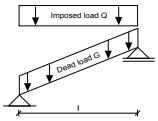
Roofs

ROOF APPLICATIONS

Highly insulated roof constructions are easily achieved with the STEICO*joist*. The light-weight joist provides the user a fast and efficient installation for which your carpenter will thank you.

SPAN TABLES FOR STEICO*joist* TO BS 5268

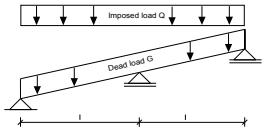
Single span max. deflection = 0,003 * l



Maximum single spans l in [m] Imposed load Q = 0,75 kN / m²

Type	Depth H [mm]	0,5 kN / m² < G ≤ 0,75 kN / ²						0,75 kN / m² < G ≤ 1,0 kN / ²					
		α < 5°		5° ≤ α < 30°		30° ≤ α < 45°		α < 5°		5° ≤ α < 30°		30° ≤ α < 45°	
		Joist centers [mm]		Joist centers [mm]		Joist centers [mm]		Joist centers [mm]		Joist centers [mm]		Joist centers [mm]	
		400	600	400	600	400	600	400	600	400	600	400	600
STEICO*joist* SJ 45	200	4.83	4.18	4.52	3.92	4.09	3.55	4.57	3.95	4.27	3.69	3.84	3.33
	220	5.25	4.54	4.91	4.25	4.44	3.85	4.97	4.29	4.63	4.01	4.17	3.62
	240	5.65	4.89	5.29	4.58	4.78	4.15	5.35	4.63	4.99	4.32	4.49	3.89
	300	6.80	5.89	6.35	5.51	5.74	4.99	6.44	5.57	6.00	5.20	5.40	4.68
	350	7.70	6.67	7.19	6.24	6.50	5.64	7.29	6.32	6.79	5.89	6.11	5.30
STEICO*joist* SJ 60	200	5.30	4.58	4.96	4.29	4.49	3.89	5.01	4.32	4.68	4.04	4.22	3.65
	220	5.76	4.97	5.39	4.66	4.87	4.22	5.45	4.70	5.08	4.39	4.58	3.96
	240	6.20	5.36	5.80	5.02	5.24	4.55	5.86	5.06	5.47	4.73	4.93	4.27
	300	7.45	6.45	6.96	6.04	6.29	5.46	7.05	6.10	6.57	5.69	5.91	5.13
	350	8.42	7.30	7.88	6.83	7.12	6.18	7.98	6.91	7.44	6.44	6.69	5.80
	400	9.36	8.11	8.75	7.59	7.90	6.86	8.87	7.68	8.26	7.16	7.43	6.45
STEICO*joist* SJ 90	200	6.03	5.20	5.65	4.88	5.12	4.43	5.70	4.90	5.32	4.59	4.80	4.15
	220	6.55	5.65	6.13	5.30	5.55	4.81	6.19	5.33	5.78	4.99	5.21	4.51
	240	7.05	6.08	6.60	5.71	5.97	5.17	6.67	5.75	6.22	5.37	5.61	4.85
	300	8.47	7.32	7.92	6.86	7.16	6.21	8.01	6.92	7.47	6.46	6.73	5.83
	350	9.57	8.28	8.95	7.76	8.10	7.02	9.06	7.83	8.45	7.31	7.61	6.60
	400	10.63	9.20	9.94	8.62	8.98	7.80	10.06	8.71	9.38	8.12	8.44	7.32

