

CARPORT 6 × 3.6 M

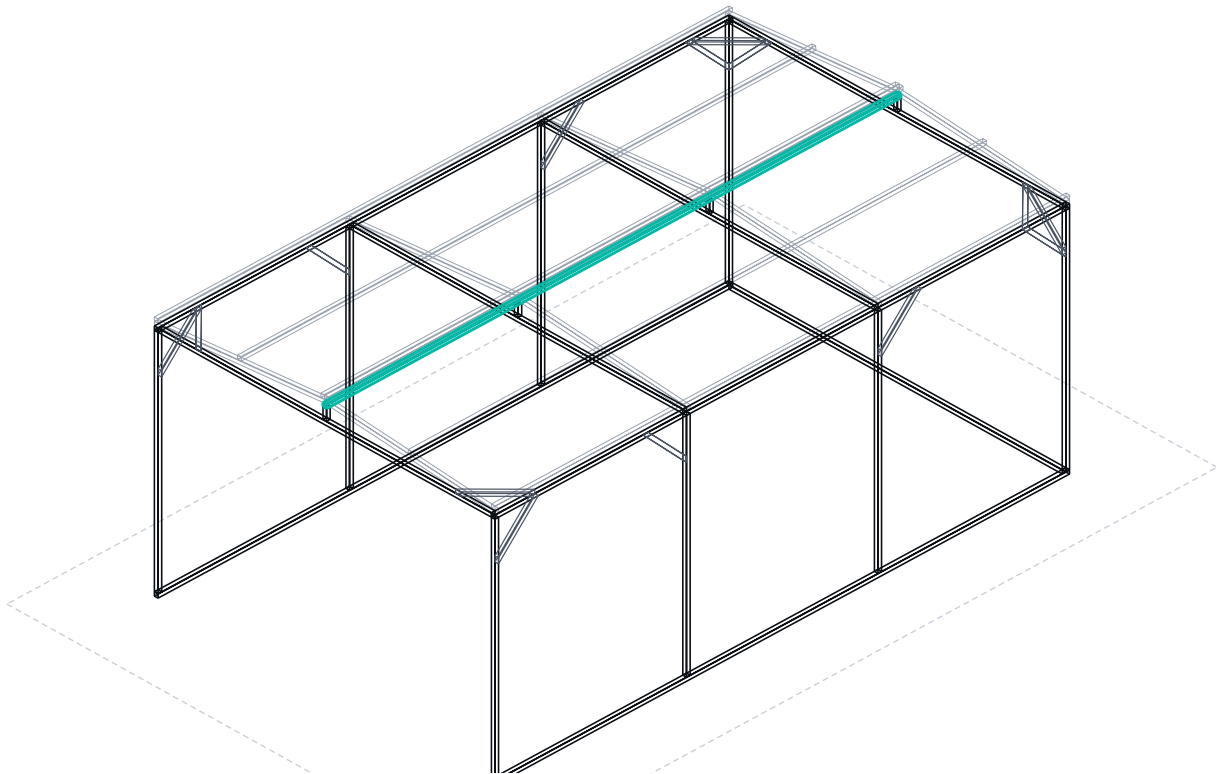
Geometry, cut plan and bill of materials of a demonstration model

NOTICE · READ BEFORE YOU USE THIS

A demonstration, not a building instruction.

This page shows what an AI-assisted workflow can model: the geometry, cut plan and bill of materials of a steel carport, generated and cross-checked by software. It is not a construction drawing, not a structural design and not advice. Nothing here has been checked for load-bearing capacity, wind, snow, anchoring, welding or local building rules, and nothing here is approved for building. Anyone who wants to build a structure like this needs a structural engineer or architect and, where required, a permit. Use of this model is at your own risk; the studio accepts no liability for anything built from it.

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ISOMETRIC WIREFRAME · BASE FRAME DARK, SHEET-ROOF TUBES LIGHT, RIDGE RAIL MARKED

FRAME ENVELOPE 6,000 × 3,600 × 2,550	PROFILE 38 × 38 × 1.2	BASE FRAME 36 parts · 13 bars of 6,000	SHEET-ROOF ALTERNATIVE + 14 tubes · 9 bars of 6,000
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Geometric planning, not a structural proof. Collisions, end faces and cut sums are verified. Load-bearing, wind, anchoring and welds are not. 2,400 mm is the outer frame height, not the clearance: the beam underside sits at 2,362 mm and the braces narrow the top corners.

