



**TRUST US  
with CSC**

**SENGDEK** roofing are supplied by top quality local steel coil manufacturer, CSC. CSC was established and listed on the main market of Bursa Malaysia. It is the largest steel coil manufacturer in Malaysia. The main products of CSC steel include galvanised steel coils (gi) and pre-painted steel coil (ppgi).

Realzinc and Realcolor are shaped under CSC, providing the best quality of steel coil to create infinite possibilities.

The concept of “real” is originated from value of reality and practicality which closely aligned with CSC upright business philosophy, besides communicating the company’s management ways by “making with real and achieving the real”. It also highlights the company’s ambitious in providing steel products that meets the quality standard.



**A Trustworthy Roofing  
Brand In Malaysia.**

RETAIL SEGMENT



PROJECT SEGMENT



# SENGDEK<sup>®</sup> INSULATION ROOFING SERIES



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# SENGDEK<sup>®</sup> INSULATION ROOFING SERIES

SENGDEK<sup>®</sup> INSULATION ROOFING SERIES are insulated roof panel and designed to provide effective and excellent heat-resistance as well as sound absorption. They are engineered and designed by the state-of-the-art technology and manufactured by the sophisticated equipment.

## Product Range

### OPP 3 in 1 Insulation Roofing Series

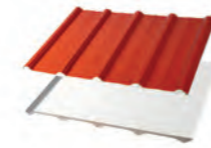


**SuperRib**  
OPP 3 in 1 & Crimp  
Curve/Half Curve

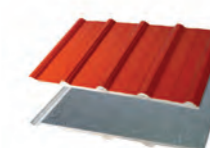


**Step Euro**  
OPP 3 in 1

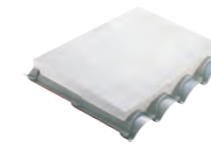
### PU Foam & Foil Insulation Roofing Series



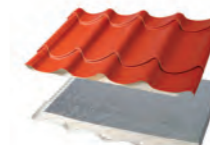
**SuperRib**  
Pu Foam 20mm  
& Crimp Curve



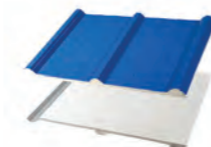
**SuperRib**  
Pu Foil 20mm  
& Crimp Curve



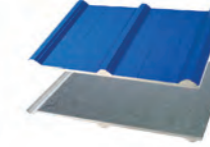
**Step Euro**  
Pu Foam 20mm



**Step Euro**  
Pu Foil 20mm



**MegaRib 35**  
Pu Foam 20mm



**MegaRib 35**  
Pu Foil 20mm

### PU Metal Insulation Roofing Series



**SuperRib**  
Pu Metal  
20/35/50mm  
& Crimp Curve



**Step Euro**  
Pu Metal  
20mm



**MegaRib 35**  
Pu Metal  
20/35/50mm

# SENGDEK<sup>®</sup> OPP 3 in 1 Insulation Roofing Series

SENGDEK<sup>®</sup> OPP 3 in 1 roofing product is a single-layered product consisting of 3 layers, which are pre-painted metal sheet, EPE foam and aluminium foil. SENGDEK<sup>®</sup> OPP 3 in 1 roofing product is good substitute for the traditional products such as chicken netting and aluminium foil.

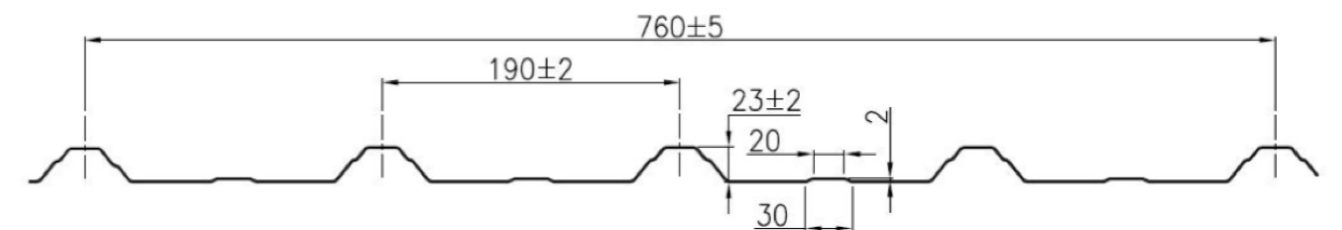
## Product Specifications

### SENGDEK<sup>®</sup> SuperRib OPP 3 in 1



|                      |                          |
|----------------------|--------------------------|
| Effective Width      | 762mm                    |
| Depth of Rib         | 25mm                     |
| Yield Strength (MPa) | G300/G550                |
| Minimum Roof Pitch   | 3° without end lap       |
| Tolerance            | Length ± 5mm, Width ±4mm |