Double span max. deflection = 0,003 * l



Maximum double spans l in [m] Imposed load Q = 0,75 kN / m²

Type	Depth H [mm]	0,5 kN / m² < G ≤ 0,75 kN / ²						0,75 kN / m² < G ≤ 1,0 kN / ²					
		α < 5°		5° ≤ α < 30°		30° ≤ α < 45°		α < 5°		5° ≤ α < 30°		30° ≤ α < 45°	
		Joist centers [mm]		Joist centers [mm]		Joist centers [mm]		Joist centers [mm]		Joist centers [mm]		Joist centers [mm]	
		400	600	400	600	400	600	400	600	400	600	400	600
STEICO*joist* SJ 45	200	6.03	5.26	5.66	4.93	5.14	4.49	5.80	5.06	5.42	4.73	4.91	4.28
	220	6.53	5.70	6.13	5.35	5.57	4.86	6.29	5.48	5.88	5.13	5.32	4.64
	240	7.02	6.13	6.59	5.75	5.99	5.23	6.76	5.89	6.32	5.51	5.72	4.99
	300	8.42	7.35	7.90	6.89	7.18	6.27	8.10	6.46	7.58	6.33	6.85	5.82
	350	9.52	7.54	8.93	7.40	8.11	6.84	9.02	6.46	8.39	6.79	7.72	6.22
STEICO*joist* SJ 60	200	6.63	5.78	6.22	5.42	5.66	4.93	6.38	5.56	5.97	5.20	5.40	4.71
	220	7.18	6.26	6.74	5.88	6.13	5.35	6.91	6.03	6.46	5.64	5.85	5.10
	240	7.72	6.73	7.24	6.32	6.58	5.75	7.43	6.48	6.95	6.06	6.28	5.48
	300	9.25	8.06	8.67	7.57	7.88	6.88	8.89	7.76	8.32	7.26	7.52	6.57
	350	10.44	9.11	9.79	8.55	8.90	7.77	10.04	8.46	9.39	7.86	8.49	7.23
	400	11.58	9.73	10.87	9.08	9.88	8.41	11.04	8.73	10.29	8.34	9.42	7.65
STEICO*joist* SJ 90	200	7.57	6.60	7.11	6.20	6.46	5.64	7.29	5.97	6.82	5.94	6.17	5.38
	220	8.20	7.15	7.70	6.71	7.00	6.11	7.89	6.46	7.38	6.44	6.68	5.83
	240	8.81	7.68	8.27	7.21	7.52	6.56	8.48	6.94	7.93	6.92	7.18	6.26
	300	10.55	9.20	9.90	8.63	9.00	7.85	10.15	8.31	9.49	8.28	8.59	7.49
	350	11.90	10.38	11.17	9.74	10.15	8.86	11.45	9.38	10.71	9.34	9.69	8.45
	400	13.19	11.51	12.38	10.80	11.25	9.82	12.69	10.41	11.87	10.23	10.73	9.37