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CUT PLAN · BASE FRAME

13 STOCK BARS

Every row is one 6,000 mm bar, left to right in cutting order. Filled segments are blanks, the dark ticks between them are 3 mm cuts, the hatched end is the remnant (mm at the right).

	0	1,500	3,000	4,500	6,000 mm	
01	L01 · 6,000					0
02	L02 · 6,000					0
03	LU1 · 6,000					0
04	LU2 · 6,000					0
05	F1 · 6,000					0
06	Q1 · 3,524		S01 · 2,324			146
07	Q2 · 3,524		S02 · 2,324			146
08	Q3 · 3,524		S03 · 2,324			146
09	Q4 · 3,524		S04 · 2,324			146
10	S05 · 2,324		S06 · 2,324		D01 D02	140
11	S07 · 2,324		S08 · 2,324		D03 D04	140
12	QB · 3,524		D05	D06	D07 D08	61
13	D09	D10	D11	D12	D13 D14	1,922

13: FS1 FS2 FS3 FS4 · 112 mm

78,000 = 75,060 + 93 + 2,847 mm — blanks + 31 straight cuts + remnants. The mitred brace ends are worked inside the 600 mm blanks.

Bars 1–5 stay uncut: they need 6,000 mm of usable length and clean factory ends. If they have to be trimmed, the plan changes.

45° BRACES · FROM BLANK TO JOINT

All 14 braces share one end geometry: blank 600 mm, finished axial extent 588 mm, axis 550 mm between the connection faces. The mitres are opposite-handed, 45° each, no extra swivel.

38 mm of profile at 45° gives $38\sqrt{2} = 53.740$ mm of contact on each face. The axis meets the face $550 / \sqrt{2} = 388.909$ mm from the inner corner; the contact runs from 362.039 to 415.779 mm.

Outer edge 588 mm, inner edge 512 mm. 6 mm of blank remain in front of and behind the finished envelope — enough for a 3 mm kerf square to the 45° blade ($3\sqrt{2} = 4.243$ mm axial).

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PARTS LIST

36 BASE PARTS

PART	NAME	BLANK	FINISHED, AXIAL	MITRE PER END	STOCK BAR	START ON BAR
L01	Upper side rail	6,000	6,000	—	01	0
LU1	Bottom side rail	6,000	6,000	—	03	0
S01	Side post	2,324	2,324	—	06	3,527
S02	Side post	2,324	2,324	—	07	3,527
S03	Side post	2,324	2,324	—	08	3,527
S04	Side post	2,324	2,324	—	09	3,527
L02	Upper side rail	6,000	6,000	—	02	0
LU2	Bottom side rail	6,000	6,000	—	04	0
S05	Side post	2,324	2,324	—	10	0
S06	Side post	2,324	2,324	—	10	2,327
S07	Side post	2,324	2,324	—	11	0
S08	Side post	2,324	2,324	—	11	2,327
Q1	Top cross beam	3,524	3,524	—	06	0
FS1	Short ridge post	112	112	—	13	3,618
Q2	Top cross beam	3,524	3,524	—	07	0
FS2	Short ridge post	112	112	—	13	3,733
Q3	Top cross beam	3,524	3,524	—	08	0
FS3	Short ridge post	112	112	—	13	3,848
Q4	Top cross beam	3,524	3,524	—	09	0
FS4	Short ridge post	112	112	—	13	3,963
QB	Rear floor tie	3,524	3,524	—	12	0
F1	Ridge rail	6,000	6,000	—	05	0
D01	Diagonal brace, side	600	588	45°	10	4,654
D02	Diagonal brace, side	600	588	45°	10	5,257
D03	Diagonal brace, side	600	588	45°	11	4,654
D04	Diagonal brace, side	600	588	45°	11	5,257
D05	Diagonal brace, side	600	588	45°	12	3,527
D06	Diagonal brace, side	600	588	45°	12	4,130
D07	Diagonal brace, side	600	588	45°	12	4,733
D08	Diagonal brace, side	600	588	45°	12	5,336
D09	Diagonal brace, rear wall	600	588	45°	13	0
D10	Diagonal brace, rear wall	600	588	45°	13	603
D11	Diagonal brace, roof plane	600	588	45°	13	1,206
D12	Diagonal brace, roof plane	600	588	45°	13	1,809
D13	Diagonal brace, roof plane	600	588	45°	13	2,412
D14	Diagonal brace, roof plane	600	588	45°	13	3,015

ALL DIMENSIONS IN MM.

