



LCP K-CLAD[®]

Metal Roof & Wall Cladding System



Integrity In **Partnership**



CERT NO. FM 59595
BS EN ISO 9001 : 2008



FEATURES

LCP K-CLAD® combines economy, practicability and modern appearance to produce a light weight roofing and walling profile, suitable for a wide variety of application.

AESTHETICALLY PLEASING & COST EFFECTIVE

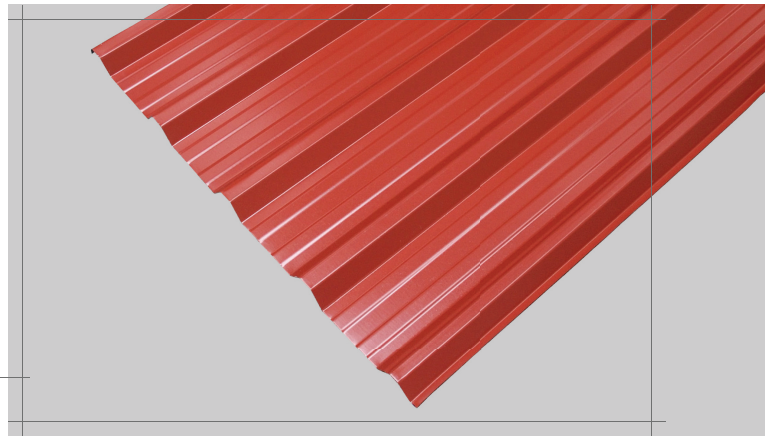
- ▶ Economical – unique blend of characteristics provides a low installed cost
- ▶ Simple Installation – through fixing and easy notching of flashings.
- ▶ 740mm Cover – quick installation and easy handling.
- ▶ Hi-Tensile Steel – light weight and high strength.
- ▶ Deep Ribs – provide excellent spanning capability with good water carrying capacity.
- ▶ Domed Crest – provides greater foot traffic performance.
- ▶ Anti-Capillary Side Laps – gives improved weather performance.
- ▶ 3° Minimum Pitch – reduces support structures.
- ▶ Fully Tested – a full range of load performance tables to suit almost any application.
- ▶ Also Available Crimped Curved – to suit even more architectural applications.
- ▶ On-site roll forming capabilities.

MATERIALS

K-CLAD® is a cold roll formed roof and wall cladding. Steel product is G550 base material (550MPa minimum yield stress), with a ZINCALUME® (AZ200) coating, in accordance with AS1397, and COLORBOND® is available in a number of colours.

ADVERSE CONDITIONS

If it is intended to use LCP Building Products Pte. Ltd. roofing, walling or rainwater products within 1km of salt marine or industrial and unusually corrosive environments, please contact your LCP Building Products Pte. Ltd. office for advice.



COLOUR/AVAILABILITY

LCP K-CLAD® is normally stocked in standard thickness in zinc-aluminium coated steel, ZINCALUME® steel as well as a wide range of colours in pre-painted zinc-aluminium coated steel and Clean COLORBOND® steel. Please Check with LCP Building Products Pte. Ltd. Technical Department for specific colour availability.

COMPATIBILITY

Lead flashing should not be used in conjunction with zinc-aluminium coated steel, pre-painted zinc-aluminium coated steel, ZINCALUME® steel or Clean COLORBOND® steel sheeting. Drainage from zinc-aluminium coated steel, pre-painted zinc-aluminium coated steel, ZINCALUME® steel or Clean COLORBOND® steel roofing (inert material) should not be allowed to discharge onto galvanised rainwater components. Drainage from copper roofing should not be allowed to discharge onto zinc-aluminium coated steel, pre-painted zinc-aluminium coated steel, ZINCALUME® steel, Clean COLORBOND® steel or aluminium rainwater components. Any of these combinations can result in premature corrosion.