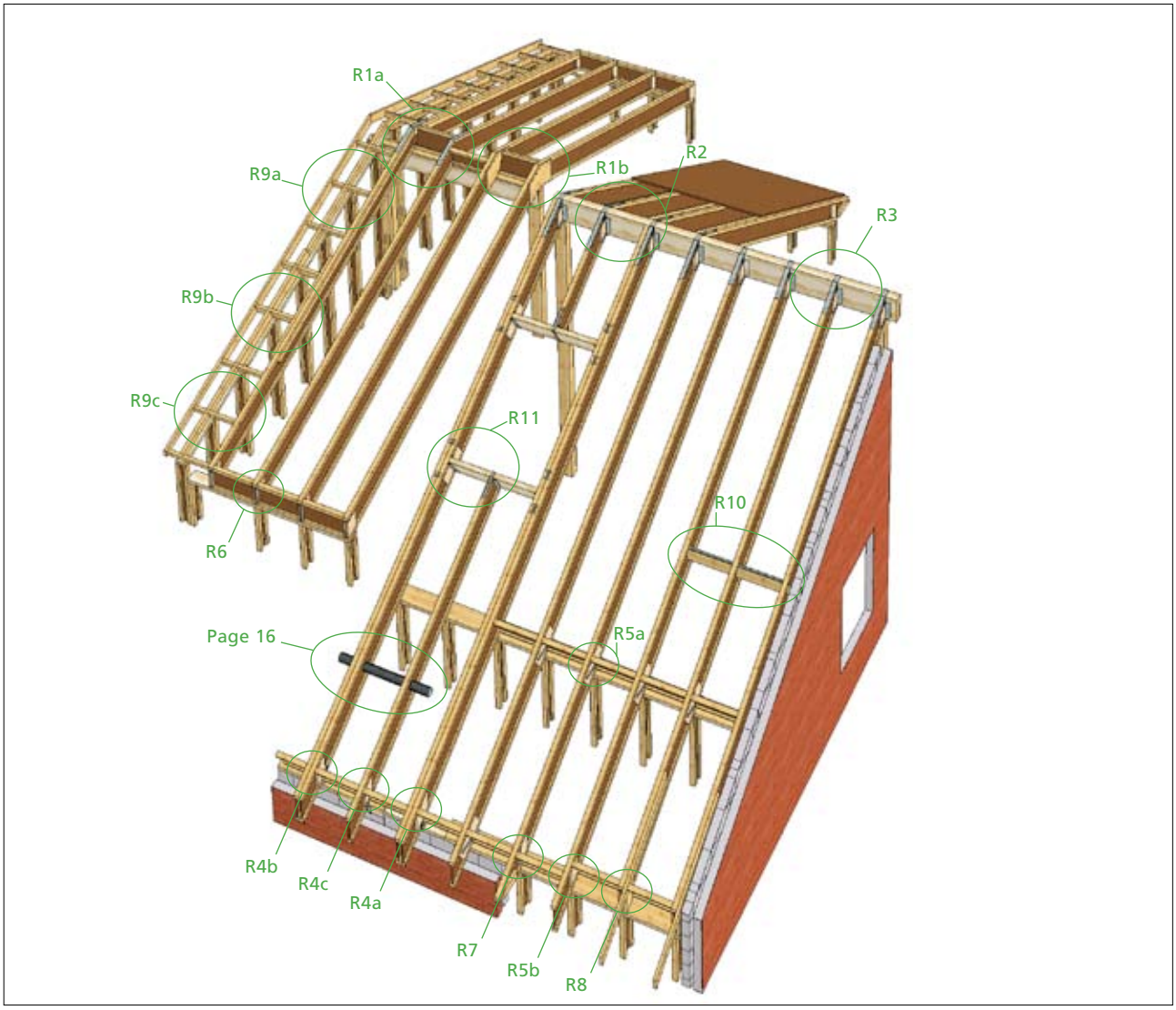
SPAN TABLES FOR STEICO*joist*

Different roof constructions require varying dead loads and pitches from 5 degrees upwards. In the tables these dead loads are summarised, with a difference made for light roofs (e.g. sheeting roofs) and heavier roofs (e.g. tiled roofs) and guidance on pitches between 5 degrees up to 45 degrees.

General comments:

- These tables serve as a guide only and do not replace independent structural calculations prepared by a qualified structural engineer.
- Please pay special attention to the bearing conditions.
- Do not use these tables to calculate point or irregular loads.
- Spans indicated are between centres of supports.
- Calculations are based on BS 5268.
- Lateral bracing is required to the flange at a spacing not exceeding ten times the flange width.
- Q = design imposed loads on plan. G = design dead loads acting perpendicular with the roof slope. Imposed loads are from BS6399-3 clause 4.3.2 for small buildings. Dead loads will vary for differing roof finishes and manufacturers technical literature should be consulted to ensure adequate allowance is made when assessing the design dead load.
- Span tables are for roof joists under service class 1 conditions only and assume continuous lateral restraint is provided to the top flange from either tiling battens combined with suitable diagonal bracing or from a sheathing board. Where load reversal due to wind uplift is probable, suitable restraint from sheathing of plasterboard must be provided to the bottom flange.

ROOF CONSTRUCTION DETAILS



NOTES TO THE DETAILS

Bearing lengths

- A minimum end bearing of 45 mm is required
- Intermediate bearing minimum 90 mm

Fastening

- STEICO*joist* to be nailed to head plates using a minimum of 2 No. 3.35 * 90 ring shank nails, located a minimum of 38 mm from the end of the joist. Nails may need to be skewed slightly to avoid splitting the bearing plate. For roofs pitched > 25 degrees, lateral forces may be significant and additional fixings to prevent roof spread may be required.
- Typical details shown are for guidance only and should be used in conjunction with the recommendations and requirements of the UKTFA, British Standards, NHBC, Zurich, Robust Details Ltd, Building regulations and all other statutory bodies.

Web stiffeners

- Web stiffeners are required for birdsmouth cuts and should be independently verified by a suitably qualified structural engineer.
- Web stiffeners should be applied where the sides of the hanger do not laterally support the top flange of the joist.

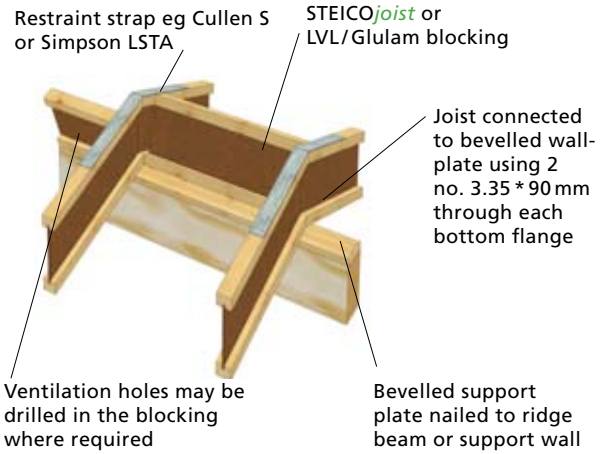
Blocking

- Blocking to provide lateral restraint must be installed at bearings. Blocking can be from EWP such as glulam or STEICO*joist*.

