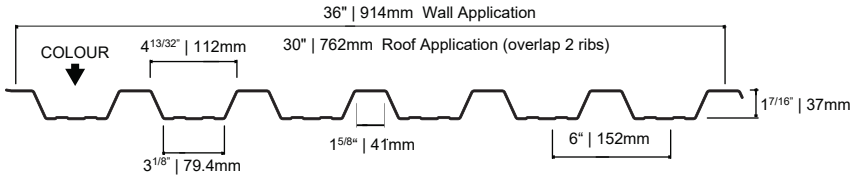
# Imperial | Load Table Ultra Span - Reverse Roof Profile



1. Based on ASTM A 653 structural steel.
2. Values in row “S” are based on strength.
3. Values in row “D” are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-16.

## LIMIT STATES DESIGN




## SECTION PROPERTIES | Per Foot of Width

| Base Steel Thickness (in.) | Weight [G90] (psf) | Yield Stress (ksi) | Section Modulus | | Deflection Moment of Inertia | Specified Web Crippling Data | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Midspan ($in^3$) | Support ($in^3$) | ($in^4$) | Pe1 End (lb) | Pe2 End (lb) | Pi1 Interior (lb) | Pi2 Interior (lb) |
| 0.0180 | 1.04 | 33 | 0.0884 | 0.0847 | 0.0923 | 58.0 | 14.5 | 111 | 18.8 |
| 0.0180 | 1.04 | 50 | 0.0822 | 0.0778 | 0.0881 | 87.8 | 22.0 | 168 | 28.5 |
| 0.0240 | 1.36 | 33 | 0.130 | 0.128 | 0.129 | 109 | 27.2 | 207 | 35.2 |
| 0.0300 | 1.69 | 33 | 0.176 | 0.175 | 0.162 | 176 | 44.0 | 335 | 56.9 |
| | | | | | | | | | |
| | | | | | | | | | |

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

## LOAD TABLE | Maximum Uniformly Distributed Specified Loads (psf).

| Span Length (ft) | | 1-Span Base Steel Thickness (in.) | | | | | | 2-Span Base Steel Thickness (in.) | | | | | | 3-Span Base Steel Thickness (in.) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.0180 | 0.0180 | 0.0240 | 0.0300 | | | 0.0180 | 0.0180 | 0.0240 | 0.0300 | | | 0.0135 | 0.0180 | 0.0240 | 0.0300 | | |
| Y.S.* (ksi) | | 33 | 50 | 33 | 33 | | | 33 | 50 | 33 | 33 | | | 33 | 50 | 33 | 33 | | |
| 4.0 | S | 73 | 103 | 108 | 145 | | | 70 | 97 | 106 | 144 | | | 87 | 121 | 132 | 180 | | |
| 4.0 | D | 140 | 133 | 195 | 246 | | | 336 | 320 | 468 | 590 | | | 264 | 252 | 369 | 465 | | |
| 4.5 | S | 58 | 81 | 85 | 115 | | | 55 | 77 | 84 | 114 | | | 69 | 96 | 104 | 142 | | |
| 4.5 | D | 98 | 94 | 137 | 173 | | | 236 | 225 | 329 | 414 | | | 186 | 177 | 259 | 326 | | |
| 5.0 | S | 47 | 66 | 69 | 93 | | | 45 | 62 | 68 | 92 | | | 56 | 78 | 85 | 115 | | |
| 5.0 | D | 72 | 68 | 100 | 126 | | | 172 | 164 | 240 | 302 | | | 135 | 129 | 189 | 238 | | |
| 5.5 | S | 39 | 54 | 57 | 77 | | | 37 | 51 | 56 | 76 | | | 46 | 64 | 70 | 95 | | |
| 5.5 | D | 54 | 51 | 75 | 95 | | | 129 | 123 | 180 | 227 | | | 102 | 97 | 142 | 179 | | |
| 6.0 | S | 32 | 46 | 48 | 64 | | | 31 | 43 | 47 | 64 | | | 39 | 54 | 59 | 80 | | |
| 6.0 | D | 41 | 40 | 58 | 73 | | | 99 | 95 | 139 | 175 | | | 78 | 75 | 109 | 138 | | |
| 6.5 | S | 28 | 39 | 41 | 55 | | | 26 | 37 | 40 | 55 | | | 33 | 46 | 50 | 68 | | |
| 6.5 | D | 33 | 31 | 45 | 57 | | | 78 | 75 | 109 | 137 | | | 62 | 59 | 86 | 108 | | |
| 7.0 | S | 24 | 34 | 35 | 47 | | | 23 | 32 | 35 | 47 | | | 29 | 40 | 43 | 59 | | |
| 7.0 | D | 26 | 25 | 36 | 46 | | | 63 | 60 | 87 | 110 | | | 49 | 47 | 69 | 87 | | |
| 7.5 | S | 21 | 29 | 31 | 41 | | | 20 | 28 | 30 | 41 | | | 25 | 35 | 38 | 51 | | |
| 7.5 | D | 21 | 20 | 30 | 37 | | | 51 | 49 | 71 | 90 | | | 40 | 38 | 56 | 70 | | |
| 8.0 | S | 18 | 26 | 27 | 36 | | | 17 | 24 | 26 | 36 | | | 22 | 30 | 33 | 45 | | |
| 8.0 | D | 17 | 17 | 24 | 31 | | | 42 | 40 | 59 | 74 | | | 33 | 32 | 46 | 58 | | |
| 8.5 | S | 16 | 23 | 24 | 32 | | | 15 | 22 | 23 | 32 | | | 19 | 27 | 29 | 40 | | |
| 8.5 | D | 15 | 14 | 20 | 26 | | | 35 | 33 | 49 | 61 | | | 28 | 26 | 38 | 48 | | |
| 9.0 | S | 14 | 20 | 21 | 29 | | | 14 | 19 | 21 | 28 | | | 17 | 24 | 26 | 36 | | |
| 9.0 | D | 12 | 12 | 17 | 22 | | | 29 | 28 | 41 | 52 | | | 23 | 22 | 32 | 41 | | |
| 9.5 | S | 13 | 18 | 19 | 26 | | | 12 | 17 | 19 | 26 | | | 15 | 22 | 23 | 32 | | |
| 9.5 | D | 10 | 10 | 15 | 18 | | | 25 | 24 | 35 | 44 | | | 20 | 19 | 28 | 35 | | |
| 10.0 | S | 12 | 16 | 17 | 23 | | | 11 | 16 | 17 | 23 | | | 14 | 19 | 21 | 29 | | |
| 10.0 | D | 9 | 9 | 12 | 16 | | | 21 | 20 | 30 | 38 | | | 17 | 16 | 24 | 30 | | |

