Kirby
BUILDING SYSTEMS

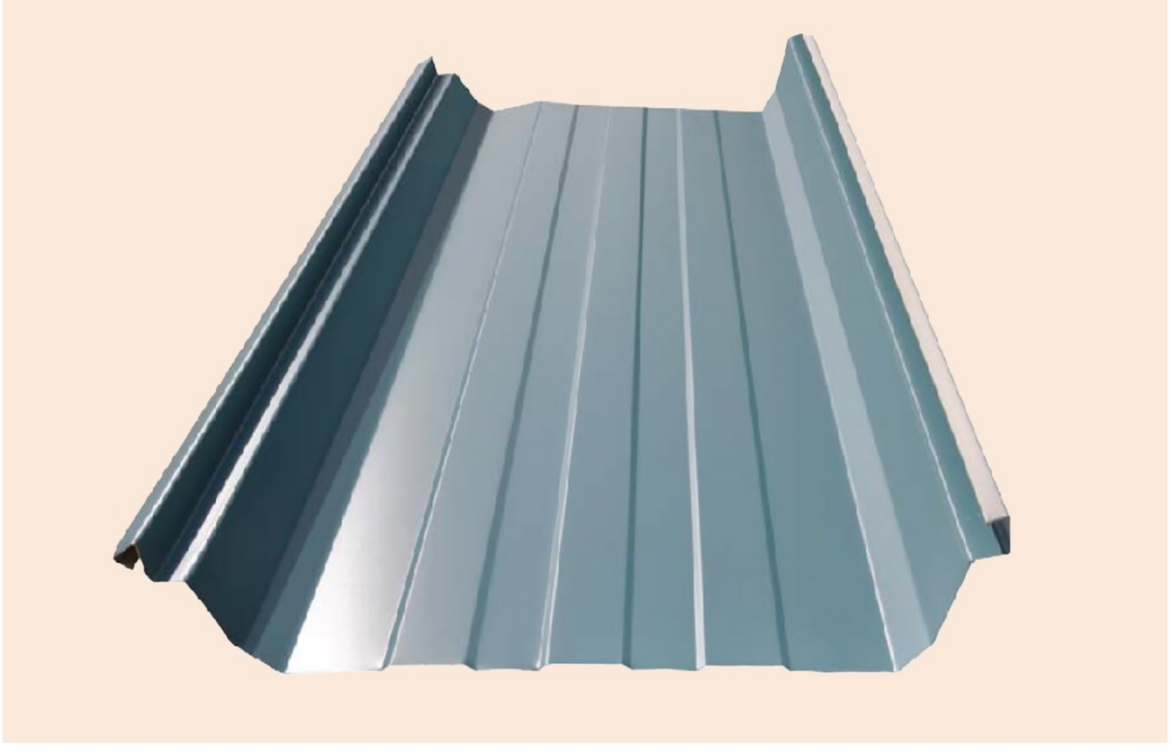
# SHEETING PANEL CHART

## COMMITTED TO **EXCELLENCE**

- Kirby Standing Seam (KS450)
- Kirby Roof & Wall (KR - 32)
- Kirby Decking Panel (KV - 55)
- Kirby Standard Colors

# PANELS PROFILE

## KIRBY STANDING SEAM PANELS *(KSS450)*



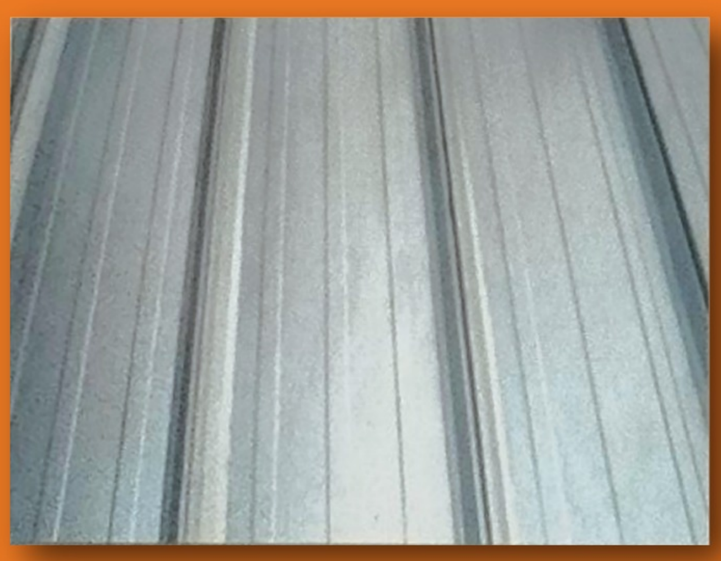
## INTRODUCTION

The introduction of the **Kirby Standing Seam Panel systems (KSS-450)** with double lock standing seam ends. eliminates the risk of leakage at fasteners and side and end laps due to the concealed fastening system and provides excellent protection in all weather conditions. It assures consistent weather tightness with virtually maintenance free performance for many years. The KSS-450 roof system is the most specified standing seam roof system in the market since many years.

