



LCP PURLIN & GIRT SYSTEM[®]



Purlin and Girt Structural System



FEATURES

Cold formed purlins and girts are recognised as being efficient and economical structural members suitable for a wide range of building applications. **LCP Building Products Pvt. Ltd.** offers a full range of section depths ranging from 350mm to 50mm deep for 'C' Purlin and from 300mm to 100mm deep for 'Z' Purlin.



AESTHETICALLY PLEASING & COST EFFECTIVE

- ▶ High tensile steel - for high strength and low weight.
- ▶ Available in varied Zinc coating -Z120 GSM, Z275 GSM in accordance with AS 1397.
- ▶ Full range of accessories - from brackets to bolts to ensure easy use and installation.
- ▶ Full size range - for ease of design in both C & Z sections.
- ▶ Available in standard 240 MPa/ 345 MPa yield strength and also in 450 MPa yield strength subject to minimum order quantity and lead time.
- ▶ Designed in accordance with AS 1538 and also conforms to BS 5950 and IS 875.
- ▶ Special size capability - non-standard range of special shapes and channels available to suit individual requirements subject to minimum order quantity and lead time.

MARKING

Each purlin or girt is marked to show customer's name, delivery, location, invoice number, purlin type, length and mark number. Mark numbers match the marking plan supplied prior to manufacture.

MATERIALS

LCP PURLINS are cold rolled formed sections manufactured from high strength galvanised steel in base thicknesses ranging from 1.0mm BMT to 3.0mm BMT (240 MPa / 345 MPa minimum yield stress) with a Z275 / Z 120 zinc coating (275 / 120 grams per square metres minimum coating mass) in accordance with AS 1397. Also, 450 MPa material is available subject to minimum order quantity and lead time.

PERFORMANCE

LCP PURLINS section properties and material data are produced for engineering calculation in accordance to AS/NZS 4600 or BS 5950 or IS 875. For further information, please contact LCP Building Products Pvt. Ltd. Technical Department.

INSTALLATION

LCP C & Z sections are easily installed in single, double, double lapped, continuous lapped and reduced end lap systems.



