A1
Stage	Construction
Drawn by	JE
Checked by	NS

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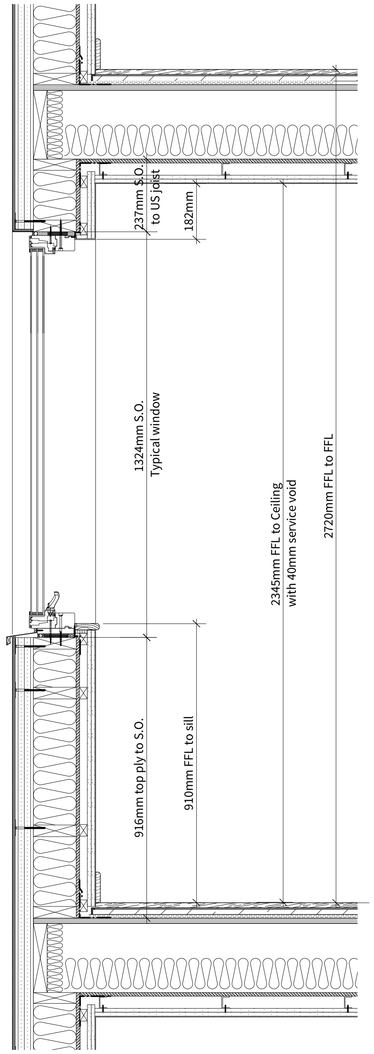
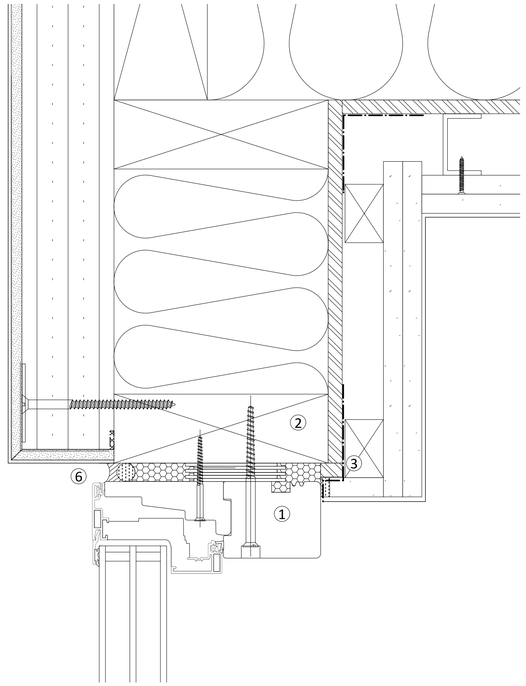
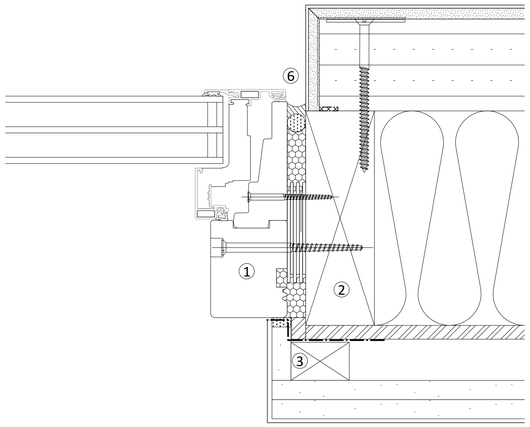


