



## Tophat Purlins

Tophat Purlins are a versatile and an easy to use product, typically used as roof purlins and wall girts, in applications such as carports, fencing, racking, farm buildings, and light commercial sheds.

Ideal for spans from 3 to 7 metres, Tophat Purlins provide a lightweight and economical alternative to standard timber beams or steel C-purlins.

- Tophat Purlins are fastened directly to their supports with Tek screws, which results in a saving on cleats
- Tophat Purlins do not twist because of their symmetrical section, so no braces or nogs are needed
- The Tophat profile is easily lapped for optimal performance.

### Durability

Tophat Purlins are manufactured from G550 steel pre-galvanised with a coating weight of Z275. This gives good protection in most exposed internal environments, and for external use in moderate coastal environments. Z450 galvanised steel coating is also available upon request.

To ensure durability of product, please note the following:

- Where used in a lined interior dwelling, a thermal break should be installed between the Tophat and the cladding to avoid thermal bridging.
- Where sections are exposed to salt spray but not rain, maintenance is required to remove any build-up of salt deposits on the surface.
- Run off from, or contact with, materials which are incompatible with zinc should be avoided.
- Please refer to the NZ Steel Durability Statement for further Information



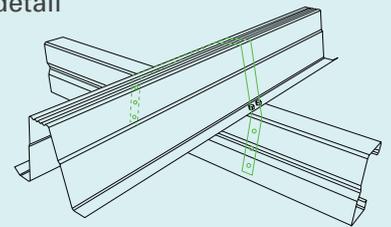
### Fasteners

Use 14 gauge Tek screws.

- Typically
  - use 2 screws at simple ends
  - use 4 screws at lapped supports

With the **exception** of the following:

- For fittings to cold rolled purlins with thickness less than 2.5mm BMT
  - use 2 screws at simple ends
  - use 4 screws for the 150mm Tophats at simple ends
- For lapped supports use
  - 4 screws for the 60mm Tophats
  - 6 screws for the 100mm Tophats
  - 8 screws for the 120mm & 150mm Tophats
  - OR use strap detail as required



### Handling & Storage

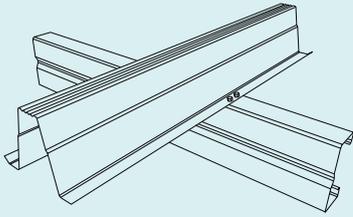
Tophat Purlins must be kept dry during storage as water present between closely stacked sections will cause premature corrosion. If they become wet, they should be separated and stacked openly to allow for ventilation to dry the surface.

### Cutting

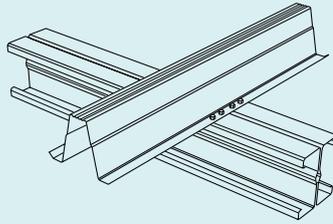
Cutting is preferably done by shear or hacksaw. When using abrasive disc blades, care must be taken to ensure the flammable swarf produced does not affect other materials, and the burred edge should be cleaned off at the completion of cutting. Finish the cut end with a galv spray to add protection.



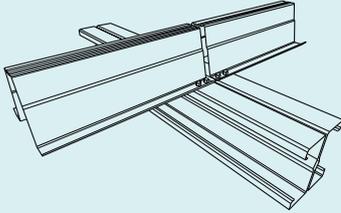
Typical Tophat Purlin on steel C beam



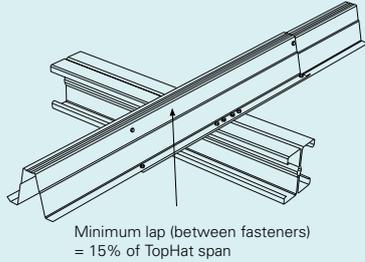
Typical Tophat in high wind zone connection detail



Typical Tophat Purlin on double steel C beam



Typical Tophat Purlin overlap connection details



Product Chart		Height (mm)	Material Thickness (mm)	Lengths Available	kg per m
	DS60 x 0.75mm	60	0.75	Run to Order	1.225
	DS60 x 0.95mm	60	0.95	Run to Order	1.531
	DS100 x 0.75mm	100	0.75	Run to Order	1.947
	DS100 x 0.95mm	100	0.95	Run to Order	2.434
	DS120 x 0.75mm	120	0.75	Run to Order	2.198
	DS120 x 0.95mm	120	0.95	Run to Order	2.748
	DS150 x 0.95mm	150	0.95	Run to Order	3.219
	DS150 x 1.15mm	150	1.15	Run to Order	3.862
	DS150 x 1.55mm	150	1.55	Run to Order	5.23

