

Pre Engineered Building Solutions



Pakistan Insulations (Pvt) Ltd.



INTRODUCTION

Pakistan Insulations Pvt Ltd was established in 1986 as a manufacturing company dedicated for improving thermal efficiency in the country. Our mission was and has been throughout to promote the cause of energy conservancy in the period of history witnessing ever rising energy costs. Our initial product was Rockwool with which we have insulated most of the industries in Pakistan. It still remains as the prime material of choice for thermal and acoustic insulation all the country.

In order to take our goals to a newer level Pakistan Insulations Pvt Ltd now offers energy efficient Pre Engineered Buildings. The buildings offered by us are quick to construct, durable, well insulated and above all economical.

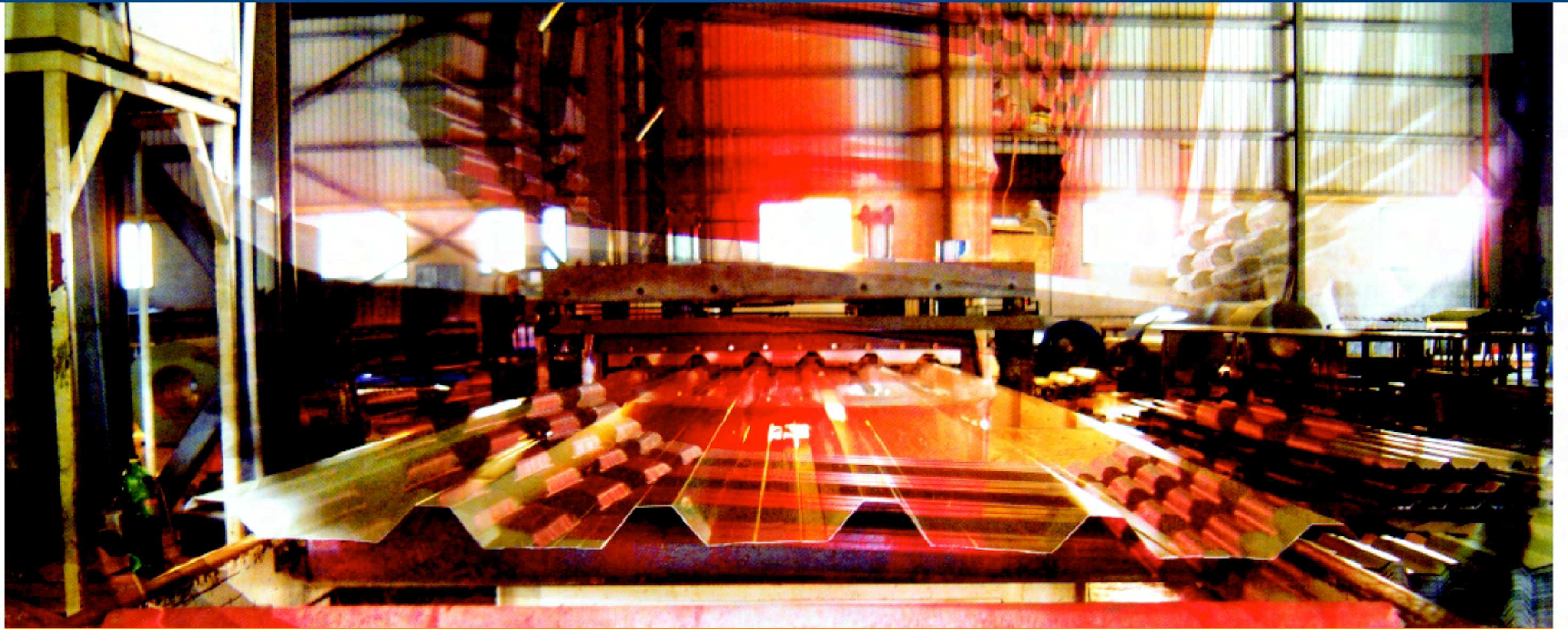
The buildings are built using prime material on the state of the art automated plant located in Port Qasim Karachi. Each building offered by us benefits from the rich experience of the company in terms of thermal and acoustic insulation.

Our highly proficient sales team handles proposals for your inquiries with the utmost dedication. All offers are submitted with proposed drawings and competitive quote.

Pre Engineered buildings offered by us can be used as warehouses, factory buildings, super markets, aircraft hangers, exhibition halls, car parks, as well as residential buildings.

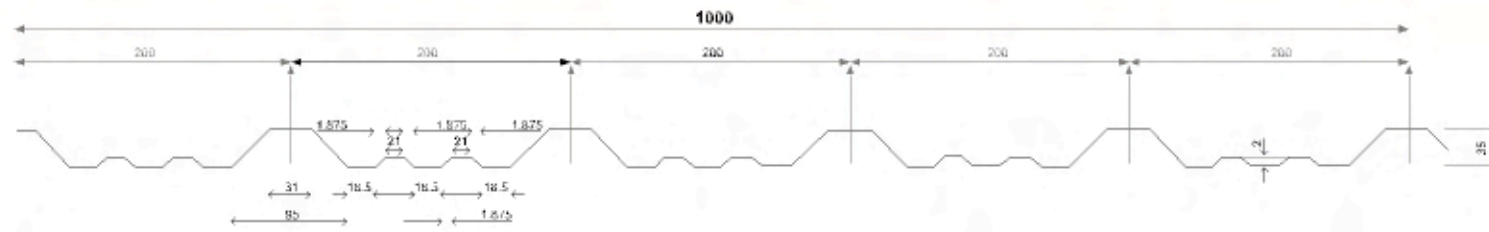
We can also offer you structural steel structures in addition to buildings. These structures can be used in industrial setup as platforms and also as components for multi story structures.





trapezodial
corrugation





35/200 Profiled Steel Sheeting (GI) - Properties & Load Tables

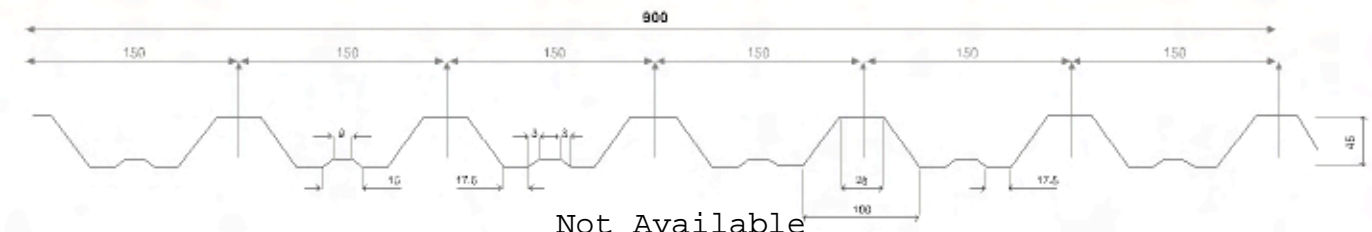
*Material: ASTM A653 Grade: 50(F_y=35.0 Kn/cm²).
 *Sheets available in Mill finish and Colour coated (GI).
 *Paint applied is Polyester coated 25 to 30 microns on the exposed surface and 5 to 7 microns epoxy on inner surface.
 *Colours available as per RAL colour chart (subject to the availability).

| Section Properties (per meter of coverage width) | | | | | | | | | | | |
|--|-------------------|-----------------|--------------------|-----------------------|--------------------------|-----------------------|--------------------|-----------------------|--------------------------|---------|-------|
| Thickness | Weight | Area | Top in Compression | | | Bottom in Compression | | | Shear | | |
| mm | Kg/m ² | Cm ² | Ix cm ⁴ | Sx Topcm ³ | Sx Bottomcm ³ | Ma KN-m | Ix cm ⁴ | Sx Topcm ³ | Sx Bottomcm ³ | Ma KN-m | Va KN |
| 0.40 | 3.82 | 4.88 | 7.00 | 2.83 | 6.63 | 0.94 | 6.83 | 3.78 | 3.96 | 1.26 | 11.51 |
| 0.46 | 4.40 | 5.61 | 8.64 | 3.60 | 7.65 | 1.20 | 8.06 | 4.38 | 4.77 | 1.46 | 17.55 |
| 0.50 | 4.78 | 6.10 | 9.80 | 4.16 | 8.33 | 1.38 | 8.90 | 4.79 | 5.32 | 1.59 | 22.52 |
| 0.60 | 5.73 | 7.31 | 12.64 | 5.54 | 10.04 | 1.84 | 11.05 | 5.79 | 6.76 | 1.93 | 33.36 |
| 0.70 | 6.69 | 8.53 | 15.24 | 6.77 | 11.77 | 2.25 | 13.25 | 6.80 | 8.29 | 2.26 | 38.70 |

