General data



MODULAR TIMBER FRAME HOUSE

L-shaped · 2 modules · flat roofs

MODULES (WITH FINISHES)
A – 7.20 × 3.60 m; B – 4.80 × 3.60 m

OVERALL SIZE
7.20 × 8.35 m, height 3.31 m (from the piles)

FOOTPRINT
43.0 m²

INTERNAL AREA
32.4 m²: living room with kitchen, bathroom, bedroom

CEILING HEIGHT
2.55 m

STRUCTURE
timber frame C24 45×145 at 600 mm

INSULATION
mineral wool: walls 145, floor 195, roof 195 mm

ELEVATION
charred and natural timber boards, vertical

ROOF
flat, EPDM, 2° fall, parapets

WINDOWS AND DOORS
PVC, anthracite, triple glazing

FOUNDATION
14 screw piles with adjustable heads

PRODUCTION
in the factory – fully finished modules

ASSEMBLY ON SITE
by crane: bolting together, joints, terrace

FROM FACTORY TO HOUSE



1. Factory

Two fully finished modules: frame, insulation, windows, finishes



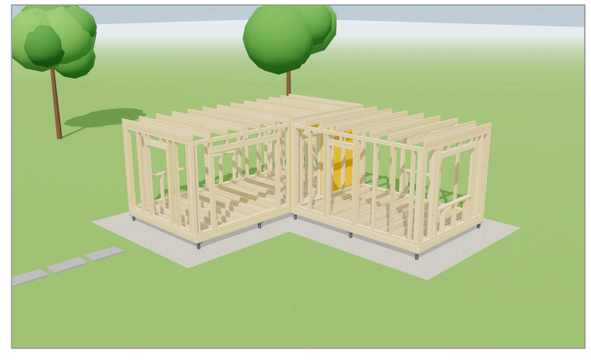
2. Transport

Two low-loader trailers, width 3.60 m



3. Assembly

On piles by crane, bolted with M16 bolts



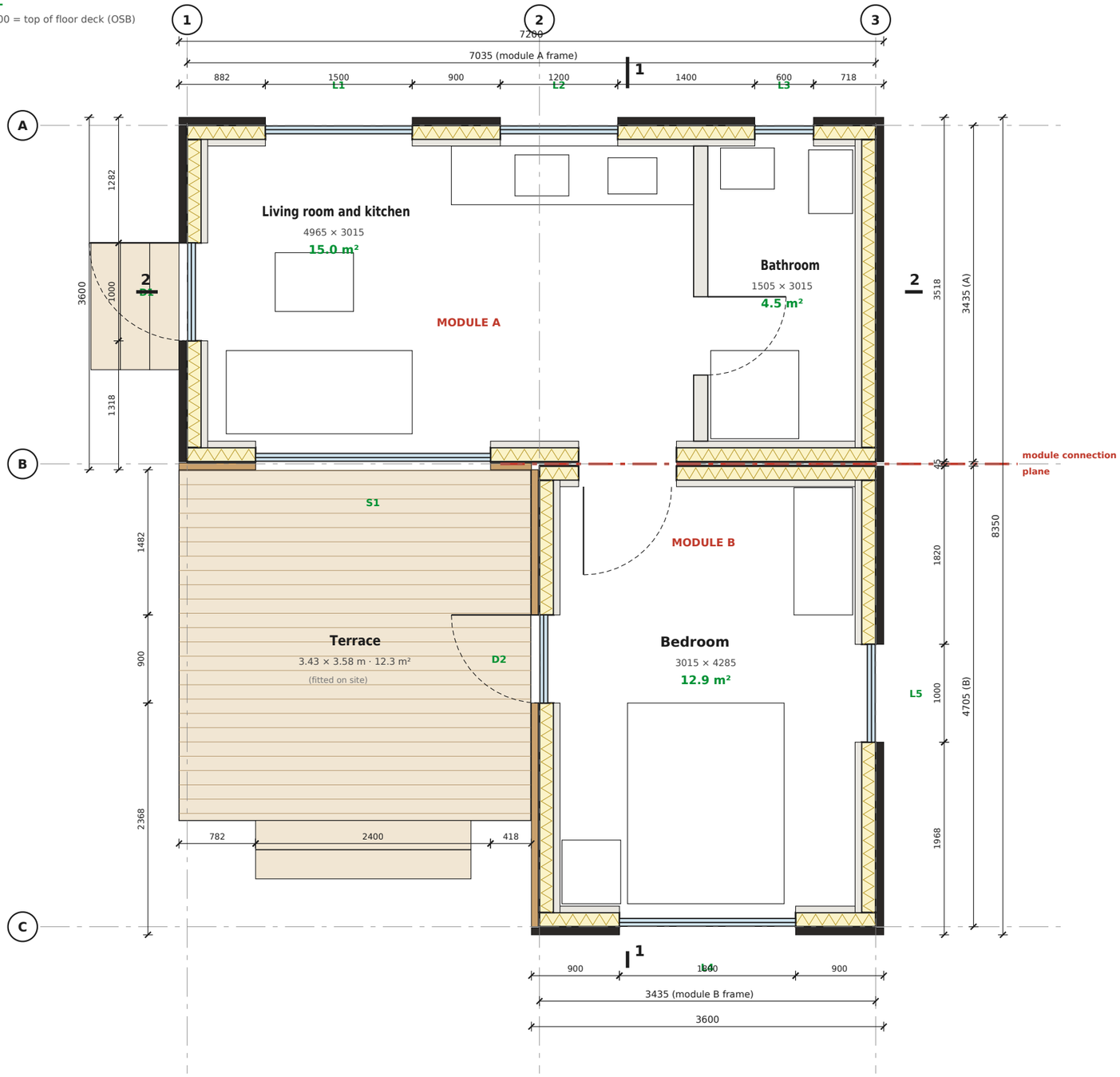
Frame

Walls 45×145, floor and roof joists 45×195

Plan

PLAN

1:50 · ±0.000 = top of floor deck (OSB)



ROOMS

Nr.	Room	Module	Area, m²
1	Living room and kitchen	A	15.0
2	Bathroom	A	4.5
3	Bedroom	B	12.9
	Total		32.4
	Terrace (on site)	–	12.3

LEGEND

- charred timber boards on a double batten frame
- natural timber boards (terrace side)
- frame 45×145 + mineral wool 145
- internal finish: OSB 12 + battens 28×45 + 2×plasterboard
- PVC windows and doors, anthracite
- module connection plane (see M-14)

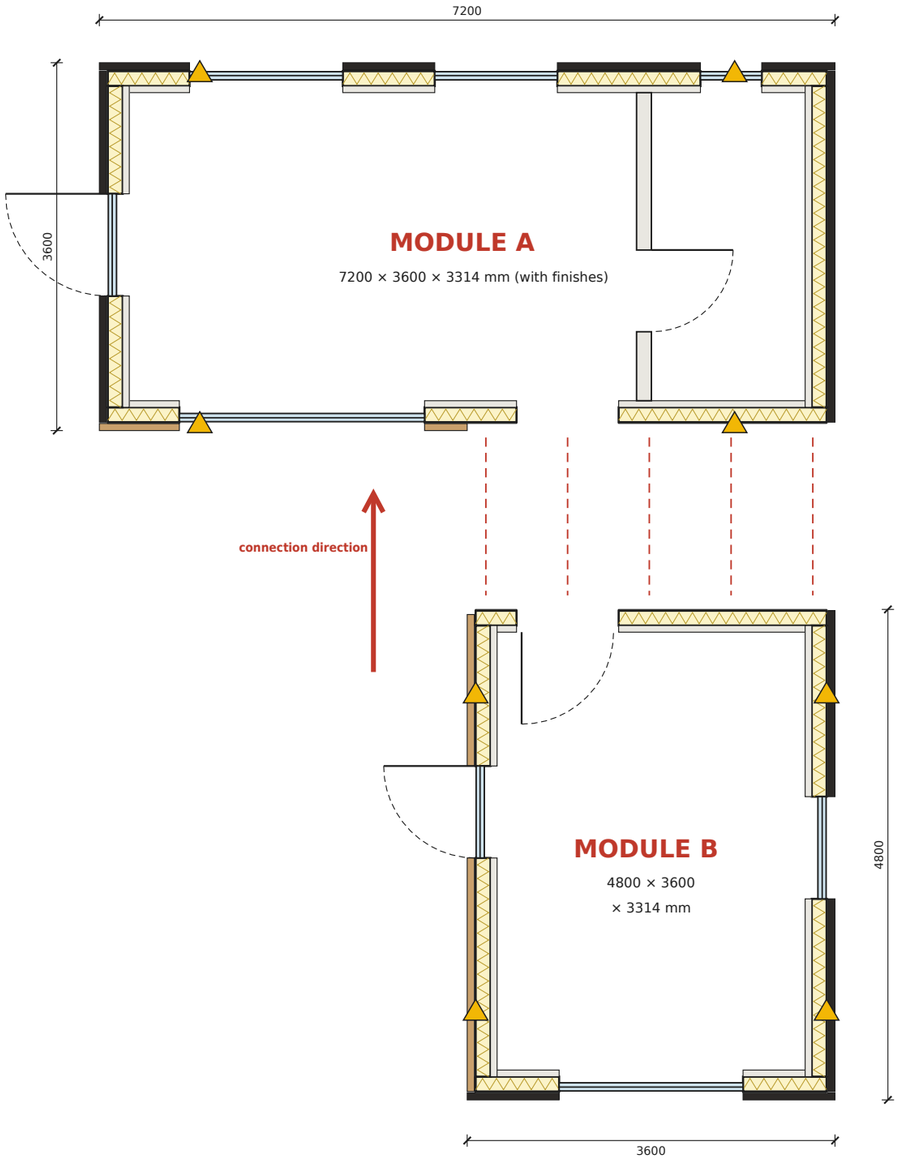
NOTES

Dimensions – frame (without finishes) and external (with finishes).
Wall thickness 292 mm: boards 20, double batten frame 2×25, sheathing board 12.5, frame 145 + insulation, OSB 12, battens 28, plasterboard 2×12.5.
At the connection – a double wall (A and B), with a 20 mm sealing gap between them; opening 1000 × 2100 mm.
L1–L5 – windows, D1, D2 – doors, S1 – sliding door (HS), A1 – connecting opening (trim fitted on site).
Furniture shown indicatively.

