



LCP MULTIDECK[®] 90

Metal Roof & Wall Cladding System



Integrity In **Partnership**



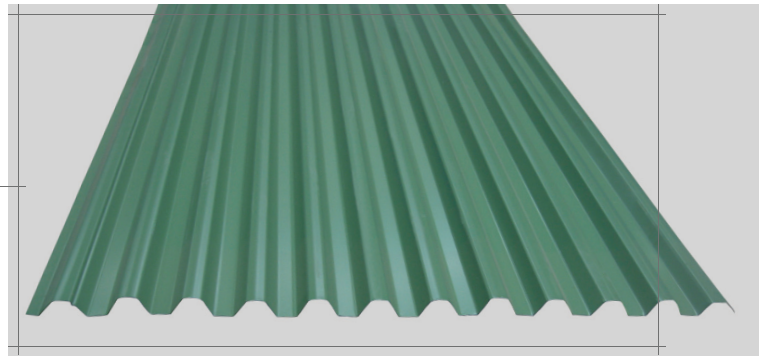
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LCP MULTIDECK® 90

FEATURES

LCP MULTIDECK® 90 is a smart looking, long spanning, high strength roof and wall sheeting, perfect for all commercial roofing and walling applications.



AESTHETICALLY PLEASING & COST EFFECTIVE

- ▶ 910mm Cover – quick installation and easy handling.
- ▶ Easy Fixing – conventional through fixed screws maximising performance and installation.
- ▶ Hi – Tensile Steel - lightweight and high strength with improved damage resistance.
- ▶ 3° Minimum Roof Pitch – reduces support structure.
- ▶ Design Flexibility – Long lengths and the Anti-Capillary side laps enable **LCP MULTIDECK® 90** to be used effectively on applications from vertical wall cladding and fascias down to roof pitches as low as 3°.
- ▶ Design Data – full range of load performance table to suit most applications.
- ▶ Extended spans – strength and rigidity of the profile allow for economical construction.

MATERIALS

LCP MULTIDECK® 90 is a cold roll formed roof and wall cladding manufactured from G550 base material (550MPa minimum yield stress), in ZINCALUME® (AZ200) and COLORBOND® is available in a number of colours.

ADVERSE CONDITIONS

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

COMPATIBILITY

Lead flashings should not be used in conjunction with ZINCALUME® steel or Clean COLORBOND® pre-painted steel sheeting. Drainage from ZINCALUME® or Clean COLORBOND® pre-painted steel roofing (inert materials) should not be allowed to discharge onto galvanised rainwater components. Drainage from copper roofing should not be allowed to discharge onto ZINCALUME® steel, galvanised, Clean COLORBOND® pre-painted steel or aluminium rainwater components. Each of these combinations may lead to premature corrosion.

ROOF PITCH

The water carrying capacity of **LCP MULTIDECK® 90** roofing 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 of up to 30 metres 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 a 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 intrusion. Care must also be taken for roofs with skylights, 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 MULTIDECK® 90** as produced by **LCP Building Products Pte Ltd**, with ribs of 24mm height spaced at 82mm centres. The effective cover width for the metal sheets shall be 910mm.

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.

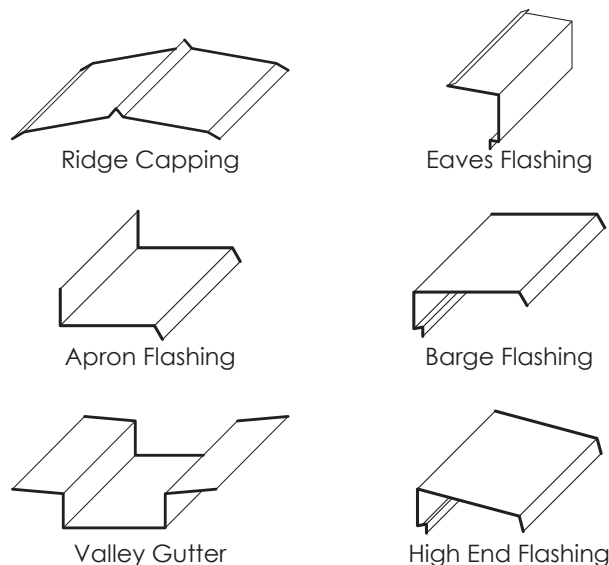
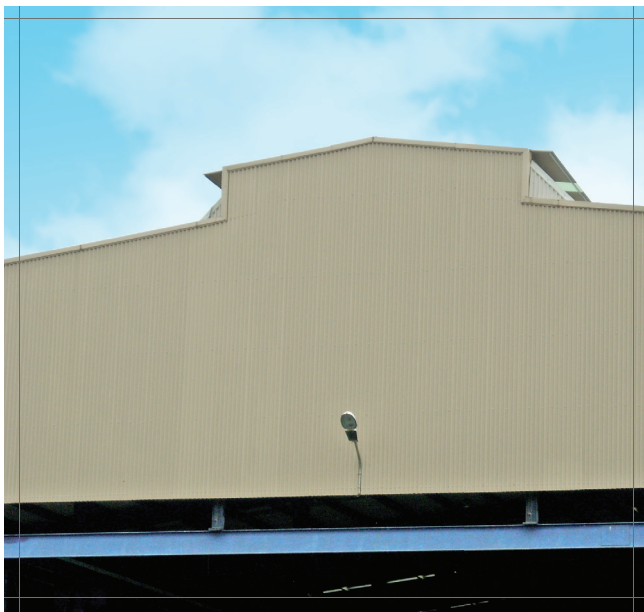
The following Clean COLORBOND® pre-painted steel finishes are available:

