

The Lysaght logo is positioned in the top right corner. It features the word "LYSAGHT" in a bold, white, sans-serif font. A white swoosh underline is positioned beneath the letters "AGHT". The background of the entire page is a dark blue with a faint, technical architectural drawing overlay. A large, diagonal section of the page is filled with a close-up image of the Lysaght HR-29 corrugated metal profile, showing its characteristic high ribs and valleys.

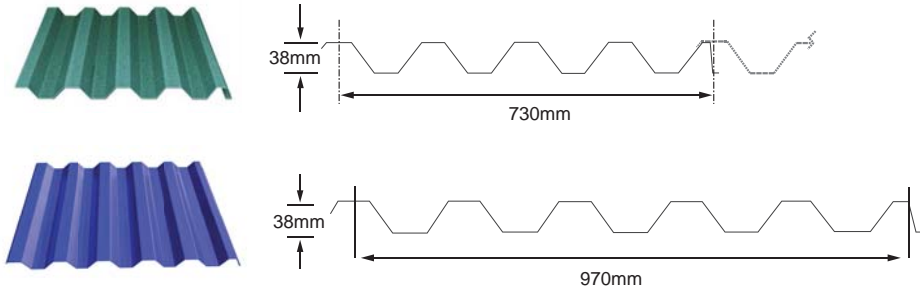
LYSAGHT

LYSAGHT[®] HR-29[®] SERIES

High Rib Roofing &
Wall Cladding Profile for
Optimized Spanning
Capacity



LYSAGHT® HR-29® SERIES



LYSAGHT® HR-29® profile presents itself as a refined roofing and walling solution, perfectly suited for both classical and contemporary architectural styles.

This versatile profile lends itself to seamless integration with various building designs, whether they feature pitched roofs or gracefully curved structures. Its inherent flexibility even allows for large span roofs, effortlessly adapting to the most ambitious architectural visions.

Emphasizing efficiency, the pierce-fastened system of LYSAGHT® HR-29® ensures swift and hassle-free installation, resulting in significant savings in both construction time and installation expenses. Furthermore, the on-site rollforming option grants added convenience during installation, facilitating the production of longer lengths with ease.

Higher Capacity for Water Run Off

The HR-29® Series stands out with its superior water runoff capability compared to other closely pitched trapezoidal profiles. This is attributed to its exceptional rib height and wide valley width, resulting in the highest drainage capacity.

Tested and Trusted Performance

Our commitment to excellence is evident in every aspect of LYSAGHT® HR-29®. Equipped with unique anti-capillary side laps, moisture penetration is effectively prevented, ensuring long-lasting durability and weather resistance. Rest easy knowing your roofing solution meets the highest standards of reliability.

Bold Aesthetics

LYSAGHT® HR-29® provides a modern and visually appealing trapezoidal corrugated appearance, making a striking statement that captivates on any building façade, exudes confidence and adds an impressive touch to your architectural design.

Construction Efficiency

LYSAGHT® HR-29® features an impressive rib depth that offers exceptional rigidity, effectively maximizing the spanning capacity of purlins. Consequently, this reduces the need for a higher number of purlins while maintaining optimal performance.

PHYSICAL PROPERTIES

	STANDARD	NON-STANDARD	
Base Metal Thickness (mm)	0.42	0.55	0.75
Total Coated Thickness (mm)	0.47	0.60	0.80
Mass per Unit Area – COLORBOND® Steel (kg/m ²)			
Cover Width 730mm	4.54	5.85	7.88
Cover Width 970mm	4.43	5.71	7.69
Mass per Unit Area – ZINCALUME® Steel (kg/m ²)			
Cover Width 730mm	4.46	5.78	7.80
Cover Width 970mm	4.36	5.64	7.61
Coating Class (min)	AZ150		
Grade of Steel (MPa)	G550 (550MPa minimum yield stress)		
Effective Cover Width	730mm & 970mm		
Rib Depth	38mm		
Min Recommended Roof Pitch/ Slope	2° (1 in 20)		
Tolerances	Length ±15.0mm / Width ± 2.0mm		
Custom Cut Lengths	Any measurement to a maximum transportable length. Long length is available for roll on site.		