* Y.S. = Yield Stress



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# Metric | Load Table
# Ultra Span - Reverse Roof Profile

05.28.21

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1. Based on ASTM A 653M structural steel.
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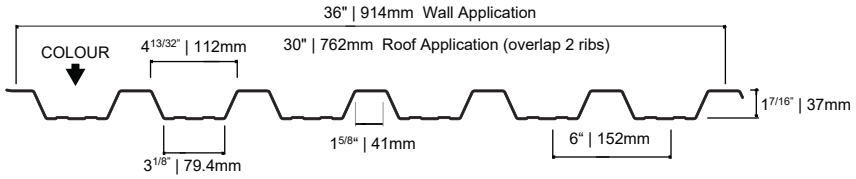
3. Values in row “D” are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-16.

## LIMIT STATES DESIGN




## SECTION PROPERTIES | Per Metre of Width

| Base Steel Thickness (mm) | Mass [Z275] (kg/m²) | Yield Stress (MPa) | Section Modulus | | Deflection Moment of Inertia | Specified Web Crippling Data | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Midspan (x10³ mm³) | Support (x10³ mm³) | (x10⁶ mm⁴) | Pe1 End (kN) | Pe2 End (kN) | Pi1 Interior (kN) | Pi2 Interior (kN) |
| 0.457 | 5.06 | 230 | 4.74 | 4.54 | 0.126 | 0.855 | 0.214 | 1.63 | 0.277 |
| 0.457 | 5.06 | 345 | 4.42 | 4.18 | 0.120 | 1.28 | 0.321 | 2.45 | 0.416 |
| 0.610 | 6.66 | 230 | 7.00 | 6.87 | 0.176 | 1.60 | 0.401 | 3.06 | 0.519 |
| 0.762 | 8.26 | 230 | 9.43 | 9.37 | 0.222 | 2.60 | 0.649 | 4.94 | 0.840 |
| | | | | | | | | | |
| | | | | | | | | | |