1. **Clean Colorbond® Ultra Steel** (Used for severe applications that require premium durability.)
2. **Clean Colorbond® XPD Steel** (Used for moderate/severe applications that require premium durability.)
3. **Clean Colorbond® XPD Pearlescent Steel** (Used for moderate/severe applications that require premium durability and a decorative alternative.)



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.



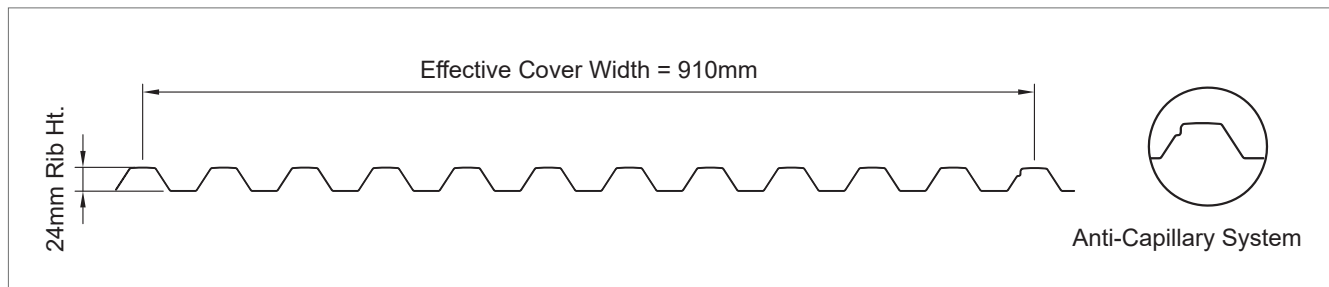
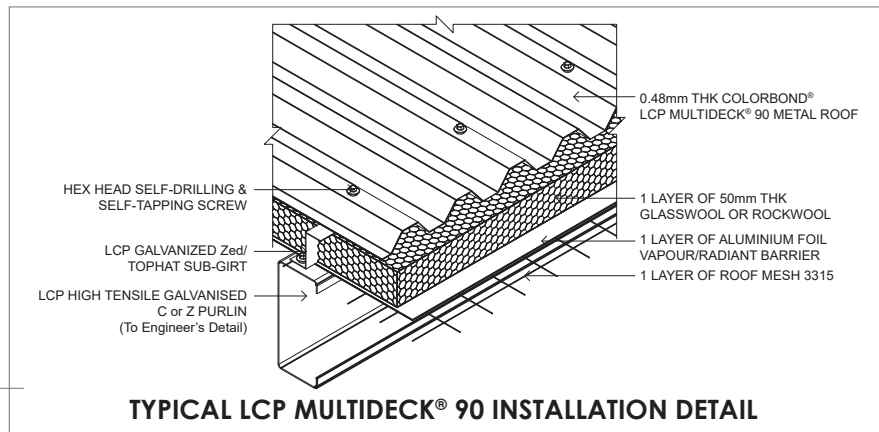
Typical common flashing used. Full range of flashings is available.

LCP MULTIDECK® 90

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

Recommended procedure: 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 an adjustable wrench or pliers. For maximum protection from weather intrusion, the sheet should be laid with the exposed edge of the overlaps away from the direction of the prevailing weather.

For detailed installation instructions, please call **LCP Building Products Pte. Ltd.** Technical Department.

Fastener Locations:

LCP MULTIDECK® 90 can be fixed with either 4 or 6 fasteners per sheet at each batten/purlin to meet the required performance values, as shown below:

CREST FASTENER LOCATION (ROOF)

6 fasteners per sheet - end support & end laps



4 fasteners per sheet - internal supports



VALLEY FASTENER LOCATION (WALLS)

6 fasteners per sheet - end support & end laps



4 fasteners per sheet - internal supports



FOOT TRAFFIC

When walking on **LCP MULTIDECK® 90** 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.



STRUCTURAL SPECIFICATION

PROPERTIES

LCP MULTIDECK® 90 - Material Mass and Thickness				
Thickness		Material Mass in kg/m ² of Roof Cover		
BMT (mm)	TCT * (mm)	Zincalume®	Galvanised	Colorbond®
0.42	0.48	4.70	4.87	4.85
0.48	0.54	5.32	5.48	5.48

*TCT (Total Coat Thickness) values are based on Zincalume coating and are nominal only (AZ200).