Modules, transport and assembly

MODULES

1:60 · two separate, fully finished volumetric modules are made in the factory





Modules in the factory – fully finished



Transport on two trailers



Craning onto screw piles



Joined house with terrace

MODULE DATA

	Module A	Module B
Overall size with finishes, mm	7200 × 3600 × 3314	4800 × 3600 × 3314
Frame dimensions, mm	7035 × 3435	4705 × 3435
Internal area, m²	19.5 (living room, kitchen, bathroom)	12.9 (bedroom)
Floor cassette	joists 45×195 at 400, edge beams 2×45×195	joists 45×195 at 400, edge beams 2×45×195
Roof fall 2°	to the rear wall (axis A)	to the right wall (axis 3)
Piles	8 pcs	6 pcs
Lifting	4 points, slings under the floor cassette	4 points, slings under the floor cassette

▲ lifting points (slings with spreader beam) — — — — connection bolts M16 (see M-14)

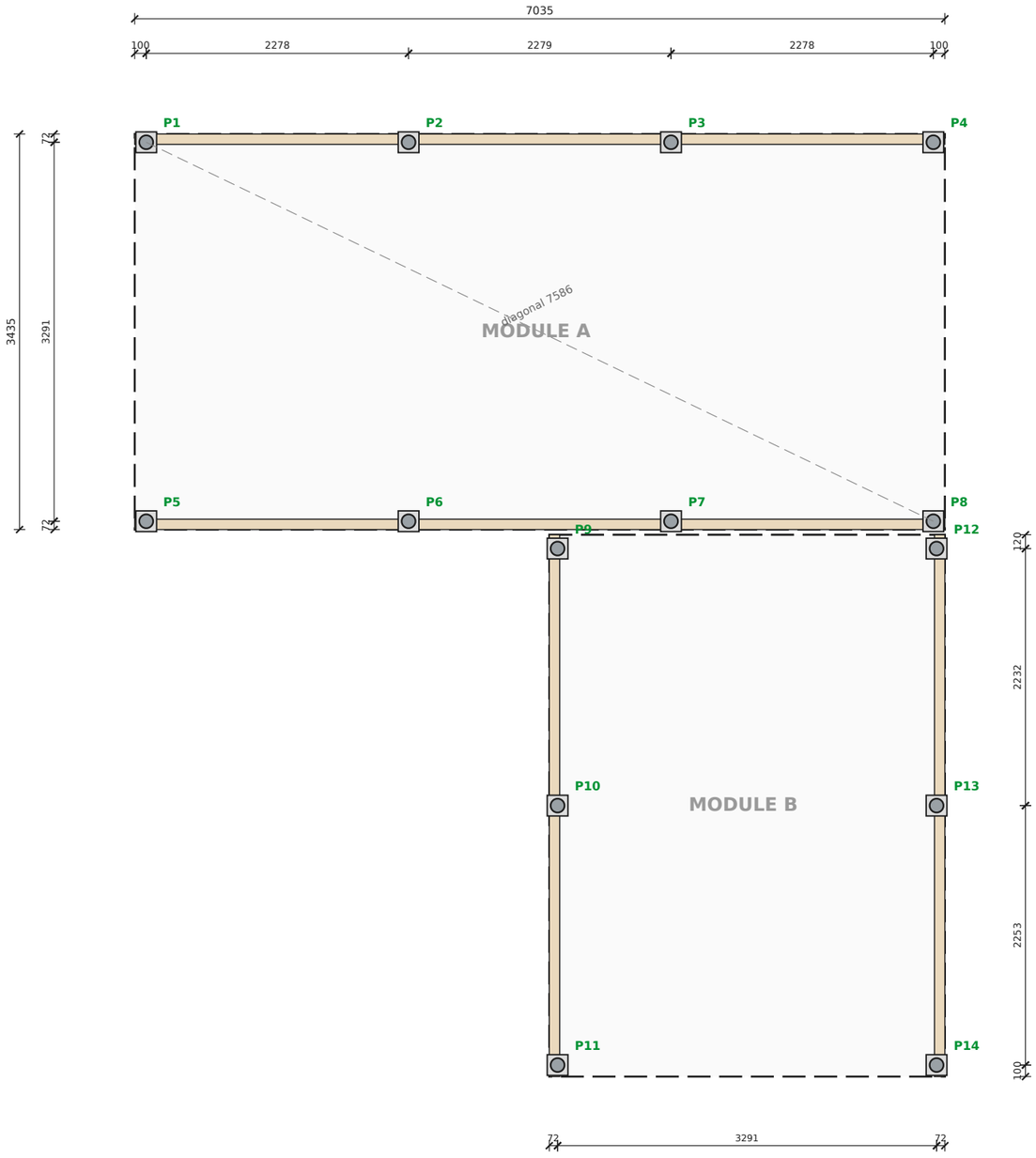
In the factory: floor cassette, wall frame, insulation, sheathing board, windows and doors, cladding, roof with EPDM, internal finishes, electrical and plumbing runs. Loose boards and flashings are left at the connection zone.

On site: screw piles, setting the modules by crane, bolting, sealing the joint, shared parapet flashing, loose boards, trim of the connecting opening, connecting services, terrace and steps.

Pile plan

PILE PLAN

1:50 · screw piles Ø89 with adjustable heads, 14 pcs



PILE COORDINATES (from the intersection of axes 1 / A)

Pile	X, mm	Z, mm	Module	Top of head
P1	100	72	A	−241
P2	2378	72	A	−241
P3	4657	72	A	−241
P4	6935	72	A	−241
P5	100	3363	A	−241
P6	2378	3363	A	−241
P7	4657	3363	A	−241
P8	6935	3363	A	−241
P9	3672	3600	B	−241
P10	3672	5832	B	−241
P11	3672	8085	B	−241
P12	6963	3600	B	−241
P13	6963	5832	B	−241
P14	6963	8085	B	−241

Pile heads at one level (−0.241 from the top of the floor deck), tolerance ±2 mm.

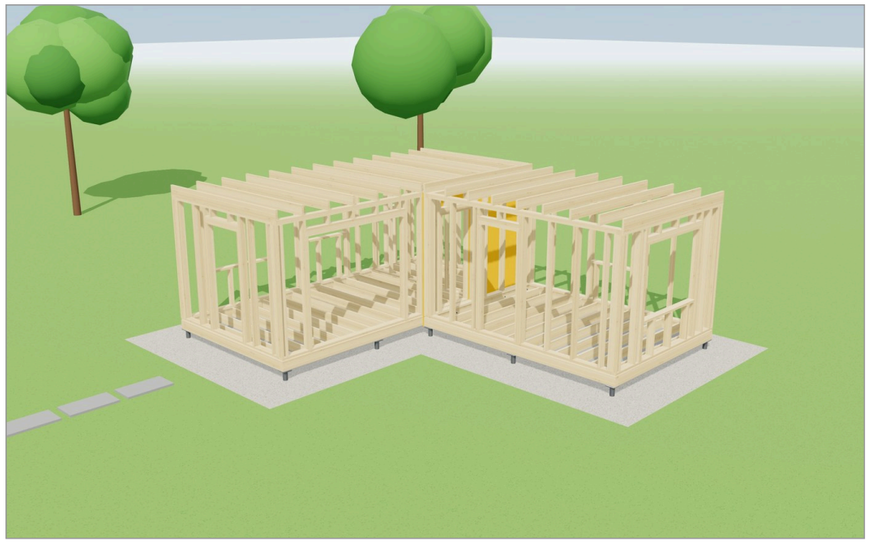
Head plate 180 × 180 × 12, adjustable ±40 mm; the module is fixed to the head with 2 coach screws 10×120.

Pile length and diameter to be confirmed by soil investigation and a trial installation.

Under the modules – a 200 mm ventilated void; ground levelled, geotextile + 100 mm crushed stone.

The edge beams of the floor cassette 2×45×195 bear on piles at ≤ 2.3 m.

At the connection zone the piles of modules A and B are separate (P6–P8 and P9, P12).

