Roofing Sheet Quantity with End and Side Laps

Number of profiled roofing sheets for a gable or mono-pitch roof from slope length, roof length, sheet cover width, sheet length and end lap, plus ridge pieces.

Method: Lapped sheet layout

Input parameters

Unit system: SI

Parameter	Value	Unit
Roof length along the ridge	30.000	m
Slope length (eaves to ridge, with overhang)	9.0000	m
Roof slopes	Gable (two slopes)	
Effective cover width per sheet	1,000.0	mm
Sheet length	3.6600	m
End lap	150.00	mm
Ridge piece effective length	1.8000	m
Wastage allowance	5.0000	%

Calculated results

Parameter	Value	Unit
Sheets across per slope	30.000	
Rows up each slope	3.0000	
Sheets including wastage	189.00	
Roof area (on slope)	540.00	m²
Ridge pieces	17.000	

Notes for this case

• Across: W divided by the effective cover width (side lap already deducted by the maker). Up the slope: each extra sheet adds L_sh − e. End laps of 150 mm or more are usual on low slopes; check the maker's minimum slope and fixing pattern. Cutting long single-length sheets to the slope avoids end laps altogether.

Formula and method

$$n_a = \left\lceil \frac{W}{c_w} \right\rceil, \quad n_r = \left\lceil \frac{L_s - e}{L_{sh} - e} \right\rceil, \quad N = \lceil n_s n_a n_r (1 + f_w) \rceil$$

Variables

W	Roof length along the ridge	m
L_s	Slope length (eaves to ridge, with overhang)	m
n_s	Roof slopes	-
c_w	Effective cover width per sheet	m
L_{sh}	Sheet length	m
e	End lap	m
l_r	Ridge piece effective length	m
f_w	Wastage allowance	-
n_a	Sheets across per slope	-
n_r	Rows up each slope	-
N	Sheets including wastage	-

A	Roof area (on slope)	m²
n_{ridge}	Ridge pieces	-

Method and standards

Sheet layout.

Assumptions and limits

- Rectangular roof planes; no hips or valleys.

References

Lapped sheet layout

Report details

Report reference	FCC-8ZR0-ZFDR (the same inputs always give the same reference)
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Release checks	3 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/civil/quantities/roofing-sheet-quantity

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.