ROOF PITCH

The water carrying capacity of LCP K-CLAD® allows for a minimum recommended slope of 3° (1 in 19). It is imperative that this minimum is adhered to at all points of the roof to prevent ponding from occurring. The 3° minimum pitch may be used for roofing run lengths up to 40m for rainfall intensities of up to 250mm/hr. Where alternative design rainfall intensities are known or required, contact LCP Building Products Pte. Ltd., Technical Department for revised slope calculations. Please note however that in most locations, roofs with a slope of 5° or more generally have an improved life, as debris is more readily washed away. Where primary roof or downpipe outlet discharges directly onto a secondary roof, damming, splashing or a standing wave may form which may need special design attention to prevent water intrusion. Care must also be taken for roofs with skylight, vents etc, where the water flow from several pans may be concentrated into just one or two pans and standing waves may again occur.

ARCHITECTURAL SPECIFICATION

The roofing and/or wall cladding metal sheets shall be 0.42mm BMT (i.e. 0.48mm TCT) or 0.48mm BMT (i.e. 0.54mm TCT) **LCP K-CLAD®** as produced by **LCP Building Products Pte. Ltd.**, with trapezoidal ribs of 27mm high, spaced at 185mm centres. The effective cover width for the metal sheets shall be 740mm.

The sheeting material shall be ZINCALUME® protected steel sheet to Australian Standard AS1397 with a minimum yield stress of 550MPa (Grade G550), metallic hot-dip coated with ZINCALUME® zinc/ aluminium alloy- coated steel comprising 55% aluminium, 43.5% zinc and 1.5% silicon. The minimum coating mass for the ZINCALUME® zinc/aluminium alloy - coated steel shall be AZ200 (200 g/m² minimum coating mass) as determined by Australian Standard AS1397.

Wherever applicable, the installation of the metal sheets shall be in accordance to the "Installation code for metal roofing and wall cladding; Standards Australia SAA HB39-1997". The sheets shall be installed in accordance to manufacturer's recommendations. The fasteners used to secure the metal sheets to the supports shall conform to Australian Standard AS3566 and be compatible with the roofing material used.

Sheets shall be laid in such a manner that the approved side lap faces away from the prevailing weather. A minimum of 50mm shall be provided for projection into gutters. Flashings shall be supplied in compatible materials as specified, minimum cover of flashing shall be 150mm.

All sheets shall be fixed in a workman like manner, leaving the job clean and weather-tight. All debris (nuts, screws, cuttings, filings etc.) shall be cleaned off daily.

COLOUR COATING OPTIONS

Clean COLORBOND® pre-painted steel is resistant to dirt pick-up and staining. The various categories of Clean COLORBOND® pre-painted steel finishes offers excellent gloss and long lasting life span to the roof and wall cladding.

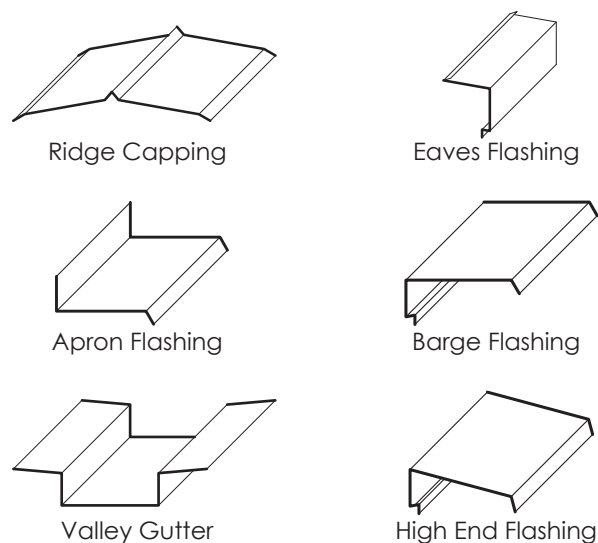
The following Clean COLORBOND® pre-painted steel finishes are available:

1. **Clean COLORBOND® Steel** (Used for exterior applications in benign / moderate environments.)
2. **Clean Colorbond® Ultra Steel** (Used for severe applications that require premium durability.)



