Roof structure – general data



ROOF TRUSSES
FOR A SIP HOUSE

V-shaped trusses ~420 mm at ~600 mm · pitch ~32°

BUILDING
SIP house 10.19 × 16.49 m (with covered terrace), side walls 3.00 m

ROOF
Pitched, ~32°, ridge +6.55, no overhangs – the roof edge is in the facade plane

STRUCTURE
V-shaped roof trusses (timber chords with metal web), depth ~420 mm, spacing ~600 mm, across the house

SUPPORTS
Side external walls SIP 224 and load-bearing wall SIP 174 (~6.0 m from the outside of the west wall); trusses joined at the ridge with the manufacturer's connection

CEILING
None – ceilings open to the ridge, following the underside of the trusses

ROOF BUILD-UP
Standing seam sheet, counter-battens and battens (ventilated gap), breather membrane

INSULATION
Insulation within the truss depth ~400 mm, vapour control, metal frame and plasterboard

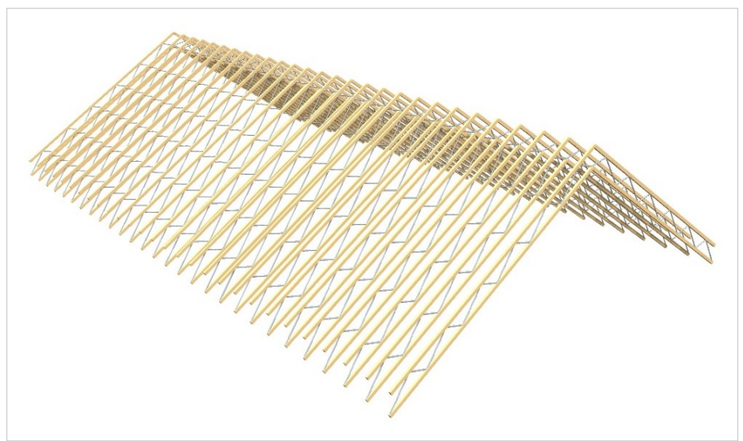
LIST OF SHEETS

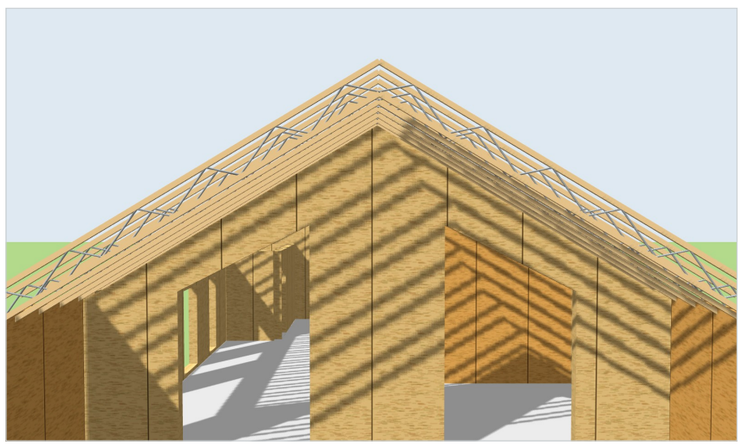
1	S-01	General data
2	S-02	Truss layout plan
3	S-03	Cross-section
4	S-04	Truss diagram
5	S-05	Material quantities and description

The sample project shows what roof structure drawings include. Truss type, ridge connection and final spacing – per the truss manufacturer's calculation.