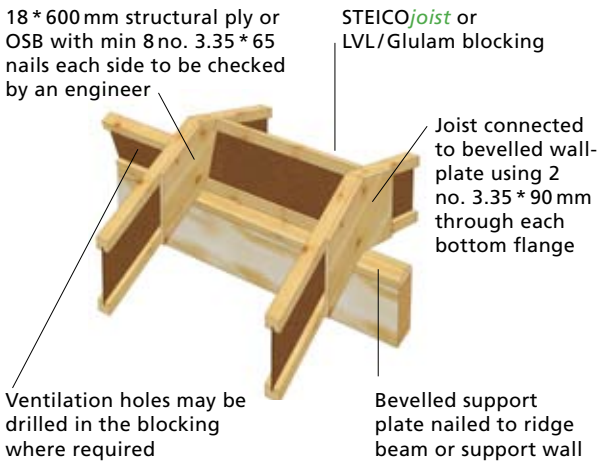
Cantilevers

- Cantilevers should be restricted to a maximum of 750 mm past the centre of the bearing to the end of the joist. Ensure that blocking is installed at the bearing and that the top and bottom flanges are restrained by sheathing.

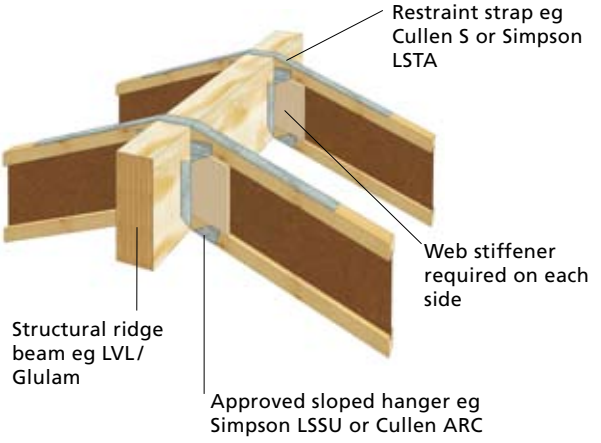
R1a Ridge beam with bevelled plate



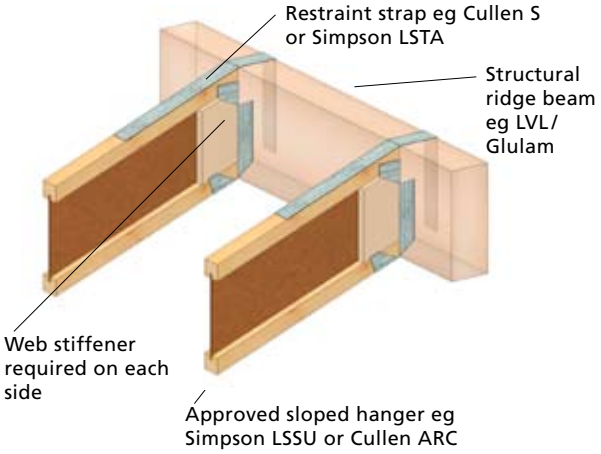
R1b Ridge beam with bevelled plate



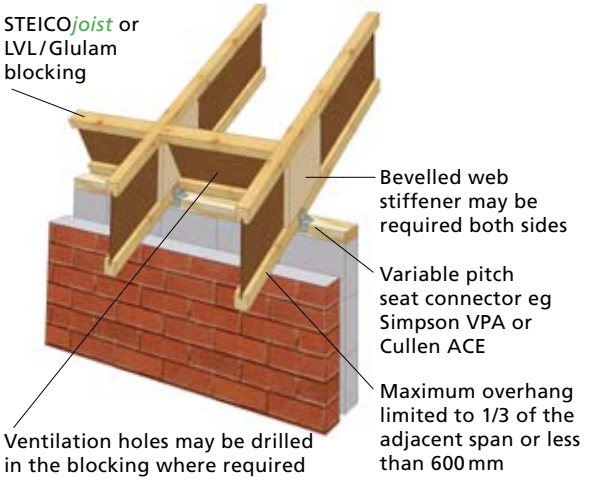
R2 Ridge beam with sloped hangers



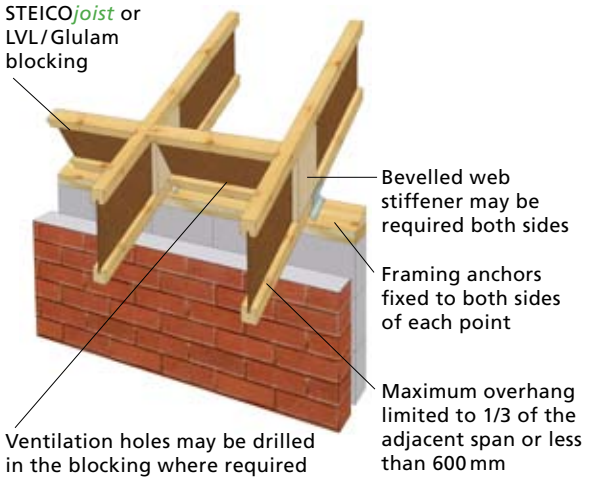
R3 Mono pitch ridge beam with sloped hangers