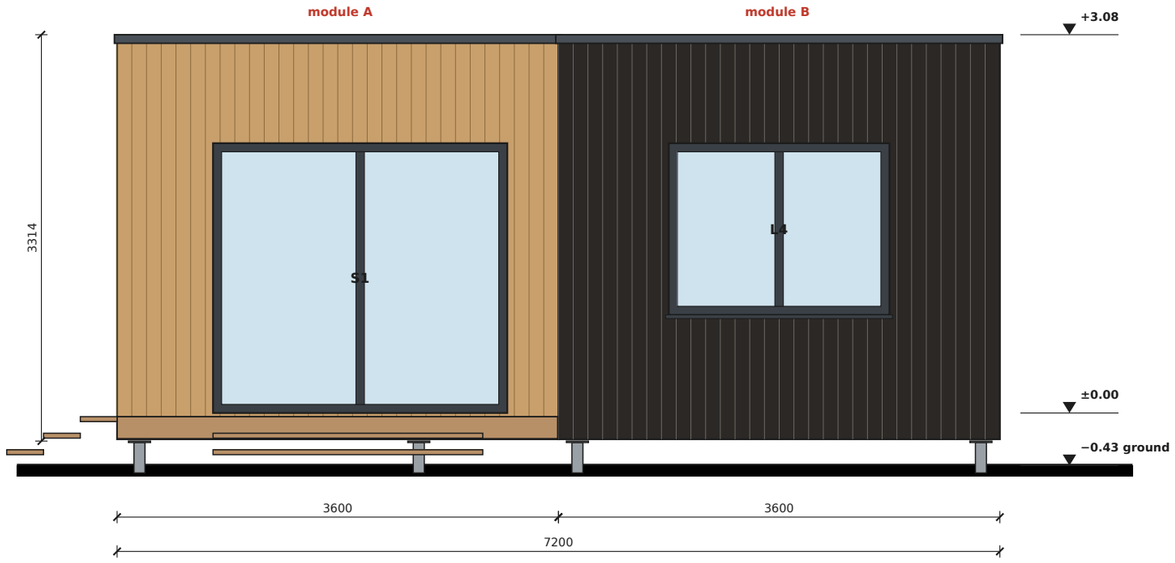


Frame on screw piles

Elevations C and 1

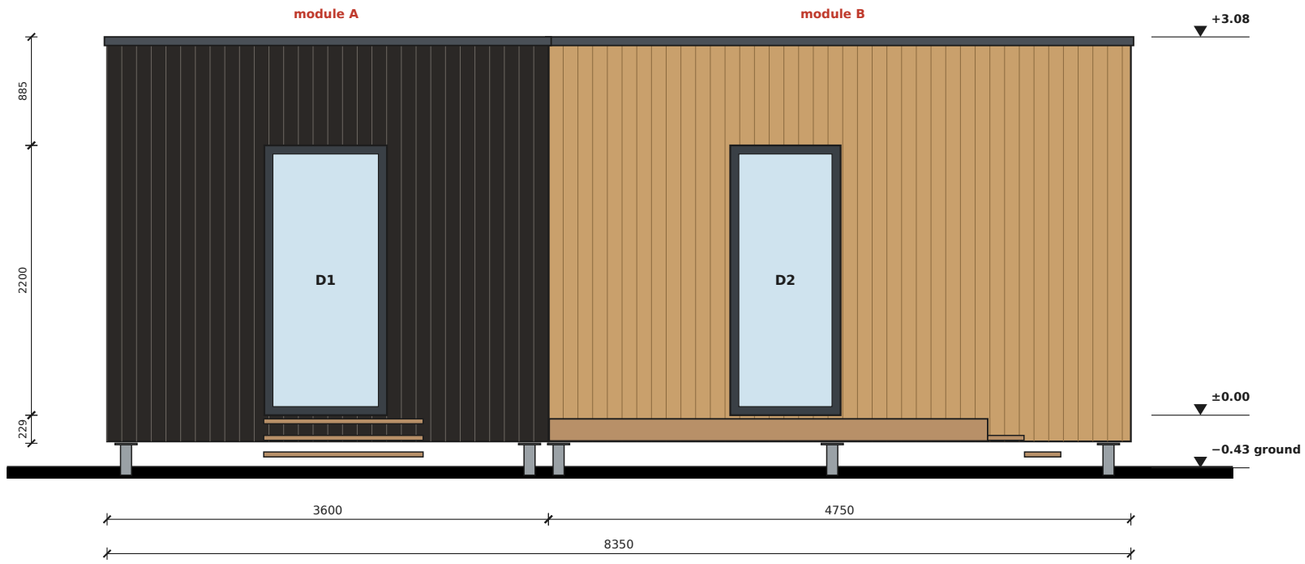
ELEVATION C (front, terrace side)

M 1:50



ELEVATION 1 (left, entrance)

M 1:50





View from the terrace side



Terrace: sliding door S1 and bedroom door D2

Cladding: vertical tongue and groove boards 20×120 on a double ventilated batten frame 2×25×45.

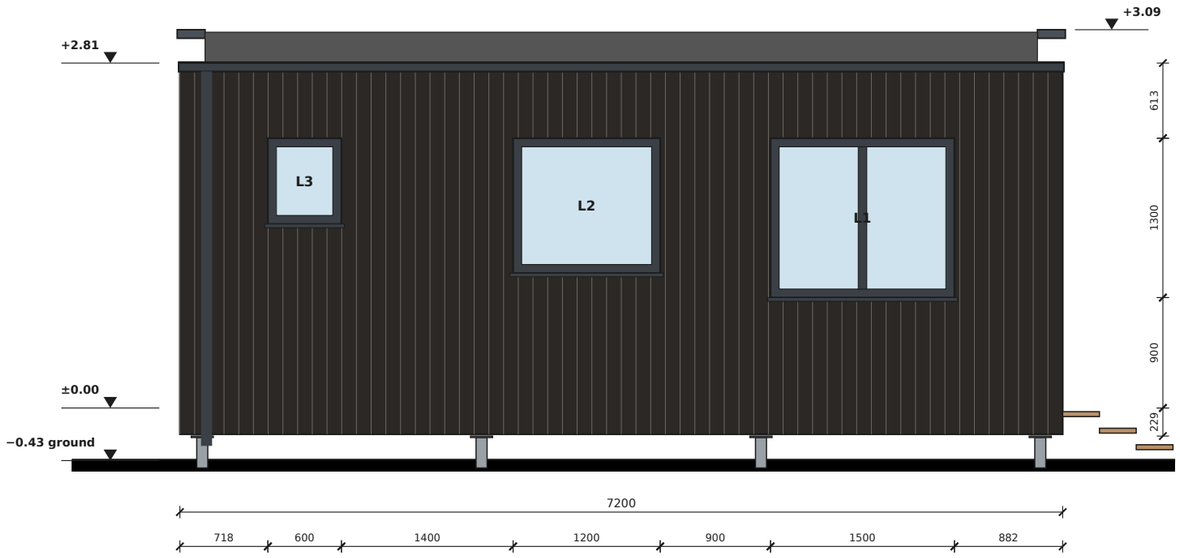
Black – charred timber, light – natural timber (terrace side). Parapet flashings – dark grey.

Windows and doors – PVC, anthracite (RAL 7016).

Elevations A and 3

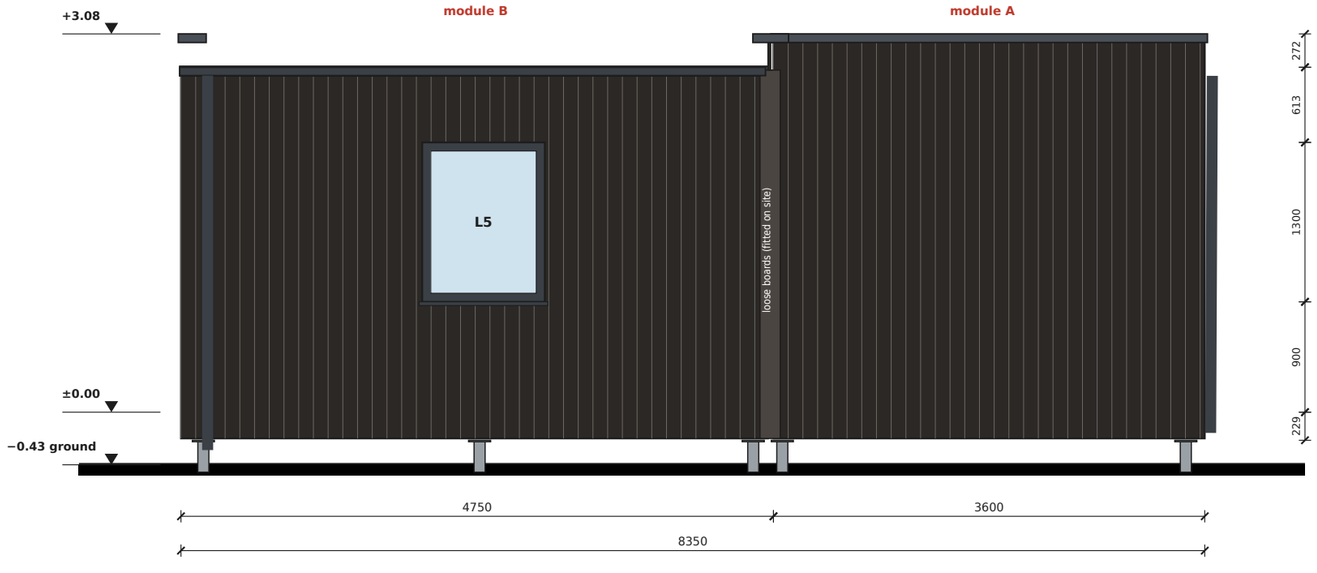
ELEVATION A (rear)

M 1:50



ELEVATION 3 (right)