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MAXIMUM ALLOWABLE SUPPORT SPACING

The maximum recommended support spacing are based on testing in accordance with AS1562.1, AS4040.0 and AS4040.1. Roof spans consider both resistance to wind pressure and light foot traffic (traffic arising from incidental maintenance). Wall spans consider resistance to wind pressure only.

Type of Span	BASE METAL THICKNESS (BMT)		
	(mm)		
	0.42	0.55	0.75
Roofs (mm)			
Single Span	Not suitable	1500	2100
End Span	1700	2100	3800
Internal Span	2200	3100	4600
Unstiffened Eaves Overhang	150	200	250
Stiffened Eaves Overhang	300	350	400
Walls (mm)			
Single Span	3600	3600	3600
End Span	3900	3900	3900
Internal Span	4500	4500	4500

* The above table is based on cover width of 730mm.

- For roofs: the data are based on foot-traffic loading.
- For walls: the data are based on pressures (see wind pressures table).
- Table data are based on supports of 1mm BMT.
 Basic wind speed (Strength Limit State) = 57m/sec
 Terrain category co-efficient = 0.83
 Shielding factor = 0.85
 Topography factor = 1
 Design wind speed Strength Limit State (with above factors) = 40.2m/sec
 Basic wind speed (Strength Limit State) = 40m/sec
 Terrain category co-efficient = 1
 Shielding factor = 1
 Topography factor = 1
 Design wind speed Strength Limit State (with above factors) = 40m/sec

Walls

$C_{pe} = -0.65$, $K_1 = 2$ for single and end spans, $K_1 = 1.5$ for internal spans
 $C_{pi} = +0.2$

Roofs

$C_{pe} = -0.9$, $K_1 = 2$ for single and end spans, $K_1 = 1.5$ for internal spans
 $C_{pi} = +0.2$

These spacings may vary by Serviceability and Strength Limit States for particular projects.

MAXIMUM ROOF LENGTHS FOR DRAINAGE MEASURED FROM RIDGE TO GUTTER (m)

Peak Rainfall Intensity (mm/hr)	Roof Slope (degrees)					
	2	3	4	5	7.5	10
150	136	155	172	187	216	243
200	102	117	129	140	162	182
250	82	93	103	112	130	146
300	68	78	86	93	108	121
400	51	58	64	70	81	91

* The above table is based on cover width of 730mm.

Penetrations will alter the flow of water on a roof. For assistance in design of roofs with penetrations, please seek advice from Lysaght representative.

LIMIT STATE WIND PRESSURE CAPACITIES (kPa)

0.42mm BMT														
TYPE OF SPAN	LIMIT STATE	FOR ROOFS (c/c) SPAN (mm)												
		900	1200	1500	1800	2100	2400	2700	3000	3300	3600	3900	4200	4500
Single	Serviceability	4.27	3.56	2.89	2.29	1.76	1.33	1.00	0.77	0.60	0.46	-	-	-
	Strength*	6.60	5.50	4.60	3.50	2.70	2.10	1.65	1.40	1.25	1.20	-	-	-
End	Serviceability	4.70	4.03	3.39	2.79	2.25	1.80	1.43	1.15	0.93	0.75	0.60	-	-
	Strength*	7.30	5.75	4.50	3.55	2.80	2.30	1.90	1.70	1.60	1.55	1.50	-	-
Internal	Serviceability	6.20	5.31	4.44	3.64	2.92	2.32	1.85	1.49	1.24	1.05	0.90	0.79	0.69
	Strength*	8.10	6.85	5.70	4.65	3.75	3.10	2.65	2.45	2.30	2.20	2.00	1.75	1.50