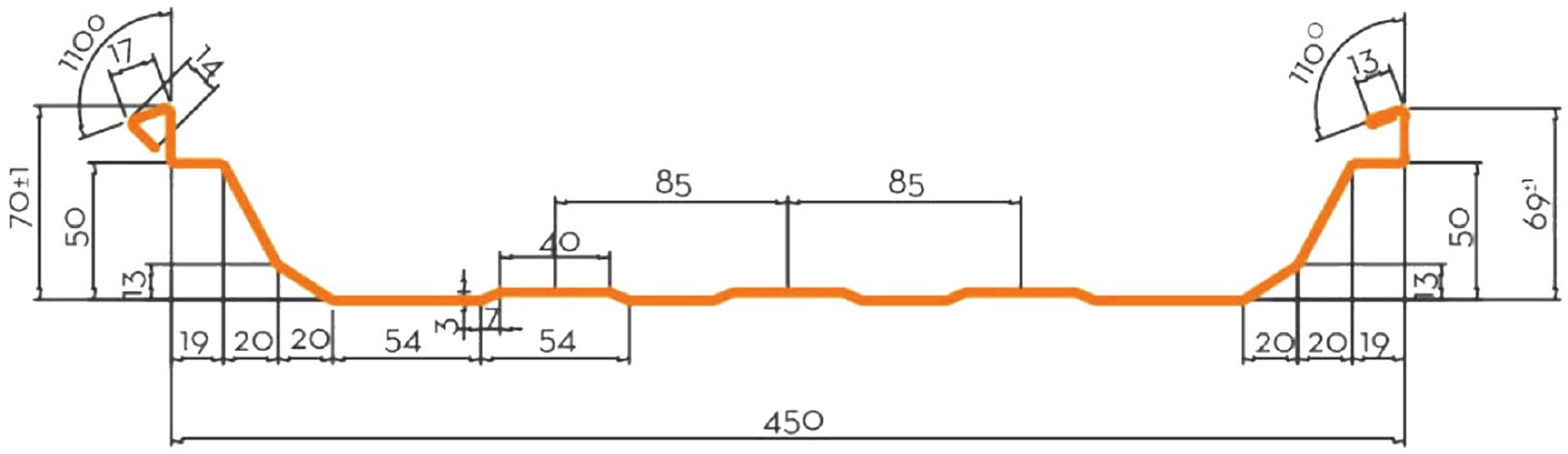
**Kirby's KSS-450 Standing Seam** Roof System has received the prestigious **Factory Mutual Approval (FM approval) from USA**. The FM approval is a certification for the high product quality and rellability of these roof systems. This approval qualifies the company to provide world-class pre- engineered building (PEB) solutions to all the FM Global insured clients investing in India and the SAARC region.

## SALIENT FEATURES

- Use of specially designed, proprietary concealed clips for fixing leads to a puncture free roof ensuring no leakages through fastener holes.
- Sheets in long lengths, far beyond transportable lengths made available due to feasibility of site rolling.
- End laps which have potential for water ingress eliminated by use of single sheet from eave to ridge.
- Raised seam provides deeper roof drainage and low roof pitch.
- Moveable tabs in clips accommodate roof movement with daily and seasonal temperature changes
- Leak proof side laps are possible by machine seaming the edges through a full 360.
- Faster roof installation with reduced operator fatigue possible by use of compact, heavy duty portable seaming machine.
- Excellent geometrical properties due to high profile depth and intermediate stiffening ribs, enables span of more than 2 meters for roofing.



# PANELS PROFILE




**SECTION PROPERTIES per meter width, ASTM A792 Gr:50 & A924 Gr:50 (Fy = 345MPa).**

| Thickness | Weight | Area | TOP FLAT IN COMPRESSION | | BOT. FLAT IN COMPRESSION | |
|---|---|---|---|---|---|---|
| mm | Kg/m2 | cm2 | I xe (cm4) | S xe (t) (cm3) | Ixe (cm4) | S xe (b) (cm3) |
| 0.5 | 4.80 | 6.11 | 26.926 | 4.670 | 11.199 | 2.892 |
| 0.6 | 5.75 | 7.32 | 34.2-24 | 6.035 | 14.260 | 3.920 |