LCP PURLIN & GIRT SYSTEM®

PROPERTIES (GALVANISED PURLIN (GI)) COATING CLASS : Z 120 gsm												
C-Section						Z-Section						
Section Size	Web Depth (mm)	Flange Width (mm)	Lip Length (mm)	Thickness (mm)	Section Mass (kg/m)	Section Size	Web Depth (mm)	Broad Flange (mm)	Narrow Flange (mm)	Lip Length (mm)	Thickness (mm)	Section Mass (kg/m)
C15016	152	63	15	1.6	3.749	Z15016	152	67	59	15	1.6	3.749
C15018	152	63	15.5	1.8	4.213	Z15018	152	67	59	15.5	1.8	4.213
C15020	152	63	16.5	2.0	4.676	Z15020	152	67	59	16.5	2.0	4.676
C15023	152	63	17.5	2.3	5.370	Z15023	152	67	59	17.5	2.3	5.370
C15025	152	63	18.5	2.5	5.834	Z15025	152	67	59	18.5	2.5	5.834
C18016	180	64	15	1.6	4.131	Z18016	180	68	60	15	1.6	4.131
C18018	180	64	15.5	1.8	4.641	Z18018	180	68	60	15.5	1.8	4.641
C18020	180	64	16.5	2.0	5.151	Z18020	180	68	60	16.5	2.0	5.151
C18023	180	64	17.5	2.3	5.917	Z18023	180	68	60	17.5	2.3	5.917
C18025	180	64	18.5	2.5	6.427	Z18025	180	68	60	18.5	2.5	6.427
C20016	203	77	15.5	1.6	4.766	Z20016	203	80	73	16	1.6	4.766
C20018	203	77	16	1.8	5.355	Z20018	203	80	73	16.5	1.8	5.355
C20020	203	77	17	2.0	5.944	Z20020	203	80	73	17.5	2.0	5.944
C20023	203	77	18	2.3	6.827	Z20023	203	80	73	18.5	2.3	6.827
C20025	203	77	18.5	2.5	7.416	Z20025	203	80	73	18.5	2.5	7.416
C23016	231	63	15.5	1.6	4.766	Z23016	231	67	60	15	1.6	4.766
C23018	231	63	16	1.8	5.355	Z23018	231	67	60	15.5	1.8	5.355
C23020	231	63	17	2.0	5.944	Z23020	231	67	60	16.5	2.0	5.944
C23023	231	63	18	2.3	6.827	Z23023	231	67	60	17.5	2.3	6.827
C23025	231	63	18.5	2.5	7.416	Z23025	231	67	60	18.5	2.5	7.416
C23016	254	77	15	1.6	5.402	Z25016	254	80	73	15.5	1.6	5.402
C25018	254	77	15.5	1.8	6.069	Z25018	254	80	73	16	1.8	6.069
C25020	254	77	16.5	2.0	6.736	Z25020	254	80	73	17	2.0	6.736
C25023	254	77	17.5	2.3	7.737	Z25023	254	80	73	18	2.3	7.737
C25025	254	77	18.5	2.5	8.404	Z25025	254	80	73	18.5	2.5	8.404
C30020	300	76	15	2.0	7.370	Z30020	300	80	71	15	2.0	7.370
C30023	300	76	15.5	2.3	8.465	Z30023	300	80	71	16	2.3	8.465
C30025	300	76	16.5	2.5	9.195	Z30025	300	80	71	17	2.5	9.195
C30030	300	76	18.5	3.0	11.021	Z30030	300	80	71	18.5	3.0	11.021
C35030	350	80	18.5	3.0	12.443							

PROPERTIES (GALVANISED PURLIN (GI)) COATING CLASS : Z 275 gsm												
C-Section						Z-Section						
Section Size	Web Depth (mm)	Flange Width (mm)	Lip Length (mm)	Thickness (mm)	Section Mass (kg/m)	Section Size	Web Depth (mm)	Broad Flange (mm)	Narrow Flange (mm)	Lip Length (mm)	Thickness (mm)	Section Mass (kg/m)
C15016	152	63	15	1.6	3.795	Z15016	152	67	59	15	1.6	3.795
C15018	152	63	15.5	1.8	4.258	Z15018	152	67	59	15.5	1.8	4.258
C15020	152	63	16.5	2.0	4.721	Z15020	152	67	59	16.5	2.0	4.721
C15023	152	63	17.5	2.3	5.416	Z15023	152	67	59	17.5	2.3	5.416
C15025	152	63	18.5	2.5	5.879	Z15025	152	67	59	18.5	2.5	5.879
C18016	180	64	15	1.6	4.181	Z18016	180	68	60	15	1.6	4.181
C18018	180	64	15.5	1.8	4.691	Z18018	180	68	60	15.5	1.8	4.691
C18020	180	64	16.5	2.0	5.202	Z18020	180	68	60	16.5	2.0	5.202
C18023	180	64	17.5	2.3	5.967	Z18023	180	68	60	17.5	2.3	5.967
C18025	180	64	18.5	2.5	6.477	Z18025	180	68	60	18.5	2.5	6.477
C20016	203	77	15.5	1.6	4.824	Z20016	203	80	73	16	1.6	4.824
C20018	203	77	16	1.8	5.413	Z20018	203	80	73	16.5	1.8	5.413
C20020	203	77	17	2.0	6.002	Z20020	203	80	73	17.5	2.0	6.002
C20023	203	77	18	2.3	6.885	Z20023	203	80	73	18.5	2.3	6.885
C20025	203	77	18.5	2.5	7.474	Z20025	203	80	73	18.5	2.5	7.474
C23016	231	63	15.5	1.6	4.824	Z23016	231	67	60	15	1.6	4.824
C23018	231	63	16	1.8	5.413	Z23018	231	67	60	15.5	1.8	5.413
C23020	231	63	17	2.0	6.002	Z23020	231	67	60	16.5	2.0	6.002
C23023	231	63	18	2.3	6.885	Z23023	231	67	60	17.5	2.3	6.885
C23025	231	63	18.5	2.5	7.474	Z23025	231	67	60	18.5	2.5	7.474
C23016	254	77	15	1.6	5.468	Z25016	254	80	73	15.5	1.6	5.468
C25018	254	77	15.5	1.8	6.135	Z25018	254	80	73	16	1.8	6.135
C25020	254	77	16.5	2.0	6.802	Z25020	254	80	73	17	2.0	6.802
C25023	254	77	17.5	2.3	7.803	Z25023	254	80	73	18	2.3	7.803
C25025	254	77	18.5	2.5	8.470	Z25025	254	80	73	18.5	2.5	8.470
C30020	300	76	15	2.0	7.442	Z30020	300	80	71	15	2.0	7.442
C30023	300	76	15.5	2.3	8.537	Z30023	300	80	71	16	2.3	8.537
C30025	300	76	16.5	2.5	9.267	Z30025	300	80	71	17	2.5	9.267
C30030	300	76	18.5	3.0	11.093	Z30030	300	80	71	18.5	3.0	11.093
C35030	350	80	18.5	3.0	12.524							

