MRC 'TradZinc' Built Up or Double Skin Roof & Cladding System – 'TradZinc' with R-Value of 3.7m^2.K/W

Metal Profiled / Flat Sheet Cladding / Covering

DRAFT SPECIFICATION

Ref: MRC Group Specification - TradZinc Built Up Standard Details - MRC/FR/SS/PDS/BU/DWG001 - 0028

To be read with Preliminaries/General conditions

Please note the following important notes:-

1. **Most product guarantees from metal coil manufacturers for roof sheeting stipulate that unless the product has officially recorded maintenance, as per the manufacturer's recommendations, then the guarantee is invalidated. This is why we have built the Guardian™ System Warranty including maintenance into the specification.**

2. **Legislation requires that bulk insulation maintains its thickness and position except where it crosses a purlin. A thermal break of 0.2 m^2.k/W needs to be installed at these purlins. This thermal break is achieved by using the AshGrid bar & bracket support system creating a structural cavity between the liner & roof top sheet and maintaining the insulation's thickness throughout the roof system.**

3. **Bulk density insulation compressed between the roof sheet and the purlin will lose up to 70% of the stated uncompressed R-Value.**

4. **The structural integrity of the bulk density insulation and therefore the thermal, acoustic and fire performance is only guaranteed by the manufacturer, on the basis of the roof system being maintained and without water ingress for the life of the guarantee. This is why we have built the Guardian™ System Warranty including maintenance into the specification.**

***Delete as necessary**

120 METAL ROOF & CLADDING SYSTEM:
MRC 'TradZinc' Profile Built Up or Double Skin Roof & Cladding System incorporating Guardian™ Warranty.

Warranty: Guardian™ System Warranty INCLUDING materials, workmanship and maintenance for up to 20 years.

(All equivalent warranty systems to provide an all-encompassing warranty INCLUDING matching the material product guarantee with a workmanship warranty for the same term.)

Datasheet Reference:	MRC 'TradZinc' Built Up or Double Skin Roof System Ref No. MRC/FR/SS/PDS/BU
System Supplier:	MRC Systems (PTY) Ltd Offices: Johannebsurg | Durban | Cape Town | London Web: www.mrc-group.co.za Email: info@mrc-group.co.za
Profile Reference:	TradZinc Roofing System
Profile Dimensions:	**Height:**30mm high after double seaming, single seaming only with cladding sheets.

Metal Profiled / Flat Sheet Cladding / Covering

	Width: Depending on the material coil width.
Material:	Aluminium zinc coated steel Grade G300 **Other Options:** Galvanised Steel, Coated Steel, Copper, Rheinzink,
Aluminium coated Coating:	AZ200 – Inland / non-corrosive conditions **Other Options:** Depending on the material

Guarantee of the coating of the aluminium zinc coated steel to be requested depending on the location of the project.

Thickness/Gauge:	0.53mm (A certificate verifying material compliance including coating and gauge, shall be issued by the manufacturer.)
External finish/colour:	Clean Colorbond **Other Options:** Depending on the material
Internal finish:	Washcoat to the underside
Please note:	**TradZinc may show signs of 'oil canning' or undulations across the pan of the sheet. Fully supporting the pan of the TradZinc with a plywood deck will minimise this aesthetic. This is in keeping with the traditional roofing profiles.**

Accessories:

- Ashgrid Bar and Bracket Support System to suit R-Value and thermal insulation.
- TradZinc Metal Profile Serrated Closures.
- TradZinc Profile Polyethylene Closures Ridges, Penetrations & Headwalls.