FLASHING DETAIL

When designing the flashing, the rib needs to be taken into account. The shape of the rib affects how the flashing interface is designed and installed.

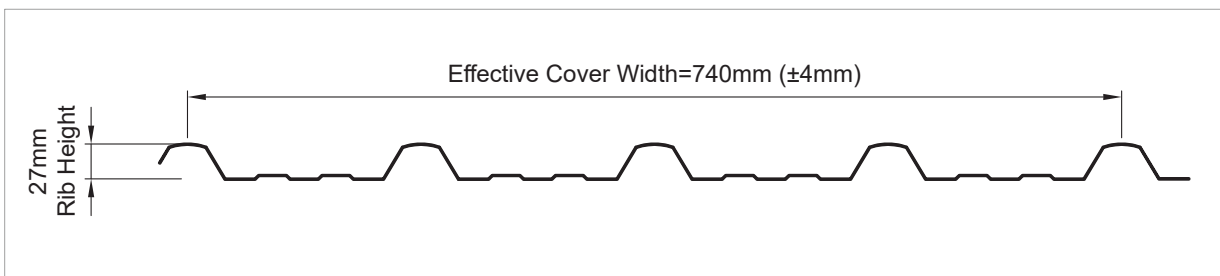
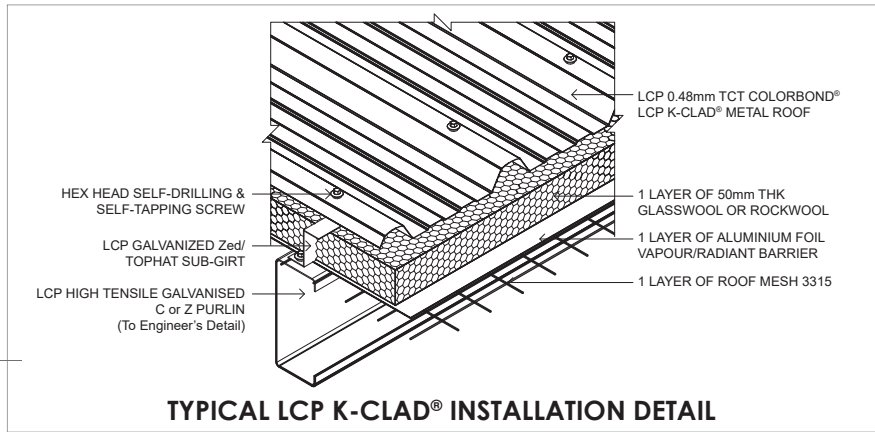


Typical common flashing used. Full range of flashings is available.

TYPICAL ROOF

Note: For other types of roof build-up, please contact **LCP Building Products Pte. Ltd.**, Technical Department.

Applications requiring acoustic performance are also available upon request.



INSTALLATION

All roof slopes require a turn up at the top of the sheet, and also need to be turned down at the low end. This is best achieved using a **LCP K-CLAD®** Stop Ending Tool. For maximum protection from weather intrusion the sheets should be laid with the exposed edge of the overlaps away from the direction of the prevailing weather.

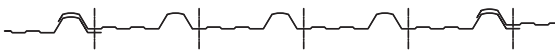
Fastener Locations:-

LCP K-CLAD® is usually fixed at every rib on each batten/purlin, i.e., 4 fasteners per sheet. This enables maximum performance and efficiency of the roof system.

CREST FASTENER POSITIONS (ROOF)



PAN FASTENER POSITIONS (WALL)



Ensure sheets sit correctly before fixing so that the integral anticapillary space is effective. Side laps should be fastened at mid span for roof spans exceeding 900mm and wall spans exceeding 1200mm.

FOOT TRAFFIC

When walking on **LCP K-CLAD®** always wear clean, non-marking and flat rubber soled shoes. Avoid unnecessary foot traffic and walk on the flat of the panel at or near the supporting roof structural members as much as possible. Do not use the roof panel as a working platform.