TRUSS VIEWS

Trusses without other structures · trusses at the south gable

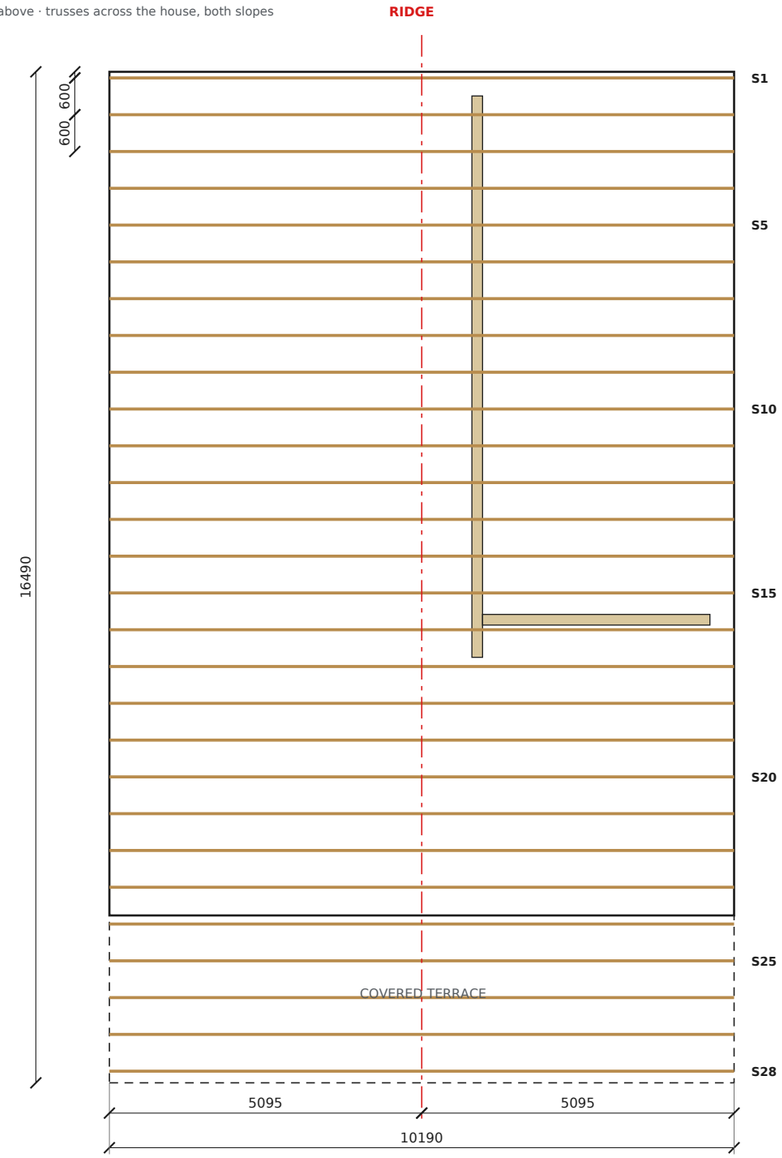




Truss layout plan

TRUSS LAYOUT

View from above · trusses across the house, both slopes

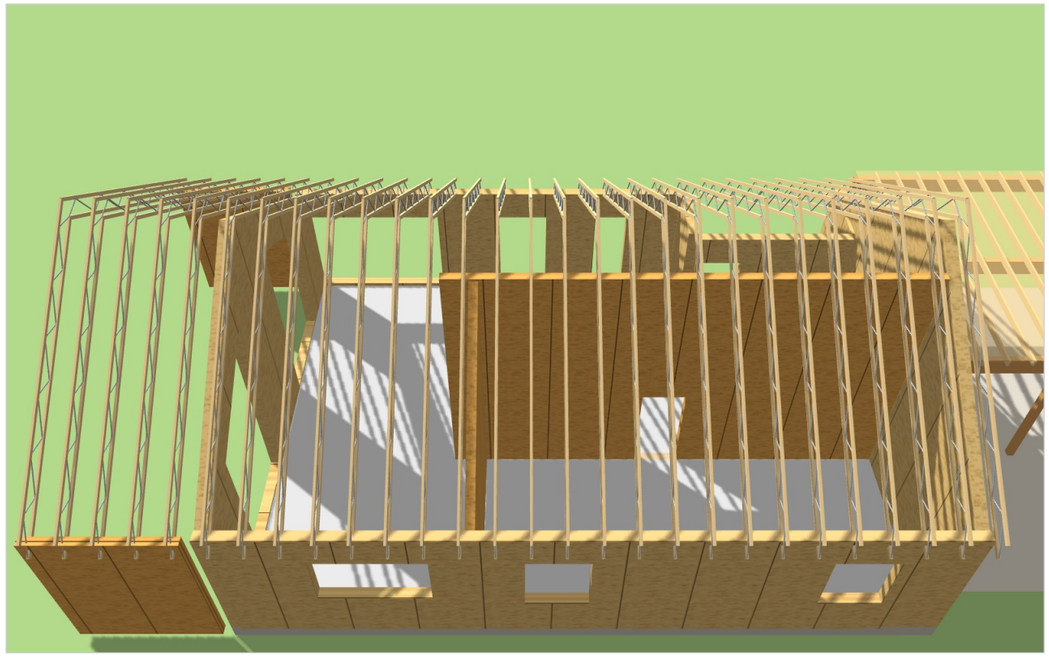


TRUSSES

- Truss spacing ~600 mm: 28 pairs of trusses (S1–S28), 56 trusses in total – one for each slope.
- Length of one truss along the slope ~6.02 m, depth ~420 mm.