M 1:50





Rear elevation: gutter and downpipe on the low side of the roof



Right elevation: module joint covered with loose boards

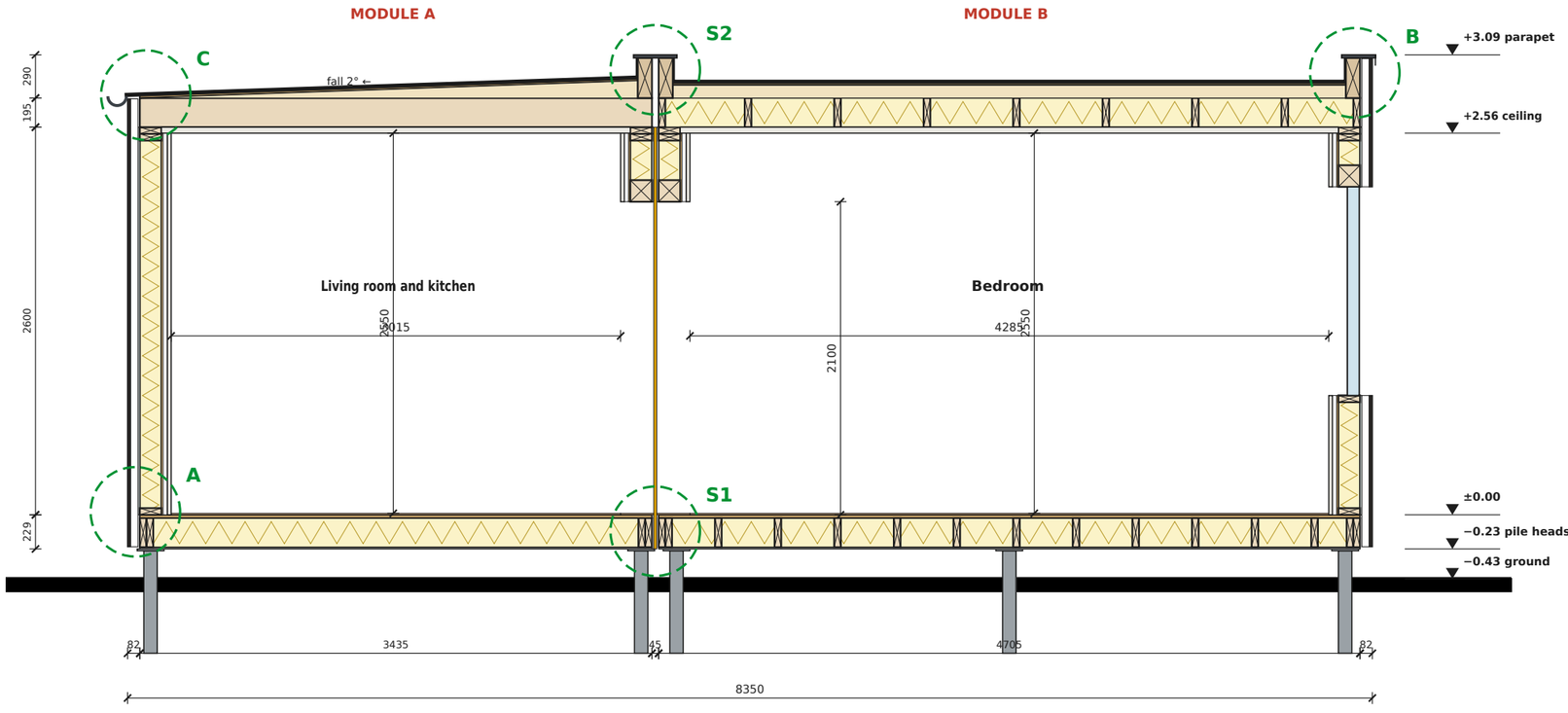
On the low side of the roof – drip edge, half-round gutter Ø125 and downpipe Ø90 (anthracite):

module A – on the rear wall, module B – on the right wall. Other sides – parapets with flashing.

Section 1–1

SECTION 1–1

1:40 · through both modules and the connecting opening



BUILD-UPS

Wall (outside to inside), 292 mm:
tongue and groove boards 20×120, vertical
double ventilated batten frame 2×25×45
sheathing board 12.5
frame C24 45×145 at 600 + mineral wool 145
OSB-3 12 (bracing and transport)
vapour control layer
battens 28×45 (services)
plasterboard 2×12.5

Floor cassette, 229 mm + finish:
laminate with underlay
OSB-3 22 TG4
joists C24 45×195 at 400 + mineral wool 195
cement particle board 12
ventilated void 200, screw piles

Roof:
EPDM membrane (bonded)
OSB-3 18
firring pieces 0–120 (2°)
rafters C24 45×195 at 600 + mineral wool 195
vapour control layer
battens 28×45, plasterboard 12.5

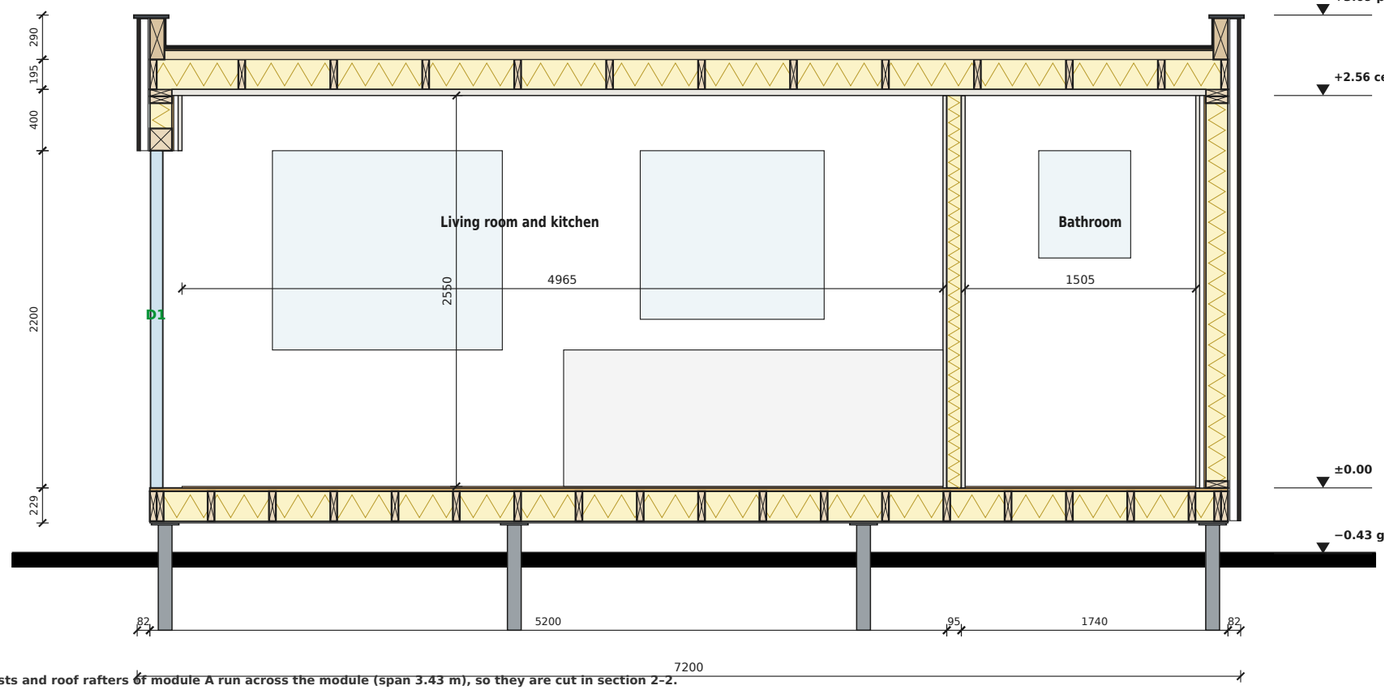
Parapets:
frame 45×95, EPDM turned over the top,
flashing with 2° fall towards the roof

Details A, B, C – on sheet M-13; module connection details S1, S2, S3 – on sheet M-14.

Section 2–2

SECTION 2–2

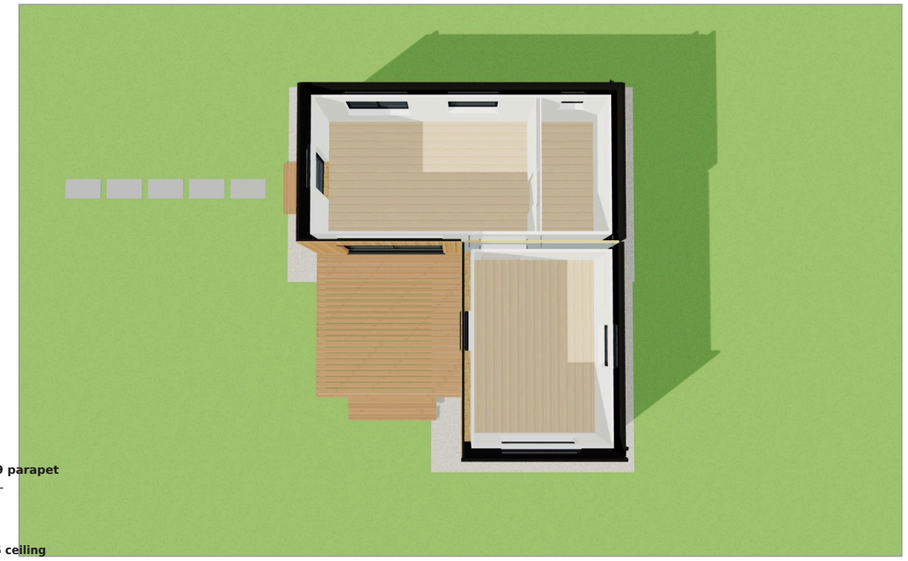
1:40 · along module A



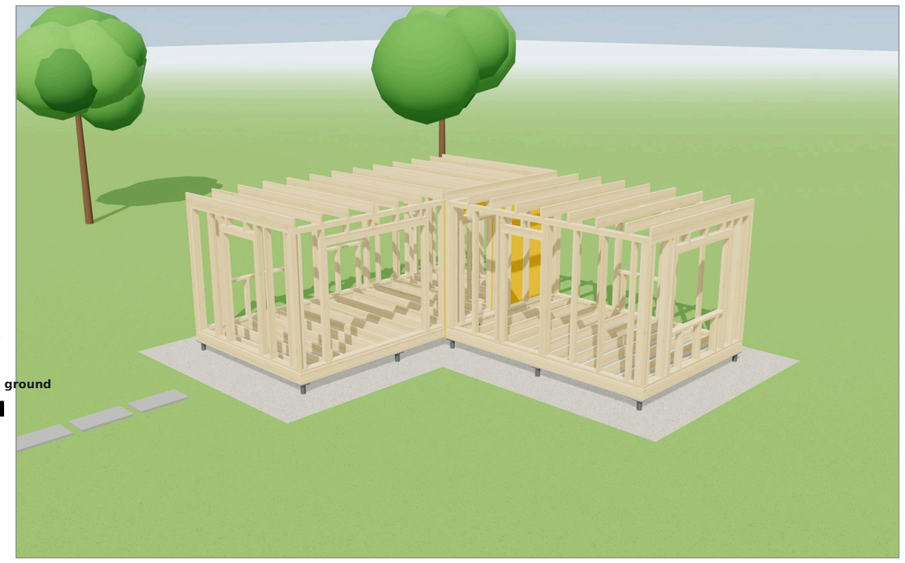
The floor joists and roof rafters of module A run across the module (span 3.43 m), so they are cut in section 2–2.

Bathroom partition – frame 45×95 at 600 with mineral wool, plasterboard 2×12.5 on both sides (moisture-resistant on the bathroom side).

The roof fall is formed with firring pieces on the rafters; the ceiling is level.