Allowable Uniform Load Capacities (KN/m²)

| Thickness | No. of Spans | Load | Span in Meters | | | | | | | | |
|-----------|-----------------|--------|----------------|-------|------|------|------|------|------|------|------|
| | | | 1.00 | 1.25 | 1.50 | 1.75 | 2.00 | 2.25 | 2.50 | 2.75 | 3.00 |
| 0.40 | upto 2 spans | D+L | 6.08 | 3.11 | 1.80 | 1.13 | 0.76 | 0.53 | 0.39 | 0.29 | 0.23 |
| | 3 or more spans | D+L | 8.89 | 4.55 | 2.63 | 1.66 | 1.11 | 0.78 | 0.57 | 0.43 | 0.33 |
| | | Uplift | 9.42 | 5.87 | 3.40 | 2.14 | 1.43 | 1.01 | 0.73 | 0.55 | 0.42 |
| 0.46 | upto 2 spans | D+L | 7.50 | 3.84 | 2.22 | 1.40 | 0.94 | 0.66 | 0.48 | 0.36 | 0.28 |
| | 3 or more spans | D+L | 10.50 | 5.37 | 3.11 | 1.96 | 1.31 | 0.92 | 0.67 | 0.50 | 0.39 |
| | | Uplift | 11.97 | 7.25 | 4.19 | 2.64 | 1.77 | 1.24 | 0.91 | 0.68 | 0.52 |
| 0.50 | upto 2 spans | D+L | 8.51 | 4.36 | 2.52 | 1.59 | 1.06 | 0.75 | 0.54 | 0.41 | 0.32 |
| | 3 or more spans | D+L | 11.59 | 5.93 | 3.43 | 2.16 | 1.45 | 1.02 | 0.74 | 0.56 | 0.43 |
| | | Uplift | 13.84 | 8.22 | 4.76 | 3.00 | 2.01 | 1.41 | 1.03 | 0.77 | 0.59 |
| 0.60 | upto 2 spans | D+L | 10.97 | 5.62 | 3.25 | 2.05 | 1.37 | 0.96 | 0.70 | 0.53 | 0.41 |
| | 3 or more spans | D+L | 14.38 | 7.36 | 4.26 | 2.68 | 1.80 | 1.26 | 0.92 | 0.69 | 0.53 |
| | | Uplift | 18.42 | 10.60 | 6.13 | 3.86 | 2.59 | 1.82 | 1.32 | 1.00 | 0.77 |
| 0.70 | upto 2 spans | D+L | 13.22 | 6.77 | 3.92 | 2.47 | 1.65 | 1.16 | 0.85 | 0.64 | 0.49 |
| | 3 or more spans | D+L | 17.25 | 8.83 | 5.11 | 3.22 | 2.16 | 1.51 | 1.10 | 0.83 | 0.64 |
| | | Uplift | 22.49 | 12.77 | 7.39 | 4.66 | 3.12 | 2.19 | 1.60 | 1.20 | 0.92 |

Notes: 1. Design of Sheeting is based on equations of AISI-2001 (ASD-Allowable stress design).
 2. D+L = Dead + Live Load (Deflection Limitation: Span/180)
 3. Wind Uplift (Deflection Limitation: Span/120)



Not Available

45/150 Profiled Steel Sheeting (GI) - Properties & Load Tables

*Material: ASTM A653 Grade: 50(F_y=35.0 Kn/cm²).
 *Sheets available in Mill finish and Colour coated (GI).
 *Paint applied is Polyester coated 25 to 30 microns on the exposed surface and 5 to 7 microns epoxy on inner surface.
 *Colours available as per RAL colour chart (subject to the availability).

| Section Properties (per meter of coverage width) | | | | | | | | | | | |
|--|-------------------|-----------------|--------------------|-----------------------|--------------------------|-----------------------|--------------------|-----------------------|--------------------------|---------|-------|
| Thickness | Weight | Area | Top in Compression | | | Bottom in Compression | | | Shear | | |
| mm | Kg/m ² | Cm ² | Ix cm ⁴ | Sx Topcm ³ | Sx Bottomcm ³ | Ma KN-m | Ix cm ⁴ | Sx Topcm ³ | Sx Bottomcm ³ | Ma KN-m | Va KN |
| 0.50 | 5.31 | 6.77 | 18.58 | 7.40 | 9.20 | 2.46 | 18.85 | 8.10 | 8.56 | 2.69 | 23.72 |
| 0.60 | 6.37 | 8.13 | 22.97 | 9.28 | 11.13 | 3.09 | 23.17 | 9.78 | 10.69 | 3.25 | 41.03 |
| 0.70 | 7.43 | 9.48 | 27.41 | 11.23 | 13.04 | 3.73 | 27.51 | 11.46 | 12.84 | 3.81 | 60.06 |
| 0.80 | 8.50 | 10.84 | 31.74 | 13.10 | 14.92 | 4.13 | 31.70 | 13.10 | 14.89 | 4.13 | 74.12 |
| 0.90 | 9.56 | 12.19 | 35.58 | 14.67 | 16.69 | 4.62 | 35.58 | 14.67 | 16.69 | 4.62 | 83.18 |
| 1.00 | 10.62 | 13.54 | 39.38 | 16.22 | 18.44 | 5.11 | 39.38 | 16.22 | 18.44 | 5.11 | 92.19 |

Allowable Uniform Load Capacities (KN/m²)

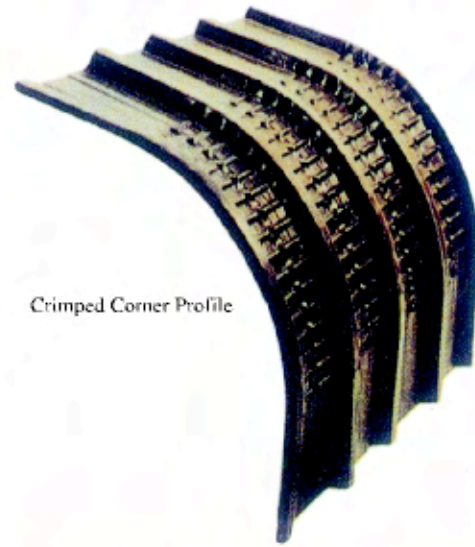
| Thickness | No. of Spans | Load | Span in Meters | | | | | | | | |
|-----------|-----------------|--------|----------------|-------|-------|-------|------|------|------|------|------|
| | | | 1.00 | 1.25 | 1.50 | 1.75 | 2.00 | 2.25 | 2.50 | 2.75 | 3.00 |
| 0.50 | upto 2 spans | D+L | 16.12 | 8.26 | 4.78 | 3.01 | 2.02 | 1.42 | 1.03 | 0.78 | 0.60 |
| | 3 or more spans | D+L | 21.54 | 12.56 | 7.27 | 4.58 | 3.07 | 2.15 | 1.57 | 1.18 | 0.91 |
| | | Uplift | 24.59 | 15.58 | 9.01 | 5.68 | 3.80 | 2.67 | 1.95 | 1.46 | 1.13 |
| 0.60 | upto 2 spans | D+L | 19.93 | 10.20 | 5.91 | 3.72 | 2.49 | 1.75 | 1.28 | 0.96 | 0.74 |
| | 3 or more spans | D+L | 26.02 | 15.45 | 8.94 | 5.63 | 3.77 | 2.65 | 1.93 | 1.45 | 1.12 |
| | | Uplift | 30.87 | 19.25 | 11.14 | 7.02 | 4.70 | 3.30 | 2.41 | 1.81 | 1.39 |
| 0.70 | upto 2 spans | D+L | 23.79 | 12.18 | 7.05 | 4.44 | 2.97 | 2.09 | 1.52 | 1.14 | 0.88 |
| | 3 or more spans | D+L | 30.47 | 18.34 | 10.61 | 6.68 | 4.48 | 3.14 | 2.29 | 1.72 | 1.33 |
| | | Uplift | 37.33 | 22.98 | 13.30 | 8.38 | 5.16 | 3.94 | 2.87 | 2.16 | 1.66 |
| 0.80 | upto 2 spans | D+L | 27.55 | 14.10 | 8.16 | 5.14 | 3.44 | 2.42 | 1.76 | 1.32 | 1.02 |
| | 3 or more spans | D+L | 33.00 | 21.12 | 12.23 | 7.70 | 5.16 | 3.62 | 2.64 | 1.98 | 1.53 |
| | | Uplift | 41.28 | 26.42 | 15.40 | 9.70 | 6.50 | 4.56 | 3.33 | 2.50 | 1.93 |
| 0.90 | upto 2 spans | D+L | 30.87 | 15.81 | 9.15 | 5.76 | 3.86 | 2.71 | 1.98 | 1.48 | 1.14 |
| | 3 or more spans | D+L | 36.97 | 23.66 | 13.72 | 8.64 | 5.79 | 4.07 | 2.96 | 2.23 | 1.72 |
| | | Uplift | 46.21 | 29.58 | 17.26 | 10.87 | 7.28 | 5.11 | 3.73 | 2.80 | 2.16 |
| 1.00 | upto 2 spans | D+L | 34.17 | 17.50 | 10.13 | 6.38 | 4.27 | 3.00 | 2.19 | 1.64 | 1.27 |
| | 3 or more spans | D+L | 40.88 | 26.16 | 15.19 | 9.56 | 6.41 | 4.50 | 3.28 | 2.46 | 1.90 |
| | | Uplift | 51.10 | 32.70 | 19.10 | 12.03 | 8.06 | 5.66 | 4.13 | 3.10 | 2.39 |

Notes: 1. Design of Sheeting is based on equations of AISI-2001 (ASD-Allowable stress design).
 2. D+L = Dead + Live Load (Deflection Limitation: Span/180)
 3. Wind Uplift (Deflection Limitation: Span/120)



Sandwich Panels

Pakistan Insulation's insulated sandwich panels are processed using rigid poly urethane with external and internal sheet in steel, alu-zinc and aluminium of different thickness, coating and colors.