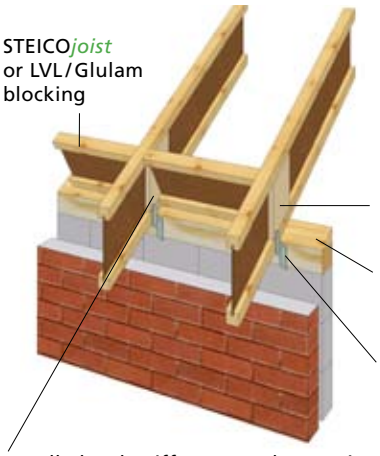
R4a Adjustable hanger at eaves



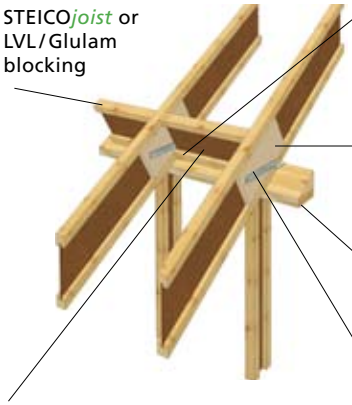
R4b Bevelled wallplate at eaves



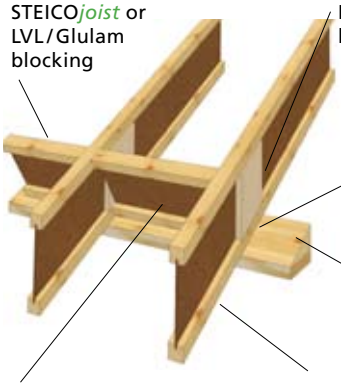
R4c Bevelled wallplate at eaves



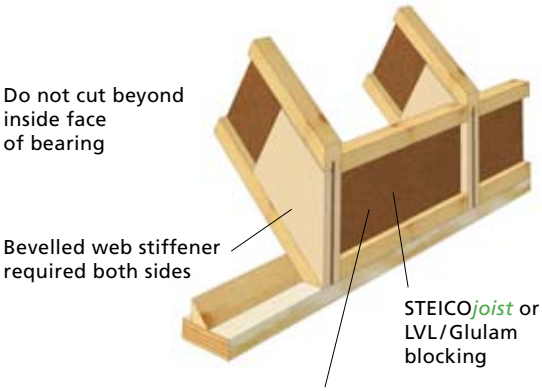
R5a Bevelled wallplate at eaves



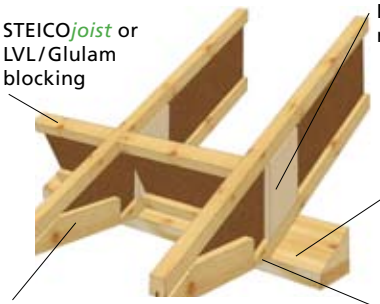
R5b Bevelled wallplate at eaves



R6 Birdsmouth cut at eaves

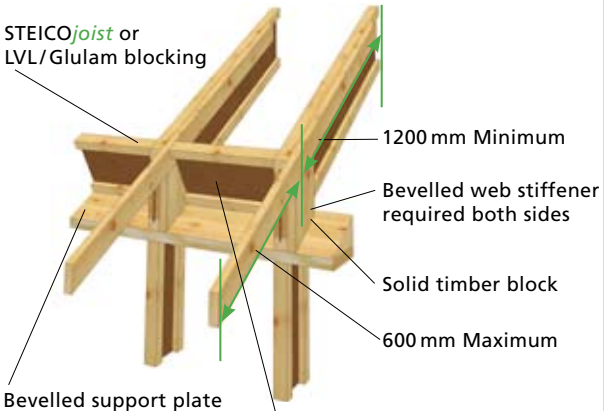


R7 STEICO*joist* cut to form eaves