View without roof: room layout

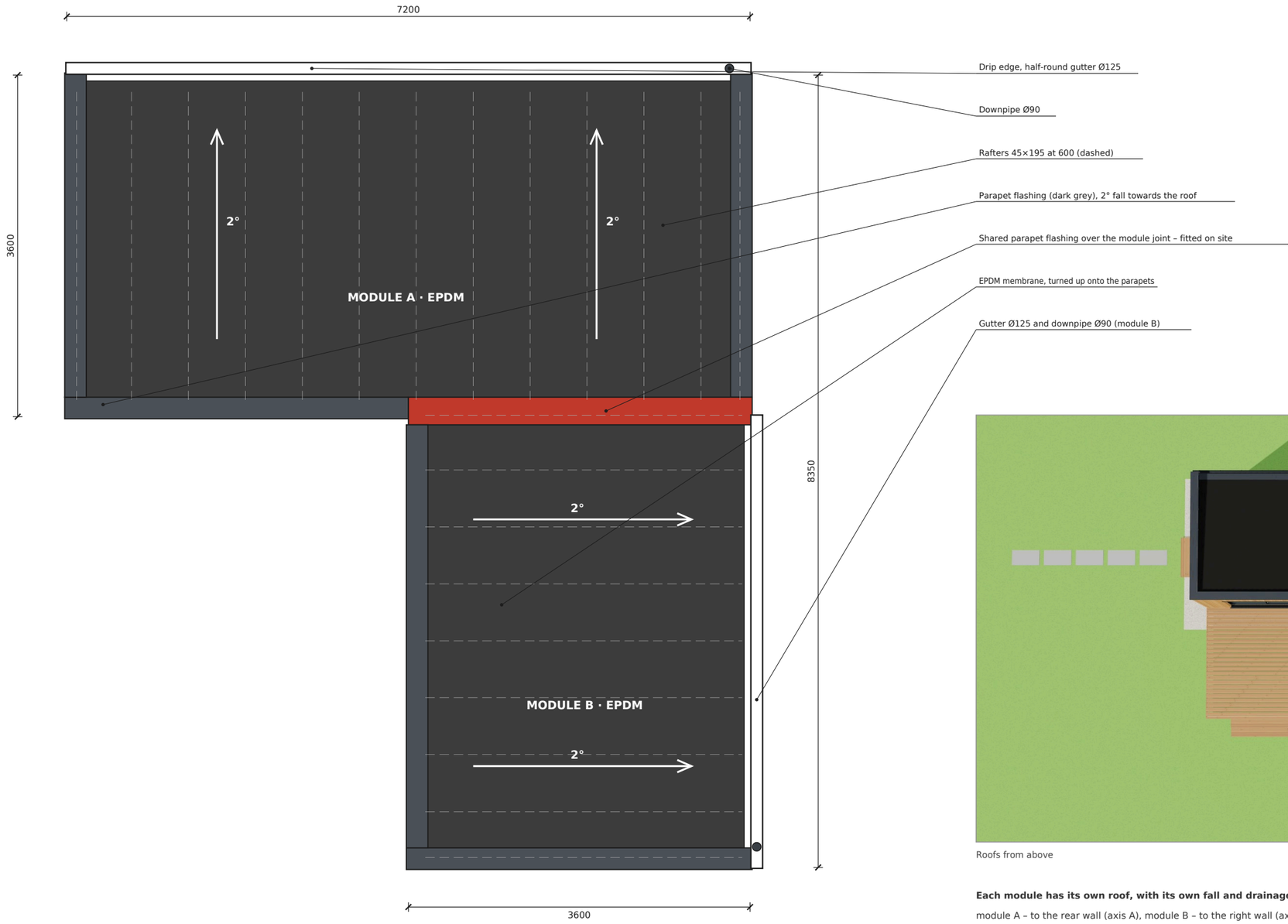


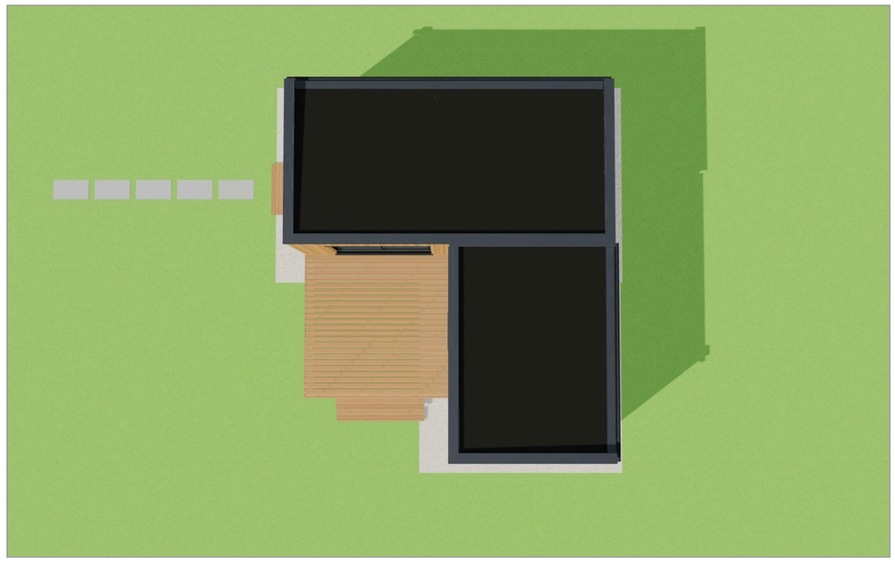
Frame: floor joists at 400, studs and rafters at 600

Roof plan

ROOF PLAN

1:50 · flat roofs, 2° fall, EPDM





Roofs from above

Each module has its own roof, with its own fall and drainage:

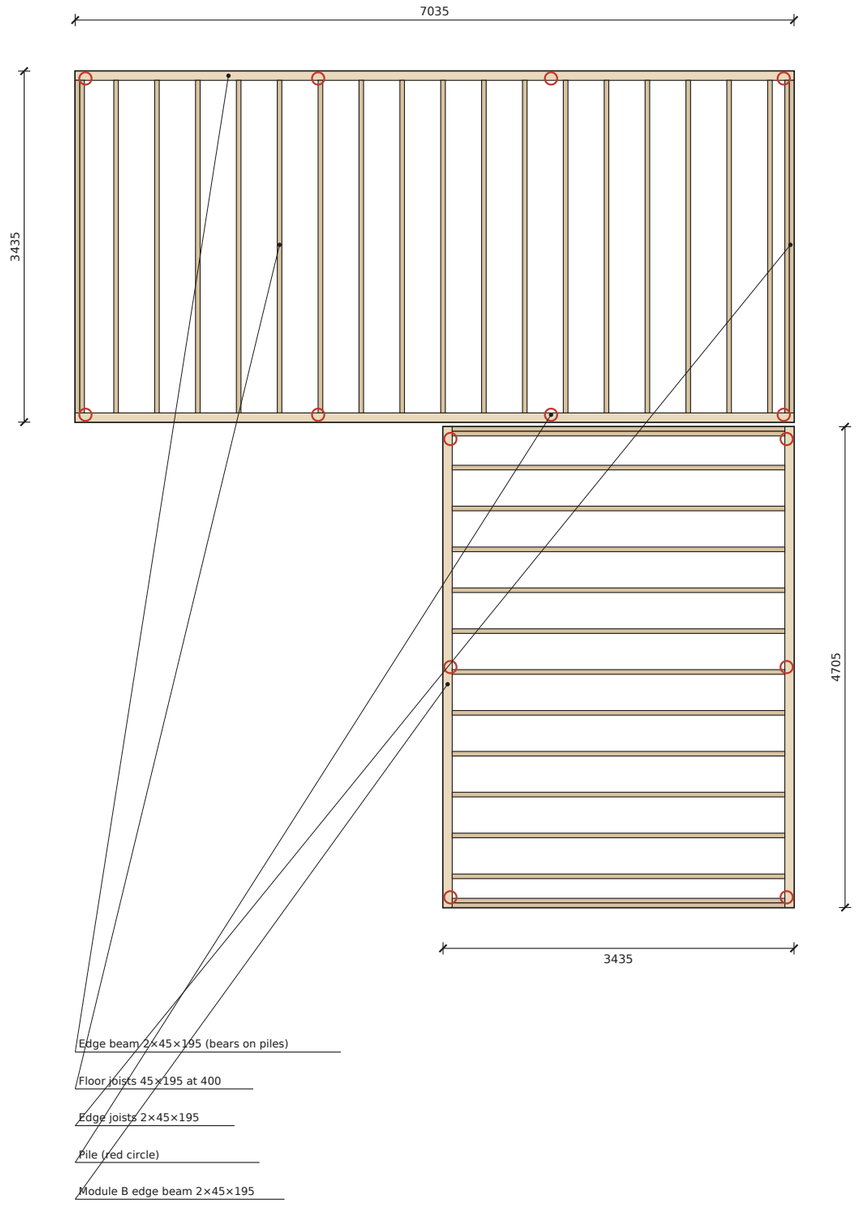
module A – to the rear wall (axis A), module B – to the right wall (axis 3).

At the module joint – two parapets with mineral wool between them; an EPDM strip and shared flashing are fitted on site (detail S2, sheet M-14).