Spacer System:	TradZinc Cleat, Ashgrid Bar & Bracket Support System.
Fasteners:	TradZinc Cleat fixed to AshGrid bar using 2 number Class 4 Ashfix self-drilling wafer tek screw fasteners. Fasteners to be supplied with accredited third party test results confirming compliance with Australian Standard AS 3566.2-2002 & South African Standard SANS 1273-2011. Ashgrid bracket fixed through the pan of the existing roof sheet or liner into the support structure using 2 No. Class 4 Ashfix Hex LS25 self-drilling fasteners with 16mm integrated washer flange. Fasteners to be supplied with accredited third party test results confirming compliance with Australian Standard AS 3566.2-2002 & South African Standard SANS 1273-2011.
Optional Thermal Insulation:	R-Value 3.7 m².K/W as clause 271.
Ashgrid Bar & Bracket:	As clause in conjunction with clause 265.
Walkable Liner system:	As clause 241
Soffit System:	As clause 251
Pitch:	≥ 3 degree minimum if perimeter details and penetrations are correctly formed.
Supports:	Light gauge galvanised steel purlins under the trapezoidal profiled walkable liner sheet.
Intermediate supports:	Subject to TradZinc load/span charts.

Metal Profiled / Flat Sheet Cladding / Covering

Eaves / ridge overhang: 125-300mm from centre of TradZinc cleat.
Side laps: Interlocking side ribs with associated cleats.

Experienced Contractors: All contractors to be experienced in installing MRC 'TradZinc' Roof Systems backed with Guardian™ System Warranty. All contractors must be member of the Green Building Council SA, Master Builders Association (MBA), Construction Industry Development Board (CIDB), South African Institute. Occupational Safety & Health (SAIOSH) & a level 2 BBBEE contributor.

Other Requirements:

- TradZinc to be set out using the manufacturers setting out template.
- All penetrations to be installed correctly including polyclosures, mastics, sealants and tapes to ensure weather-tightness.
- All perimeter details and penetrations to be backed with the Guardian™ System Warranty.
- TradZinc 'turn up' and 'turn down' tool to be used at the ridge / eaves.
- TradZinc sheeting to be supplied in single lengths i.e. ridge to eaves with no end laps.
- MRC Fabrications to be used for all flashings, weathered upstands, barge, sidewall, headwall flashings, soakers or specialised fabrications as all specified in all flashing clauses or as indicated on the drawings.

140 Guardian™ SYSTEM WARRANTY

Warranty Supplier: MRC Systems (PTY) Ltd
Offices: Johannebsurg | Durban | Cape Town | London
Web: www.mrc-group.co.za
Email: info@mrc-group.co.za

Reference: **Guardian™** System Warranty up to 20 years including materials, workmanship & maintenance.

Notes: The Guardian™ System Warranty is a warranty covering specified materials and perimeter details, workmanship and maintenance of a roofing and /or cladding installation.

The roofing contractor is to read all tender drawings in conjunction with the specification and should ensure that he is complying with the design intent, specification & drawings of the building designer.

160 MINIMUM HEALTH & SAFETY REQUIREMENTS

Letter of Good Standing: The contractor must provide a valid letter of good standing, issued by the Dept. of Labour.

Competency: The contractor must demonstrate to the client that he/she is competent to undertake these works and provide documentary proof thereof. The contractor must provide proof of training given by a Health and Welfare Sector Education and Training Authority (HWSETA) accredited service

provider. The training must also be aligned with the SAQA unit standards.

Tender Documents Required: The contractor must provide, as a minimum, the following documents:-

- Occupational health and safety medical certificates for all team members and workers accessing the site incl. managers, directors and sub-contractors.
- Working at height certificates for all team members and workers accessing the roof incl. managers, directors and sub-contractors.
- Hazard identification and risk assessor certificate.
- Fall protection planner certificate.
- Accident and incident investigator certificate.
- Mechanical elevated working platform (MEWP) operator certificate. (proof of training given by accredited Transport Education Training Authority (TETA) service provider).
- Fire fighting certificate.
- Scaffold erector certificate.
- Scaffold inspector certificate.
- Competency in the use of Eskom rescue kit certificate.

Full time competencies: It is a requirement of this contract that the following competencies be on site on a full-time basis whilst works are being undertaken:

- Hazard identification and risk assessor
- Fall protection planner
- Accident and incident investigator
- MWEP operator
- Competent person for fire fighting
- Scaffold erectors
- Scaffold inspector

GENERAL REQUIREMENTS

170 Design:
Complete the design of the cladding system in accordance with manufacturers recommendations & guidelines and co-ordinate detailed design with that of all related works. Submit detailed design proposals to the client's architect before commencing any cladding fabrication work.