- West slope trusses bear on the west external wall and the ridge connection.
- East slope trusses bear on the east external wall, the load-bearing wall and the ridge connection.
- First and last truss – at the gables; the gable walls are SIP up to the roof.
- Final spacing, truss type and ridge connection – per the truss manufacturer's calculation.

LEGEND

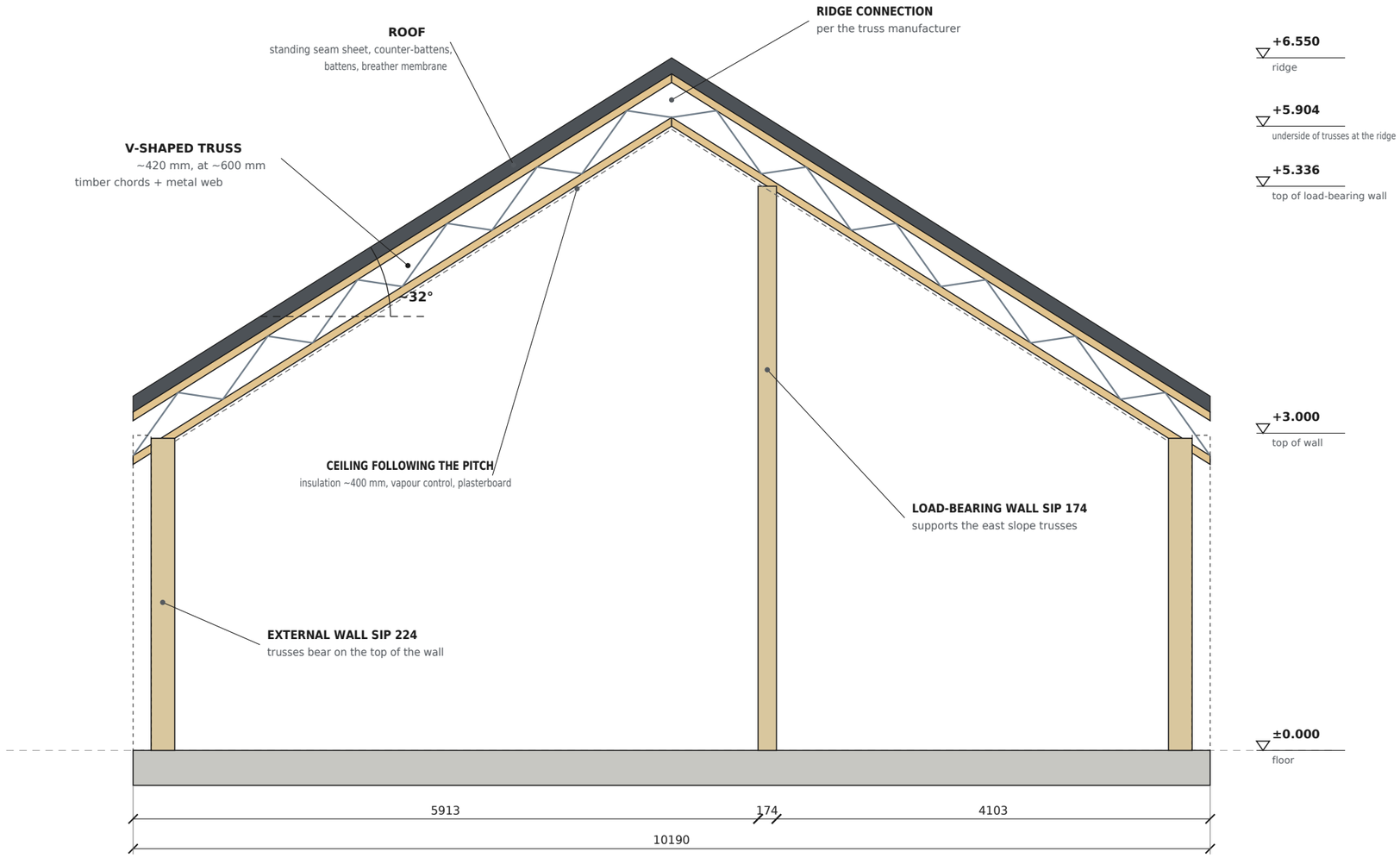
- truss (both slopes)
- ridge line
- load-bearing wall SIP 174
- covered terrace