**ALLOWABLE UNIFORM LOAD (kN/m2)**

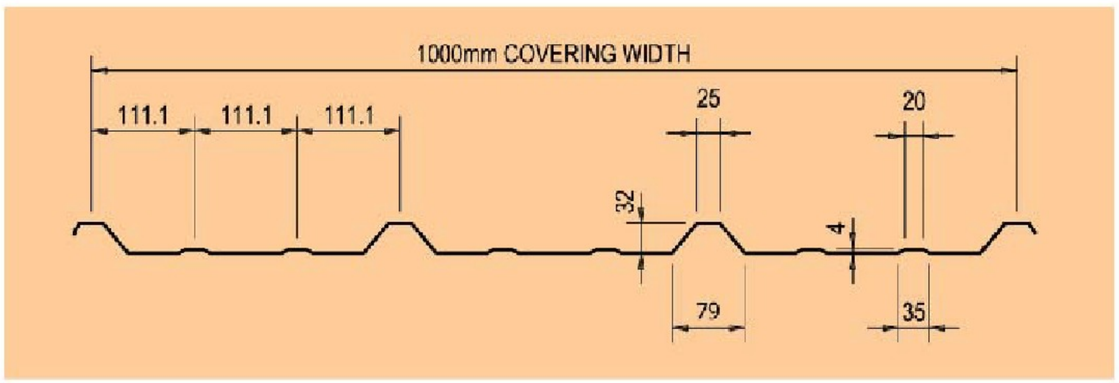
| Thickness | No. of | Load | Span in Meters | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | Spans | Case | 1.00 | 1.20 | 1.40 | 1.50 | 1.60 | 1.70 | 1.80 | 2.00 | 2.20 | 2.40 |
| 0.5 | upto 2 spans | D+L | 7.71 | 5.36 | 3.93 | 3.43 | 3.01 | 2.67 | 2.38 | 1.93 | 1.59 | 1.34 |
| | | Uplift | 6.55 | 4.55 | 3.34 | 2.91 | 2.56 | 2.27 | 2.00 | 1.46 | 1.10 | 0.84 |
| | 3 or more spans | D+L | 9.64 | 6.69 | 4.92 | 4.28 | 3.77 | 3.34 | 2.98 | 2.41 | 1.99 | 1.67 |
| | | Uplift | 8.19 | 5.68 | 4.18 | 3.64 | 3.20 | 2.83 | 2.53 | 2.05 | 1.69 | 1.42 |
| 0.6 | upto 2 spans | D+L | 9.97 | 6.92 | 5.09 | 4.43 | 3.89 | 3.45 | 3.08 | 2.49 | 2.06 | 1.73 |
| | | Uplift | 8.61 | 5.98 | 4.39 | 3.83 | 3.36 | 2.98 | 2.55 | 1.86 | 1.39 | 1.07 |
| | 3 or more spans | D+L | 12.46 | 8.65 | 6.36 | 5.54 | 4.87 | 4.31 | 3.85 | 3.12 | 2.57 | 2.16 |
| | | Uplift | 10.76 | 7.47 | 5.49 | 4.78 | 4.20 | 3.72 | 3.32 | 2.69 | 2.22 | 1.87 |

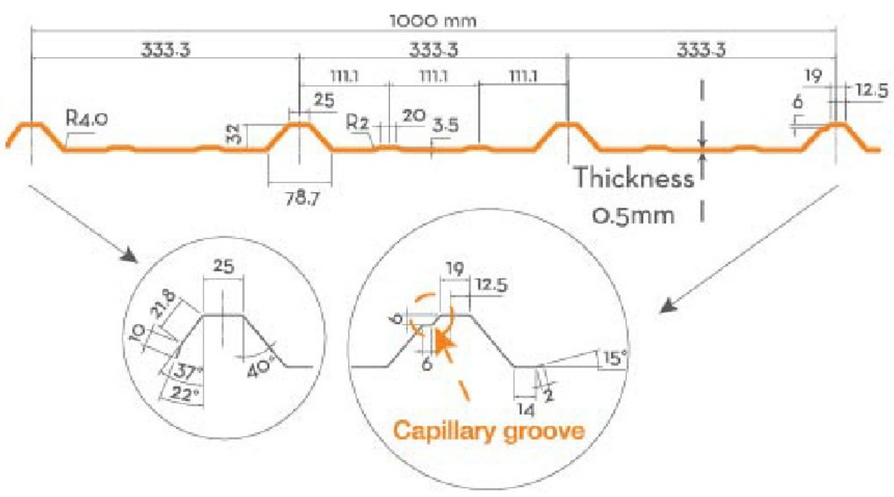
**NOTES:**

1. Section properties are calculated in accordance with the edition 2001 of the American iron & steel institute 'specifications' (A I S I)
2. Deflection limitation is considered as span/180 for DL + LL and span/150 for wind uplift case
3. The base material yield strength, Fy = 345 n/mm2
4. The allowable stresses are increased by BY 33-1/3% for the uplift case
5. Data applied for standard KSS - 600 profile. Actual valid parameters for KSS - 450 should be better and will be updated when available

# KIRBY ROOF & WALL *(KR32)*

## INTRODUCTION




**Kirby RIB profile** is strong and cost effective and was developed specifically for roofing applications. The bearing leg design permits easier installation and maintenance, supports thicker layers of insulation and allows easier curvature for a visually appealing finish.

Coverage Area: **1000mm**

Rib Depth: **32mm**

**Kirby Roof of profile** is also available as an insulated panel (KRIP) in thickness from 40 mm to 150 mm.

| Fastener Data Sheet | Pull out | | | | | Pull over | | |
|---|---|---|---|---|---|---|---|---|
| | Purlin Thickness (mm) | 1.50 | 1.75 | 2.00 | 2.50 | Panel Thickness (mm) | 0.50 | 0.60 |
| | Ultimate Pull Out (KN) | 1.16 | 1.83 | 2.09 | 2.32 | Ultimate Pull Over (KN) | 5.12 | 5.72 |

Minimum specified yield stress fy = 34.5 Kn/cm 2 (50 ksi)