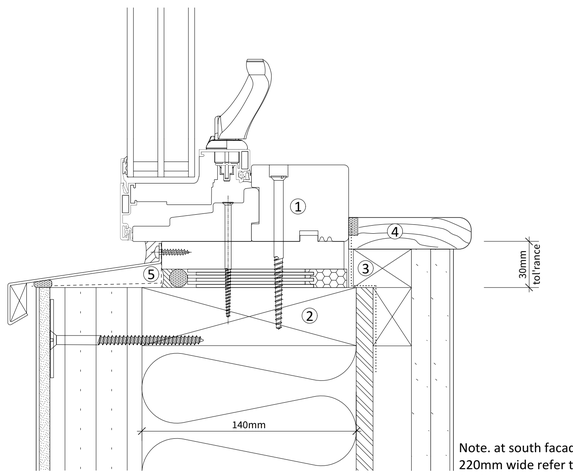
313.0 Section showing levels
1:10 @ A1



313.2 Section Detail Generic
Window Head
1:2 @ A1



313.3 Plan Detail Generic
Window Jamb
1:2 @ A1



Note. at south facade studwork is 220mm wide refer to 1506-C-311 for further informaiton. Details of planter to be situated at sill of south facade windows to follow.

313.1 Section Detail Generic
Window Sill
1:2 @ A1

KEY

①	Ideal Combi Window frame and system, all to manufacturers details
②	Window frame fixed to studwork as per manufacturers details
③	Airtightness tape lapped from internal sheathing later onto window frame
④	Timber sill, to client spec.
⑤	Window sill sealed externally over EWI as per NBT details, see drawing TF-R-WO-VS01 , Detail-A for further details. NBT to comment on Ideal combi sill
⑥	Window sealed externally over EWI as per NBT details, see drawing TF-R-WO-VH01 , Detail-A for further details. NBT to comment on Ideal combi sill

Building Control Note.

Guarding design to openable windows below 1.1m to be capable of resisting at least the horizontal force as given in BS 6180:2011
Safety glazing to be installed in accordance with BS 6206. For locations of guarding refer to GA Elevations 1506-C-115 & 116 (Block 1).

Ground floor and other easily accessible windows should be secure windows and comply with Section 2, Q1 (unauthorised access).

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Revisions:

			Checked
//	30.12.19	Issued to BCO for plan check queries	NOT CHECKED FOR COMMENT ONLY
A	22.01.20	Add section showing levels	NOT CHECKED FOR COMMENT ONLY

DRAFT PENDING APPROVAL
FROM BUILDING CONTROL

1:5 0.1m 0.2 0.3

Dwg No. 1506-C-313

Drawing Title	Block 1 - Window Details
Address	North Lane, Newhaven
Client	Miracles by Design
Scale	1:5 @ A1
Stage	Construction
Drawn by	JE
Checked by	NS