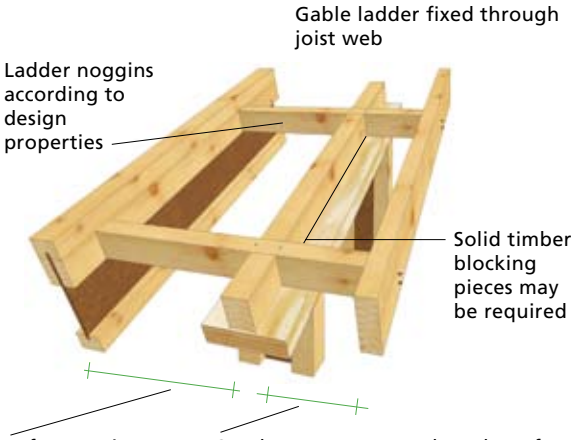


Maximim overhang limited to 1/3 of the rafter span or less than 600 mm.

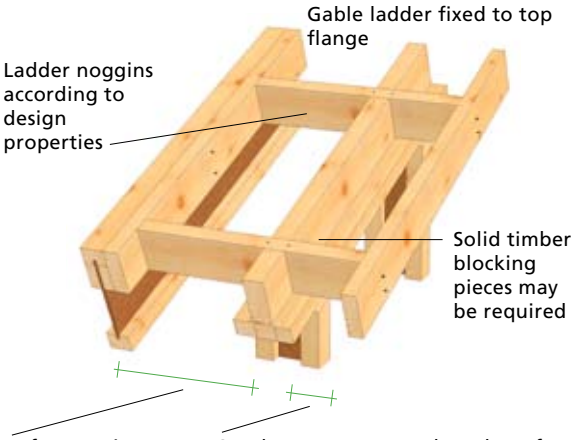
R8 Site fitted overhangs



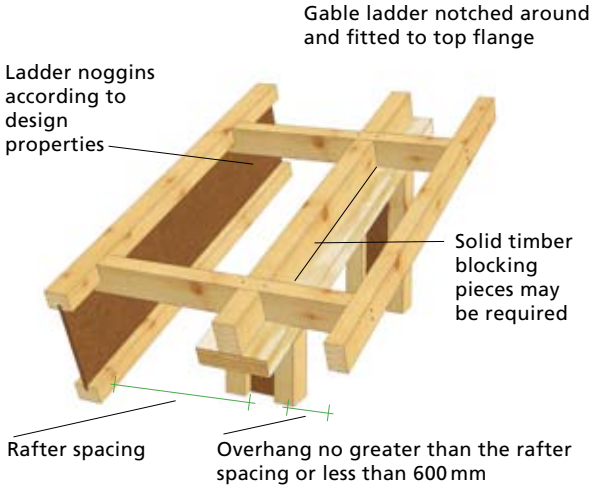
R9a Gable ladder



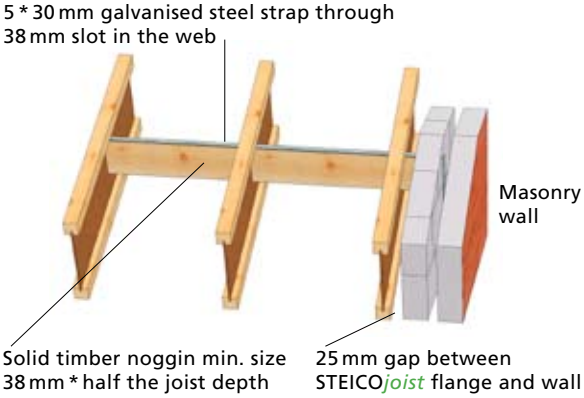
R9b Gable ladder



R9c Gable ladder



R10 Restraint strap



Do not cut the flange. Restraint strap from an approved connector supplier; install as per manufacturer's instructions.

R11 Hanger applications