**Steel panel properties (KR)**

| Panel Nominal Thickness | Girth | Weight | Shear & Web Crp | | Top Flat in Compression | | | | Bot Flat in Compression | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Va | Pa | (Def) Ix | Sx (top) | Sx (bot) | Ma | (Def) Ix | Sx (top) | Sx (bot) | Ma |
| (mm) | (mm) | (kg/m²) | (KN) | (KN) | (cm⁴) | (cm³) | (cm³) | (KN-m) | (cm⁴) | (cm³) | (cm³) | (KN-m) |
| 0.5 | 1145 | 3.93 | 5.39 | 3.27 | 4.82 | 1.45 | 7.10 | 0.30 | 4.12 | 1.75 | 3.12 | 0.36 |
| 0.6 | 1145 | 4.83 | 8.88 | 4.96 | 5.99 | 2.04 | 8.71 | 0.42 | 5.38 | 2.19 | 4.78 | 0.45 |

Section Properties are Calculated in accordance with the 2001 Edition of the American Iron and Steel Institute "Specifications" (AI.S.I). Updated on 10 January 2003

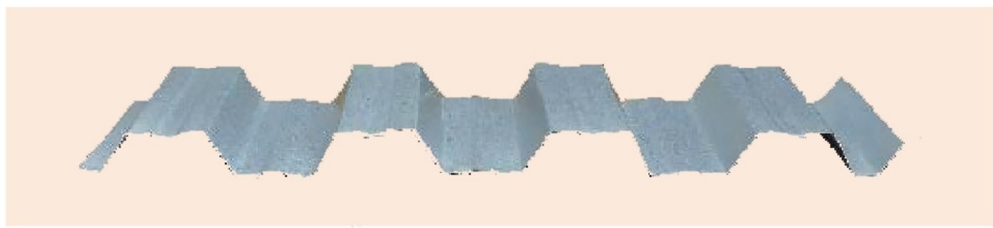
**Allowable Uniform Load (Kn/M²)**

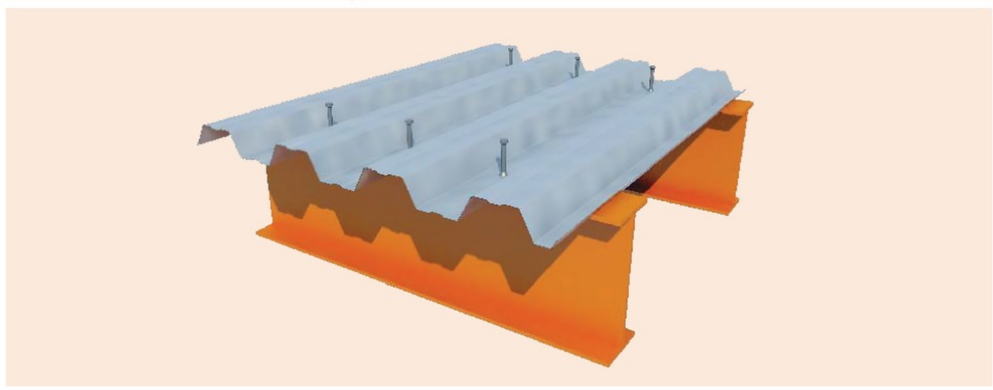
| Panel Nominal Thickness (mm) | | Load Case (-) | Purlin Thick (mm) | Span (m) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1.00 | 1.20 | 1.40 | 1.50 | 1.60 | 1.75 | 2.00 | 2.20 |
| 0.5 | Roof system Allowable Capacity (KN/m²) based on 3 spans and 3 fasteners per Im | D+L | - | 2.32 | 1.78 | 1.41 | 1.27 | 1.15 | 1.00 | 0.81 | 0.70 |
| | | WP | - | 2.32 | 1.78 | 1.41 | 1.27 | 1.15 | 1.00 | 0.81 | 0.70 |
| | | WS | 1.50 | 1.55 | 1.29 | 1.11 | 1.03 | 0.97 | 0.88 | 0.74 | 0.61 |
| | | WS | 1.75 | 2.44 | 2.00 | 1.48 | 1.30 | 1.14 | 0.96 | 0.74 | 0.61 |
| | | WS | 2.00 | 2.79 | 2.00 | 1.48 | 1.30 | 1.14 | 0.96 | 0.74 | 0.61 |
| | | WS | 2.50 | 2.83 | 2.00 | 1.48 | 1.30 | 1.14 | 0.96 | 0.74 | 0.61 |
| 0.6 | Roof system Allowable Capacity (KN/m²) based on 3 spans and 3 fasteners per Im | D+L | - | 3.22 | 2.45 | 1.93 | 1.73 | 1.57 | 1.36 | 1.09 | 0.92 |
| | | WP | - | 3.22 | 2.45 | 1.93 | 1.73 | 1.57 | 1.36 | 1.09 | 0.92 |
| | | WS | 1.50 | 1.55 | 1.29 | 1.11 | 1.03 | 0.97 | 0.88 | 0.77 | 0.70 |
| | | WS | 1.75 | 2.44 | 2.04 | 1.74 | 1.63 | 1.53 | 1.36 | 1.04 | 0.86 |
| | | WS | 2.00 | 2.79 | 2.33 | 1.99 | 1.84 | 1.62 | 1.36 | 1.04 | 0.86 |
| | | WS | 2.50 | 3.10 | 2.58 | 2.11 | 1.84 | 1.62 | 1.36 | 1.04 | 0.86 |