#### Dimensions

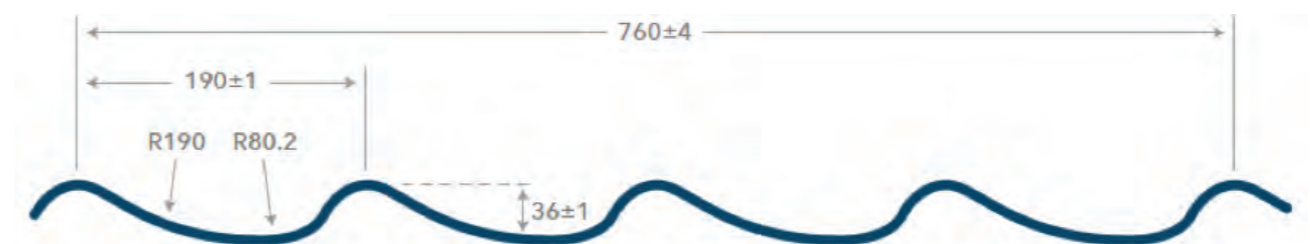


### SENGDEK<sup>®</sup> Step Euro OPP 3 in 1



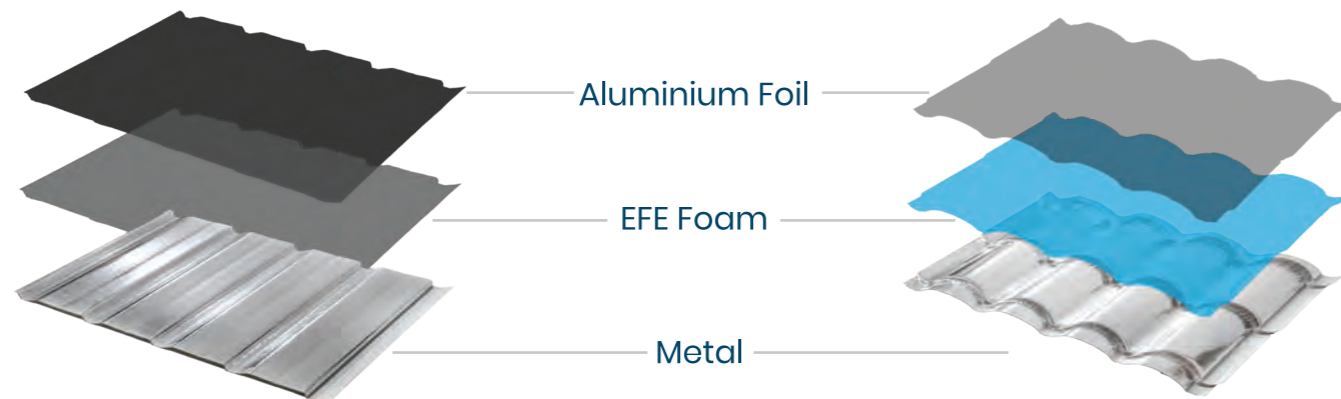
|                      |                          |
|----------------------|--------------------------|
| Effective Width      | 762mm                    |
| Depth of Rib         | 36mm                     |
| Yield Strength (MPa) | G300/G550                |
| Minimum Roof Pitch   | 8° without end lap       |
| Tolerance            | Length ± 5mm, Width ±4mm |

#### Dimensions



## Thickness Availability

| Base Metal Thickness (BMT) | Total Coated Thickness (TCT) | Weight (Kg/m <sup>2</sup> ) | Min Yield Strength (MPa) |
|----------------------------|------------------------------|-----------------------------|--------------------------|
| 0.23mm                     | 0.28mm                       | 2.31                        | Min G300/G550 MPa        |
| 0.25mm                     | 0.30mm                       | 2.46                        | Min G300/G550 MPa        |
| 0.28mm                     | 0.33mm                       | 2.82                        | Min G300/G550 MPa        |
| 0.30mm                     | 0.35mm                       | 2.93                        | Min G300/G550 MPa        |
| 0.35mm                     | 0.40mm                       | 3.46                        | Min G300/G550 MPa        |
| 0.40mm                     | 0.47mm                       | 4.20                        | Min G300/G550 MPa        |
| 0.48mm                     | 0.53mm                       | 4.76                        | Min G300/G550 MPa        |



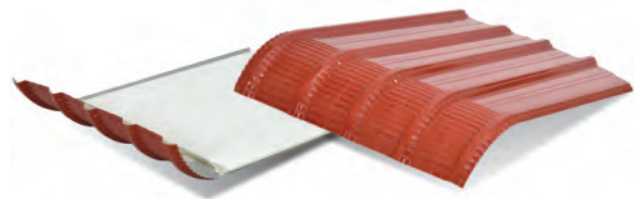
SENGDEK<sup>®</sup> OPP 3 in 1 roofing eliminates the jobs of overlaying, thus saving cost and time. It is available in SuperRib and Step Euro. SENGDEK<sup>®</sup> SuperRib OPP 3 in 1 also can be transformed into Crimp Curve or any special curve by requirement.