0.55mm BMT														
TYPE OF SPAN	LIMIT STATE	FOR ROOFS (c/c) SPAN (mm)												
		900	1200	1500	1800	2100	2400	2700	3000	3300	3600	3900	4200	4500
Single	Serviceability	5.56	4.65	3.78	3.00	2.31	1.75	1.32	1.01	0.77	0.58	-	-	-
	Strength*	8.35	7.00	5.70	4.55	3.55	2.80	2.20	1.85	1.55	1.40	-	-	-
End	Serviceability	5.80	5.00	4.24	3.52	2.87	2.33	1.89	1.56	1.30	1.08	0.90	-	-
	Strength*	8.70	7.25	6.10	5.15	4.40	3.80	3.30	2.90	2.65	2.40	2.20	-	-
Internal	Serviceability	7.00	5.96	4.97	4.06	3.26	2.62	2.15	1.83	1.61	1.43	1.25	1.07	0.89
	Strength*	9.80	8.60	7.45	6.40	5.45	4.60	3.90	3.30	2.90	2.60	2.35	2.20	2.10

0.75mm BMT														
TYPE OF SPAN	LIMIT STATE	FOR ROOFS (c/c) SPAN (mm)												
		900	1200	1500	1800	2100	2400	2700	3000	3300	3600	3900	4200	4500
Single	Serviceability	10.04	8.15	6.38	4.79	3.44	2.39	1.67	1.23	0.97	0.80	-	-	-
	Strength*	12.00	12.00	9.90	7.85	6.15	4.80	3.80	3.20	2.80	2.50	-	-	-
End	Serviceability	10.90	9.15	7.48	5.92	4.56	3.46	2.46	2.08	1.72	1.47	1.30	-	-
	Strength*	11.00	9.35	8.00	6.85	5.85	5.10	4.40	2.85	3.40	2.95	2.60	-	-
Internal	Serviceability	12.00	10.10	8.27	6.60	5.14	3.99	3.17	2.63	2.28	2.03	1.79	1.57	1.35
	Strength*	12.00	10.60	9.20	7.95	6.80	5.80	4.95	4.30	3.80	3.50	3.25	3.10	3.00

* The above tables are based on cover width of 730mm.

* A capacity reduction factor of 0.9 is applied to strength capacities.

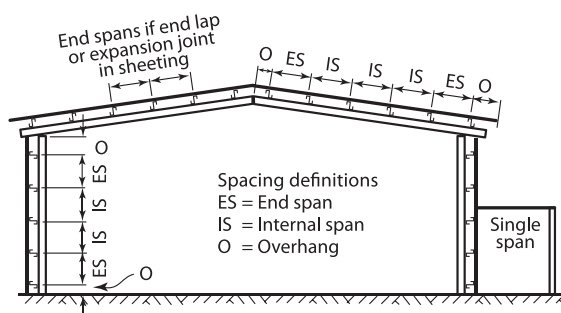
These capacities are based on tests conducted at BlueScope Steel's NATA registered testing laboratory using a direct pressure testing rig. Supports must not be less than 1mm BMT.

LIMIT STATES WIND PRESSURES

The wind pressure capacities are based on tests conducted at BlueScope Lysaght's NATA-registered testing laboratory. Testing was conducted in accordance with AS 1562.1 - 1992 Design and Installation of Sheet Roof and Wall Cladding - Metal, and AS 4040.2 - 1992 Resistance to Wind Pressure for Non-cyclonic Regions.

The pressure capacities for serviceability are based on a deflection limit of $(\text{span}/120) + (\text{maximum fastener pitch}/30)$.

The pressure capacities for strength have been determined by testing the cladding to failure (ultimate capacity). These pressures are applicable when the cladding is fixed to a minimum of 1.0mm, G550 steel.



METHOD STATEMENT AND GENERAL NOTES

WALKING ON ROOFS

Keep your weight evenly distributed over the soles of both feet to avoid concentrating your weight on either heels or toes. Always wear smooth soft-soled shoes; avoid ribbed soles that pick up and hold small stones, swarf, and other objects.

Whatever direction you walk, always walk in the pans. When walking across the width of the roof, walk over, or close to, the roof supports

ADVERSE CONDITIONS

If this product is to be used in marine, severe industrial, or unusually corrosive environments, ask for advice from our Lysaght representative.