172 Thermal Performance / Bridging:
Requirement: Complete thermal design of the cladding/covering system to minimise thermal bridging.

175 Product Samples:
Before commencing detailed design provide the clients' architects with identified samples of the Roofing System to obtain approval before proceeding.

Metal Profiled / Flat Sheet Cladding / Covering

176 Fastener Samples:
When submitting detailed design, provide the clients' architects with identified samples of each type of fastener. Fasteners to be supplied with accredited third-party test results confirming compliance with Australian Standard AS 3566.2-2002 & South African Standard SANS 1273-2011.

DESIGN / PERFORMANCE REQUIREMENTS

180 Generally:
Requirements specified in this section unless indicated otherwise, apply to the whole roofing system including incorporated metal cladding, flashings and abutments with associated sealants, tapes & fasteners. Full allowance must be made for deflections and other forms of movement.

185 Verification of Performance:
Submit evidence and calculations demonstrating compliance of the design with performance requirements (thermal, acoustic, structural) before commencing fabrication of any part of the roofing. Reports, certificates and calculations must be based on approved laboratory testing or computer modelling.

187 Deflection of Metal Roofing & Cladding:
Maximum permitted roof cladding deflection under distributed loads as a multiple of span and due to:

Roofing & Cladding serviceability L/750 based on residual deflection SANS10237 for both dead and wind loads.

192 Sound Transmittance of Metal Profiled / Covering System:
Should thermal insulation be installed in conjunction with the TradZinc roof and cladding sheeting a minimum weighted sound reduction index (R_w) within 100 to 3150 Hz frequency range: 40 dB/other. Location: Through roof and walls.

194 Internal Sound Absorption of Metal Profiled / Covering System:
Minimum sound absorption coefficients (⍰$_s$) : N/A
One third octave band centre frequency (Hz) : N/A

195 Integrity of Metal Profiled / Covering System:
Determine profile(s), size(s) and thickness(es) of sheets, the size(s), number and spacing of fixings, configuration and location of support spacer systems and incorporation of other accessories and fittings to ensure the roofing system will resist all dead, imposed and design live loads, and accommodate all deflections and thermal movements without damage.

198 Water Penetration:
Underside exposure conditions, moisture must not penetrate onto internal surfaces or into cavities not designed to be wetted. Therefore length and gauge of flashings, use of tapes and sealants are to be considered, to ensure long term weather-tightness.

Metal Profiled / Flat Sheet Cladding / Covering

FIXING CLADDING

202 Avoidance of Surface Condensation:
Requirement: Determine surface condensation risk of cladding / covering system. Ensure that damage and nuisance from surface condensation does not occur**.**

If the thermal insulation is not installed then a breather membrane should be installed between the Ashgrid support system and the 'Secret Fix' clip, in conjunction with soffit, headwall & ridge ventilation solutions, creating a cold roof system.

210 Structure:
Check that structure is in a suitable state to receive cladding before commencing fixing. Roofing Contractor must confirm acceptance to Clients Architects and Structural Engineer.

210 Structural tolerances:
Purlin Bearing width: To Structural Engineers' Details, min 65mm.
Purlin Spacing: To Structural Engineers' Details

220 Structure:
Do not fix cladding until final coats of paint have been applied to outer surfaces of supporting structure.

217 Protection:
Store metal sheets and panels under cover to keep dry and prevent staining. Pack to be stored at an angle to allow trapped water to drain. Limit height of stacks to avoid distortion. Adequately secure stored sheets/panels to prevent wind and mechanical damage.

219 Fastenings Generally:
Flashings, liner, spacer and clip fixings, type(s), size(s), material(s) and finish(es) as specified, or in the absence of such specification, as recommended for the purpose by the roof system manufacturer.