# SENGDEK<sup>®</sup> PU Foam & Foil Insulation Roofing Series

SENGDEK<sup>®</sup> PU Foam & Foil Insulation Roofing is a completely insulated roofing panel and designed to counter tropical weather in Southeast Asia or other climates. It has a completed insulation system made up of 3 layers, consisting of a layer of rigid polyurethane (PU) foam in between an exterior profiled metal roofing sheet and interior fire retardant PVC paper or aluminium foil. These insulated roof panels are outstanding at high insulation characteristics and its light weight.

It contains water resistant materials as it is processed using high density Closed Cell Polyurethane which will not be damaged by rain water. It also eliminates unnecessary multiple construction of processes of laying insulations and roofing sheets into one-off fast and easy way of installation course, thus saving cost in installation and purchasing.

## AVAILABLE IN SENGDEK® PU Foam & Foil



### PRODUCT

- SENGDEK® SuperRib Pu Foam or Foil
- SENGDEK® MegaRib 35 Pu Foam or Foil
- SENGDEK® Step Euro Pu Foam or Foil

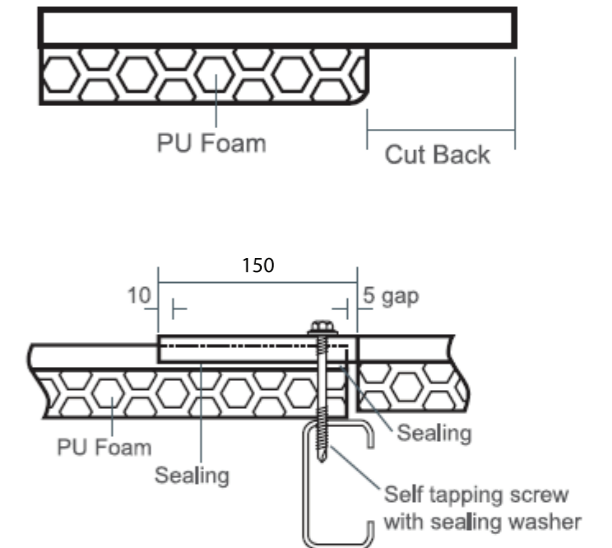
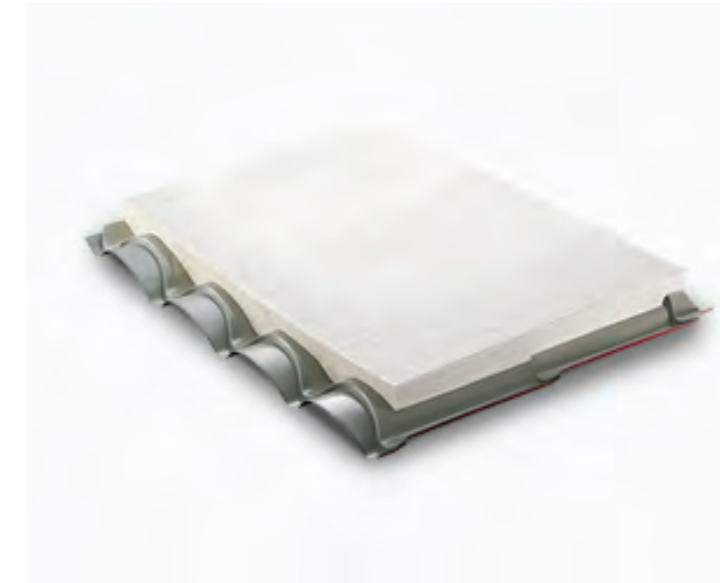
*\*SENGDEK® SuperRib Pu Foam can be transformed into Crimp Curve*

## PRODUCT FEATURES AND BENEFITS

- Light weight & high heat insulation
- Good in sound absorption & water resistant
- Long spanning capacity with custom-made-length
- Savings in cost of purchasing and installation

## PANEL END CUT BACK

For Installation of insulated metal roof, the following measures are recommended



## Pu Foam & Foil Insulation Properties

| Items                          | Specifications (+/-)      |
|--------------------------------|---------------------------|
| Thickness of Pu Foam           | 20mm                      |
| Type of Insulation             | Bonded Rigid Polyurethane |
| Insulation Density of Pu Foam  | 36-40kg/m <sup>3</sup>    |
| Insulation Grade               | CFC Free                  |
| K value (Thermal Conductivity) | 0.022w/mK                 |
| R value (Thermal Resistance)   | 1.06m <sup>2</sup> K/W    |