METAL & TIMBER COMPATIBILITY

Lead, copper, free carbon, bare steel and green or some other chemically treated timbers are not compatible with this product. Don't allow any contact of the product with those materials, nor discharge of rainwater from them onto the product. Supporting members should be coated to avoid problems with underside condensation. If there are doubts about the compatibility of other products being used, ask for advice from our Lysaght representative.

MAINTENANCE

Optimum product life will be achieved if all external walls are washed regularly. Areas not cleaned by natural rainfall (such as the tops of walls sheltered by eaves) should be washed down every six months.

SAFETY, STORAGE AND HANDLING

LSYAGHT's product may be sharp and heavy. It is recommended that heavy-duty cut resistant gloves and appropriate manual handling techniques or a lifting plan be used when handling material.

Keep the product dry and clear off the ground. If stacked or bundled product becomes wet, separate it, wipe it with a clean cloth to dry thoroughly.

Handle materials carefully to avoid damage: don't drag materials over rough surfaces or each other; don't drag tools over material; protect from swarf.

CUTTING

For cutting thin metal on site, we recommend a circular saw with a metal cutting blade because it produces fewer damaging hot metal particles and leaves less resultant burr than a carborundum disc does.

Cut materials over the ground and not over other materials. Sweep all metallic swarf and other debris from roof areas and gutters at the end of each day and at the completion of the installation. Failure to do so can lead to surface staining when the metal particles rust.

FASTENERS

LYSAGHT® HR-29® Series requires 3 fasteners per sheet per support as shown below. Fastener should comply to AS3566, Class 3 or Class 4.

	Type of Fastener	Drilling Capacity	Maximum Attachment
Crest fixed	12 - 14 x 55 HGS	6.5mm	40mm
	12 - 14 x 68 HGS	6.5mm	53mm
Valley fixed	12 - 14 x 20 HGS	6.5mm	<6mm
	12 - 14 x 30 HGS	6.5mm	<16mm
Side lap fixing	10 - 16 x 16 HGS	4.5mm	1.2 - 4.5mm

Roof - Screw fix through rib



Wall - Screw fix through pan



FASTENING SHEETS TO SUPPORTS

LYSAGHT® HR-29® Series profile is pierced-fixed to timber or steel supports. This means that fastener screws pass through the sheeting.

You can place fasteners for LYSAGHT® HR-29® Series through the crests or in the pans. To maximize watertightness, always place roof fasteners through the crests.

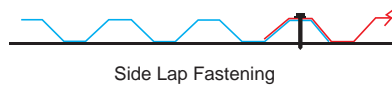
Always drive the fasteners perpendicular to the sheeting, and in the center of the corrugation or rib. Don't place fasteners less than 25mm from the ends of sheets.

SEALED JOINTS

For sealed joints use screws or rivets and neutral-cure silicone sealant branded as suitable for use with galvanized or ZINCALUME® steel.

SIDE-LAPS

The side of LYSAGHT® HR-29® Series with the anti-capillary groove is always the underlap (see figures below). It is generally considered good practice to use fasteners along side-laps. However, when cladding is supported as indicated in Maximum Support Spacings, side-lap fasteners are not usually needed for strength.



END LAPS

End-laps are not usually necessary because LYSAGHT® HR-29® Series is available in long lengths. If you want end-laps, seek advice from our Lysaght representative on the sequence of laying and the amount of overlap.

END OF SHEETS

It is usual to allow roof sheets to overlap into gutters by about 50mm. If the roof pitch is less than 25° or extreme weather is expected, the pans of sheets should be turned-down at lower ends and turned-up at upper ends by about 80°.

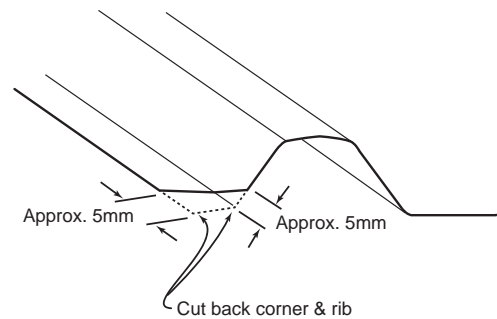
LAYING PROCEDURE

For maximum weather-tightness start laying sheets from the end of the building that will be in the lee of worst-anticipated or prevailing weather.