## Accessories

### Jamb Flashings

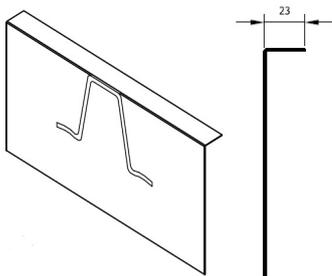
- Jamb Flashings are used where a door or window is cut into the side of a building to flash off the cladding and Tophat girt.
- They are available in two variations, and are made from G250 Z275 galvanised steel

Jamb Flashings	Description	Internal Diameter (mm)	Height (mm)	Material thickness (mm)	Lengths available (m)	Kg per m
	J1 62ID x 52 x 1.55mm	62	52	1.55	1.0, 2.7, 4.0, 6.0	2.049
	J2 102ID x 52 x 1.55mm	102	52	1.55	1.0, 2.7, 4.0, 6.0	2.551
	J3 122ID x 52 x 1.55mm	122	52	1.55	1.0, 2.7, 4.0, 6.0	2.802
	J4 152ID x 52 x 1.55mm	152	52	1.55	1.0, 2.7, 4.0, 6.0	3.179
	J1 60ID x 60 x 40 x 1.2mm	60	60	1.2	3.2	1.541
	J2 100ID x 60 x 40 x 1.2mm	100	60	1.2	3.2	1.934
	J3 120ID x 60 x 40 x 1.2mm	120	60	1.2	3.2	2.13
	J4 150ID x 60 x 40 x 1.2mm	150	60	1.2	3.2	2.425

Jamb Flashings are made from G250 steel pre-galvanised with coating weight of Z275

### THF Flashing Plates

THF Flashing Plates are used where Tophat Purlins pass through internal or external wall linings and fire-rated wall linings. They provide a neat and tidy hole for fixing of the sheets, which would otherwise be hard to achieve. Lapped Tophat Purlins can also pass through the THF Flashing Plates. Made with AZ150 Steel, they can be spray painted to match cladding if required.



Product	Sizes available (mm)	Height (mm)	Width (mm)	Material Thickness (mm)		Bundles	Kg per m
THF60 Flashing Plate	120 x 233 x 23 x 0.55	120	233	0.55	Opening to suit a single or lapped DS60 Tophat	20	0.136
THF100 Flashing Plate	160 x 286 x 23 x 0.55	160	286	0.55	Opening to suit a single or lapped DS100 Tophat	20	0.213
THF120 Flashing Plate	180 x 293 x 23 x 0.55	180	293	0.55	Opening to suit a single or lapped DS120 Tophat	20	0.245
THF150 Flashing Plate	210 x 306 x 23 x 0.55	210	306	0.55	Opening to suit a single or lapped DS150 Tophat	20	0.297

THF Flashing Plates are made from AZ150 steel

## Typical Sectional Properties

Tophat Section	Thickness	Area	Mass per unit Length	Second Moment Area (Full)		Centre of Gravity	Section Modulus (Full)		Radius of Gyration		Shear Centre	Torsion Constant	Warping Constant	Mono Symmetry Constant
				I <sub>x</sub> 10 <sup>6</sup> mm <sup>4</sup>	I <sub>y</sub> 10 <sup>6</sup> mm <sup>4</sup>		z <sub>x</sub> 10 <sup>3</sup> mm <sup>3</sup>	z <sub>y</sub> 10 <sup>3</sup> mm <sup>3</sup>	r <sub>x</sub> mm	r <sub>y</sub> mm				
60 Tophat 0.75 BMT	0.75	150	1.18	0.078	0.119	31.7	2.45	2.20	22.8	28.1	44.2	28.2	16.05	110
60 Tophat 0.95 BMT	0.95	190	1.50	0.098	0.151	31.7	3.09	2.78	22.8	28.1	44.2	57.3	20.33	110
100 Tophat 0.75 BMT	0.75	248	1.93	0.338	0.439	55.2	6.3	5.39	37.1	42.2	67.4	46.5	238.61	158
100 Tophat 0.95 BMT	0.95	314	2.45	0.428	0.556	55.2	7.75	6.83	37.0	42.2	67.4	94.5	302.24	158
120 Tophat 0.75 BMT	0.75	278	2.17	0.527	0.519	65.6	8.03	6.13	43.7	43.3	82.3	52.1	363.31	184
120 Tophat 0.95 BMT	0.95	352	2.75	0.667	0.657	65.6	10.16	7.76	43.6	43.3	82.3	105.9	460.20	184
150 Tophat 0.95 BMT	0.95	410	3.21	1.16	0.878	81.1	14.30	9.60	53.3	46.3	103.9	123.5	758.37	225
150 Tophat 1.15 BMT	1.15	497	3.88	1.40	1.06	81.1	17.30	11.62	53.2	46.3	103.9	219.1	918.02	225
150 Tophat 1.55 BMT	1.55	670	5.23	1.89	1.43	81.0	23.32	15.66	53.1	46.2	103.8	536.5	1237.33	225