# Product Specifications

## SENGDEK® SuperRib Pu Foam & Foil



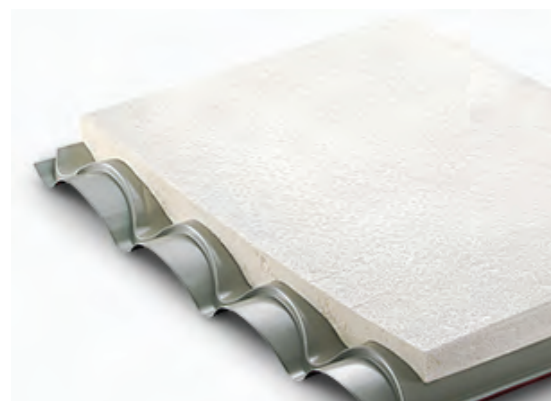
|                      |  |
|----------------------|--|
| Effective Width      | 762mm  |
| Depth of Rib         | 25mm   |
| Yield Strength (MPa) | G300/G550  |
| Minimum Roof Pitch   | 3° without end lap                               |
| Tolerance            | Length ± 5mm, Width ±5mm, Thickness of foam ±3mm |

## SENGDEK® MegaRib 35 Pu Foam & Foil



|                      |  |
|----------------------|--|
| Effective Width      | 762mm  |
| Depth of Rib         | 35mm   |
| Yield Strength (MPa) | G300/G550  |
| Minimum Roof Pitch   | 1° without end lap                               |
| Tolerance            | Length ± 5mm, Width ±5mm, Thickness of foam ±3mm |

## SENGDEK® Step Euro Pu Foam & Foil

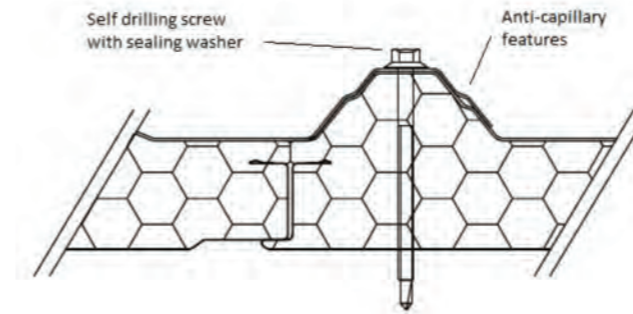


|                      |  |
|----------------------|--|
| Effective Width      | 760mm  |
| Depth of Rib         | 36mm   |
| Yield Strength (MPa) | G300/G550  |
| Minimum Roof Pitch   | 8° without end lap                               |
| Tolerance            | Length ± 5mm, Width ±5mm, Thickness of foam ±3mm |