It is much easier and safer to turn sheets on the ground than up on the roof.

Before lifting sheets on to the roof, check that they are the correct way up and the overlapping side is towards the edge of the roof from which installation will start.

Place bundles of sheets over or near firm supports, not at mid span of roof members.



SHEET-ENDS ON LOW SLOPES

When LYSAGHT® HR-29® Series is laid on slopes of 5 degrees or less, cut back the corner of the under-sheet, at the downhill end of the sheet, to block capillary action.

INSTALLATION METHOD

1. When lifting roofing sheets onto roof frames for installation, make sure all male and/or female ribs face the same direction. If not, sheets will have to be turned end-for-end during fixing.

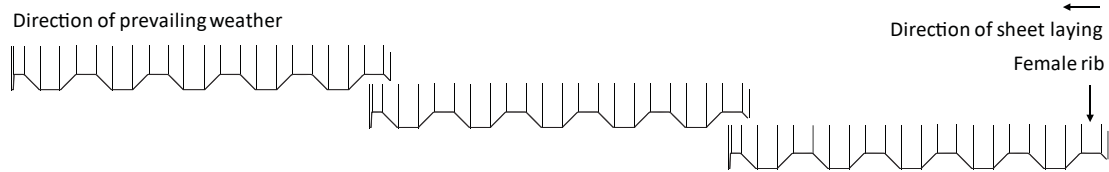
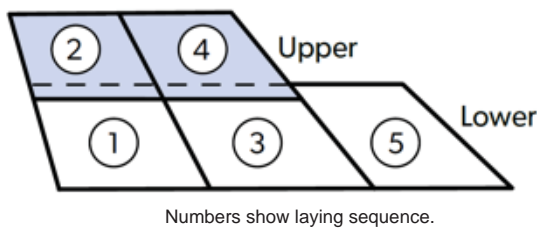


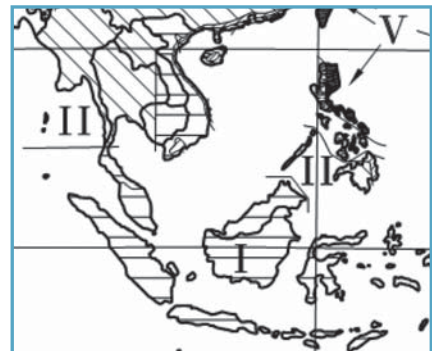
Figure 5

2. The first sheet of LYSAGHT® HR-29® Series profile must be positioned with care before fastening with hex head self-tapping screws to ensure that it lies straight and square.
3. When the first sheet of LYSAGHT® HR-29® Series profile is fastened to positions, a string line can be stretched across the lower end of the roof alignment. The line will then be used as a guide for the subsequent installation of roof panels.
4. Position and fasten the next roofing sheet to each support of the male rib of the installed sheet. Place the second sheet over the second run of the roofing sheets and fastened the sheets together before proceeding to the next sheet.
5. Make sure the side lapping is installed correctly. The side rib with the longitudinal anticapillary flute (male rib) is supposed to be covered by the side rib without a longitudinal flute (female rib).
6. Each sheet should be fully fastened before proceeding to the next sheet. The side lap with preceding sheet should be fastened last.
7. In the case that two or more shorter sheets are installed to provide full length coverage due to handling or transport considerations, lay each complete line of sheets in turn from gutter/ eaves to ridge, as shown in the diagram.



NON-CYCLONIC AREAS

The information in this brochure is suitable for use only in areas where a tropical cyclone is unlikely to occur as defined in AS 1170.2-2002. Map and table (below) taken from HB212-2002.