***C* - Purlin ranges from Web 350mm to 50mm with thickness ranging from 3mm to 1.2mm with Yield Strength of 240 MPa / 345MPa and Zinc Coating Mass Z120 / Z275GSM
 ***Z* - Purlin ranges from Web 300mm to 100mm with thickness ranging from 3mm to 1.2mm with Yield Strength of 240 MPa / 345MPa and Zinc Coating Mass Z120 / Z275GSM

Purlin & Girt also available with Hot Dip Galvanizing as per IS:4759

We can also manufacture and supply customized purlin sections

SIMPLE END CONNECTIONS

This simple connection uses two standard bolts and a standard cleat and is common to both Z and C sections. An overhang may sometimes be required for support of raking girts. A double cleat may also be used to join separate lengths of section above a common portal frame.

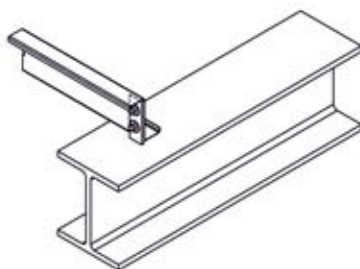
STRUCTURAL CONNECTIONS

Structural laps provide greater load carrying capacity to the section. The lap/span ratio must be 15% or greater and all laps should use six bolts, including two through the bottom flange. Z sections can be lapped in any thickness combination and allow heavier, stronger sections to be used in end bay applications.

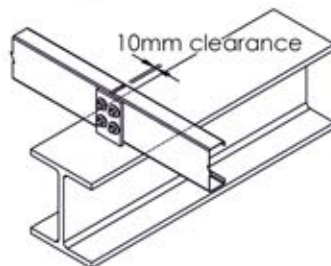
NON - STRUCTURAL CONNECTIONS

All Z sections are rolled with broad and narrow flanges. Lapping is easily accomplished by inverting alternative sections, enabling sections to nest together. Non-structural laps formed in this way result in substantial savings in cleats and bolts. For even greater economy and performance, use structural laps.