Floor cassette and rafter plans

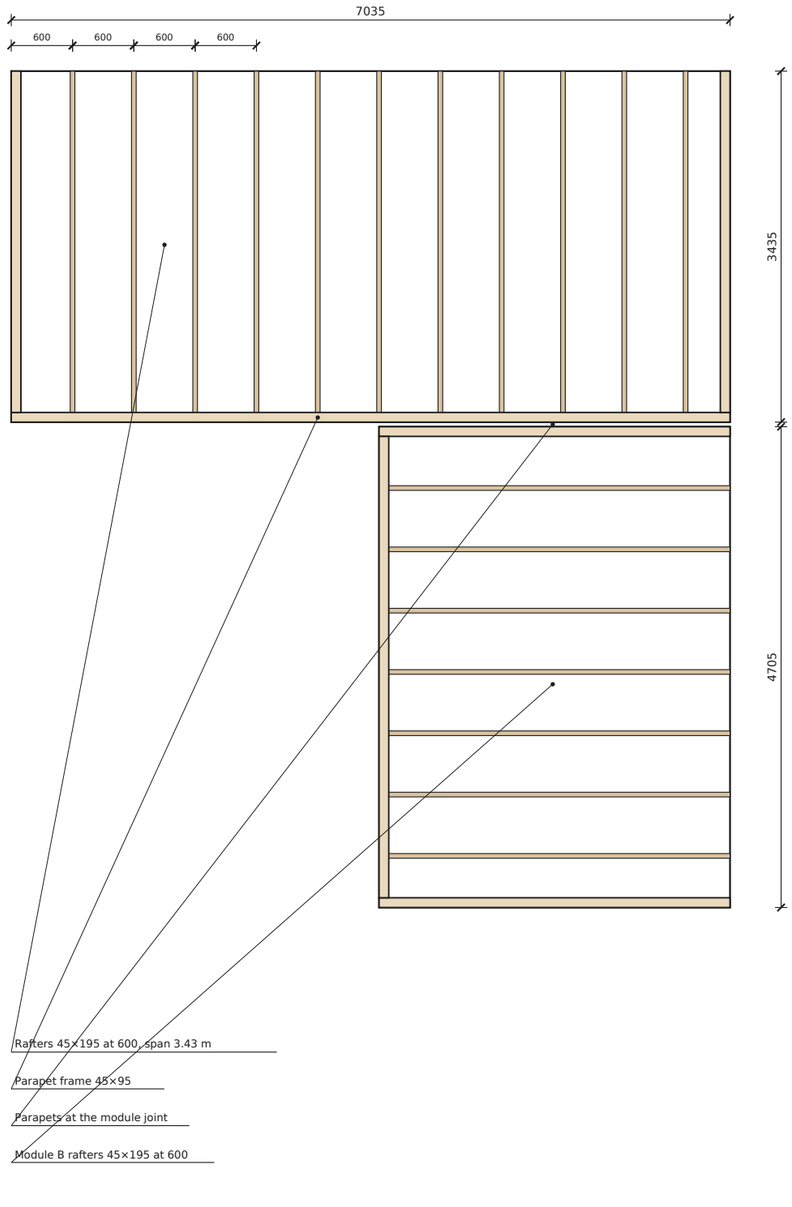
FLOOR CASSETTE PLAN

1:60 · joists C24 45×195 at 400



RAFTER PLAN

1:60 · rafters C24 45×195 at 600



The cassettes and roof structure are assembled in the factory. Joists and rafters run across the module (short direction, 3.43 m); with 195 mm mineral wool between them.

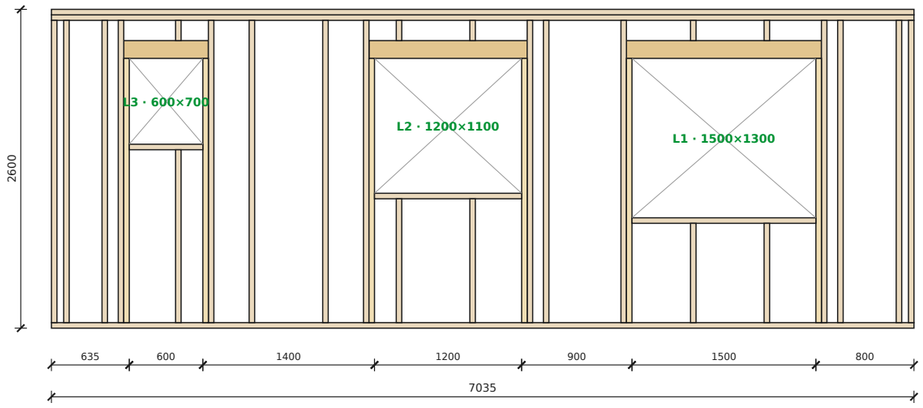
Floor underside – 12 mm cement particle board, top – OSB-3 22 TG4 (glued and screwed at 150 mm). Roof OSB-3 18 on firring pieces.

Module A wall frame

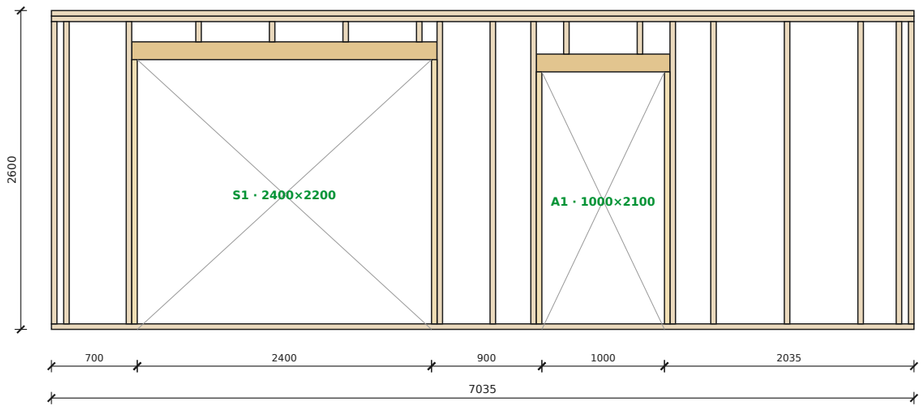
MODULE A WALL FRAME

1:50 · C24 45×145, studs at 600, lintels 3×45

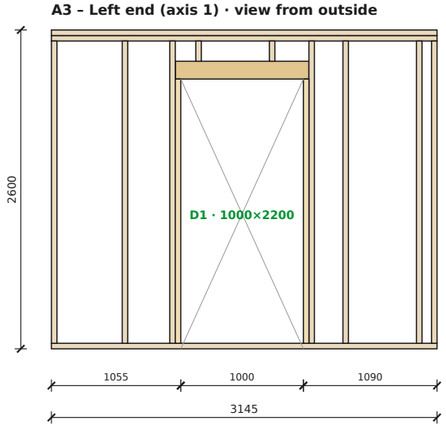
A1 – Rear wall (axis A) · view from outside



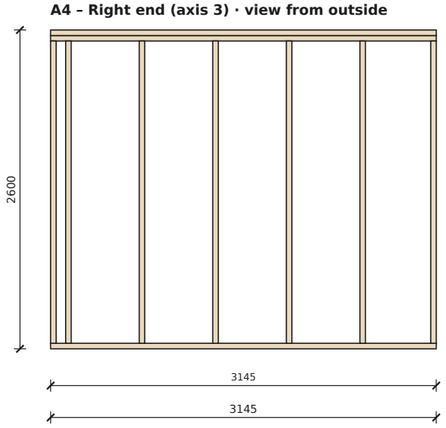
A2 – Front wall (axis B) · view from outside



A3 – Left end (axis 1) · view from outside



A4 – Right end (axis 3) · view from outside



PART SCHEDULE

Part	Section	Length, mm	Pcs
Sole plate	45×145	7035	2
Sole plate	45×145	3145	2
Top plate (double)	45×145	7035	4
Top plate (double)	45×145	3145	4
Stud	45×145	2465	41
Load-bearing stud	45×145	2155	10
Load-bearing stud	45×145	2055	2
Short stud	45×145	1410	1
Short stud	45×145	1010	2
Short stud	45×145	810	2
Short stud	45×145	265	2
Short stud	45×145	165	11
Sill plate	45×145	1500	1
Sill plate	45×145	1200	1
Sill plate	45×145	600	1
Lintel 3×45	3×45×145	2490	1
Lintel 3×45	3×45×145	1590	1
Lintel 3×45	3×45×145	1290	1
Lintel 3×45	3×45×145	1090	2
Lintel 3×45	3×45×145	690	1

Wall frame timber C24: 1.46 m³

Walls are assembled in the factory on a table.

Lintels – 3 boards of 45 mm (up to 2.4 m – 145, wider – 195), bearing on load-bearing studs.

At corners – an extra stud for internal finishes.

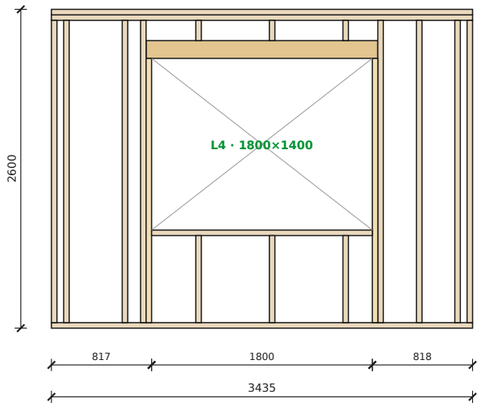
Bracing: OSB-3 12 mm on the inside over the whole wall, screws 4.2×45 at 150 / 300 mm.