System Supplier: MRC Systems (PTY) Ltd
Offices: Johannesburg | Durban | Cape Town | London
Web: www.mrc-group.co.za
Email: info@mrc-group.co.za

221 Fittings and Accessories Generally:
Cappings, closure pieces, flashings, fabrications, trims, sills, gutters, fillers, spacers, tapes, sealants, fixings etc, where not specified to be types recommended by roof system manufacturer and/or indicated on the project drawings.

System Supplier: MRC Systems (PTY) Ltd
Offices: Johannesburg | Durban | Cape Town | London
Web: www.mrc-group.co.za
Email: info@mrc-group.co.za

230 Isolating Tapes:
A type recommended for the purpose by roof system manufacturer. Apply to those surfaces of supports, which would otherwise be in contact with cladding or accessories after fixing.

Metal Profiled / Flat Sheet Cladding / Covering

234 Rainwater Goods if required:

Gutters and downpipes, with associated finishes, joints, fixings and brackets to suit project requirements.

System Supplier: MRC Systems (PTY) Ltd
Offices: Johannesburg | Durban | Cape Town | London
Web: www.mrc-group.co.za
Email: info@mrc-group.co.za

234 Valley Gutters:

System Supplier: MRC Systems (PTY) Ltd
Offices: Johannesburg | Durban | Cape Town | London
Web: www.mrc-group.co.za
Email: info@mrc-group.co.za

Material:	To suit span and site conditions.
Gauge/Thickness:	To suit the girth and size of the gutter.
Size:	In accordance with Latest Building Regulations.
Insulation:	N/A
Gutter joints:	C/w cross linked butyl mastic sealant and associated fixings. All details to ensure water-tightness.
Rainwater pipes:	To suit drainage requirements.

235 Lightweight Eaves Gutters:

System Supplier: MRC Systems (PTY) Ltd
Offices: Johannesburg | Durban | Cape Town | London
Web: www.mrc-group.co.za
Email: info@mrc-group.co.za

Material:	To suit span and site conditions.
Gauge/Thickness:	To suit the girth and size of the gutter.
Size:	In accordance with Latest Building Regulations.
Insulation:	N/A
Gutter joints:	C/w cross linked butyl mastic sealant and associated fixings. All details to ensure water-tightness.
Rainwater pipes:	To suit drainage requirements.

241 Walkable Liner System:

System Supplier: MRC Systems (PTY) Ltd
Offices: Johannesburg | Durban | Cape Town | London
Web: www.mrc-group.co.za
Email: info@mrc-group.co.za

Profile:	IBR Profile 36/171/686
Material:	Aluminium zinc coated steel.
Thickness:	0.53mm.
Finish/Colour:	Coated White to broad pan to inside face.

251 Profiled Soffit System: N/A

Metal Profiled / Flat Sheet Cladding / Covering

265 Ashgrid Spacer Support System:

System Supplier:	Ash & Lacy South Africa (Pty) Ltd, 29 Atlantic Drive, Bluewater Estate, Kommetjie, Cape Town, South Africa 7975 Web: www.ashandlacy.co.za Email: dion.marsh@ashandlacy.com
Bar Thickness / Material:	1.25mm thick galvanised steel.
Minimum Tensile:	460 N/mm²
Bar Profile:	40 x 40mm.
Bar Centres:	As per the existing purlin centres please check with the Ashgrid load span tables.
Bracket Thickness /Material:	1.6mm thick galvanised steel with thermal pads.
Bracket Heights:	135mm.
Bracket Centres:	900mm centres as per Ashgrid load span tables.
Fastenings:	2 number Class 4 Ashfix Hex LS25 self-drilling fasteners with 16mm integrated washer flange.
Working Loads Uplift:	1.88 kN/m²
Working Loads Download:	1.88 kN/m²

271 Optional Insulation:

System Supplier:	MRC Systems (PTY) Ltd Offices: Johannebsurg | Durban | Cape Town | London Web: www.mrc-group.co.za Email: info@mrc-group.co.za
Type:	Flexible Glasswool Tested to SANS 10177 Part 5, Class A Non-combustible with an inert binder.
Thickness:	150mm to achieve a 3.7 R-Value.
Thermal conductivity:	λ=0.040W/m.K
Installation:	Install and secure as the work proceeds, ensuring continuity between and under purlin spacers and supports and over ridges / hips, pack tightly leaving no gaps. Keep dry.