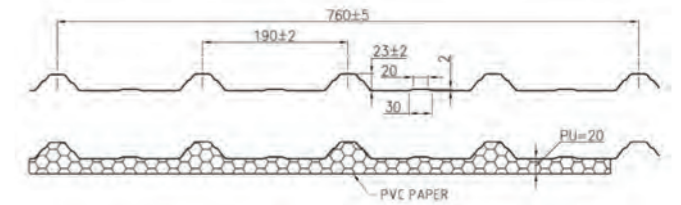
# Dimensions

## SuperRib

### Pu Foam/Foil Overlapping

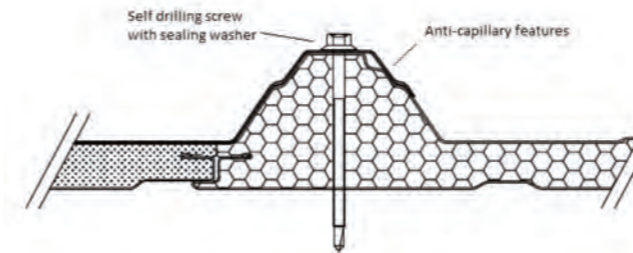


### Pu Foam/Foil

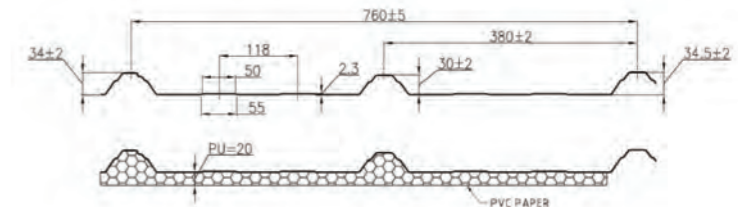


## MegaRib 35

### Pu Foam/Foil Overlapping

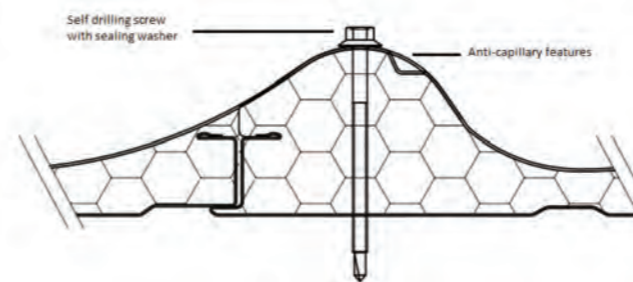


### Pu Foam/Foil

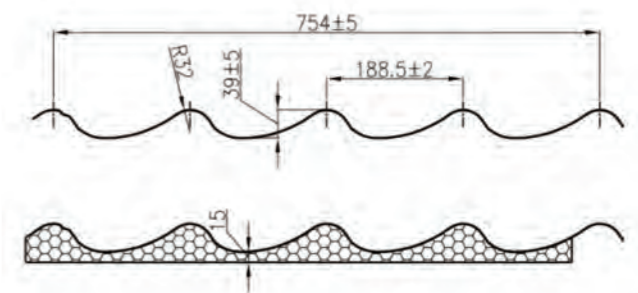


## Step Euro

### Pu Foam/Foil Overlapping



### Pu Foam/Foil



## Thickness Availability

| Base Metal Thickness (BMT) | Total Coated Thickness (TCT) | Weight (Kg/m <sup>2</sup> ) | Min Yield Strength (MPa) |
|----------------------------|------------------------------|-----------------------------|--------------------------|
| 0.23mm                     | 0.28mm                       | 2.31                        | Min G300/G550 MPa        |
| 0.25mm                     | 0.30mm                       | 2.46                        | Min G300/G550 MPa        |
| 0.28mm                     | 0.33mm                       | 2.82                        | Min G300/G550 MPa        |
| 0.30mm                     | 0.35mm                       | 2.93                        | Min G300/G550 MPa        |
| 0.35mm                     | 0.40mm                       | 3.46                        | Min G300/G550 MPa        |
| 0.40mm                     | 0.47mm                       | 4.20                        | Min G300/G550 MPa        |
| 0.48mm                     | 0.53mm                       | 4.76                        | Min G300/G550 MPa        |

## Foam Thickness 20mm

| Thickness | Roof               |               | Wall               |               | Free       |
|-----------|--------------------|---------------|--------------------|---------------|------------|
|           | Internal Span (mm) | End Span (mm) | Internal Span (mm) | End Span (mm) | Cantilever |
| 0.35      | 1600               | 1400          | 1800               | 1600          | 100        |
| 0.40      | 1700               | 1500          | 1900               | 1700          | 100        |
| 0.47      | 1800               | 1600          | 2000               | 1800          | 150        |
| 0.53      | 1900               | 1700          | 2100               | 1900          | 150        |

## Recommended Roof Length (M)

| Rainfall (mm/h) | Slope in Degree |    |    |    |     |
|-----------------|-----------------|----|----|----|-----|
|                 | 1°              | 3° | 5° | 7° | 10° |
| 150             | 41              | 53 | 64 | 85 | 107 |
| 200             | 33              | 41 | 53 | 64 | 81  |
| 250             | 28              | 33 | 42 | 51 | 65  |
| 300             | 24              | 28 | 32 | 42 | 53  |
| 400             | 7               | 9  | 11 | 11 | 13  |

# SENGDEK<sup>®</sup> PU Metal Insulation Roofing Series

SENGDEK<sup>®</sup> PU Metal Insulation Roofing is a completed insulation system made up of 3 layers, consisting of a layer of rigid polyurethane (PU) foam in between an exterior profiled metal roofing sheet and an interior pre-painted metal sheet with glossy white texture. These insulated roof panels provide excellent heat resistance, good sound absorption, mechanical and dimensional stability of roof assembly. With these characteristics, these roof panels will maintain your buildings cool all day with great saving on electricity.

It contains water resistant materials as it is processed using high density Closed Cell Polyurethane which will not be damaged by rain water. It is harder to be damaged during transportation. It has thickness variants of 20mm, 35mm, and 50mm. It also eliminates unnecessary multiple construction of processes of laying insulations and roofing sheets into one-off fast and easy way of installation course, thus saving cost in installation and purchasing.

## AVAILABLE IN SENGDEK® PU Metal



### PRODUCT

SENGDEK® SuperRib Pu Metal  
(with foam thickness options, 20mm/35mm/50mm)

SENGDEK® MegaRib 35 Pu Metal  
(with foam thickness options, 20mm/35mm/50mm)