Module B wall frame

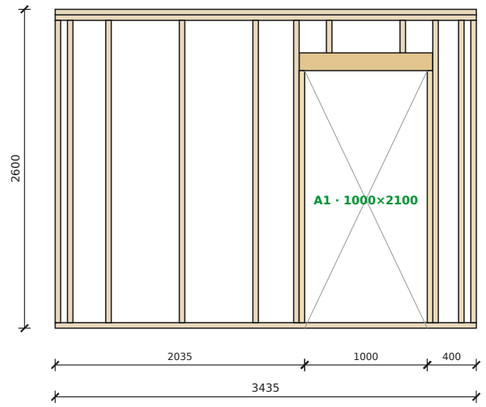
MODULE B WALL FRAME

1:50 · C24 45×145, studs at 600, lintels 3×45

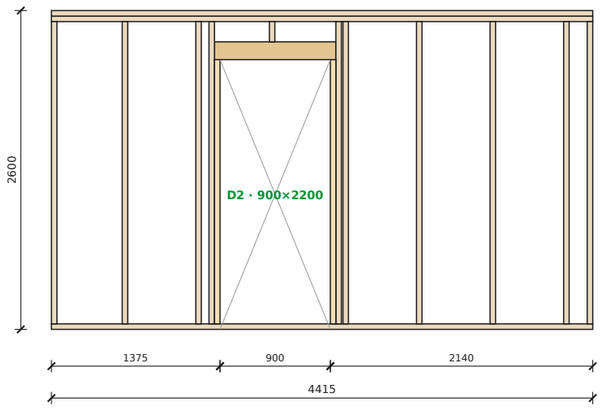
B2 – Rear wall (axis D) · view from outside



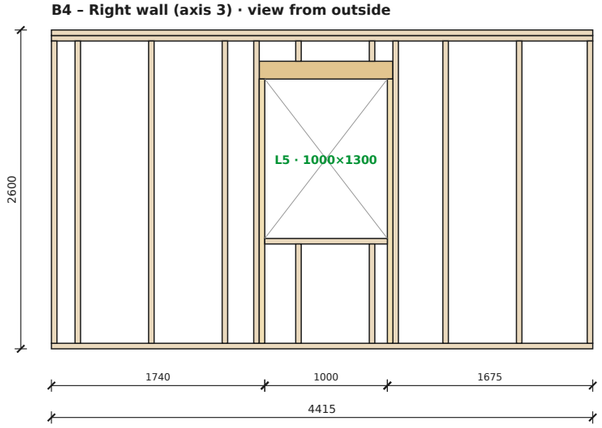
B1 – Connection wall · view from outside



B3 – Left wall (axis 2) · view from outside



B4 – Right wall (axis 3) · view from outside



PART SCHEDULE

Part	Section	Length, mm	Pcs
Sole plate	45×145	4415	2
Sole plate	45×145	3435	2
Top plate (double)	45×145	4415	4
Top plate (double)	45×145	3435	4
Stud	45×145	2465	36
Load-bearing stud	45×145	2155	6
Load-bearing stud	45×145	2055	2
Short stud	45×145	810	2
Short stud	45×145	710	3
Short stud	45×145	265	2
Short stud	45×145	165	6
Sill plate	45×145	1800	1
Sill plate	45×145	1000	1
Lintel 3×45	3×45×145	1890	1
Lintel 3×45	3×45×145	1090	2
Lintel 3×45	3×45×145	990	1

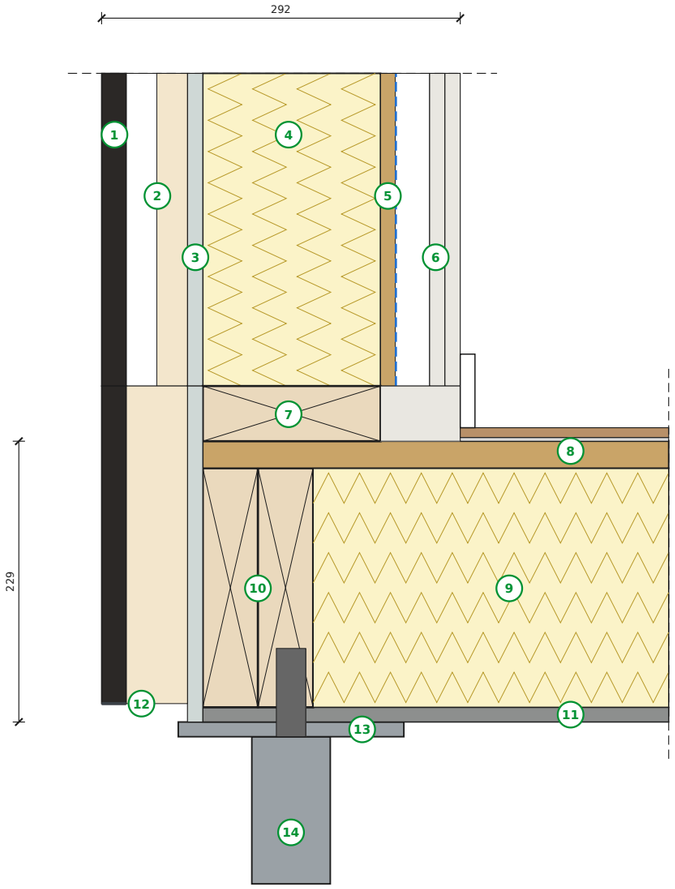
Wall frame timber C24: 1.15 m³

B1 – connection wall (no cladding):
outside only sheathing board 12.5 and sealing tape.
Connecting opening A1 1000×2100 – in both modules
at the same position (axis 2 + 400 mm).

Details A, B, C

DETAIL A

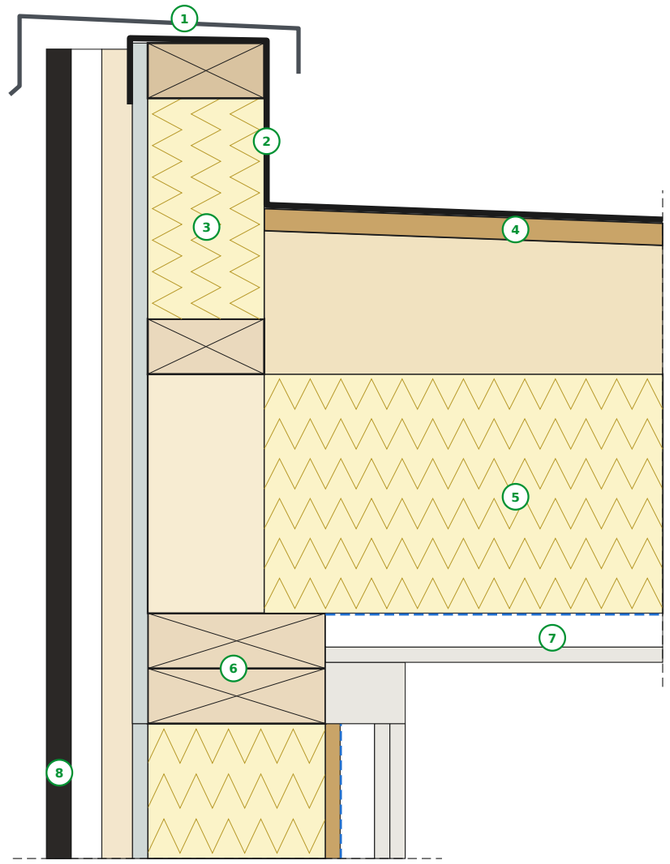
wall – floor cassette – pile · 1:5



1. Charred boards 20×120, vertical
2. Double ventilated batten frame 2×25×45
3. Sheathing board 12.5
4. Frame 45×145 + mineral wool 145
5. OSB-3 12 + vapour control (blue)
6. Battens 28×45, plasterboard 2×12.5
7. Sole plate 45×145
8. OSB-3 22 TG4, underlay, laminate
9. Joists 45×195 at 400 + mineral wool 195
10. Edge beam 2×45×195
11. Cement particle board 12
12. Ventilation profile (rodent protection)
13. Pile head 180×180×12, coach screws 10×120
14. Screw pile Ø89

DETAIL B

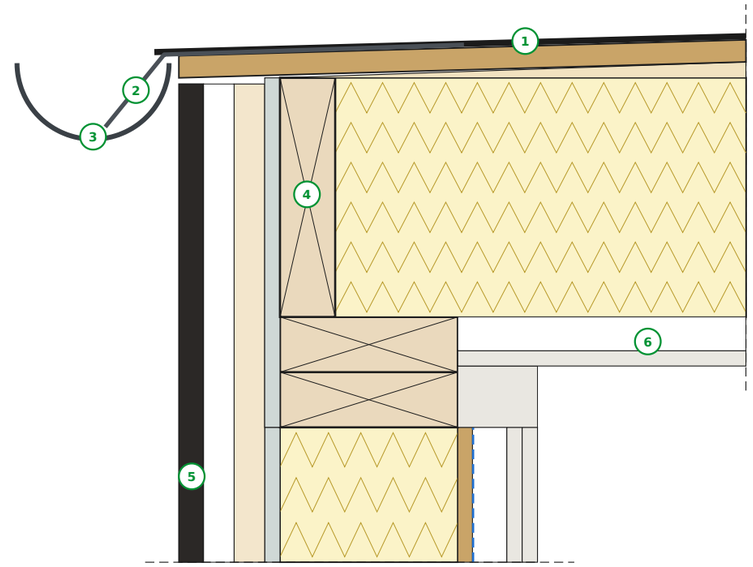
wall – roof – parapet · 1:5



1. Parapet flashing, 2° fall towards the roof, 50 mm overlap
2. EPDM turned over the parapet
3. Parapet frame 45×95 + insulation
4. OSB-3 18 on firring pieces
5. Rafter 45×195 + mineral wool 195
6. Double top plate 2×45×145
7. Vapour control, battens 28×45, plasterboard 12.5
8. Boards up to the parapet flashing

DETAIL C

low side of roof – drip edge and gutter · 1:5



1. EPDM over the drip edge
2. Drip edge (metal) – straight into the gutter
3. Half-round gutter Ø125 with brackets at 600
4. Edge rafter 45×195
5. Boards end under the drip edge
6. Ceiling: vapour control, battens, plasterboard