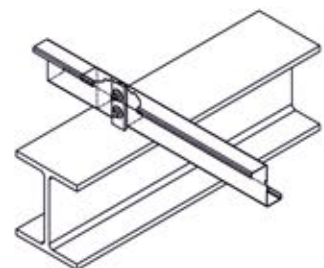
SIMPLE END



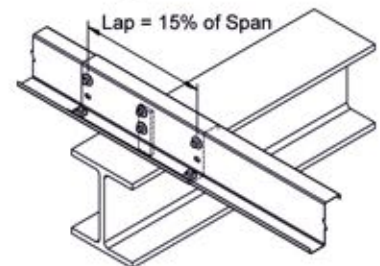
DOUBLE CLEAT



NON-STRUCTURAL LAP



STRUCTURAL LAP



STANDARD ERECTION DETAILS

Z sections perform best when installed in single bay lengths plus structural laps. The added strength and lower deflection characteristics favourably affect building economy. Bridging must be installed prior to cladding to reduce section twist and increase performance.

C sections are simple to use and are primarily suited for single or double spans

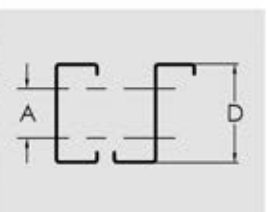
For best performance, install Z and C sections with the cladding flange facing up the roof or wall slope.

HOLES

Purlins and girts are usually delivered with holes punched to details supplied. This allows purlins to be used on arrival at site. The computer controlled production line allows holes almost at any position or frequency. Holes are positioned from hole details sheets supplied prior to manufacture. LCP Building Products Pvt. Ltd. can supply purlins and girts punched to conventional hole centres to match the bridging systems.

Ensure hole details sheets show correct hole centres and spacing required and location and type of bridging holes.

C/Z Purlin Depth 'D' (mm)	Hole Centre 'A' (mm)
100	40
150	60
180	70
200	80
230	80
250	100
300	150
(350) C	200



STORAGE

All sections must be kept dry during transport, stored above ground and covered to prevent moisture from entering packs. Wet packs should be broken open, dried with a cloth and separated to allow air circulation.

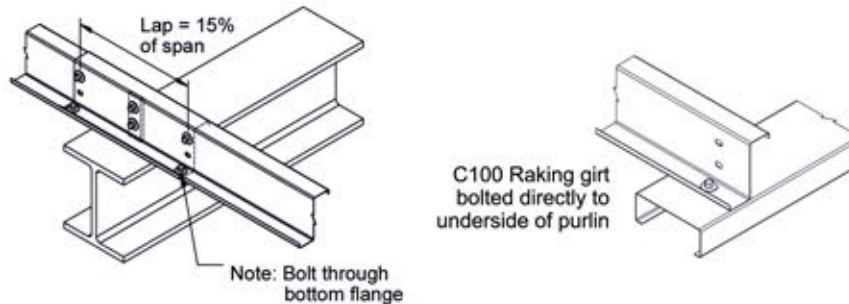
HANDLING

Care should be taken to ensure correct layout of purlin hole punching. Generally, detail purlins with flanges facing up the roof slope, and provided bay spacings are the same on both ends and sides of the building, call up "opposite hand" details for the reverse side.