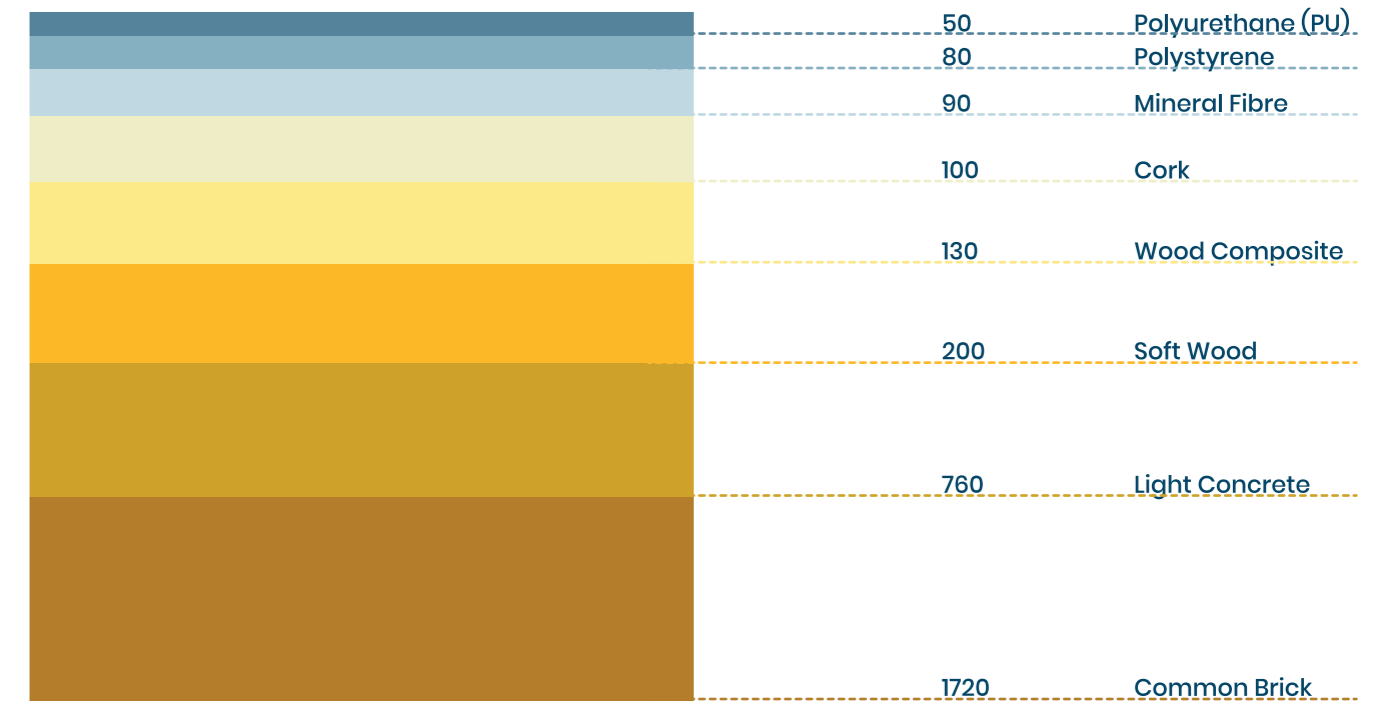
SENGDEK® Step Euro Pu Metal  
(with foam thickness options, 20mm)

*\*SENGDEK® SuperRib Pu Metal can be transformed into Crimp Curve*

## PRODUCT FEATURES AND BENEFITS

- Light weight & high heat insulation
- Good in sound absorption & water resistant
- Long spanning capacity with custom-made length
- Savings in cost of purchasing and installation
- Good rain water flow capacity

## Thickness For Equivalent Insulation Performance Of Common Building Materials



## Pu Metal Insulation Properties

| Items                          | Specifications (+/-)                                     |
|--------------------------------|--|
| Thickness of Pu Foam           | 20mm, 35mm, 50mm   |
| Type of Insulation             | Bonded Rigid Polyurethane                                |
| Insulation Density of Pu Foam  | 36-40kg/m³   |
| Insulation Grade               | CFC Free   |
| K value (Thermal Conductivity) | 0.022w/mK  |
| R value (Thermal Resistance)   | 1.06m² K/W(20mm), 1.45 m² K/W (35mm), 1.92 m² K/W (50mm) |

# Product Specifications

## SENGDEK® SuperRib Pu Metal



|                      |  |
|----------------------|--|
| Effective Width      | 762mm  |
| Depth of Rib         | 25mm   |
| Yield Strength (MPa) | G300/G550  |
| Minimum Roof Pitch   | 3° without end lap                               |
| Tolerance            | Length ± 5mm, Width ±5mm, Thickness of foam ±3mm |

## SENGDEK® MegaRib 35 Pu Metal



|                      |  |
|----------------------|--|
| Effective Width      | 762mm  |
| Depth of Rib         | 35mm   |
| Yield Strength (MPa) | G300/G550  |
| Minimum Roof Pitch   | 1° without end lap                               |
| Tolerance            | Length ± 5mm, Width ±5mm, Thickness of foam ±3mm |