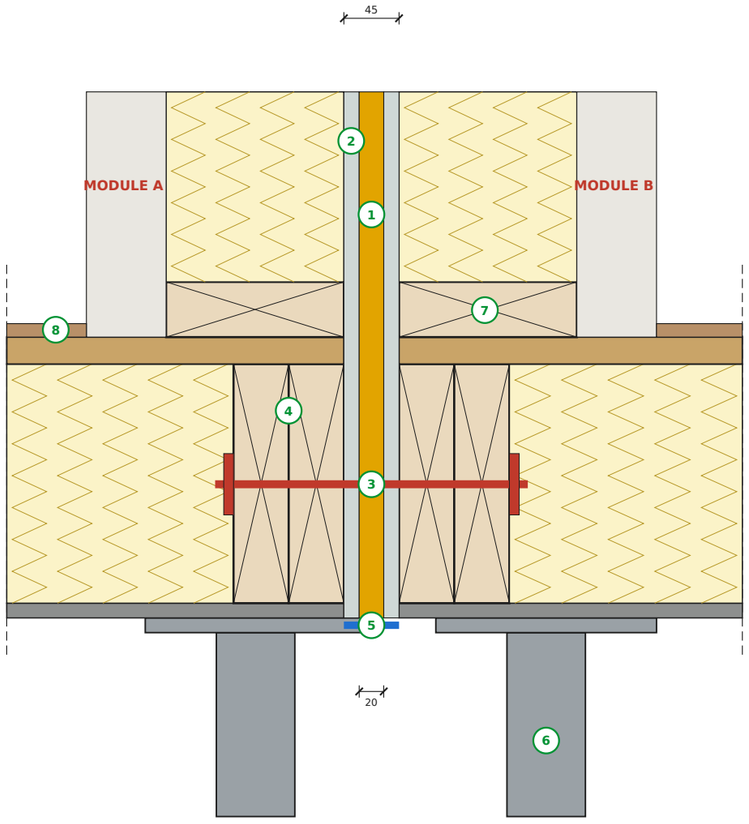
Module connection details S1, S2, S3

MODULAR TIMBER FRAME HOUSE "L" · 2 MODULES

Sample project · modules 7.20 × 3.60 m and 4.80 × 3.60 m · flat roofs

DETAIL S1

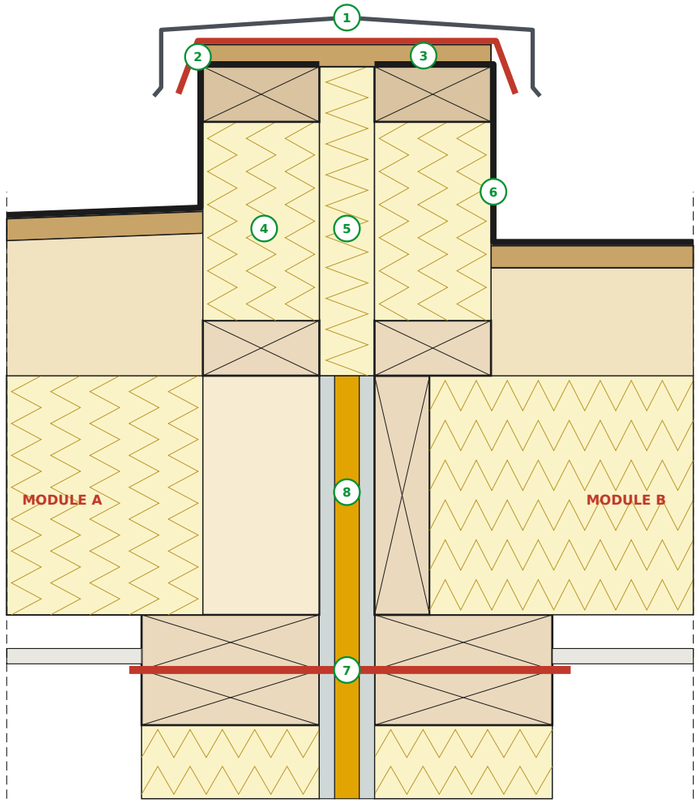
module connection at the floor · vertical section · 1:5



1. Sealing gap 20 mm: compressed mineral wool / PE strip
2. Sheathing board 12.5 on the walls of both modules
3. M16 bolt with 60×60 washers through the edge beams, at ~800
4. Edge beams 2×45×195 (A and B)
5. Sealing strip from below (bonded on site)
6. Separate piles for each module
7. Sole plates 45×145
8. In the connecting opening: OSB infill, threshold, continuous laminate

DETAIL S2

module connection at the roof · vertical section · 1:5

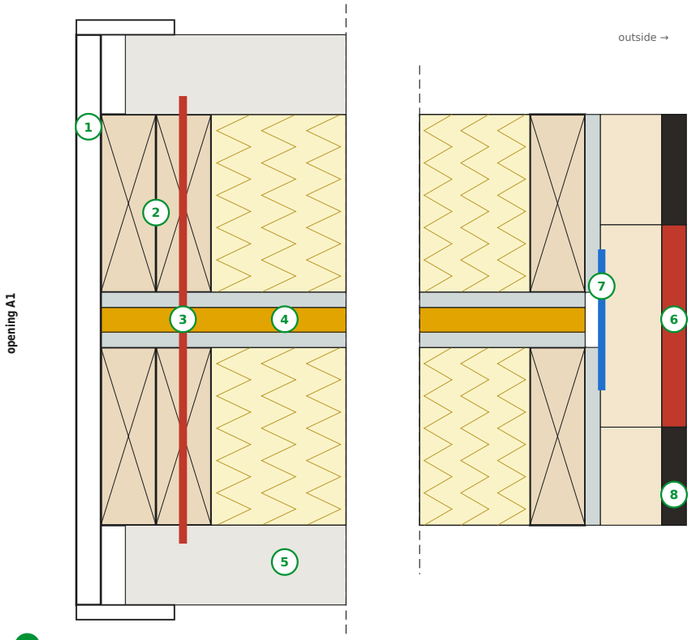


1. Shared parapet flashing (on site), falls to both roofs
2. EPDM strip over both parapets (on site, red)
3. OSB-3 18 strip on both parapets (on site)
4. Parapet frames 45×95 (factory)
5. Mineral wool between the parapets (on site)
6. Module EPDM turned up onto the parapets (factory)
7. M16 bolt through the top plates, at ~1600
8. Sealing gap 20 mm

DETAIL S3

MODULE A

horizontal section: connecting opening and facade joint · 1:5



1. Opening trim across both modules (on site)
2. Studs at opening 2×45×145 (A and B)
3. M16 bolts through the studs, 2 on each side
4. Sealing gap 20 mm
5. Internal finish (factory)
6. Loose boards on battens (on site, red)
7. Windproof tape on the board (on site, blue)
8. Cladding (factory)

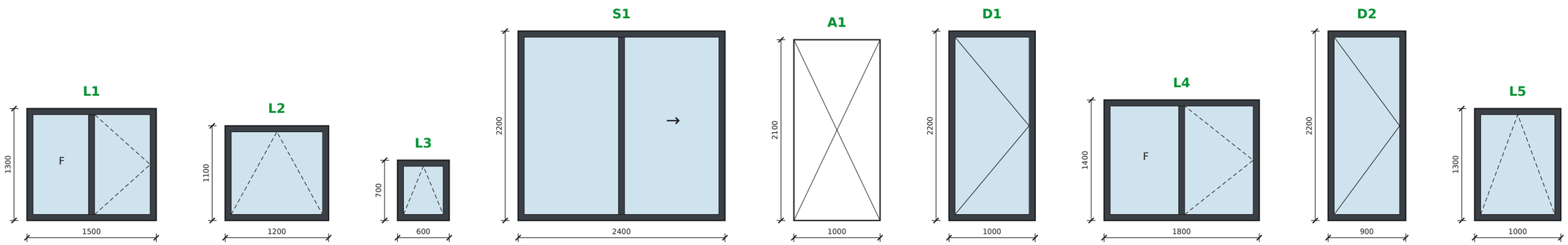
INSTALLATION SEQUENCE

1. Screw in and level the 14 screw piles (±2 mm).
2. Module A is set on the piles by crane and fixed.
3. Sealing strip is bonded to the connection wall of module A.
4. Module B is lowered and pushed up to a 20 mm gap.
5. The modules are bolted with M16 bolts: floor joists, top plates, studs at the opening.
6. Roof: insulation between parapets, OSB strip, EPDM strip, shared flashing.
7. Facade: windproof tape, loose boards, plinth strip.
8. Inside: opening trim, threshold, doors; electrical and plumbing connections. Terrace and steps.

Windows, doors and specification

WINDOWS AND DOORS

view from outside · 1:50 · PVC, anthracite (RAL 7016), triple glazing



Mark	Pcs	Frame opening, mm	Frame (order), mm	Bottom from ±0.00	Type	Wall (module)
L1	1	1500 × 1300	1490 × 1290	900	window, 2 parts: fixed + side-hung	A1 (A)
L2	1	1200 × 1100	1190 × 1090	1100	window, bottom-hung	A1 (A)
L3	1	600 × 700	590 × 690	1500	window, bottom-hung	A1 (A)
S1	1	2400 × 2200	2390 × 2195	0	HS sliding door, 2 parts	A2 (A)
A1	1	1000 × 2100	–	0	connecting opening (no unit), trim on site	A2 (A)
D1	1	1000 × 2200	990 × 2195	0	glazed external door, opens outwards	A3 (A)
L4	1	1800 × 1400	1790 × 1390	800	window, 2 parts: fixed + side-hung	B2 (B)
D2	1	900 × 2200	890 × 2195	0	glazed external door, opens outwards	B3 (B)
L5	1	1000 × 1300	990 × 1290	900	window, bottom-hung	B4 (B)

MAIN MATERIALS SPECIFICATION

quantities – from the 3D model, without allowance

Nr.	Material	Unit	Qty
1	Screw piles Ø89 with adjustable heads	pcs	14
2	Frame timber C24 (walls, floor cassettes, rafters, parapets, partition)	m³	5.47
3	Mineral wool for walls 145 mm	m²	72.6
4	Mineral wool for floor 195 mm and roof 195 mm	m²	80.7
5	OSB-3 22 TG4 floor / OSB-3 18 roof / OSB-3 12 walls	m²	40.3 / 40.3 / 72.6
6	Cement particle board 12 (cassette underside)	m²	40.3
7	Sheathing board 12.5	m²	74.2
8	EPDM membrane with parapet upstands	m²	50.4
9	Charred timber boards 20×120	m²	58.0
10	Natural timber boards 20×120 (terrace side)	m²	19.0
11	Plasterboard for internal walls (2 layers) and ceilings	m²	177.6
12	PVC windows L1–L5 / doors D1, D2 / sliding door S1	pcs	5 / 2 / 1
13	Parapet flashings / gutters Ø125 / downpipes Ø90	m	25.4 / 12.1 / 6.0
14	Connection kit: M16 bolts, sealing strips, loose boards, shared flashing, opening trim	set	1
15	Terrace 3.43 × 3.58 m and steps (on site)	m²	12.3