RAKING GIRTS

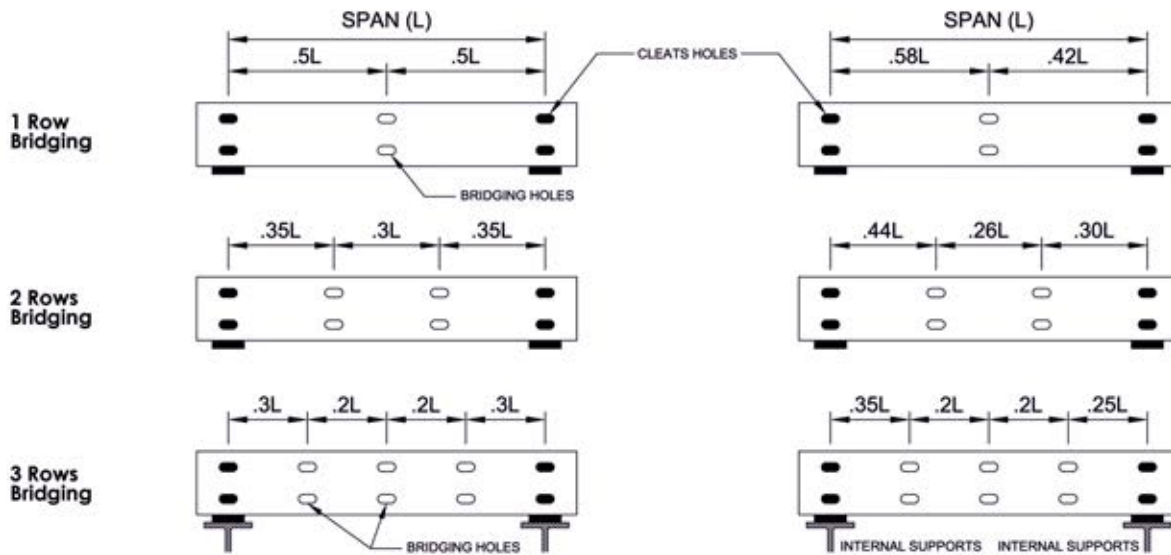
Raking girts are required when cladding gable ends of buildings. The girt then provides support to fixing points for claddings and flashings. Raking girts are normally fixed beneath overhung purlins to line up with the end wall girts. Roof purlins and the raking girt will need detailing to provide hole locations. Using standard brackets the raking girt is easily fitted to the ends of the purlins or alternatively is bolted directly to the purlin flange hole.

A raking girt bracket is available for connecting raking girts to Fascia purlins.



BRIDGING POSITIONS

To maximize performance and to reach the design loads given in the performance chart, bridging should be positioned as shown below. Actual position dimensions may be rounded to the nearest 50mm.



LAP DETAILS TO SUIT APPLICATION

SPECIAL PROFILES

For special or large projects, **LCP Building Products Pvt. Ltd.** is able to produce purlins outside the standard size range. Special purlin allowable loads are calculated with the aid of computer systems and requests for information should be directed to **LCP Building Products Pvt. Ltd.** office.

INSTALLATION

Bridging can be installed up the slope of the roof, fitting fascia bridging, then all intermediate bridging. Then install the ridge bridging to pull the purlins straight, and finally adjust the fascia bridging to correct fascia purlin twist.

Alternatively, install the ridge bridging and straighten the ridge purlins, then install the immediate bridging to the fascia. Fit and adjust the fascia bridging for straightness and twist.

LCP bridging detail sheets cover the slight differences between "up the slope" and "down the slope" components.

Note that on steep roofs or where long bridging runs are used, the turn-buckles used for the ridge bridging are not intended to pull straight a large number of sagging purlins.

Similarly, care should be taken when girts are used on high wall, that long intermediate bridging members are not subjected to an excessive compressive load.