Wind speeds versus return period (3 s gusts, 10 m height, open country terrain)				
Handbook Level	Description	Equation for V_R	V_{50}	V_{500}
I	Strong thunderstorms and monsoon winds	$70 - 56R^{-0.1}$	32	40
II	Moderately severe thunderstorms and extra-tropical gales	$67 - 41R^{-0.1}$	39	45
III	Severe thunderstorms and moderate or weakening typhoons/tropical cyclones	$106 - 92R^{-0.1}$	44	57
IV	Strong typhoons/ tropical cyclones	$122 - 104R^{-0.1}$	52	66
V	Very strong typhoons/ tropical cyclones	$156 - 142R^{-0.1}$	60	80

Table summarises the proposed relationships between 3 s gust wind speed and return period for the five levels in the handbook (see map). The values are for 50 years and 500 years return periods.

Note: All the product images used in this brochure are for reference purposes only and does not reflect the actual configuration of the product. Kindly note that the product images are indicative and for illustration purposes only. Lysaght reserves the right to make any change to product images without prior notice. For accurate and up-to-date information, seek advice from Lysaght representative.

STRONG BRANDS, QUALITY MATERIALS

LYSAGHT® products are made of highest quality material, namely COLORBOND® steel and ZINCALUME® steel which are the leading materials for external cladding application. COLORBOND® steel and ZINCALUME® steel have been used on countless buildings to portray modern architecture works of art, ranges from the classic roofing to advance façade for industrial, commercial and residential buildings.



COLORBOND® steel is a pre-painted finished product with ZINCALUME® steel substrate to deliver both superior corrosion resistance and excellent colour performance.

It comes with the THERMATECH® solar reflectance technology and Clean technology to minimize tropical dirt staining while lowering urban heat island effect, delivering longevity and minimal maintenance to your external cladding.

COLORBOND® steel is backed by a material warranty of up to 25 years*

Product Attributes

- Pre-painted finish on top of ZINCALUME® steel substrate to deliver superior corrosion resistance.
- Superior primer technology which prevents paint delamination.
- Proprietary super polyester paint system proven to provide excellent colour performance.
- Clean technology incorporated to resist against tropical dirt staining.
- THERMATECH® solar reflectance technology to allow for lower temperature cladding.
- Wide varieties of colours and finishes to cater for your building design needs.



ZINCALUME® steel is a metallic coated steel product composed of 55% aluminium, 43.5% zinc and 1.5% silicon (aluminium-zinc alloy coating) that can provide superior corrosion resistance for your external cladding, with expected lifespan that's four times the life of generic alternatives (GI).

ZINCALUME® steel is backed by a material warranty of up to 25 years*

Product Attributes

- Superior corrosion resistance due to the minimum coating class of AZ150.
- Initial resistance to surface marking and wet storage corrosion due to the proprietary clear resin coating.
- Better aesthetics compared to generic alternatives (Al-Zn) due to less surface darkening, afforded by the proprietary clear resin coating.
- Lightweight and thermally efficient compared to conventional roofing materials (e.g. concrete and clay tiles)
- Excellent flexibility in design as steel can be bent and curved to form truly unique designs.

**Warranty terms and conditions apply*

This material warranty may vary to buildings nearer to marine or industrial environment and is subjected to prior agreement by BlueScope. For full terms and conditions and to determine the eligibility of your project for the warranty, please contact your Key Account Manager.

There are different internal and external environments affecting the longevity of COLORBOND® steel and ZINCALUME® steel, hence feel free to consult our material experts for more specialized recommendations.

Examples of recommendations:

- Direct contact between COLORBOND® steel or ZINCALUME® steel with copper, lead and stainless steel should be avoided.

If condensation on the reverse side of roofing sheet is likely, vapour barrier should be installed to shield COLORBOND® steel or ZINCALUME® steel from prolonged exposure to the condensation (moisture).