1. D+L : Dead Load + Live Load WP.· Wind Pressure WS.· Wind Suction
2. Minimum deflection = Span/180 for D+L
3. Stress Increment of 33% is not allowed any more
4. Fasteners Uplift Capacity is based on the manufacturer's Pull Out and Pull Over Data
5. Shaded area indicates that fasteners pull out capacity is governing

# KIRBY DECKING PANEL *(KV-55)*

## INTRODUCTION

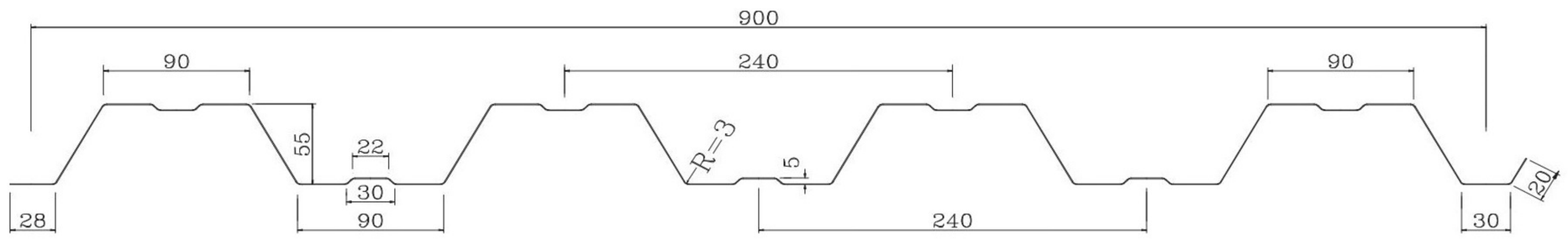




**Kirby Decking Panel** is an ultra-strong profile designed as a permanent shuttering to support wet concrete used in decking applications. The profile provides a stable and rigid working platform that removes the need for additional framework to support concrete.

**Kirby Decking Panel** has 55mm deep major ribs and is spaced 240mm center to center. Additional minor stiffening ribs are located in the middle of major ribs. The panel provides 900mm cover width.

## SECTION PROPERTIES & ALLOWABLE UNIFORM LOAD




KV-55 DECKING SPECIFICATIONS

Thickness 0.5mm - 0.7mm, Coil Width 1219mm, Grade 50 KSI, Fy=345 MPa, Galvanized Coil.

**SECTION PROPERTIES OF DECKING KV-55**

| Thickness | Weight | Area | Positive Moment | | | Negative Moment | | |
|---|---|---|---|---|---|---|---|---|
| mm | kg/m2 | cm2 | Ixe (cm4) | Sx_top (cm3) | Sx_bot (cm3) | Ixe (cm4) | Sx_top (cm3) | Sx_bot (cm3) |
| 0.50 | 5.00 | 5.14 | 20.80 | 6.58 | 8.74 | 20.10 | 9.06 | 6.08 |
| 0.60 | 6.06 | 6.35 | 28.20 | 9.50 | 10.96 | 27.70 | 11.32 | 8.96 |
| 0.70 | 7.12 | 7.56 | 35.20 | 12.21 | 13.22 | 34.30 | 13.61 | 11.33 |

**ALLOWABLE UNIFORM LOAD FOR KV-55 (kN/m2)**

| Thickness | Number of Span | | Span (m) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | | | 1.00 | 1.25 | 1.50 | 1.75 | 2.00 | 2.25 | 2.50 | 2.75 |
| 0.5 | 1 span | Strength | **12.00** | **7.67** | **5.28** | 3.89 | 2.97 | 2.33 | 1.88 | 1.54 |
| | | Deflection | 18.86 | 9.63 | 5.55 | **3.47** | **2.32** | **1.61** | **1.17** | **0.86** |
| | 2 spans | Strength | **7.56** | **5.36** | **3.98** | **3.06** | **2.41** | **1.94** | **1.59** | **1.33** |
| | | Deflection | 45.23 | 23.12 | 13.33 | 8.37 | 5.58 | 3.90 | 2.83 | 2.11 |
| | 3 or more spans | Strength | **8.50** | **6.17** | **4.66** | **3.61** | **2.89** | **2.34** | **1.94** | **1.62** |
| | | Deflection | 35.60 | 18.20 | 10.47 | 6.59 | 4.41 | 3.08 | 2.24 | 1.67 |
| 0.6 | 1 span | Strength | **17.33** | **11.06** | **7.69** | 5.61 | 4.28 | 3.37 | 2.72 | 2.24 |
| | | Deflection | 20.90 | 11.90 | 6.84 | **4.29** | **2.86** | **1.99** | **1.44** | **1.07** |
| | 2 spans | Strength | **12.56** | **8.69** | **6.33** | **4.78** | **3.73** | **2.98** | **2.43** | **2.02** |
| | | Deflection | 55.89 | 28.55 | 16.48 | 10.34 | 6.91 | 4.83 | 3.51 | 2.62 |
| | 3 or more spans | Strength | **14.40** | **10.22** | **7.55** | **5.77** | **4.54** | **3.64** | 3.00 | 2.50 |
| | | Deflection | 43.85 | 22.48 | 12.95 | 8.15 | 5.45 | 3.81 | **2.77** | **2.08** |
| 0.7 | 1 span | Strength | **22.22** | 14.22 | 9.88 | 7.22 | 5.49 | 4.30 | 3.44 | 2.81 |
| | | Deflection | 24.88 | **14.12** | **8.13** | **5.10** | **3.40** | **2.37** | **1.70** | **1.26** |
| | 2 spans | Strength | **17.56** | **11.83** | **8.47** | **6.33** | **4.89** | **3.89** | **3.30** | **2.61** |
| | | Deflection | 73.16 | 33.94 | 19.59 | 11.20 | 8.22 | 5.76 | 3.92 | 3.12 |
| | 3 or more spans | Strength | **20.80** | **14.22** | **10.27** | **7.72** | **6.02** | 4.80 | 3.92 | 3.24 |
| | | Deflection | 52.27 | 26.73 | 15.42 | 9.70 | 6.48 | **4.54** | **3.30** | **2.47** |