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ALTERNATIVE · SHEET ROOF

+ 9 BARS, 14 TUBES

Eight sloped rafters from 1,820 mm blanks — finished **1,809.406** mm axial, both ends mitred 4.764° — and six purlins of 6,000 mm, uncut. Same 38 × 38 × 1.2 profile as the base frame, as a geometric approach.

Two roof fields of 6,200 × **1,906.586** mm on the slope, **23.642** m² together, 100 mm overhang all round. Not an order quantity: cover width, side lap and waste are missing.

	0	1,500	3,000	4,500	6,000 mm	
14	P01 · 6,000					0
15	P02 · 6,000					0
16	P03 · 6,000					0
17	P04 · 6,000					0
18	P05 · 6,000					0
19	P06 · 6,000					0
20	R01 · 1,820	R02 · 1,820	R03 · 1,820			531
21	R04 · 1,820	R05 · 1,820	R06 · 1,820			531
22	R07 · 1,820	R08 · 1,820				2,354

54,000 = 50,560 + 24 + 3,416 mm. Bars 14–19 uncut; bars 20–21 carry 3 × 1,820 with 531 mm left; bar 22 carries 2 × 1,820 with 2,354 mm left.

Only 4.764° of pitch — check the minimum pitch of the chosen sheet system. The extra load and wind uplift are not sized; the tubes do not prove the frame adequate.

14 ROOF TUBES

PART	NAME	BLANK	FINISHED, AXIAL	MITRE PER END	STOCK BAR	START ON BAR
R01	Sloped rafter	1,820	1,809.406	4.764°	20	0
R02	Sloped rafter	1,820	1,809.406	4.764°	20	1,823
R03	Sloped rafter	1,820	1,809.406	4.764°	20	3,646
R04	Sloped rafter	1,820	1,809.406	4.764°	21	0
R05	Sloped rafter	1,820	1,809.406	4.764°	21	1,823
R06	Sloped rafter	1,820	1,809.406	4.764°	21	3,646
R07	Sloped rafter	1,820	1,809.406	4.764°	22	0
R08	Sloped rafter	1,820	1,809.406	4.764°	22	1,823
P01	Purlin	6,000	6,000	—	14	0
P02	Purlin	6,000	6,000	—	15	0
P03	Purlin	6,000	6,000	—	16	0
P04	Purlin	6,000	6,000	—	17	0
P05	Purlin	6,000	6,000	—	18	0
P06	Purlin	6,000	6,000	—	19	0

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BILL OF MATERIALS

STEEL ONLY

PART	QTY	BLANK EACH	TOTAL
Upper side rail	2	6,000	12,000
Bottom side rail	2	6,000	12,000
Ridge rail	1	6,000	6,000
Side post	8	2,324	18,592
Top cross beam	4	3,524	14,096
Rear floor tie	1	3,524	3,524
Diagonal brace blanks	14	600	8,400
Short ridge post	4	112	448
Total	36		75,060

Price per 6 m bar, your figure: _____

× 13 bars, base frame = _____

× 14 bars, one spare = _____

× 22 bars, incl. sheet-roof tubes = _____

13 bars is also the length floor: 75,060 / 6,000 = 12.51, rounded up. The verified plan reaches it. **Not priced:** Shade net or sheet, fixings, anchors, wedges, welding consumables, cutting discs, corrosion protection and labour.

VERIFIED · OPEN · WHAT THE MODEL PROVES

Geometry and cutting. Every pair of steel parts was tested for volume overlap with a separating-axis test on its convex hull: none. All 62 end faces of the 31 cut parts land fully on a neighbouring tube face. Each of the 50 blanks is assigned to exactly one bar, and every bar closes including its kerfs. That is geometry — it says nothing about whether the structure stands.

Open by design. Stability, deflection, loads, weld execution, base plates and anchoring are open. The net is shade, not a watertight roof; the roll-up ends are a concept without a mechanism. The reference vehicle is a generic, unbranded, stylised 4×4 at 3,923 × 1,976 × 2,124 mm, freely scaled and for scale only — door clearance is unchecked.