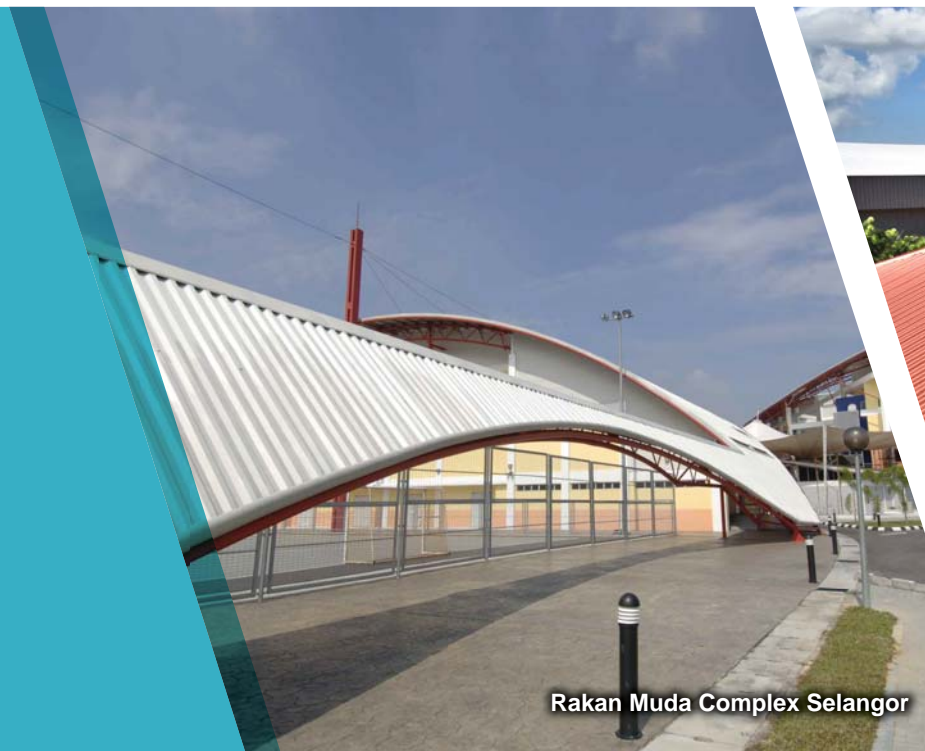
REFERENCES



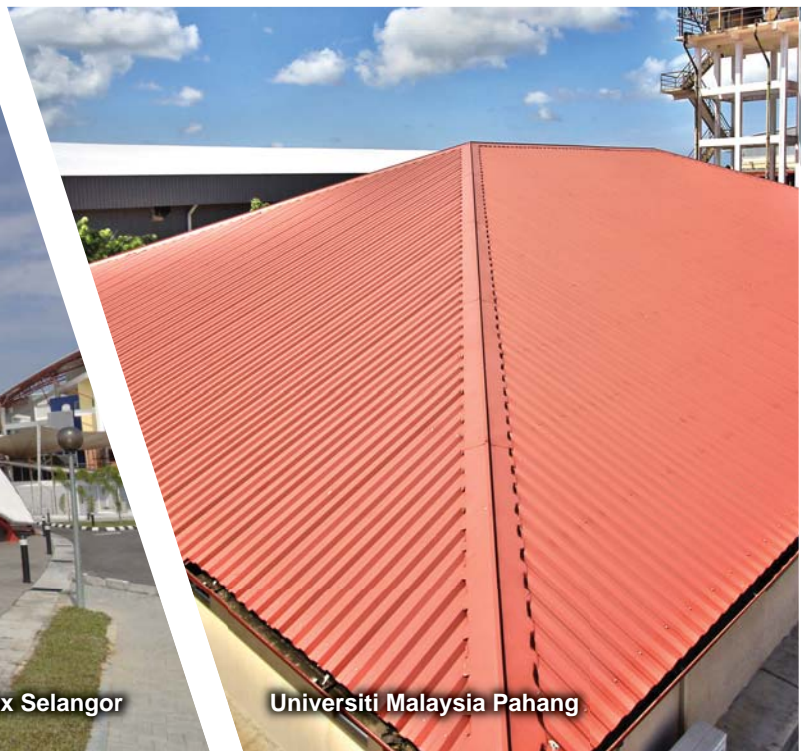
IKEA Cheras, Batu Kawan Penang & Tebrau Johor