TECHNICAL SPECIFICATION

PROPERTIES

LCP K-CLAD® Mass/Thickness Chart

Thickness		Material Mass kg/m ² of Roof Cover		
BMT (mm)	TCT* (mm)	Zincalume®	Galvanised	Colorbond®
0.42	0.48	4.28	4.44	4.35
0.48	0.54	4.87	5.02	4.94

*TCT (Total Coat Thickness) values are based on Zincalume coating and are nominal only.

MAXIMUM SPAN CHART

LCP K-CLAD® - Sheltered Sub-Urban and other condition as noted below

Thickness		Roofs Spans (mm)			Wall Spans (mm)			Overhang (Roof & Wall)	
BMT (mm)	TCT (mm)	Double Spans	Equal Spans	Internal (End Span) * Combination	Double Spans	Equal Spans	Internal (End Span) * Combination	Unstiffened	Stiffened
0.42	0.48	1350	1350	1700 (1350)	2000	1850	2550 (2000)	150	400
0.48	0.54	1650	1650	2100 (1650)	2250	2050	2850 (2250)	200	500
- Exposed Sub-Urban and other condition as noted below									
0.42	0.48	1350	1350	1700 (1350)	1750	1600	2200 (1750)	150	400
0.48	0.54	1650	1650	2100 (1650)	1950	1800	2450 (1950)	200	500

CONDITIONS The maximum span charts cover only applications defined in AS1170.2 – 1989 Section 2 as per the region and exposures noted on each chart, and of no more than 10m in height, and shall apply only to enclosed buildings of less than 1000m² in plan area. The spans listed are based on the testing requirements of AS1562 for both foot traffic and wind loadings, and assume both the end and first internal span to be subject to local pressure zone factors.

* : For optimum spanning capacity, end spans are shorter than internal spans in a fixed ratio, (End Span = 0.8 × Internal Span). The Internal/End Span combinations shown must only be used in this specific ratio, rounded to the nearest 50mm.

PERFORMANCE

LCP K-CLAD® Permissible Wind Pressure (kPa)

Thickness		Span Type	Maximum Span for Foot Traffic Limitation	Internal Span (End Span) Combination (mm) ‡						
BMT (mm)	TCT (mm)			(750) 900	(1000) 1200	(1250) 1500	(1500) 1800	(1750) 2100	(2000) 2400	(2250) 2700
0.42	0.48	Internal (End)	1700 (1350)	4.09	3.07	2.46	2.02	1.27	0.85	0.60
		Equal	1350	3.59	2.67	1.37	0.79	0.50	-	-
		Double	1350	3.27	2.46	1.75	1.01	0.64	-	-
		Single	800	3.36	1.42	0.73	0.42	-	-	-
0.48	0.54	Internal (End)	2100 (1650)	4.68	3.51	2.81	2.34	1.81	1.21	0.85
		Equal	1650	4.10	3.08	1.95	1.13	0.71	0.48	-
		Double	1650	3.74	2.81	2.25	1.44	0.91	0.61	-
		Single	1000	4.78	2.01	1.03	0.60	-	-	-

Loads have been determined from testing to AS1562 – Design and Installation of Metal Roofing.

‡ : Spans shown in brackets are the end spans to be used in conjunction with the internal spans shown.

Note: Spans shown in shaded (■) area are not suitable for trafficable roofs.

MANUFACTURING and CONSTRUCTION

ORDERING

When ordering, please have the following information available to ensure a speedy processing of your requirements:

- ▶ Customer/Company name, address, phone number & fax number.
- ▶ Contact person name & phone number.
- ▶ Name of Product (e.g. **LCP K-CLAD®**) and material (e.g. G550 steel). Thickness of product (e.g. 0.48mm TCT).
- ▶ Coating or Colour (e.g. Clean **COLORBOND®**: Enduring White colour).
- ▶ Number/quantity and length of sheets (e.g. 10 pieces of 5 metres length per piece).
- ▶ Flashing – style, quantity and colour.
- ▶ Delivery address (e.g. No. 10 Telok Kurau Lane, Singapore).
- ▶ Delivery date & preferred time
- ▶ Site access (please specify whether current access to delivery location would permit entry by standard 12 metres length flat-bed trailers).
- ▶ Cranage requirement (please specify whether crantage will be required at site).