280 Vapour Barrier Membrane:

System Supplier:	MRC Systems (PTY) Ltd Offices: Johannebsurg | Durban | Cape Town | London Web: www.mrc-group.co.za Email: info@mrc-group.co.za
Type:	Envirotuff Eco 203
Installation:	Install and secure as the work proceeds, ensuring continuity between and under purlin spacers and supports and over ridges / hips, pack tightly leaving no gaps. Keep dry.

290 Support Board:

System Supplier:	MRC Systems (PTY) Ltd Offices: Johannebsurg | Durban | Cape Town | London Web: www.mrc-group.co.za Email: info@mrc-group.co.za

Metal Profiled / Flat Sheet Cladding / Covering

Type:	Exterior Grade Plywood.
Thickness:	To suit the span typically no less than 22mm.
Installation:	Install and secure as the work proceeds, ensuring continuity over ridges / hips, pack tightly leaving no gaps. Keep dry.
Support:	25 x 23 x 30 x 1.2mm galvanised steel top hat sections fixed to AshGrid bar with Class 4 22mm Wafer fasteners.

300 Profile Fillers:

Type(s):	Supplied by the roof system manufacturer accurately matching the roof sheet system profiles.
Material:	Closed Cell Expanded Polyethylene Polyclosures.
Location:	Locate where shown on drawings and wherever necessary to close off corrugation cavities from the outside of the building. Ensure a tight fit, sealed with 8mm diameter sealer tape and leave no gaps. Provide purpose made raking cut filler blocks to each side of hips/valleys.

310 Purpose made Cold Formed Metal Accessories:

System Supplier: MRC Systems (PTY) Ltd
Offices: Johannebsurg | Durban | Cape Town | London
Web: www.mrc-group.co.za
Email: info@mrc-group.co.za

All these details are backed with the Guardian™ System Warranty including materials, workmanship and maintenance.

All details to include tapes, sealants and fixings to ensure weather tightness, as per the MRC technical bulletins on the MRC Website – Technical Bulletins & Technical Drawings.

All these perimeter details to be in accordance with MRC Systems (PTY) Ltd Tradzinc standard drawings – Drawing register SOD024 - MRC/FR/SS/PDS/BU/DWG001 - 0028

410 Cutting and Drilling Sheets Generally:

On no account should abrasive wheel cutting methods be adopted. Cut sheets to give clean, true lines with no distortion. Remove burrs and any lubricant and apply a coating to the cut ends.

Remove all drilling swarf, dust and any other foreign matter before finally fixing sheets into position. Protect sheets adequately during fixing and up to practical completion against mechanical damage, corrosion and disfigurement. Rectify any defects as quickly as practicable to minimise damage and nuisance.

460 Thermal Movement:

Accommodated within the design of the system. A fixed point is required.

Note:

Draft Specification for MRC 'TradZinc' Roof & Cladding Systems.

The purpose of this Draft Specification is to assist the Project Designer and Quantity Surveyor in producing their respective documentation for any project under consideration.

It is provided in good faith for use at the discretion of the respective consultant, to be amended and edited as required to suit the particular project requirements.

MRC Systems (PTY) Ltd is not privy to detailed contractual arrangements and documentation of an individual project and are therefore not in a position to co-ordinate related work by others. It is not the intention for this draft to relate to any particularly project but to provide a guide to the more common items to be encountered in MRC 'TradZinc' systems.

Whilst it is the Project Designer/Quantity Surveyors/Planning Supervisor's responsibility to produce their respective documents and we can assist them in their duties, we cannot accept responsibility for any errors or omissions which may occur in tender or contract documents or for compliance with the requirements of Health and Safety/Construction Design and Management Regulations which may be applicable.

Please check to ensure that any amendments to the standard draft, represents a true interpretation of the Project Designer's requirements.