BMT = base metal thickness

## Typical Tophat Purlin Spans (mm)

Typical Tophat Purlin Spans are designed to give information for preliminary design, and costings and are based on the factors noted. Full design load tables are available for specific design and building consent purposes.

Minimum lap between fixing is 15% of Tophat span.

Tophat Section	Purlin Spacing (mm)	Region 1						Region 2					
		Urban		Rural		Secondary Use		Urban		Rural		Secondary Use	
		Simple	Lapped	Simple	Lapped	Simple	Lapped	Simple	Lapped	Simple	Lapped	Simple	Lapped
60 Tophat 0.75 BMT	1200	2200	2800	2000	2600	2600	3200	2100	2700	1900	2500	2500	3200
	1800	1800	2400	1700	2300	2100	2700	1800	2300	1700	2200	1900	2500
60 Tophat 0.95 BMT	1200	2300	3000	2200	2900	2700	3600	2300	3100	2100	2700	2700	3600
	1800	2000	2700	1900	2500	2400	3100	2000	2600	1800	2400	2300	2900
100 Tophat 0.75 BMT	1200	3600	4600	3200	4200	3600	5400	3400	4400	3000	4000	3400	4800
	1800	3200	4000	3000	3700	3800	4600	3000	3800	2800	3600	3600	4000
100 Tophat 0.95 BMT	1200	4000	5000	3700	4700	4300	5400	3800	4800	3600	4500	4000	5800
	1800	3500	4400	3200	4100	3600	5000	3400	4200	2900	4000	3400	4800
120 Tophat 0.75 BMT	1200	4300	5400	4000	5000	5100	6000	4200	5200	3900	4800	4900	5800
	1800	3400	4800	3000	4400	3400	5300	3200	4500	2800	4200	3200	4900
120 Tophat 0.95 BMT	1200	4800	6000	4400	5600	5100	6300	4600	5600	4200	5400	4800	6200
	1800	4200	5200	3800	4900	5000	5800	4000	5000	3700	4600	4400	5600
150 Tophat 0.95 BMT	1200	5600	7000	5000	6600	5600	8000	5200	6800	4800	6400	5200	7800
	1800	4600	6200	4100	5800	4600	6800	4200	6000	3900	5500	4200	6600
150 Tophat 1.15 BMT	1200	5100	7700	5700	7200	7000	8000	5800	7400	5200	6900	6200	8000
	1800	5000	6800	4800	6300	5000	7800	5000	6500	4600	5500	5000	6800
150 Tophat 1.55 BMT	1200	6700	8000	6200	7700	7500	8000	6400	8000	5800	7300	7200	8000
	1800	6100	7600	5600	7000	6200	8000	5800	7200	5300	6500	6000	7400

Region 1: Auckland, Central North Island, South Island (except Marlborough & Southland).

Region 2: Northland, Wellington, Marlborough, Southland.

Urban: Any built-up area with numerous houses/buildings 3 to 5 metres high (Terrain Category 3).

Rural: Areas with scattered obstructions, hedges, trees, buildings etc. (Terrain Category 2 1/2).

Secondary Use: Buildings of low importance (secondary nature) where higher roof deflections are acceptable. In areas with scattered obstructions, hedges, trees, buildings etc. (Terrain Category 2 1/2).

Snow: These tables do not apply for elevations in excess of 300 metres or for Canterbury/Otago/Southland above 50 metres. In these areas snow loads should be considered by a qualified engineer.