## SENGDEK® Step Euro Pu Metal

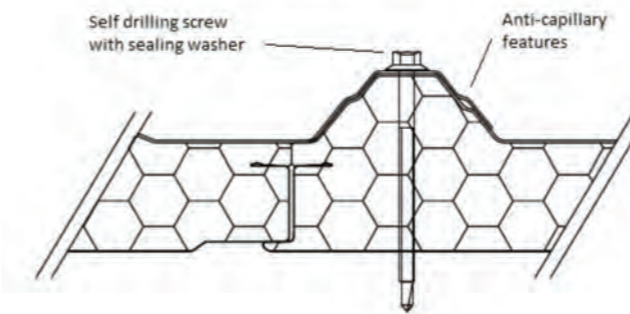


|                      |  |
|----------------------|--|
| Effective Width      | 762mm  |
| Depth of Rib         | 36mm   |
| Yield Strength (MPa) | G300/G550  |
| Minimum Roof Pitch   | 8° without end lap                               |
| Tolerance            | Length ± 5mm, Width ±5mm, Thickness of foam ±3mm |

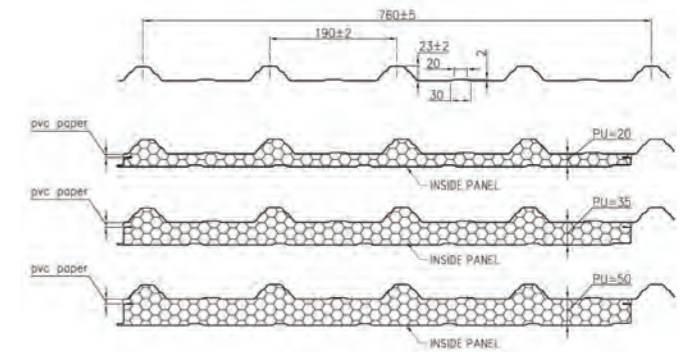
# Dimensions

## SuperRib

### Pu Foam/Foil Overlapping

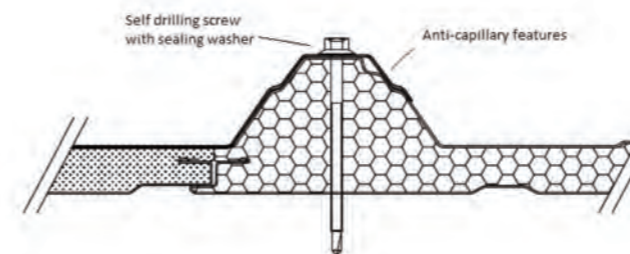


### Pu Metal with foam thickness OPTIONS 20mm/35mm/50mm

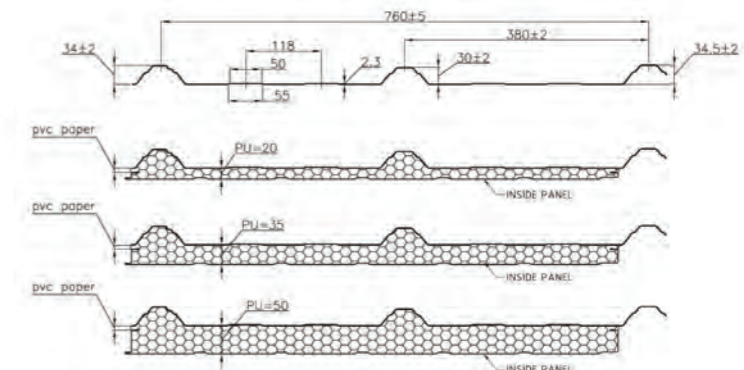


## MegaRib 35

### Pu Foam/Foil Overlapping

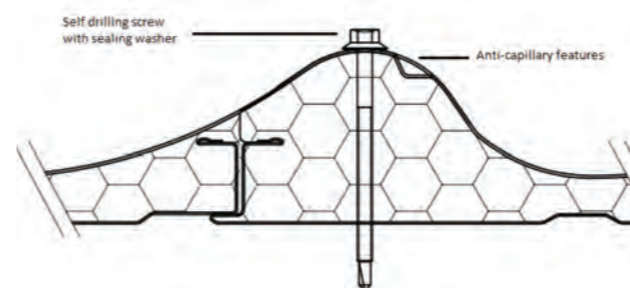


### Pu Metal with foam thickness OPTIONS 20mm/35mm/50mm

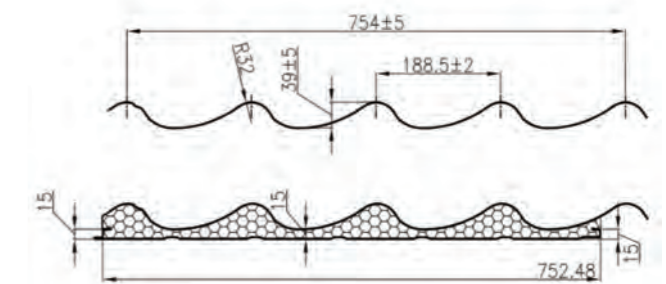


## Step Euro

### Pu Metal Overlapping



### Pu Metal 20mm



# Thickness Availability

| Base Metal Thickness (BMT) | Total Coated Thickness (TCT) | Weight (Kg/m <sup>2</sup> ) | Min Yield Strength (MPa) |
|----------------------------|------------------------------|-----------------------------|--------------------------|
| 0.23mm                     | 0.28mm                       | 2.31                        | Min G300/G550 MPa        |
| 0.25mm                     | 0.30mm                       | 2.46                        | Min G300/G550 MPa        |
| 0.28mm                     | 0.33mm                       | 2.82                        | Min G300/G550 MPa        |
| 0.30mm                     | 0.35mm                       | 2.93                        | Min G300/G550 MPa        |
| 0.35mm                     | 0.40mm                       | 3.46                        | Min G300/G550 MPa        |
| 0.40mm                     | 0.47mm                       | 4.20                        | Min G300/G550 MPa        |
| 0.48mm                     | 0.53mm                       | 4.76                        | Min G300/G550 MPa        |

# Foam Thickness 20/35/50mm

| Thickness | Roof               |                | Wall               |                | Free        |
|-----------|--------------------|----------------|--------------------|----------------|-------------|
|           | Internal Span (mm) | End Span (mm)  | Internal Span (mm) | End Span (mm)  |             |
| TCT (mm)  |                    |                |                    |                | Cantilever  |
| 0.35      | 1800/1900/2000     | 1600/1700/1800 | 2000/2100/2200     | 1800/1900/2000 | 180/200/200 |
| 0.40      | 1900/2000/2100     | 1700/1800/1900 | 2100/2200/2300     | 1900/2000/2100 | 180/200/200 |
| 0.47      | 2000/2100/2200     | 1800/1900/2000 | 2200/2300/2400     | 2000/2100/2200 | 200/250/250 |