Cross-section

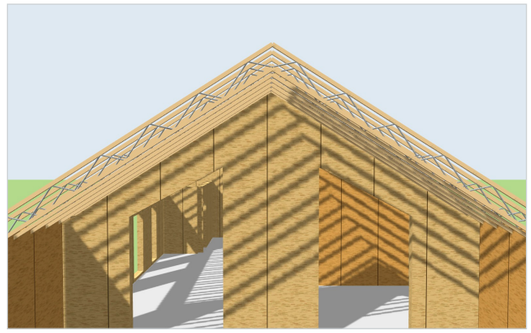
CROSS-SECTION

Truss pair · supports on the walls and the load-bearing wall



NOTES

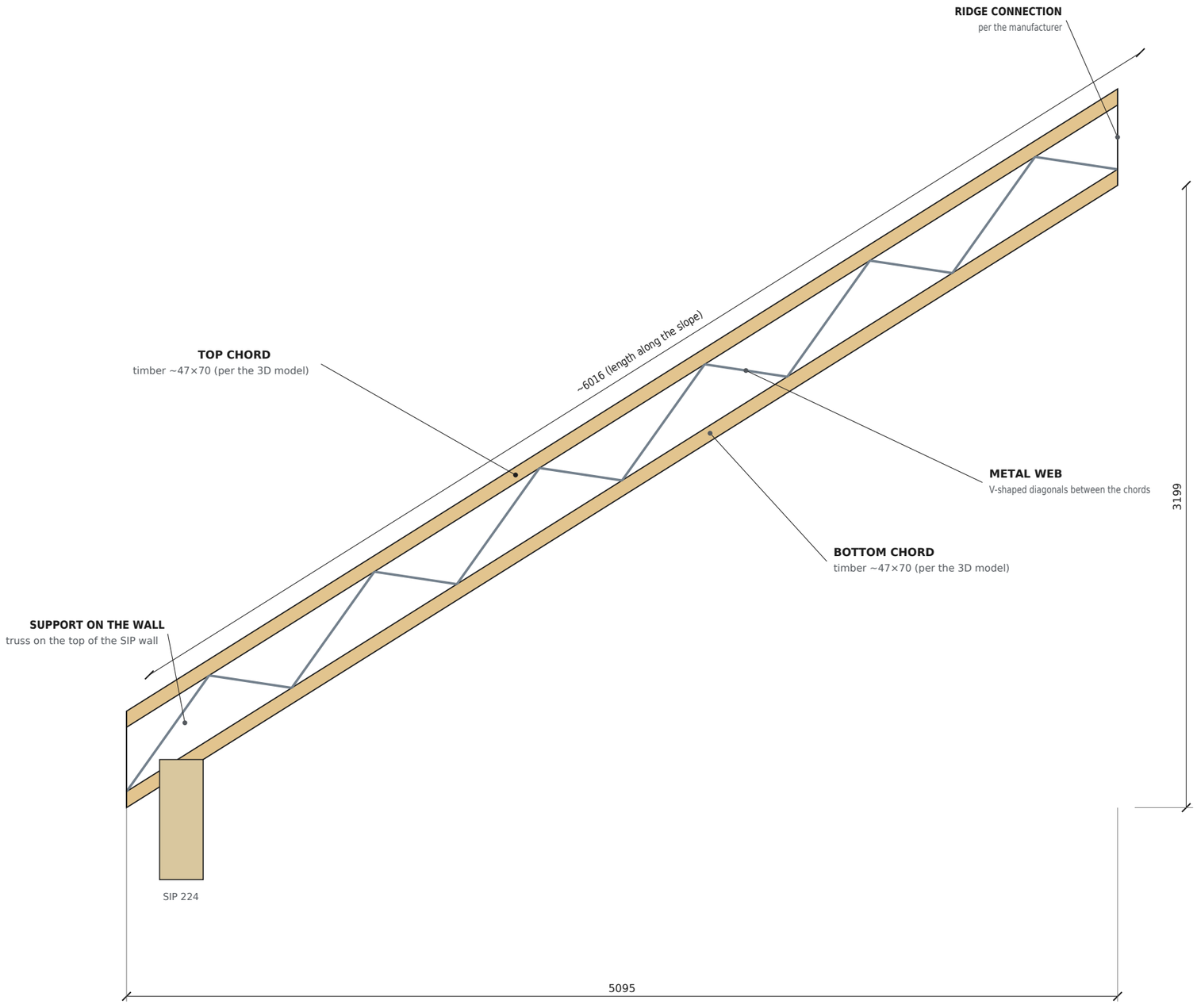
- No ceiling joists or horizontal ties – the ceiling is open to the ridge.
- Underside of trusses at the ridge ~+5.90, top of load-bearing wall ~+5.34.
- Levels from the finished floor (±0.000).
- Chord sizes, web type and fixings – per the truss manufacturer.