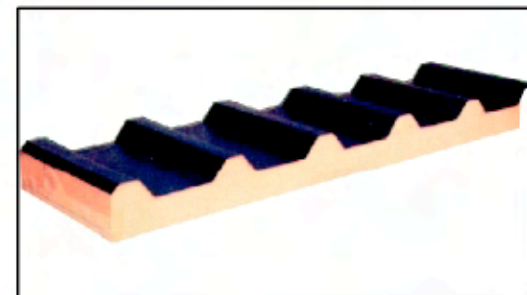


Crimped Corner Profile



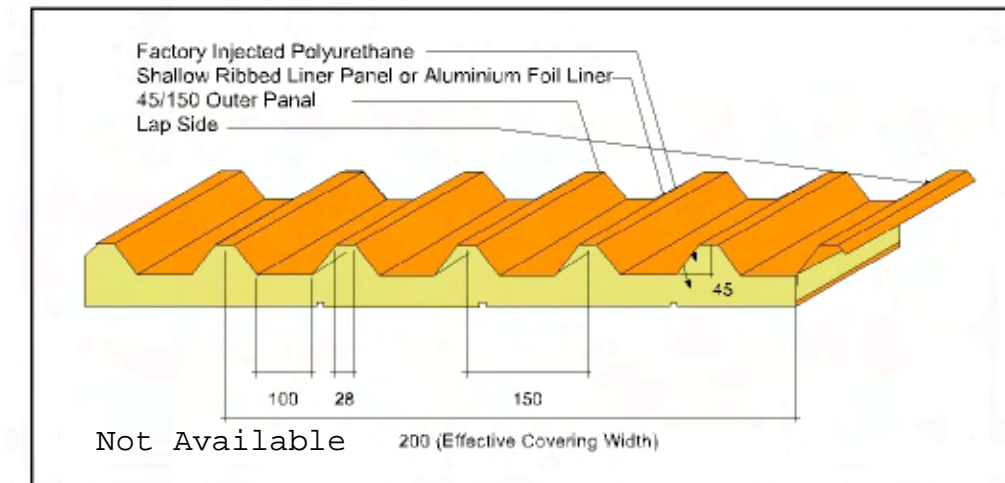
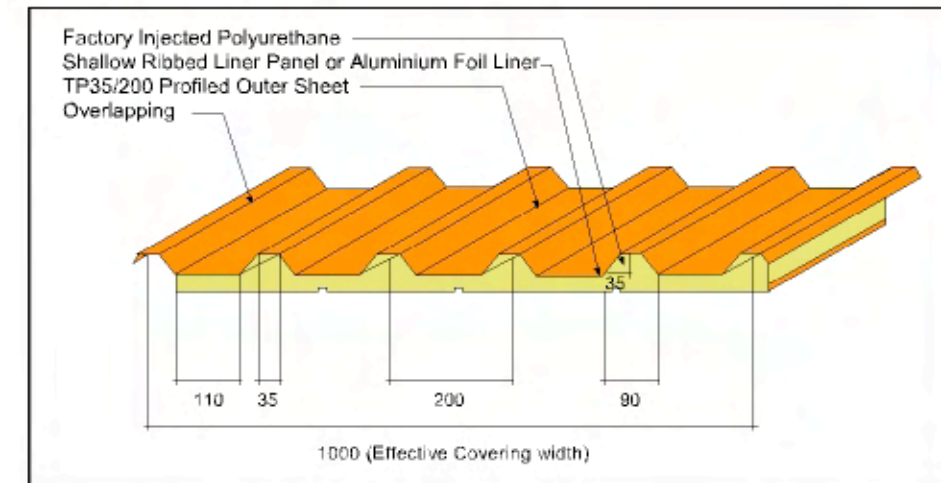
General Physical Properties of Polyurethane

- Overall Density = 35 to 38 kgs/m³
- Closed cell contents => 90%
- Thermal conductivity = 0.021 W/m²°K
- Compressive strength = 0.21 N/mm²
(perpendicular to the main plane of the panel)



Dimensional Stability (Liner Changes)

- 48 hours @ -25°C = 1% max
- 48 hours @ 70°C = 1% max
- Pu Thickness = 50 mm to 150 mm



Profile 35/200

Thermal resistance of Polyurethane at various Polyurethane Foam Thickness

| Pu Thickness In mm | K w/m ² °K | U Value w/m ² °K/w |
|--------------------|-----------------------|-------------------------------|
| 35 | 0.021 | 0.600 |
| 50 | 0.021 | 0.420 |
| 75 | 0.021 | 0.280 |
| 100 | 0.021 | 0.210 |

Profile 45/150

Thermal resistance of Polyurethane at various Polyurethane Foam Thickness

| Pu Thickness In mm | K w/m ² °K | U Value w/m ² °K/w |
|--------------------|-----------------------|-------------------------------|
| 50 | 0.021 | 0.420 |
| 75 | 0.021 | 0.225 |
| 100 | 0.021 | 0.117 |





Z-Purlin & C-Channels

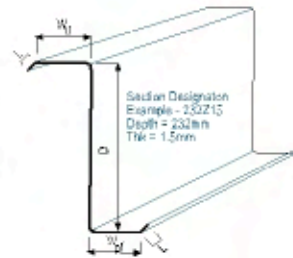


- * Z - Purlins / C - channels are the secondary structural members used to support the roof sheeting / wall cladding
- * Our range for depth of these purlin varies from 100mm upto 400mm and thickness varies upto 3.0mm
- * Flange widths / lip size / flange angles of the sections can be set in the machine, as per the requirement of the client
- * These Z/C sections give an excellent strength to weight ratio, thus giving tremendous cost savings.
- * These are manufactured from galvanized coils conforming to ASTM -A 653, Grade D having a yield strength of 345 Mpa.
- * Our purlins / channels are custom made to the desired size having the flexibility of its connection to the main structure either by overlapped system or sleeved system.
- * The anti-sag rods, connection fasteners for these purlins can also be designed and supplied by us upon client's request.
- * Benefits of Purlins/channels.
 - High strength to weight ratio.
 - Economical.
 - Can be used for large spans upto 11.0m
 - Better quality and finish.
 - Quick Installation.
 - Custom made to requirement.