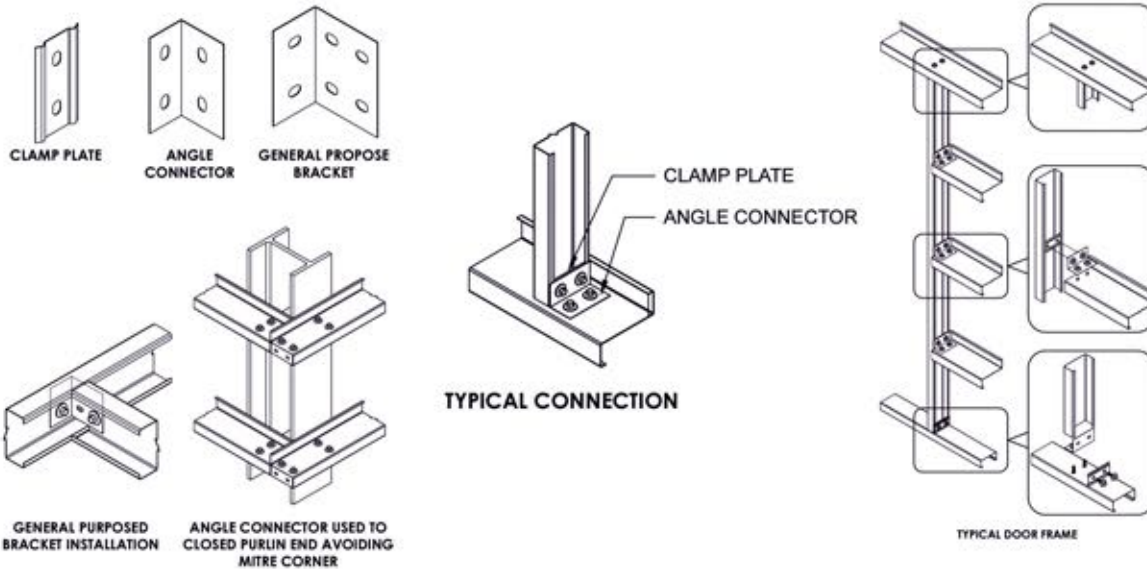


LCP PURLIN & GIRT SYSTEM®

ACCESSORIES

Clamp plates and angle connectors provide a quick, easy and efficient method of connecting purlins and girts together with other non-structural framing members such as window or door surrounds. Large slots in all brackets allow for combinations of different purlin sizes.

For those applications where web fixing is possible, a general purpose bracket is available to reduce fixing time and expense. All these brackets and plates are produced from galvanised steel.



BRIDGING

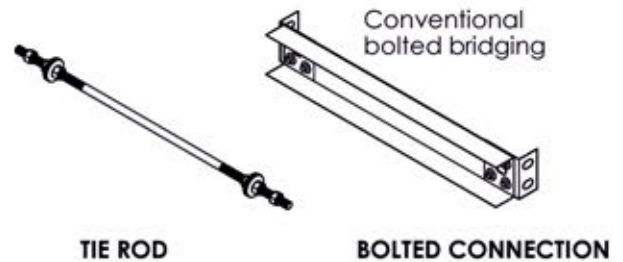
To enhance performance in longer spans, bridging is generally used. Where wind uplift loading is dominant, greater economy can generally be achieved by using additional bridging in the end spans. The performance of purlins is improved considerably when the roof or wall cladding is attached, so bridging is normally required to ensure easy installation of cladding.

Generally, bridging spacing should not exceed 20 times the section's depth, (eg. over 3000mm for a 150mm deep section) or 4000mm, whichever is the least.

This type of system is effective and bridging members may also be alternated with tie rods (or fully threaded rod). Ridge and fascia conventional bridging is similar in adjustment to LCP bridging.

CONVENTIONAL BRIDGING / STRUTS

Conventional bolted bridging is available. Conventional bridging usually consists of bridging channel, connected to end plates which are bolted between parallel purlins.



N.B. 300mm* and 350mm* purlins and girts require the use of heavy duty conventional bolted bridging systems.

*: Subject to availability - Please check with LCP Building Products Pvt.Ltd.



LCP BUILDING PRODUCTS PVT. LTD.

(Co. No. U28112 TN2004 PTC052326)
City Office & Sales : Old No. 6, New No. 17, 4th Floor,
Viswanathapuram Main Road, Kodambakkam,
Chennai - 600 024, Tamilnadu, India.
Tel / Fax: +91-44-2989 2772

Registered Office & Factory : Plot No. F88-F92, SIPCOT Industrial
Park, Irungattukottai - 602 105, Tamilnadu, India.
Tel: +91-44-27190747/48, 27156163, 27156158
Fax: +91-44-47193053
Website: www.lcpindia.com

LCP BUILDING PRODUCTS PTE. LTD.

Co. No. 200009173 c
6 Gul Circle, Singapore 629 562
Tel: (65) 6865-1550 Fax: (65) 6861-4218
Email: lcp@lcp.sg Website: www.lcp.sg

A member of LCP Group of Companies

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