| 0.53      | 2200/2300/2400     | 1900/2000/2100 | 2300/2400/2500     | 2100/2200/2300 | 200/250/250 |

# Recommended Roof Length (M)

| Rainfall (mm/h) | Slope in Degree |    |    |    |     |
|-----------------|-----------------|----|----|----|-----|
|                 | 1°              | 3° | 5° | 7° | 10° |
| 150             | 41              | 53 | 64 | 85 | 107 |
| 200             | 33              | 41 | 53 | 64 | 81  |
| 250             | 28              | 33 | 42 | 51 | 65  |
| 300             | 24              | 28 | 32 | 42 | 53  |
| 400             | 7               | 9  | 11 | 11 | 13  |

# POLYURETHANE FOAM

## CLOSED CELL (RIGID) VS OPENED CELL (SEMI RIGID)

| Closed Cell   | Opened Cell   |
|---|---|
| <p><b>Heat and sound insulator</b></p> <ul style="list-style-type: none"> <li>Insulation is based on the closed cell content of foam. The higher the closed cell content, the higher the insulation.</li> <li>The ideal closed cell content is &gt;90% as presented by rigid foam.</li> <li>Rigid foam is suitable to be used as insulator for refrigerator, freezer, sound proof partition and thermal pot. One inch rigid foam able to block at least 70% of heat.</li> </ul> | <p><b>Heat and sound insulator</b></p> <ul style="list-style-type: none"> <li>Semi rigid foam has higher opened cell content than closed cell.</li> <li>The heat and sound can pass through the foam easily.</li> </ul>                                     |
| <p><b>Compressive Strength</b></p> <ul style="list-style-type: none"> <li>Closed cell has stronger cell wall. The cell wall gives the strength to the foam.</li> <li>One square inch foam able to withstand 15kg of load.</li> <li>Easy to screw on a surface and difficult to tear off</li> </ul>  | <p><b>Compressive Strength</b></p> <ul style="list-style-type: none"> <li>Opened cell does not provide even strength to the cell. Subsequently has very low compressive strength.</li> <li>Difficult to screw on a surface because of soft foam.</li> </ul> |
| <p><b>Water absorption</b></p> <ul style="list-style-type: none"> <li>Closed cell foam does not absorb water.</li> <li>Help to prevent leakage</li> </ul>   | <p><b>Water absorption</b></p> <ul style="list-style-type: none"> <li>Absorb water easily like a sponge.</li> <li>The water trapped increases the foam weight and easily tear off from surface.</li> </ul>  |
| <p><b>Lifespan</b></p> <ul style="list-style-type: none"> <li>In terms of insulation, rigid foam has a long lifespan(&gt;20years).</li> </ul>   | <p><b>Lifespan</b></p> <ul style="list-style-type: none"> <li>The oxygen can enter foam easily and accelerate the oxidation (aging) of the foam.</li> <li>The insulation property is deteriorating and foam turns powdery.</li> </ul>                       |