PURLIN SECTION PROPERTIES & ALLOWABLES

Material: Grade: ASTM A653 Grade:50(Fy=35.5KN/cm²) G90 / 275 gm/m²

| Section | 142Z15 | 142Z20 | 172Z15 | 172Z20 | 202Z15 | 202Z20 | 202Z25 | 232Z15 | 232Z20 |
|-----------------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Description | Units | | | | | | | | |
| Depth | D mm | 142 | 142 | 172 | 172 | 202 | 202 | 232 | 232 |
| Thickness | T mm | 1.5 | 2.0 | 1.5 | 2.0 | 1.5 | 2.0 | 1.5 | 2.0 |
| Top Flange | Wt mm | 60 | 60 | 65 | 65 | 65 | 65 | 76 | 76 |
| Bot. Flange | Wbf mm | 55 | 55 | 60 | 60 | 60 | 60 | 69 | 69 |
| Lip | L mm | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Lip Angle | Deg | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 |
| Bend Radius | R mm | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 3.0 | 2.0 | 2.0 |
| Weight | W Kg/m | 3.33 | 4.44 | 3.81 | 5.10 | 4.12 | 5.49 | 6.86 | 6.37 |
| Area | A mm ² | 421.82 | 558.19 | 481.82 | 638.19 | 526.82 | 698.19 | 865.30 | 601.82 |
| Ixx | cm ⁴ | 135.26 | 177.34 | 221.87 | 291.55 | 322.76 | 424.57 | 521.59 | 487.09 |
| Sxx (I) | cm ³ | 19.39 | 25.43 | 26.20 | 34.43 | 32.41 | 42.65 | 52.39 | 42.73 |
| Sxx (b) | cm ³ | 18.72 | 24.54 | 25.41 | 33.38 | 31.51 | 41.46 | 50.92 | 41.28 |
| Rx | cm | 5.66 | 5.64 | 6.79 | 6.76 | 7.83 | 7.80 | 7.76 | 9.00 |
| Iyy | cm ⁴ | 36.06 | 47.09 | 44.26 | 57.93 | 44.26 | 57.94 | 71.01 | 64.34 |
| Syy (I) | cm ³ | 5.39 | 7.07 | 6.17 | 8.10 | 6.18 | 8.11 | 9.98 | 7.94 |
| Syy (r) | cm ³ | 5.20 | 6.82 | 5.95 | 7.82 | 5.94 | 7.81 | 9.60 | 7.57 |
| Ry | cm | 2.92 | 2.90 | 3.03 | 3.01 | 2.90 | 2.88 | 2.87 | 3.27 |
| Allowable Shear | Va KN | 14.92 | 29.89 | 12.17 | 29.21 | 10.28 | 24.68 | 46.70 | 8.90 |
| Allowable BM * | Mgg KN-m | 3.35 | 4.72 | 4.45 | 6.08 | 5.46 | 7.60 | 10.31 | 6.25 |
| Allowable BM ** | Mawc KN-m | 3.12 | 4.40 | 4.14 | 5.66 | 5.09 | 7.07 | 9.60 | 5.82 |
| Allowable BM \$ | Maws KN-m | 2.23 | 3.14 | 2.96 | 4.04 | 3.63 | 5.05 | 6.86 | 4.16 |
| Ultimate Shear | Vu KN | 22.42 | 44.92 | 18.29 | 43.90 | 15.45 | 37.00 | 70.19 | 13.37 |
| Ultimate BM * | Mug KN-m | 5.32 | 7.49 | 7.05 | 9.64 | 8.67 | 12.05 | 16.36 | 9.92 |
| Ultimate BM ** | Muwo KN-m | 4.95 | 6.98 | 6.57 | 8.98 | 8.07 | 11.22 | 15.23 | 9.23 |
| Ultimate BM \$ | Muws KN-m | 3.54 | 4.98 | 4.69 | 6.41 | 5.76 | 8.02 | 10.88 | 6.59 |



PURLIN SECTION

* BM due to gravity loads (fully braced)
 ** BM due to uplift for continuous spans (fully braced)
 \$ BM due to uplift for simple spans (fully braced)

COLD FORMED Z-SECTIONS, SLEEVED SYSTEM

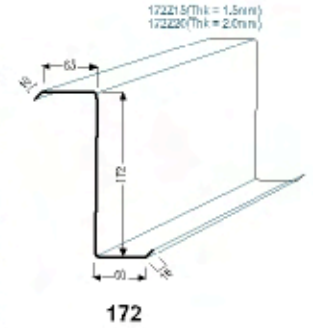
172Z15, Weight=3.81Kg/m, Material: ASTM A653 Grade: 50(Fy=35.0KN/cm²)G90/Z275gm/m²

| Span LM | Total Load KN | Purlin Center / Center spacing, m | | | | | | | | | | | Total Uplift Loads, DL+WL, KN | | | | |
|---------|---------------|-----------------------------------|------|------|------|------|------|------|------|------|------|------|-------------------------------|------------------|----------------------|------|------|
| | | 1.0 | 1.2 | 1.4 | 1.5 | 1.6 | 1.8 | 2.0 | 2.2 | 2.4 | 2.5 | 2.8 | 3.0 | Alt. Def. L/180m | No. of Anti-Sag Rods | | |
| 4.0 | 14.10 | 3.53 | 2.94 | 2.52 | 2.35 | 2.20 | 1.96 | 1.76 | 1.60 | 1.47 | 1.41 | 1.26 | 1.18 | 2.22 | 13.13 | - | - |
| 4.5 | 12.54 | 2.79 | 2.32 | 1.99 | 1.86 | 1.74 | 1.55 | 1.39 | 1.27 | 1.16 | 1.11 | 0.99 | 0.93 | 2.50 | 11.67 | - | - |
| 5.0 | 11.28 | 2.26 | 1.88 | 1.61 | 1.50 | 1.41 | 1.25 | 1.13 | 1.03 | 0.94 | 0.90 | 0.81 | 0.75 | 2.78 | 10.50 | - | - |
| 5.5 | 10.26 | 1.86 | 1.55 | 1.33 | 1.24 | 1.17 | 1.04 | 0.93 | 0.85 | 0.78 | 0.75 | 0.67 | 0.62 | 3.06 | 9.55 | - | - |
| 6.0 | 9.40 | 1.57 | 1.31 | 1.12 | 1.04 | 0.98 | 0.87 | 0.78 | 0.71 | 0.65 | 0.63 | 0.56 | 0.52 | 3.33 | - | 8.75 | - |
| 6.5 | 8.68 | 1.34 | 1.11 | 0.95 | 0.89 | 0.83 | 0.74 | 0.67 | 0.61 | 0.56 | 0.53 | 0.48 | 0.46 | 3.61 | - | 8.06 | - |
| 7.0 | 8.08 | 1.15 | 0.96 | 0.82 | 0.77 | 0.72 | 0.64 | 0.58 | 0.52 | 0.48 | 0.46 | 0.41 | 0.38 | 3.89 | - | - | 7.50 |
| 7.5 | 7.52 | 1.00 | 0.84 | 0.72 | 0.67 | 0.63 | 0.56 | 0.50 | 0.46 | 0.42 | 0.40 | 0.36 | 0.33 | 4.17 | - | - | 7.00 |
| 8.0 | 7.05 | 0.88 | 0.73 | 0.63 | 0.59 | 0.55 | 0.49 | 0.44 | 0.40 | 0.37 | 0.35 | 0.31 | 0.29 | 4.44 | - | - | 6.57 |
| 8.5 | 6.64 | 0.78 | 0.65 | 0.56 | 0.52 | 0.49 | 0.43 | 0.39 | 0.35 | 0.33 | 0.31 | 0.28 | 0.26 | 4.72 | - | - | 6.18 |
| 9.0 | 6.27 | 0.70 | 0.58 | 0.50 | 0.46 | 0.44 | 0.39 | 0.35 | 0.32 | 0.29 | 0.28 | 0.25 | 0.23 | 5.00 | - | - | 5.84 |

172Z20, Weight=5.10Kg/m, Material: ASTM A653 Grade: 50(Fy=35.0KN/cm²)G90/Z275gm/m²

| Span LM | Total Load KN | Purlin Center / Center spacing, m | | | | | | | | | | | Total Uplift Loads, DL+WL, KN | | | | |
|---------|---------------|-----------------------------------|------|------|------|------|------|------|------|------|------|------|-------------------------------|------------------|----------------------|-------|-------|
| | | 1.0 | 1.2 | 1.4 | 1.5 | 1.6 | 1.8 | 2.0 | 2.2 | 2.4 | 2.5 | 2.8 | 3.0 | Alt. Def. L/180m | No. of Anti-Sag Rods | | |
| 4.0 | 19.28 | 4.82 | 4.02 | 3.44 | 3.21 | 3.01 | 2.68 | 2.41 | 2.19 | 2.01 | 1.93 | 1.72 | 1.61 | 2.22 | 17.95 | - | - |
| 4.5 | 17.14 | 3.81 | 3.17 | 2.72 | 2.54 | 2.38 | 2.12 | 1.90 | 1.73 | 1.59 | 1.52 | 1.36 | 1.27 | 2.50 | 15.96 | - | - |
| 5.0 | 15.42 | 3.08 | 2.57 | 2.20 | 2.06 | 1.93 | 1.71 | 1.54 | 1.40 | 1.29 | 1.23 | 1.10 | 1.03 | 2.78 | 14.36 | - | - |
| 5.5 | 14.02 | 2.55 | 2.12 | 1.82 | 1.70 | 1.59 | 1.42 | 1.27 | 1.16 | 1.06 | 1.02 | 0.91 | 0.85 | 3.06 | 13.05 | - | - |
| 6.0 | 12.85 | 2.14 | 1.79 | 1.53 | 1.43 | 1.34 | 1.19 | 1.07 | 0.97 | 0.89 | 0.86 | 0.77 | 0.71 | 3.33 | - | 11.97 | - |
| 6.5 | 11.86 | 1.83 | 1.52 | 1.30 | 1.22 | 1.14 | 1.01 | 0.91 | 0.83 | 0.76 | 0.73 | 0.65 | 0.61 | 3.61 | - | 11.05 | - |
| 7.0 | 11.02 | 1.57 | 1.31 | 1.12 | 1.05 | 0.98 | 0.87 | 0.79 | 0.72 | 0.66 | 0.63 | 0.56 | 0.52 | 3.89 | - | - | 10.26 |
| 7.5 | 10.28 | 1.37 | 1.14 | 0.98 | 0.91 | 0.86 | 0.76 | 0.69 | 0.62 | 0.57 | 0.55 | 0.49 | 0.46 | 4.17 | - | - | 9.57 |
| 8.0 | 9.64 | 1.21 | 1.00 | 0.86 | 0.80 | 0.75 | 0.67 | 0.60 | 0.55 | 0.50 | 0.48 | 0.43 | 0.40 | 4.44 | - | - | 8.98 |
| 8.5 | 9.07 | 1.07 | 0.89 | 0.76 | 0.71 | 0.67 | 0.59 | 0.53 | 0.49 | 0.44 | 0.43 | 0.38 | 0.36 | 4.72 | - | - | 8.45 |
| 9.0 | 8.57 | 0.95 | 0.79 | 0.68 | 0.63 | 0.60 | 0.53 | 0.48 | 0.43 | 0.40 | 0.38 | 0.34 | 0.32 | 5.00 | - | - | 7.98 |

Notes: 1. Design of these Purlins is based on AISI-1996 with suppl-1(LRFD) or equi BS5950 P5.
 2. These allowables are applicable for 2 or more bays & upto roof slopes of 3:10 only
 3. Allowable capacities for uplift loads are increased by 33-1/3% as per AISI-1986
 4. Sag rods shall be located at equal distances.