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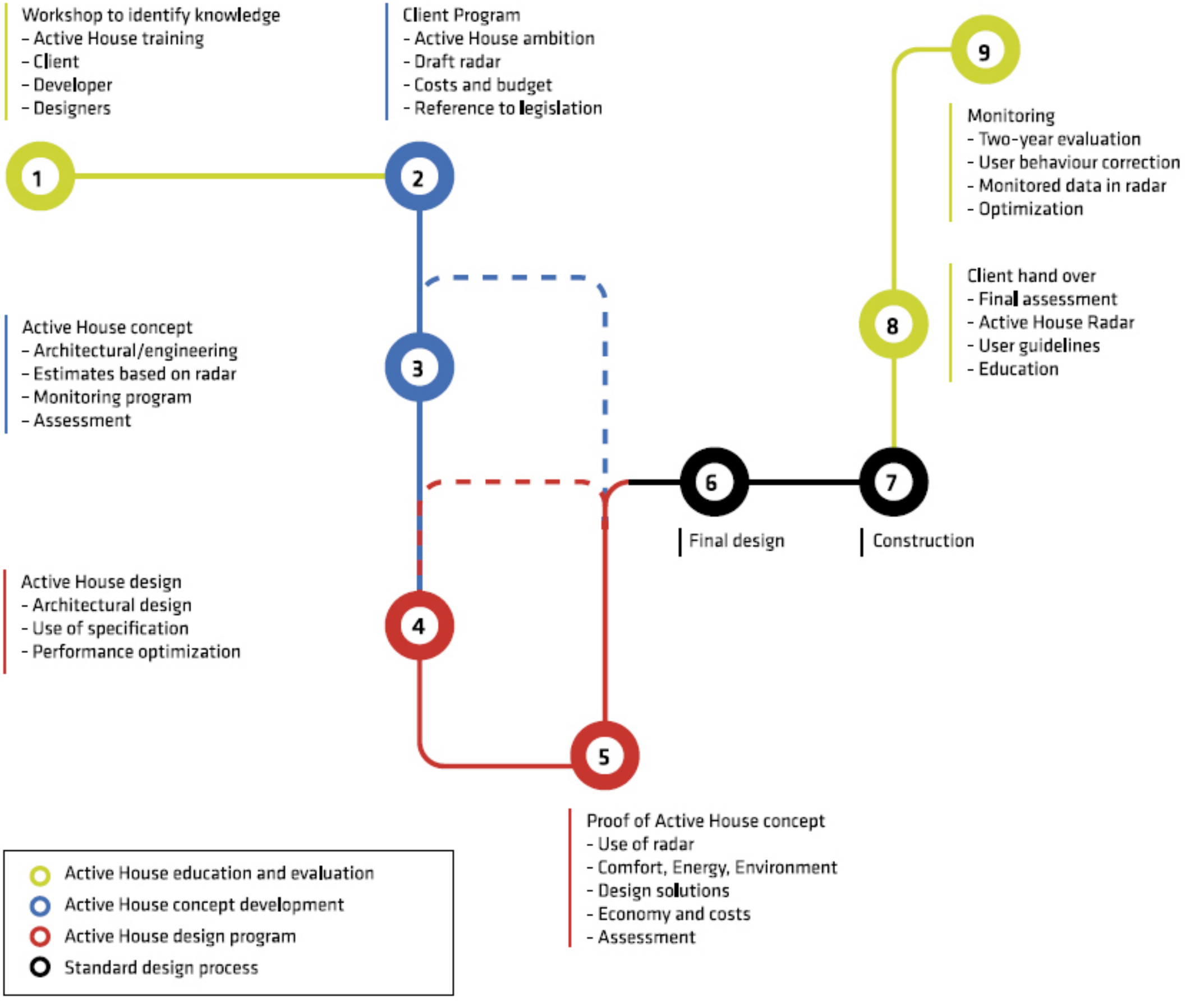
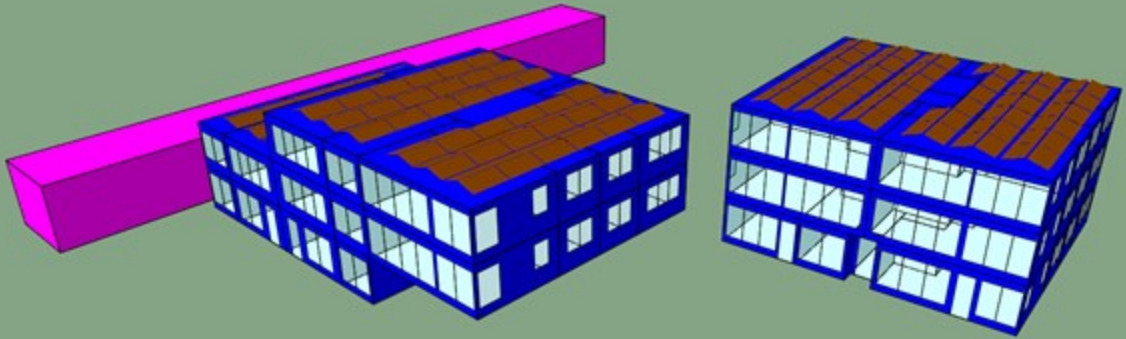
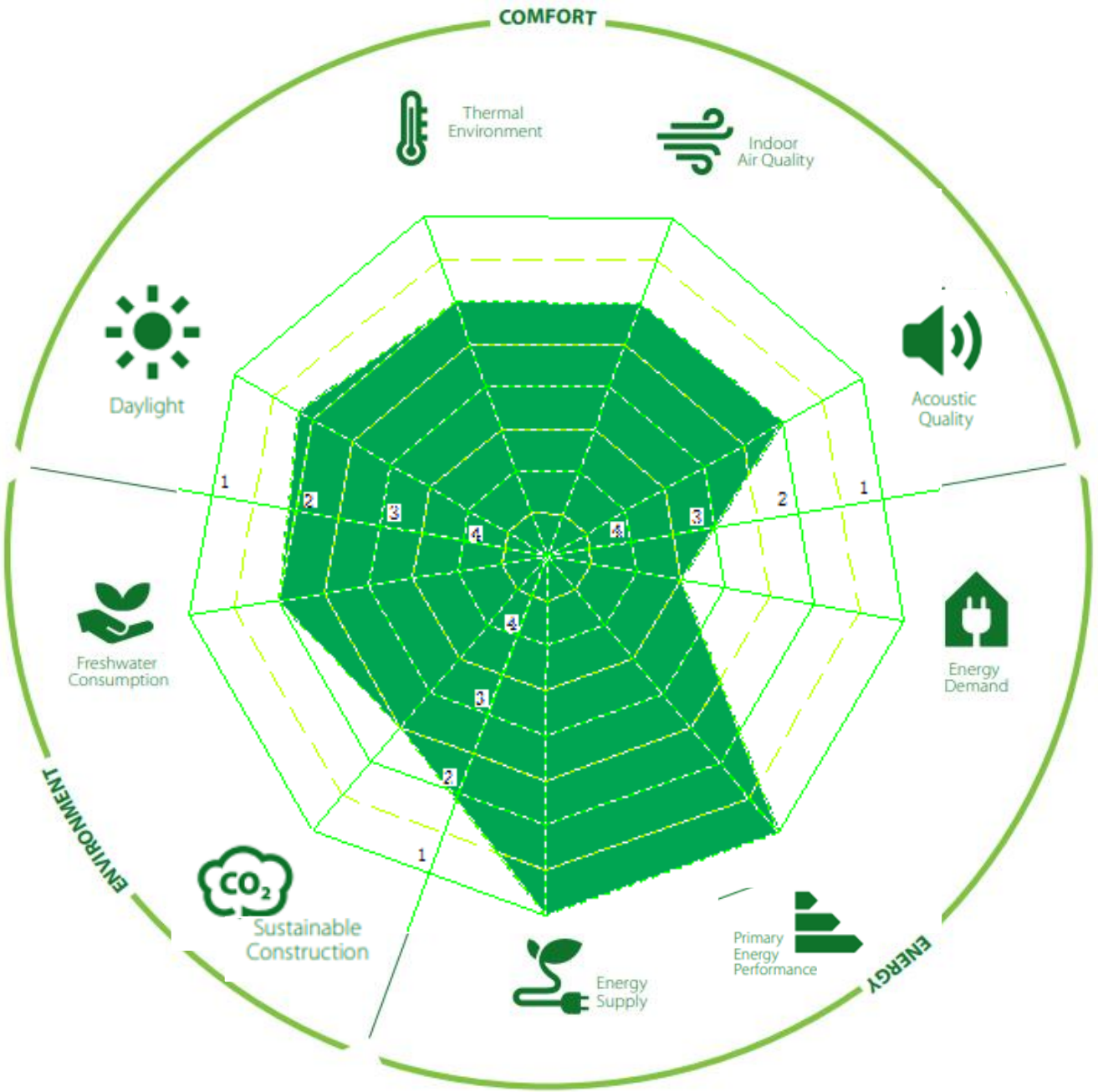
RECOMMENDED STEPS FOR ACTIVE HOUSE PLANNING







All indicators above lowest passing level.

-

Average score of 1.97 (required to be 2.5 or lower)

-

Thus has achieved the activehouse label!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