Truss diagram

TRUSS – WEST SLOPE

Single element · the east slope truss is mirrored, with extra support on the load-bearing wall



TRUSS DATA

Type	V-shaped truss with metal web
Height	~420 mm (perpendicular to the slope)
Spacing	~600 mm
Length along the slope	~6.02 m
Horizontal projection	5.095 m
Rise	3.199 m
Pitch	~32.1°
Qty	56 pcs (28 pairs)

NOTES

- Chord sizes, web plates, ridge connection and fixing to the walls – per the truss manufacturer's calculation.
- A ~400 mm insulation layer fits within the truss depth.

Material quantities and description

ROOF STRUCTURE MATERIAL QUANTITIES

Approximate quantities from the 3D model, without allowance or laps

NO.	ITEM	QTY	UNIT	NOTE
01	V-shaped roof trusses ~420 mm	**56**	pcs	28 pairs at ~600 mm, length ~6.02 m
02	Truss chord timber (2 chords per truss)	**~674**	m	~47×70, final – by the manufacturer
03	Metal web (diagonals)	**56**	set	per the manufacturer
04	Ridge connections	**28**	pcs	per the manufacturer
05	Roof area (no overhangs)	**~198**	m²	2 slopes × 6.02 × 16.49 m
06	Breather membrane	**~198**	m²	+ laps
07	Battens 25×45 on the trusses (ventilated gap)	**~337**	m	56 × ~6.0 m
08	Counter-battens	**–**		per the standing seam sheet manufacturer
09	Standing seam sheet	**~198**	m²	+ waste per sheet layout
10	Ridge flashing	**~16.5**	m	
11	Insulation within the truss depth ~400 mm	**~79**	m³	excluding the truss volume
12	Vapour control layer	**~198**	m²	+ laps
13	Ceiling metal frame and plasterboard	**~198**	m²	ceiling following the roof pitch
14	Gutters	**~33**	m	on both sides of the roof
15	Downpipes	**3**	pcs	per the 3D model

Quantities are calculated from the 3D model geometry and are intended for a preliminary estimate. Final quantities – per the truss and roofing manufacturers' calculations.

WHAT ARE V-SHAPED TRUSSES

A V-shaped truss is a light roof joist made of two timber chords (top and bottom) joined by a diagonal metal web. It works as a truss, so it spans further than a solid rafter.

The space between the chords stays open: it holds a thick insulation layer, and services are easy to run through the web.

In this example the trusses run across the house from the walls to the ridge with no ceiling – the ceiling is open to the ridge, giving the greatest room height.

Trusses are made in a factory to the drawings and delivered to site ready to install.

ROOF DRAWINGS INCLUDE

- Layout plan of rafters, I-joists, LVL beams or trusses with spacing and numbers.
- Sections with supports and levels.
- Truss diagram with dimensions.
- Roof build-ups and details.
- Material quantities for a cost estimate.