COLD FORMED Z-SECTIONS, SLEEVED SYSTEM

202Z15, Weight=3.92Kg/m, Material: ASTM A653 Grade: 50(Fy=35.0KN/cm²)G90/Z275gm/m²

| Span LM | Total Load KN | Purlin Center / Center spacing, m | | | | | | | | | | | Total Uplift Loads, DL+WL, KN | | | | |
|---------|---------------|-----------------------------------|------|------|------|------|------|------|------|------|------|------|-------------------------------|------------------|----------------------|-------|------|
| | | 1.0 | 1.2 | 1.4 | 1.5 | 1.6 | 1.8 | 2.0 | 2.2 | 2.4 | 2.5 | 2.8 | 3.0 | Alt. Def. L/180m | No. of Anti-Sag Rods | | |
| 4.0 | 17.34 | 4.33 | 3.61 | 3.10 | 2.89 | 2.71 | 2.41 | 2.17 | 1.97 | 1.81 | 1.73 | 1.55 | 1.44 | 2.22 | 16.14 | - | - |
| 4.5 | 15.41 | 3.42 | 2.85 | 2.45 | 2.28 | 2.14 | 1.90 | 1.71 | 1.56 | 1.43 | 1.37 | 1.22 | 1.14 | 2.50 | 14.35 | - | - |
| 5.0 | 13.87 | 2.77 | 2.31 | 1.98 | 1.85 | 1.73 | 1.54 | 1.39 | 1.28 | 1.16 | 1.11 | 0.99 | 0.92 | 2.78 | 12.91 | - | - |
| 5.5 | 12.61 | 2.20 | 1.91 | 1.64 | 1.53 | 1.43 | 1.27 | 1.15 | 1.04 | 0.96 | 0.92 | 0.82 | 0.76 | 3.06 | 11.74 | - | - |
| 6.0 | 11.56 | 1.93 | 1.61 | 1.38 | 1.28 | 1.20 | 1.07 | 0.96 | 0.88 | 0.80 | 0.77 | 0.69 | 0.64 | 3.33 | - | 10.76 | - |
| 6.5 | 10.67 | 1.64 | 1.37 | 1.17 | 1.09 | 1.03 | 0.91 | 0.82 | 0.75 | 0.68 | 0.66 | 0.59 | 0.55 | 3.61 | - | 9.93 | - |
| 7.0 | 9.91 | 1.42 | 1.18 | 1.01 | 0.94 | 0.88 | 0.79 | 0.71 | 0.64 | 0.59 | 0.57 | 0.51 | 0.47 | 3.89 | - | - | 9.22 |
| 7.5 | 9.25 | 1.23 | 1.03 | 0.88 | 0.82 | 0.77 | 0.68 | 0.62 | 0.56 | 0.51 | 0.49 | 0.44 | 0.41 | 4.17 | - | - | 8.61 |
| 8.0 | 8.67 | 1.08 | 0.90 | 0.77 | 0.72 | 0.68 | 0.60 | 0.54 | 0.49 | 0.45 | 0.43 | 0.39 | 0.36 | 4.44 | - | - | 8.07 |
| 8.5 | 8.16 | 0.96 | 0.80 | 0.69 | 0.64 | 0.60 | 0.53 | 0.48 | 0.44 | 0.40 | 0.38 | 0.34 | 0.32 | 4.72 | - | - | 7.60 |
| 9.0 | 7.70 | 0.86 | 0.71 | 0.61 | 0.57 | 0.54 | 0.48 | 0.43 | 0.39 | 0.36 | 0.34 | 0.31 | 0.29 | 5.00 | - | - | 7.17 |

202Z20, Weight=5.23Kg/m, Material: ASTM A653 Grade: 50(Fy=35.0KN/cm²)G90/Z275gm/m²

| Span LM | Total Load KN | Purlin Center / Center spacing, m | | | | | | | | | | | Total Uplift Loads, DL+WL, KN | | | | |
|---------|---------------|-----------------------------------|------|------|------|------|------|------|------|------|------|------|-------------------------------|------------------|----------------------|-------|------|
| | | 1.0 | 1.2 | 1.4 | 1.5 | 1.6 | 1.8 | 2.0 | 2.2 | 2.4 | 2.5 | 2.8 | 3.0 | Alt. Def. L/180m | No. of Anti-Sag Rods | | |
| 4.0 | 24.11 | 6.03 | 5.02 | 4.30 | 4.02 | 3.77 | 3.35 | 3.01 | 2.74 | 2.51 | 2.41 | 2.15 | 2.01 | 2.22 | 22.44 | - | - |
| 4.5 | 21.43 | 4.76 | 3.97 | 3.40 | 3.17 | 2.98 | 2.65 | 2.38 | 2.16 | 1.98 | 1.90 | 1.70 | 1.59 | 2.50 | 19.95 | - | - |
| 5.0 | 19.28 | 3.86 | 3.21 | 2.75 | 2.57 | 2.41 | 2.14 | 1.93 | 1.75 | 1.61 | 1.54 | 1.38 | 1.29 | 2.78 | 17.95 | - | - |
| 5.5 | 17.53 | 3.19 | 2.66 | 2.28 | 2.13 | 1.99 | 1.77 | 1.59 | 1.45 | 1.33 | 1.28 | 1.14 | 1.06 | 3.06 | 16.32 | - | - |
| 6.0 | 16.07 | 2.68 | 2.23 | 1.91 | 1.79 | 1.67 | 1.49 | 1.34 | 1.22 | 1.12 | 1.07 | 0.96 | 0.89 | 3.33 | - | 14.96 | - |
| 6.5 | 14.83 | 2.28 | 1.90 | 1.63 | 1.52 | 1.43 | 1.27 | 1.14 | 1.04 | 0.95 | 0.91 | 0.82 | 0.76 | 3.61 | - | 13.81 | - |
| 7.0 | 13.77 | 1.97 | 1.64 | 1.41 | 1.31 | 1.23 | 1.09 | 0.98 | 0.89 | 0.82 | 0.79 | 0.70 | 0.66 | 3.89 | - | - | 12.8 |
| 7.5 | 12.86 | 1.71 | 1.43 | 1.22 | 1.14 | 1.07 | 0.95 | 0.86 | 0.78 | 0.71 | 0.69 | 0.61 | 0.57 | 4.17 | - | - | 11.9 |
| 8.0 | 12.05 | 1.51 | 1.26 | 1.08 | 1.00 | 0.94 | 0.84 | 0.75 | 0.69 | 0.63 | 0.60 | 0.54 | 0.50 | 4.44 | - | - | 11.2 |
| 8.5 | 11.34 | 1.33 | 1.11 | 0.95 | 0.89 | 0.83 | 0.74 | 0.67 | 0.61 | 0.56 | 0.53 | 0.48 | 0.44 | 4.72 | - | - | 10.5 |
| 9.0 | 10.71 | 1.19 | 0.99 | 0.85 | 0.79 | 0.74 | 0.66 | 0 | | | | | | | | | |



COLD FORMED Z-SECTIONS, SLEEVED SYSTEM

202Z25, Weight=6.86Kg/m, Material: ASTM A653 Grade: 50(Fy=35.0KN/cm²)G90/Z275gm/m²

Table with columns: Span, Total, LM, Load KN, Purlin Center / Center spacing, m, Allw. Def., No. of Anti-Sag Rods. Rows for spans 4.0 to 9.0.

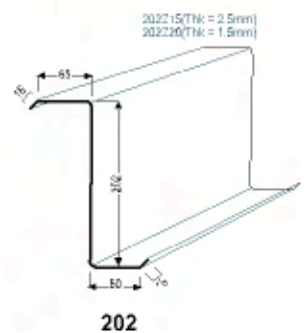


Table for 232Z15, Weight=4.78Kg/m, Material: ASTM A653 Grade: 50(Fy=35.0KN/cm²)G90/Z275gm/m². Columns and rows similar to 202Z25.