**Notes :**

1. **Section properties are calculated in accordance with the edition 2001 of the AISI**
2. **Top values are based on bending and Bottom values are based on maximum deflection of Span/ 180**
3. **The load table is for the deck sheet used as permanent shuttering**

# PANELS PROFILE

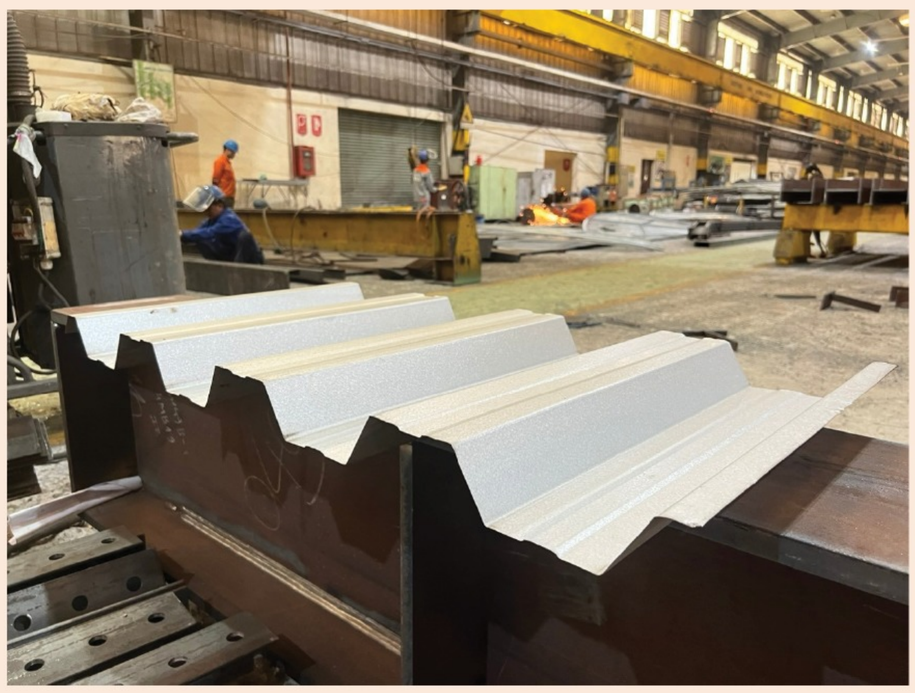
## APPLICATIONS & BENEFITS

- Deep deck can be used as a permanent shuttering to support the wet concrete.
- Continuous flange stiffeners and deep embossments at frequent intervals on the deep
- deck panels acting as web stiffeners provide composite action resulting in a composite slab.
- Composite floor beams can be created by welding steel shear studs through the decking sheet onto the top of the flange of the steel beam.

Typical applications of deep decking panels are in the following types of buildings:

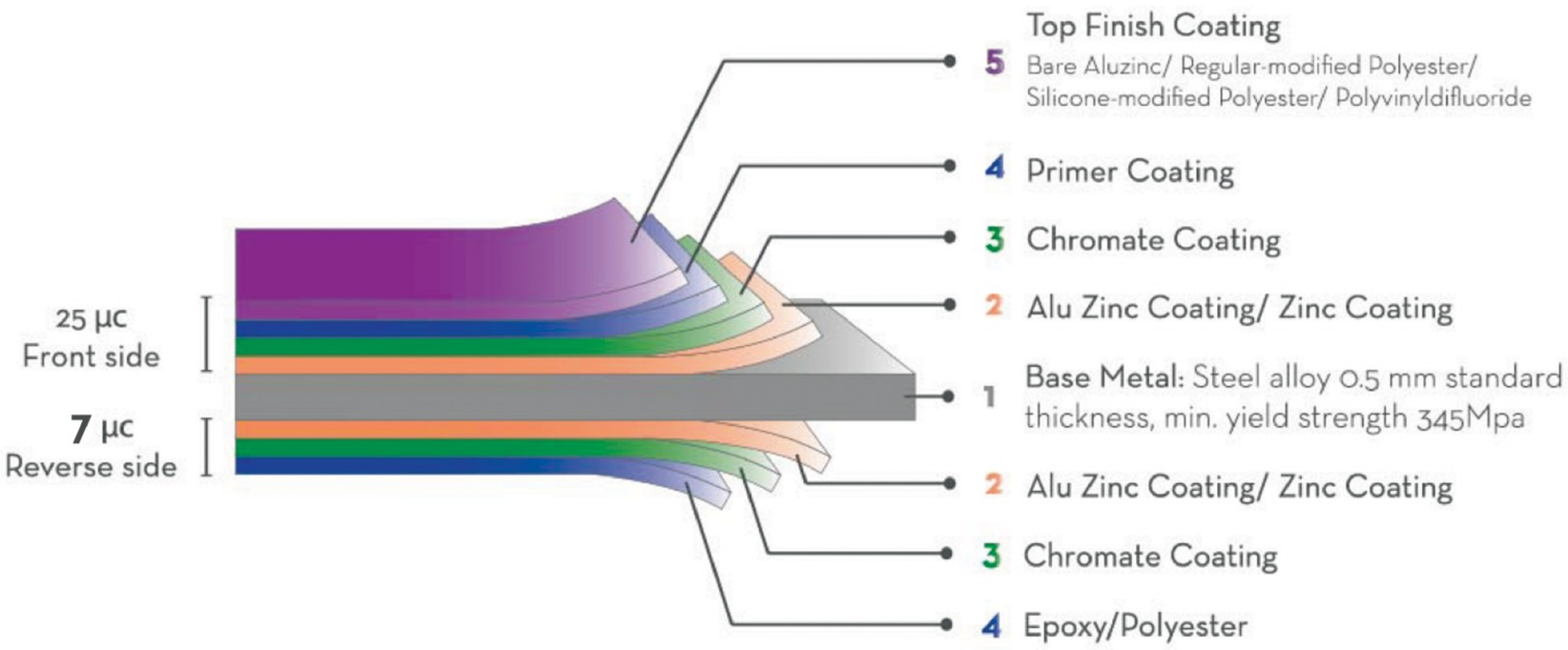
High Rise Buildings - Power Plant Buildings - Multiplexes / Commercial Buildings - Office Buildings - Mezzanine Floors in Industrial Buildings & Warehouses

- Continuous flange stiffeners & deep embossments increase the load carrying capacities.
- Use of high tensile steel with minimum yield strength of 345 Mpa together with large depth of profile increases the flexural rigidity and reduces deflection.
- Deep deck panels provide a stable & rigid working platform without any need of propping.
- The use of hot dipped galvanized coils with 120 to 270 gsm of zinc coating renders the deck with superior corrosion resistance properties.



- Deep deck when used as composite floors saves up to 25% of steel when compared to normal decking.
- Deep deck when used as a composite slab / beams helps in reducing the overall thickness of the floor thereby reducing the height of the high rise building.
- Composite slabs / beams save substantial time in construction as compared to conventional floors.
- Deep deck panels as composite floors can be designed for upto 1.5 to 2 hrs of fire rating.
- The depth of the profile permits conduit pipes to be installed between the deck ribs effectively within the slab depth, leading to further reduction in floor zone

# CROSS SECTION OF PAINTED SHEETING



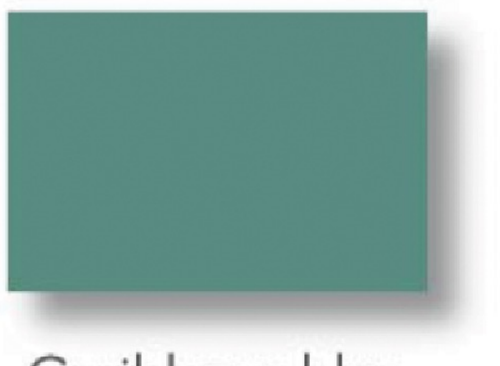

Kirby cladding systems are available in steel and aluminium and come in six standard colour options.

Kirby panels are prepared with a multilayered coating system to ensure logn life and optimum coating adherence. The base material is pre-treated, before applying a corrosion resistant primer and top coat. The combined thickness of the painted film is 25 microns on the front side and 7 microns on the reverse side.

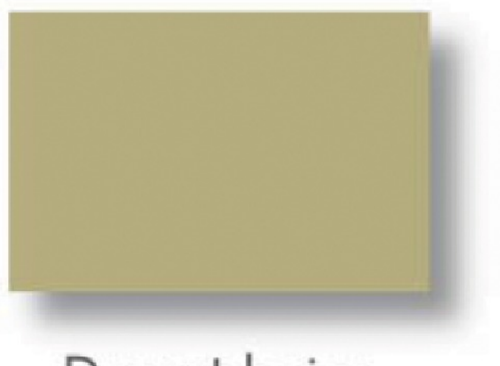
Kirby offers a wide range of top coats including polyester (PE), silicone-modified polyester (SPE) and polyvinyldifluoride (PVF2) in six standard colour of options. We can support requirements for RAL colours on request.