Perodua Sentral Petaling Jaya



Rakan Muda Complex Selangor

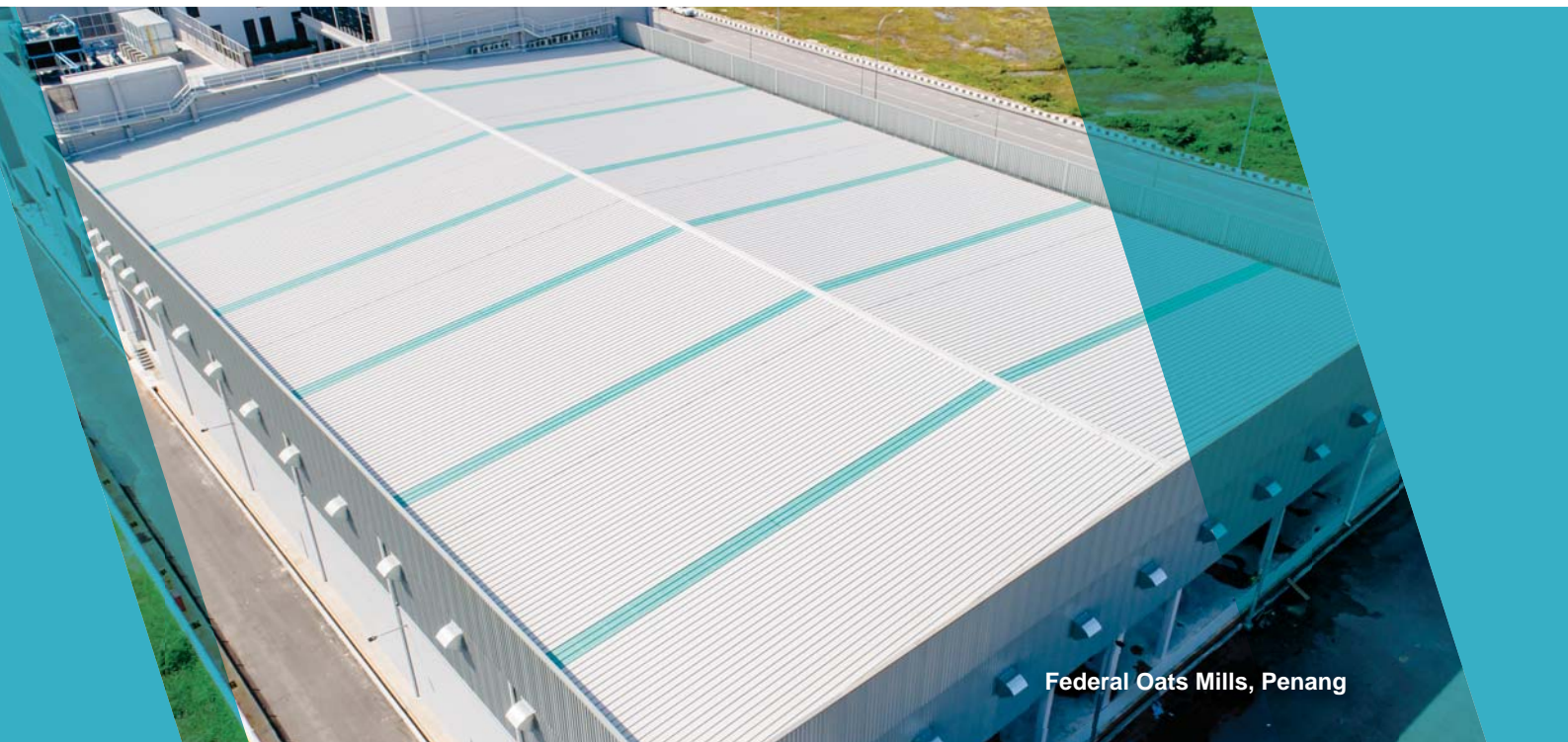


Universiti Malaysia Pahang

REFERENCES



Federal Oats Mills, Penang



Federal Oats Mills, Penang



COATING



COLOUR CHOICES



DESIGN FLEXIBILITY



DURABILITY / SECURITY



HI-TECH PRODUCTION



RECYCLING



TERMITE PROOF



THERMAL EFFICIENCY



WARRANTY



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Feb 2024