Notes: 1. Design of these Purlins is based on AISI-1996 with suppl-1(LRFD) or eque BS5950 P5. 2. These allowables are applicable for 2 or more bays & upto roof slopes of 3:10 only. 3. Allowable capacities for uplift loads are increased by 33-1/3% as per AISI-1986. 4. Sag rods shall be located at equal distances.

COLD FORMED Z-SECTIONS, SLEEVED SYSTEM

250Z20, Weight=6.71Kg/m, Material: ASTM A653 Grade: 50(Fy=35.0KN/cm²)G90/Z275gm/m²

Table for 250Z20 with columns: Span, Total, LM, Load KN, Purlin Center / Center spacing, m, Allw. Def., No. of Anti-Sag Rods. Rows for spans 4.0 to 9.0.

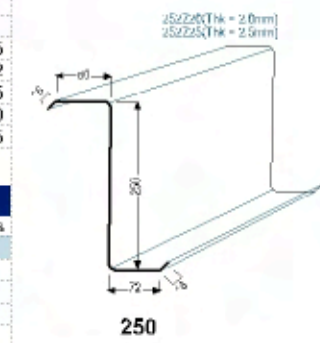


Table for 250Z25, Weight=8.39Kg/m, Material: ASTM A653 Grade: 50(Fy=35.0KN/cm²)G90/Z275gm/m². Columns and rows similar to 250Z20.

Notes: 1. Design of these Purlins is based on AISI-1996 with suppl-1(LRFD) or eque BS5950 P5. 2. These allowables are applicable for 2 or more bays & upto roof slopes of 3:10 only. 3. Allowable capacities for uplift loads are increased by 33-1/3% as per AISI-1986. 4. Sag rods shall be located at equal distances.

COLD FORMED Z-SECTIONS, SLEEVED SYSTEM

232Z20, Weight=6.37Kg/m, Material: ASTM A653 Grade: 50(Fy=35.0KN/cm²)G90/Z275gm/m²

Table for 232Z20 with columns: Span, Total, LM, Load KN, Purlin Center / Center spacing, m, Allw. Def., No. of Anti-Sag Rods. Rows for spans 4.0 to 9.0.

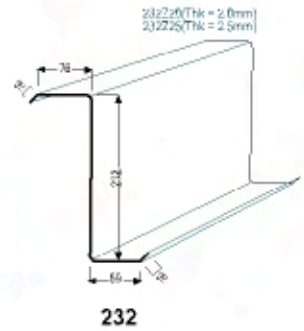


Table for 232Z25, Weight=7.96Kg/m, Material: ASTM A653 Grade: 50(Fy=35.0KN/cm²)G90/Z275gm/m². Columns and rows similar to 232Z20.

Notes: 1. Design of these Purlins is based on AISI-1996 with suppl-1(LRFD) or eque BS5950 P5. 2. These allowables are applicable for 2 or more bays & upto roof slopes of 3:10 only. 3. Allowable capacities for uplift loads are increased by 33-1/3% as per AISI-1986. 4. Sag rods shall be located at equal distances.

COLD FORMED Z-SECTIONS, SLEEVED SYSTEM

262Z20, Weight=6.90Kg/m, Material: ASTM A653 Grade: 50(Fy=35.0KN/cm²)G90/Z275gm/m²

Table for 262Z20 with columns: Span, Total, LM, Load KN, Purlin Center / Center spacing, m, Allw. Def., No. of Anti-Sag Rods. Rows for spans 4.0 to 9.0.

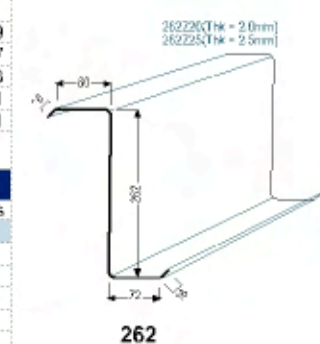
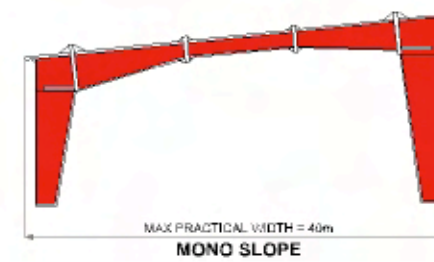
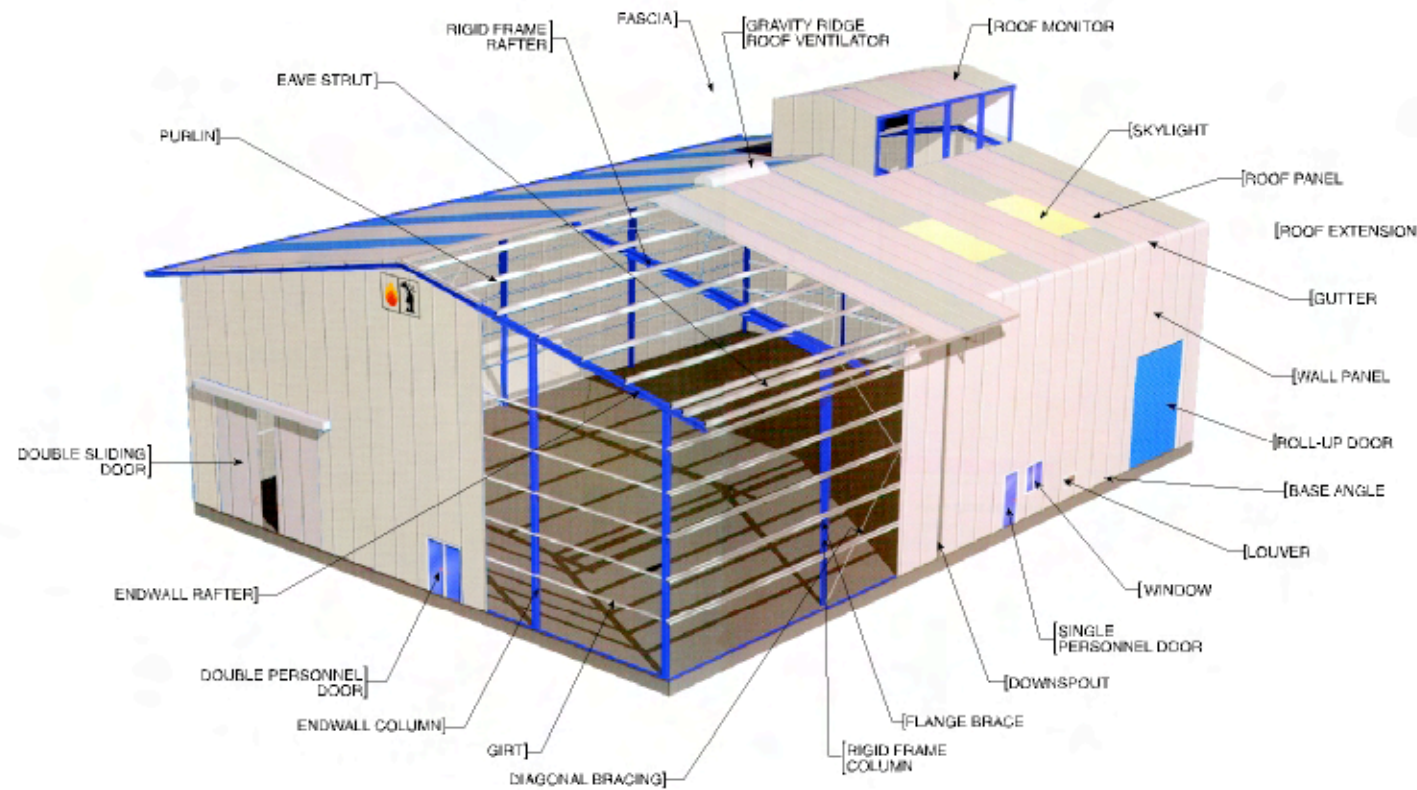
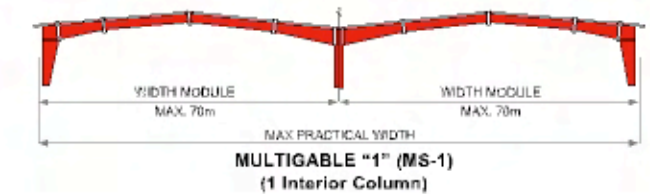
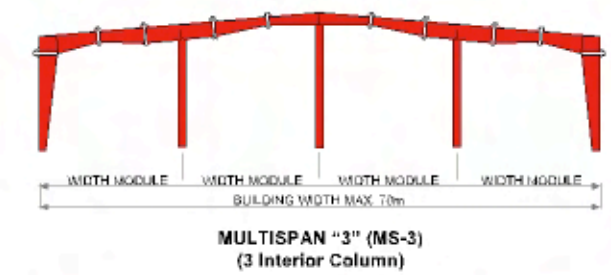
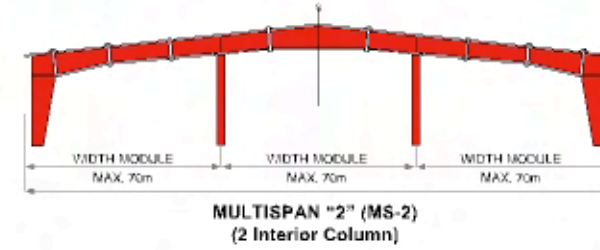
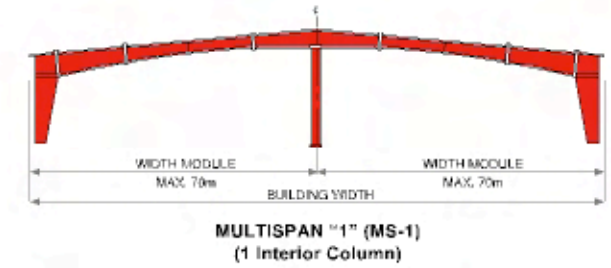
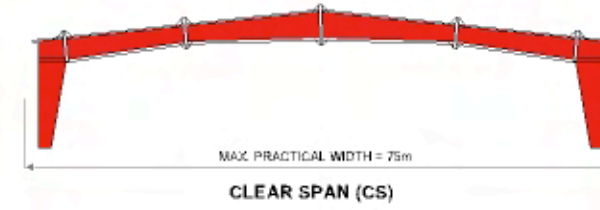
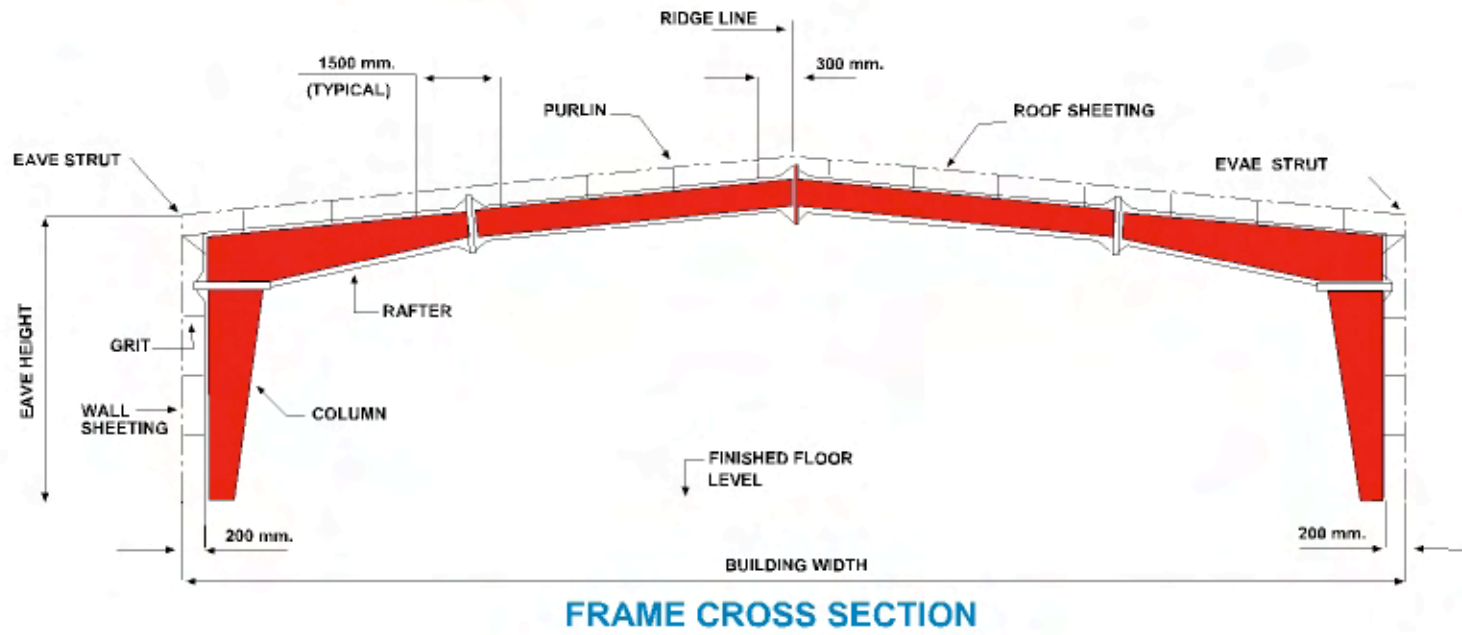