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

## LOAD TABLE | Maximum Uniformly Distributed Specified Loads (kPa).

| Span Length (m) | | 1-Span Base Steel Thickness (mm) | | | | | | 2-Span Base Steel Thickness (mm) | | | | | | 3-Span Base Steel Thickness (mm) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.457 | 0.457 | 0.610 | 0.762 | | | 0.457 | 0.457 | 0.610 | 0.762 | | | 0.457 | 0.457 | 0.610 | 0.762 | | |
| Y.S.* (MPa) | | 230 | 345 | 230 | 230 | | | 230 | 345 | 230 | 230 | | | 230 | 345 | 230 | 230 | | |
| 1.0 | S | 5.24 | 7.32 | 7.72 | 10.4 | | | 5.01 | 6.92 | 7.59 | 10.4 | | | 6.27 | 8.65 | 9.48 | 12.9 | | |
| 1.0 | D | 12.1 | 11.6 | 16.9 | 21.3 | | | 29.1 | 27.8 | 40.6 | 51.2 | | | 22.9 | 21.9 | 32.0 | 40.3 | | |
| 1.2 | S | 3.64 | 5.08 | 5.36 | 7.23 | | | 3.48 | 4.81 | 5.27 | 7.19 | | | 4.35 | 6.01 | 6.58 | 8.98 | | |
| 1.2 | D | 7.02 | 6.70 | 9.79 | 12.3 | | | 16.8 | 16.1 | 23.5 | 29.6 | | | 13.3 | 12.7 | 18.5 | 23.3 | | |
| 1.4 | S | 2.67 | 3.73 | 3.94 | 5.31 | | | 2.56 | 3.53 | 3.87 | 5.28 | | | 3.20 | 4.41 | 4.84 | 6.60 | | |
| 1.4 | D | 4.42 | 4.22 | 6.16 | 7.77 | | | 10.6 | 10.1 | 14.8 | 18.7 | | | 8.35 | 7.97 | 11.7 | 14.7 | | |
| 1.6 | S | 2.05 | 2.86 | 3.02 | 4.07 | | | 1.96 | 2.70 | 2.96 | 4.04 | | | 2.45 | 3.38 | 3.70 | 5.05 | | |
| 1.6 | D | 2.96 | 2.83 | 4.13 | 5.21 | | | 7.10 | 6.78 | 9.91 | 12.5 | | | 5.59 | 5.34 | 7.80 | 9.84 | | |
| 1.8 | S | 1.62 | 2.26 | 2.38 | 3.21 | | | 1.55 | 2.14 | 2.34 | 3.19 | | | 1.93 | 2.67 | 2.93 | 3.99 | | |
| 1.8 | D | 2.08 | 1.98 | 2.90 | 3.66 | | | 4.99 | 4.76 | 6.96 | 8.80 | | | 3.93 | 3.75 | 5.48 | 6.91 | | |
| 2.0 | S | 1.31 | 1.83 | 1.93 | 2.60 | | | 1.25 | 1.73 | 1.90 | 2.59 | | | 1.57 | 2.16 | 2.37 | 3.23 | | |
| 2.0 | D | 1.52 | 1.45 | 2.11 | 2.67 | | | 3.64 | 3.47 | 5.07 | 6.40 | | | 2.86 | 2.73 | 4.00 | 5.04 | | |
| 2.2 | S | 1.08 | 1.51 | 1.60 | 2.15 | | | 1.04 | 1.43 | 1.57 | 2.14 | | | 1.30 | 1.79 | 1.96 | 2.67 | | |
| 2.2 | D | 1.14 | 1.09 | 1.59 | 2.00 | | | 2.73 | 2.61 | 3.81 | 4.81 | | | 2.15 | 2.05 | 3.00 | 3.79 | | |
| 2.4 | S | 0.91 | 1.27 | 1.34 | 1.81 | | | 0.87 | 1.20 | 1.32 | 1.80 | | | 1.09 | 1.50 | 1.65 | 2.25 | | |
| 2.4 | D | 0.88 | 0.84 | 1.22 | 1.54 | | | 2.10 | 2.01 | 2.94 | 3.70 | | | 1.66 | 1.58 | 2.31 | 2.92 | | |
| 2.6 | S | 0.77 | 1.08 | 1.14 | 1.54 | | | 0.74 | 1.02 | 1.12 | 1.53 | | | 0.93 | 1.28 | 1.40 | 1.91 | | |
| 2.6 | D | 0.69 | 0.66 | 0.96 | 1.21 | | | 1.66 | 1.58 | 2.31 | 2.91 | | | 1.30 | 1.24 | 1.82 | 2.29 | | |
| 2.8 | S | 0.67 | 0.93 | 0.99 | 1.33 | | | 0.64 | 0.88 | 0.97 | 1.32 | | | 0.80 | 1.10 | 1.21 | 1.65 | | |
| 2.8 | D | 0.55 | 0.53 | 0.77 | 0.97 | | | 1.33 | 1.27 | 1.85 | 2.33 | | | 1.04 | 1.00 | 1.46 | 1.84 | | |
| 3.0 | S | 0.58 | 0.81 | 0.86 | 1.16 | | | 0.56 | 0.77 | 0.84 | 1.15 | | | 0.70 | 0.96 | 1.05 | 1.44 | | |
| 3.0 | D | 0.45 | 0.43 | 0.63 | 0.79 | | | 1.08 | 1.03 | 1.50 | 1.90 | | | 0.85 | 0.81 | 1.18 | 1.49 | | |
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* Y.S. = Yield Stress