LENGTH

The sheets are manufactured at **LCP Building Products Pte. Ltd.** factory or on construction site. The length of the sheet is a function of design requirements, geometry of the roof (i.e. curving or other factors), site conditions and workability and transportation constraints.

Lengths specified must be actual site measurements and not plan dimensions. The length should be measured accurately, and allowance should be made for clearance at the ridge (unless the sheet is continuous over the ridge) of normally around 50mm. At the eaves, the overhang allowed for into the gutter which is normally not less than 50mm. Where a "step down" or expansion joint is incorporated into the roof an allowance of not less than 300mm should be added. The tolerance of the length of product supplied is +0, -15mm.

LAPPING

The minimum end lap should be 250mm when lapping metal to metal and 300mm when lapping metal to polycarbonate or fiberglass.

FLASHING

Standard flashings are readily available for use with **LCP K-CLAD®** roofing. **LCP Building Products Pte. Ltd.** will give design advice for flashing details and will manufacture the required flashing.

DELIVERY

Delivery can normally be made within 2 or 3 days, subject to the delivery location and material availability. Please assist us to provide undamaged product by ensuring that suitable arrangements have been made for truck unloading. When lifting sheeting by crane, care should be taken to ensure that the load is spread to prevent sheeting damage. Where a crane is not available, sufficient labour must be supplied to assist in manual unloading.

HANDLING

LCP K-CLAD® should be handled with care at all times to preserve the quality of the finish. Packs should always be kept dry and stored above ground level whilst on site. If however the sheets have become wet then they should be separated, wiped and placed in the open to aid in drying.

FASTENERS

All fasteners should conform with AS3566 and be compatible with the roofing material used.

Crest Fixing:

For Steel purlins, use No. 12 × 45mm Hex Head self drilling, self tapping screws with neoprene washers.

For Timber, use No. 12 × 65mm Hex Head self drilling Type 17 screws with neoprene washers, (for F11 grade timber or better).

Pan Fixing:

For Steel purlins/girts, use the No. 10 × 16mm hex head self drilling, self tapping screws with neoprene washers.

For Timber (F11 grade timber or better), use No. 10 × 25mm hex head Type 17 screws with neoprene washers.

Side Laps:

Use the No. 8 × 12mm Hex Head "S" point screws with neoprene washers or Monel metal sealed pop rivets.

Do not overtighten screws, ensure they are kept upright and that neoprene washers remain in position during installation. A range of "Cyclone" caps are available for even better wind load performance. Increase screw length by 10mm for installation on softwood applications. Lead head nails must not be used.

CUTTING

Sheeting can be cut, where necessary, by means of metal snips or electric nibbler. The use of cutting discs should be avoided but if it is used, the Clean **COLORBOND®** pre-painted steel sheeting should be placed downwards, or carefully shielded, to minimize the risk of hot filings embedding in the painted surface.

CLEAN UP

Ensure that all debris, nails, rivets, screws, rags, and especially filings & particles from cutting or drilling, are carefully cleared from the surface after each day's work or premature corrosion could occur.

IMPORTANT NOTE: The information published in this brochure is as far as possible accurate at the date of publication, however, prior to application in a particular situation, **LCP Building Products Pte. Ltd.** recommends that you obtain qualified expert advice confirming the suitability of product(s) in question for the application proposed. While **LCP Building Products Pte. Ltd.** accepts its legal obligations, be aware however that to the extent permitted by law, **LCP Building Products Pte. Ltd.** disclaims all liability (including liability for negligence) for all losses and damages resulting from the use of the information provided in this brochure.



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