# SIX STANDARD COLOR OPTIONS

Artic white



Caribbean blue

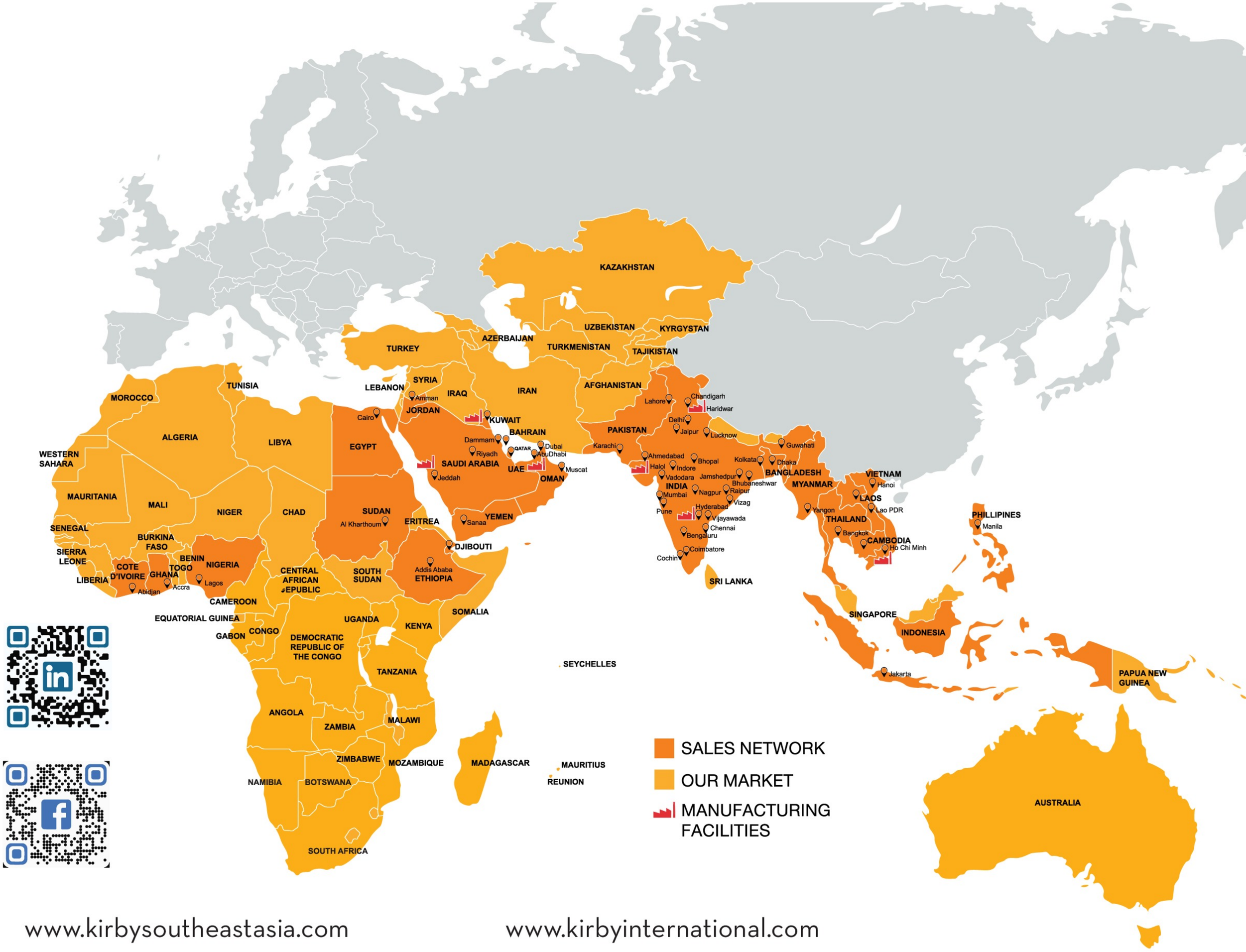


Desert beige

Sun gold

Autumn green

Aluzinc




www.kirbysoutheastasia.com www.kirbyinternational.com

Kirby BUILDING SYSTEMS

A subsidiary of Alghanim INDUSTRIES

## KIRBY SOUTHEAST ASIA

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**Shualba, Kuwait Plant**

KIRBY BUILDING SYSTEMS - KUWAIT, Plot 1, Block 2, West Shuaiba Industrial Area, P.O. Box 23933 Safat, 13100 Kuwait.

**Ras Al Khimah, United Arab Emirates Plant**

Al Jazeera Industrial Area Ii, Ras Al Khaimah, Uae, P.o. Box 6624, Ras Al Khimah, UAE.

**Jeddah, Saudi Arabia Plant**

KIRBY CONTRACTING COMPANY (SPC) L.L.C., Industrial City -1, P.O. Box 86648, Jeddah – 21492, Saudi Arabia.

**Hyderabad Plant, India**

Unit 1, Plot Nos 8-15, IDA Phase III, Pashamylaram, Sangareddy Dist. - 502 307, Telangana, India.

**Haridwar Plant, India**

Unit 2, Plot No 2, Sector 11, Integrated Industrial Estate, SIDCUL, Haridwar - 249 403, Uttarakhand.

**Halol Plant, India**

Plot No 741, 742/1, 748, 749, Halol GIDC Phase-II,Halol Maswad Industrial Estate, Halol Godhra Highway, District Panchmahal, Gujarat – 389 350, India.

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