Table for 262Z25, Weight=8.63Kg/m, Material: ASTM A653 Grade: 50(Fy=35.0KN/cm²)G90/Z275gm/m². Columns and rows similar to 262Z20.

Notes: 1. Design of these Purlins is based on AISI-1996 with suppl-1(LRFD) or eque BS5950 P5. 2. These allowables are applicable for 2 or more bays & upto roof slopes of 3:10 only. 3. Allowable capacities for uplift loads are increased by 33-1/3% as per AISI-1986. 4. Sag rods shall be located at equal distances.

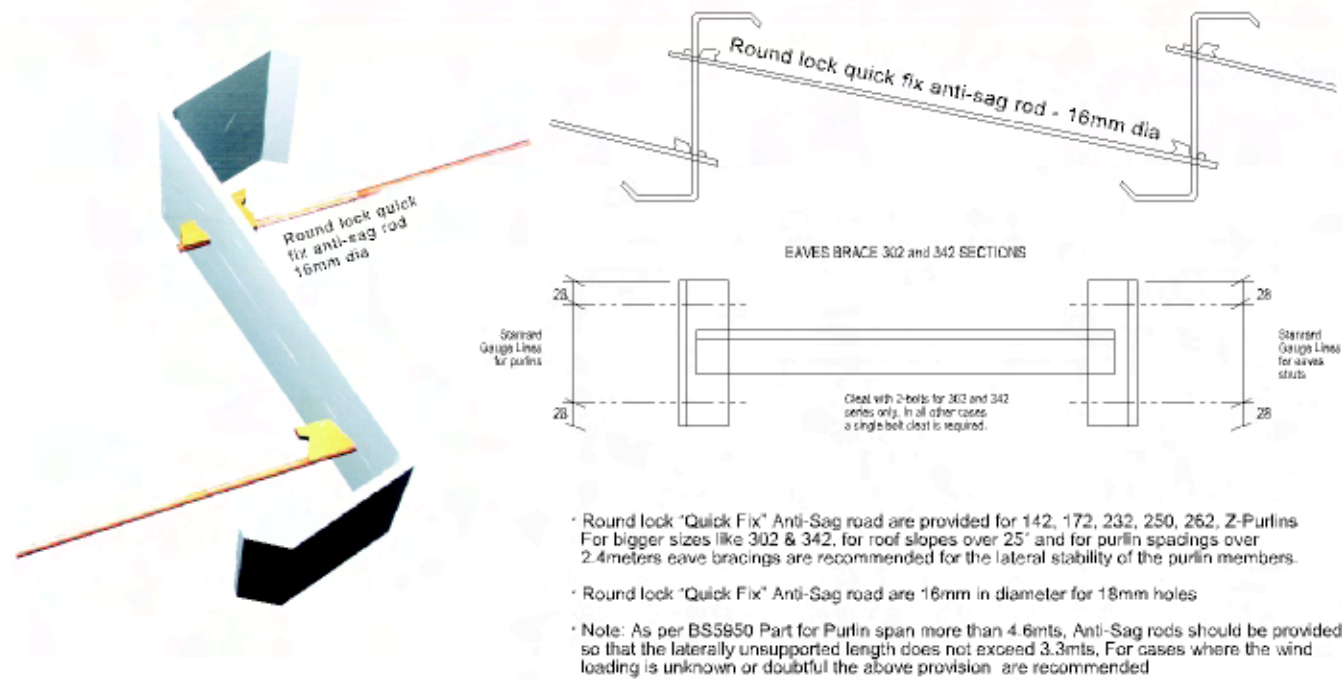


PARAMETERS & PRIMARY FRAMING

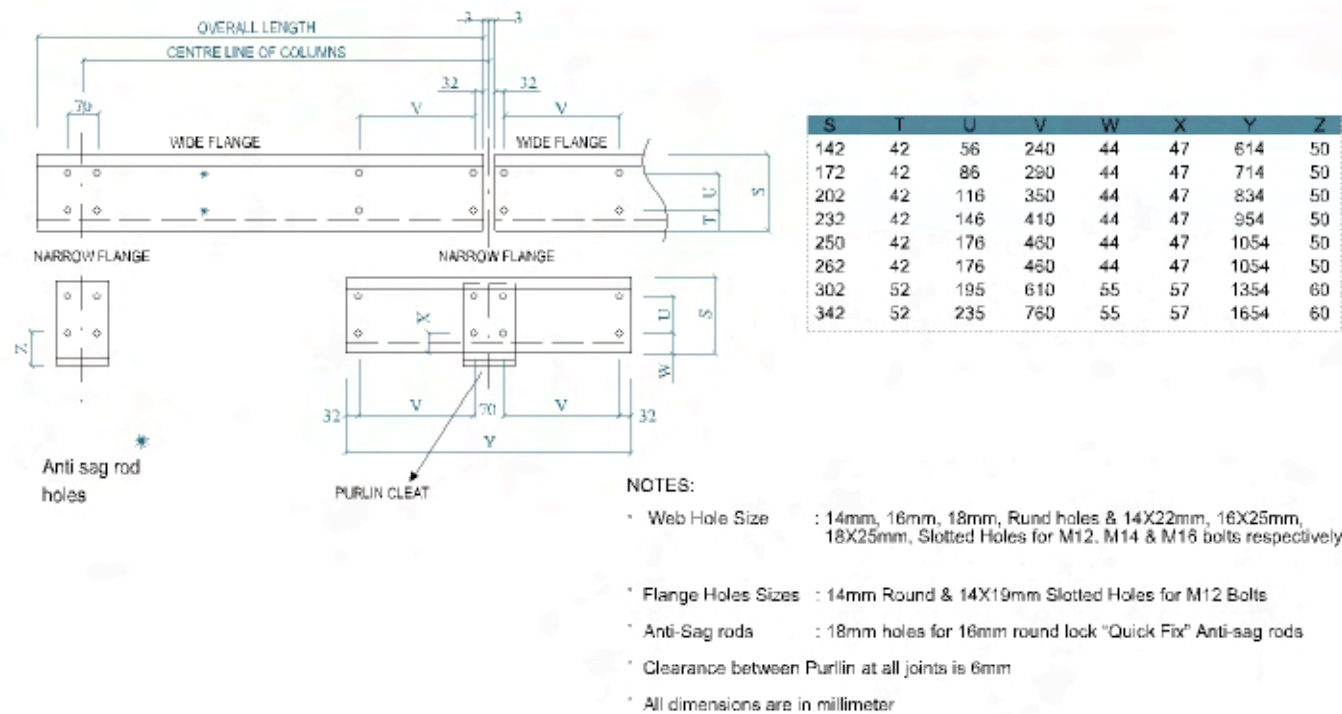




ROUND LOCK "QUICK FIX" ANTI-SAG RODS & EAVES BRACES

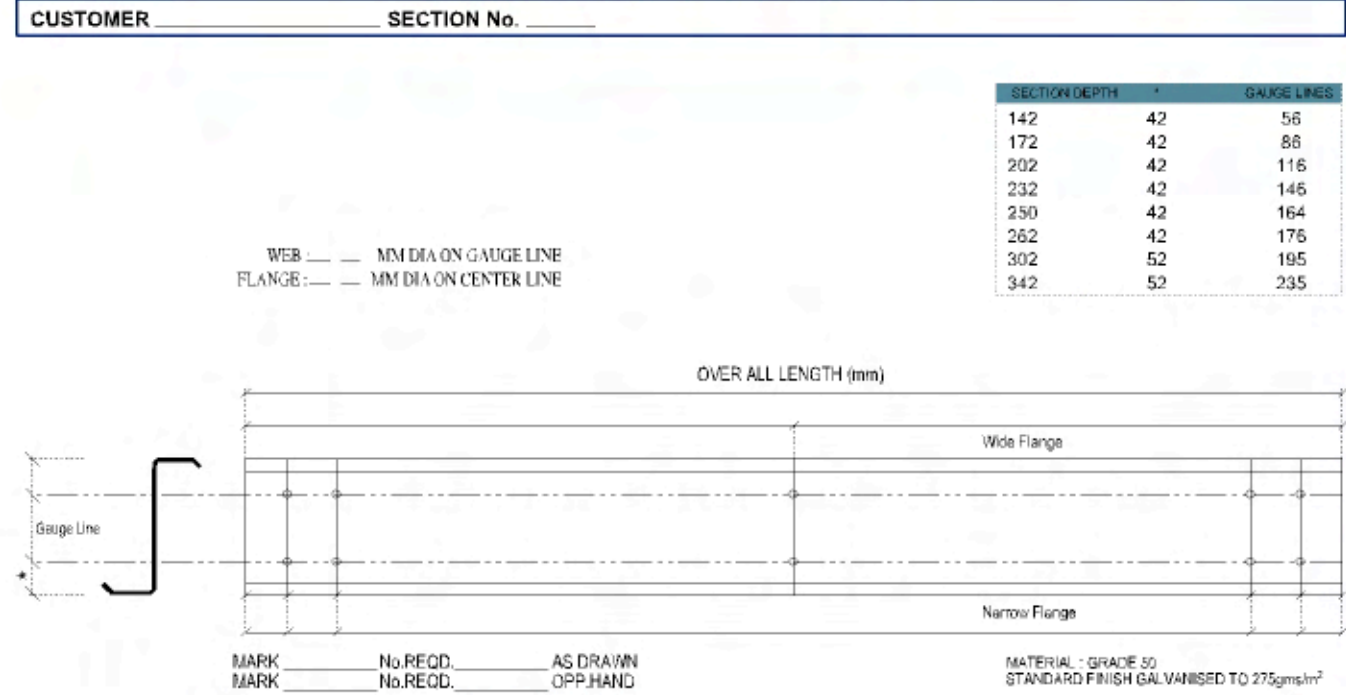


DETAILING OF SLEEVED SYSTEM



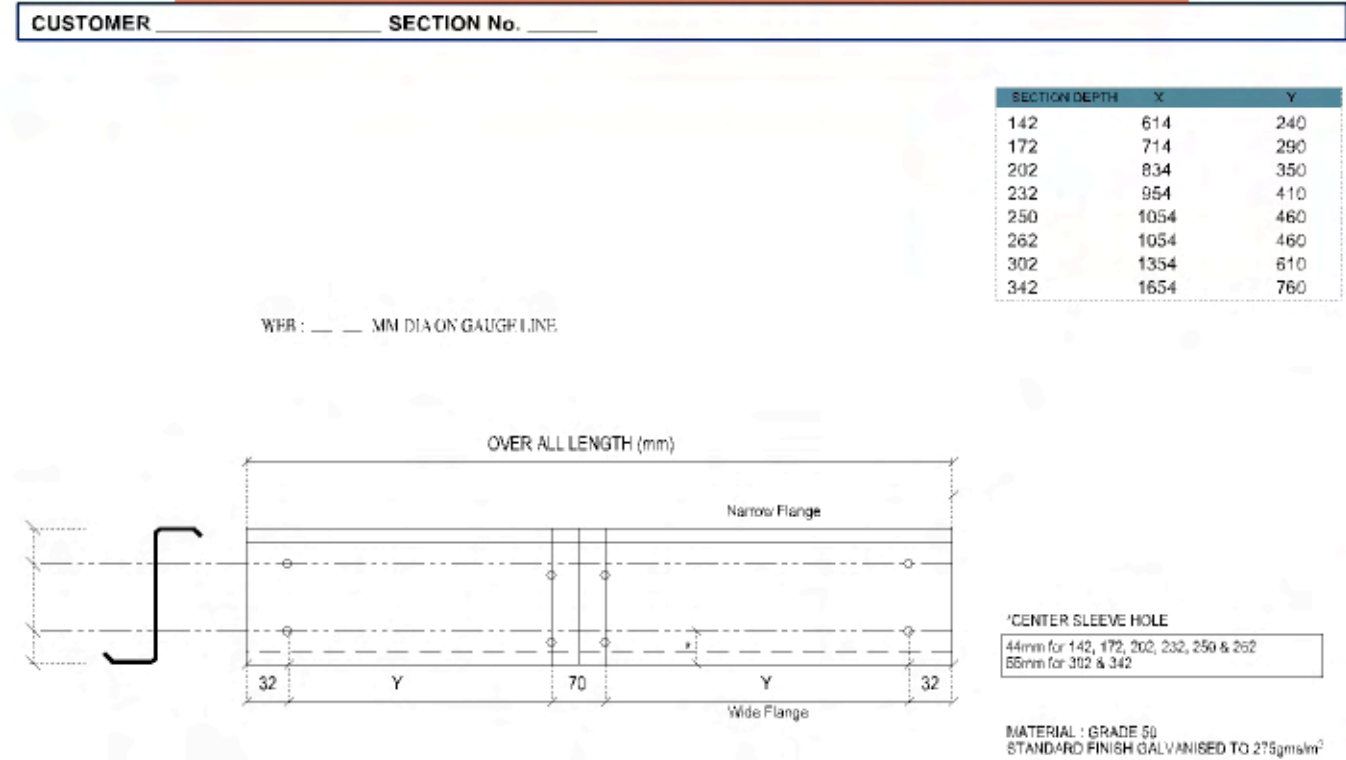
STANDARD DRAWING SHEET

COLD ROLLED PURLINS / SIDE RAIL DETAILS



STANDARD DRAWING SHEET

COLD ROLLED PURLINS / SIDE RAIL SLEEVES DETAILS





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