MAXIMUM SPAN CHART

LCP MULTIDECK® 90 - Sheltered Suburban and other conditions as noted below										
Thickness		Fixing	Roof Spans (mm)			Wall Spans (mm)			Overhang (Roof & Wall)	
BMT (mm)	TCT (mm)	per sheet	Double Span	Equal Span	Internal (End Span) * Combination	Double Span	Equal Span	Internal (End Span) * Combination	Unstiffened	Stiffened
0.42	0.48	4	1650	1650	2100 (1650)	2300	2150	2900 (2300)	200	500
		6	1900	1900	2400 (1900)	2600	2350	3000 (2400)	200	500
0.48	0.54	4	2150	2050	2700 (2150)	2400	2250	3000 (2400)	250	500
		6	2150	2150	2700 (2150)	2700	2500	3000 (2400)	250	500
- Expose Suburban and other conditions as noted below										
0.42	0.48	4	1550	1650	1950 (1650)	1900	1850	2350 (1900)	150	450
		6	1850	1900	2300 (1800)	2150	2050	2600 (2100)	200	500
0.48	0.54	4	1750	1750	2150 (1750)	2050	1950	2500 (2000)	200	500
		6	2000	2000	2450 (1950)	2300	2150	2800 (2250)	250	500

CONDITIONS

The maximum span charts apply to buildings no more than 10m in height, and less than 1000m² in plan area. The span listed are based on the testing requirements of AS 1562 for both foot traffic and wind loadings, and assume both the end and the first internal span to be subject to local pressure zone factors. Assumed wind loads are: Sheltered suburban – 1.39kPa and 1.04kPa; exposed suburban – 2.30kPa and 1.73Pa, for roof and walls respectively. Span chart also conforms to BS 5950 and IS 875.

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

PERFORMANCE

LCP MULTIDECK® 90 Permissible Wind Pressure (kPa)												
Thickness		Fixing per sheet	Span Type	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	(2500) 3000
0.42	0.48	4	Internal (External)	2100 (1750)	3.11	2.33	1.87	1.56	1.33	1.08	0.86	0.68
			Equal	1700	2.73	2.05	1.64	1.23	0.78	0.52		
			Double	1700	2.49	1.87	1.49	1.24	0.94	0.66	0.47	
			Single	1000	5.13	2.20	1.13	0.65	0.41			
		6	Internal (External)	2400 (2000)	3.89	2.92	2.33	1.94	1.67	1.33	1.05	0.85
			Equal	1900	3.41	2.56	2.05	1.70	1.07	0.72	0.50	
			Double	1900	3.11	2.33	1.87	1.56	1.16	0.89	0.64	0.47
			Single	1150	6.31	3.04	1.56	0.90	0.57			
0.48	0.54	4	Internal (External)	2700 (2250)	3.56	2.67	2.13	1.78	1.52	1.22	0.96	0.77
			Equal	2150	3.12	2.34	1.87	1.39	0.88	0.59	0.41	
			Double	2150	2.84	2.13	1.71	1.42	1.06	0.75	0.53	
			Single	1300	5.78	2.49	1.27	0.74	0.46			
		6	Internal (External)	2700 (2250)	4.44	3.33	2.67	2.22	1.90	1.50	1.19	0.96
			Equal	2150	3.90	2.92	2.34	1.92	1.21	0.81	0.57	0.41
			Double	2150	3.56	2.67	2.13	1.78	1.31	1.00	0.73	0.53
			Single	1300	7.11	3.43	1.75	1.02	0.64	0.43		

Loads have been determined from testing to AS 1562 and also conform to BS 5950 and IS 875 – Design and Installation of metal roofing. * Spans shown in bracket are the end spans to be used in conjunction with the internal span shown.

Note: Span shown in shaded () areas 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 MULTIDECK® 90**) 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, height of the rib, 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.

FLASHING

Standard flashings are readily available for use with **LCP MULTIDECK® 90** 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 6 or 7 days, subject to order quantity, delivery location and material availability, or can be at a pre-arranged date and time. 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.

LAPPING OF SHEET

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

HANDLING

LCP MULTIDECK® 90 (especially Clean COLORBOND®) 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 drying.

FASTENERS

All fasteners should conform with AS 3566 and be compatible with the roofing material used.

Crest Fixing:

For steel purlins, use No 12 x 45mm hex head self drilling, self tapping screws with neoprene washers.

For timber, use No 12 x 65mm hex head self drilling type 17 screws with neoprene washers, (for F11 grade timber or better).

Pan Fixing:

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

For timber (F11 grade or better), used No 10 x 25mm hex head type 17 screw with neoprene washers.

Side Laps:

Use No. 8 x 12mm hex head "S" point screws with neoprene washers or Monel metal sealed pop rivets.

Do not over tighten 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. Leaded head nails must not be used.

FOOT TRAFFIC

When walking on **LCP MULTIDECK® 90** roofing, always wear flat rubber soled shoes and endeavour to distribute your weight across the ribs.

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 minimise 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 may 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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