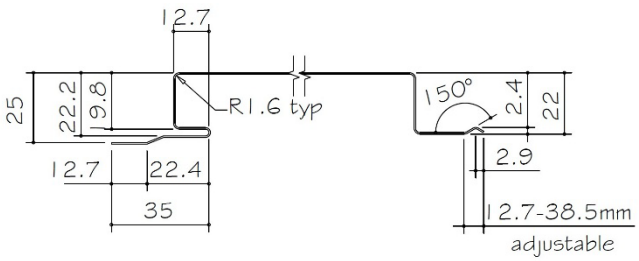
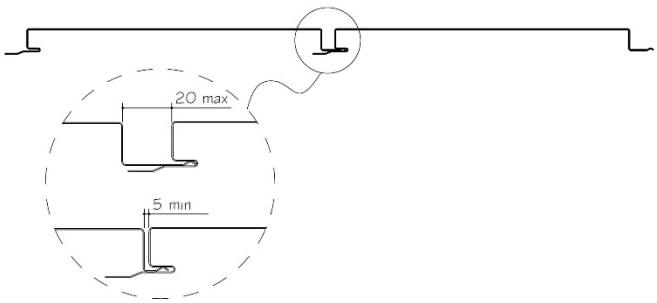
PRODUCT TECHNICAL STATEMENT

EUROSTYLE® PANELOK®





Eurostyle® panelok® (Both North and South Island)

- 525mm coil width: nominal panel width – 400mm
- 390mm coil width: nominal panel width – 265mm
- 340mm coil width: nominal panel width – 215mm

Tolerance for the above nominal effective cover / panel width: ±5mm. All dimensions are nominal.

FEATURES

- Eurostyle® panelok® is the latest tray wall cladding system incorporating superior technology. It is a highly adaptable interlocking panel type wall cladding solution.
- Designed to be self-supporting on cavity battens, it provides the very latest in architectural design.
- Aluminium sheet lengths up to 8.0m, steel sheets over 8m require crating or specialised transportation to protect the sheeting (refer to Substrate section).
- Custom-made cut to length sheets are subject to transport and site limitations. As sheet lengths increase higher transportation costs may be applicable.
- Innovative profile design, supported by load/span data and recommended fastener patterns derived from load testing using industry test-rig apparatus in accordance with the NZ Metal Roofing Manufacturers test procedure.
- Eurostyle® panelok® is manufactured in our factory, however it may be possible to manufacture on site in cases where site access or transportation is an issue, contact Roofing industries for specific advice.
- Interlocking panels are laid vertically or horizontally, using concealed fasteners (with additional pan fixings when required) into battens, ensuring swift and straight forward installation across large wall areas, minimising installation time.
- Matching accessories are available including flashings, fasteners, underlays, and downpipe systems.

COATINGS

Selecting the right substrate is dependent on the environment in which the project is situated. Eurostyle® panelok® profiles are available in the following Pacific Coilcoaters and NZ Steel coating systems along with the full range of ColorCote® and COLORSTEEL® colours.

Steel Substrate	**Aluminium Substrate**
Base Metal Thickness (BMT): 0.55 mm	Base Metal Thickness (BMT): 0.90mm
• ColorCote® ZinaCore™	• Colorcote® AlumiGard™
• ColorCote® MagnaFlow™	• COLORSTEEL® Altimate®
• COLORSTEEL® Maxam™	• *Ambro Euromax®

*Euromax®, from Ambro Metals, is a pre-painted aluminium material in 0.80mm BMT (for more information refer to Ambro Euromax® colours and technical information).

Material is subject to availability and materials such as copper may have longer lead times. Contact Roofing industries for specific advice.

INFORMATION TABLE

Substrate Material		Steel* (G300)	Aluminium (H34)
Base Metal Thickness, BMT (mm)		0.55	0.90
Panel Weights (kg/m)	400mm	2.35	1.30
	265mm	1.75	0.95
	215mm	1.55	0.85
Maximum Sheet Overhang[1] (mm)		150	150

All weights are approximate *Based on 150g/m² alloy coating [1]From last fixing line to sheet end

SUBSTRATE

Eurostyle® Panelok® Panel is a contemporary-looking wall cladding system installed with a drained cavity/ventilated air gap and is suitable for external and internal applications. The panels are connected by an interlocking groove giving it the elegant appearance of a recessed joint.

The reveal panel ranges from 215mm to 400mm width and the recessed seems (shadow lines) can range from 5mm to 20mm. Aluminium sheet lengths are available up to 8.0m (4-6 metres for dark coloured aluminium) and steel sheets are available greater than 8m, however these require crating or specialised transportation to protect the sheeting.

Interlocking panels are laid vertically or horizontally (from the top down), using concealed fasteners fixed through the grooved flange directly into perpendicular battens, with following panels connected by inserting the male flange into the groove ensuring swift and straight forward installation across large wall areas. In some cases, additional pan fixings will be required.

The main structure can be a concrete wall, masonry wall, timber or steel. Battens can be either timber or metal, placed at right angles to the panels and installed to tight tolerances (see Frame Tolerance section). The panels can be laid horizontally or vertically. In the case of non-vertical walls, a waterproof membrane must be installed behind the ventilation gap. Material choice is to be verified by the designer/client and installation must comply with the Building Code.

A continuous plywood substrate is not required.

SPECIFICATION

Refer to Roofing Industries full specification statements on Masterspec and/or Smartspec, www.roof.co.nz and our Selection Guide.

BUILDING DESIGN / PERFORMANCE CRITERIA / PRODUCT SELECTION

During the design phase, it is necessary for the designer to consider a number of factors when specifying Eurostyle® panelok®:

- Preferred pan width
- Material type and finish
- Sheet lengths
- Wind loadings and Wind Zones
- Reference to Roofing Industries detail drawings
- Swaged or non-swaged
- Nogg/Girt spacing

Underlay as per the project specifications should be used to meet the NZS 2295 and AS/NZS 4200 standards.

If a building is being designed in accordance with E2/AS1 and cladding products covered by that document are chosen, the design spans are required to comply with E2/AS1. However, where a building is outside of the scope of E2/AS1, the building and parts thereof require specific design by a suitably qualified structural engineer and the cladding spans are required to be suitable for that design.

Whilst aesthetics and product availability do play a part, the chosen profile must meet certain performance criteria. These are centred around the ability of the product to span between nogg/girt spacings and meet the design criteria.

Wide tray type walling profiles due to their inherent nature of a flat pan without the use of structural ribs can give rise to undulations in the wide flat pan. Refer also to the Canning Section.

These are considered to be an architectural feature of the profiles. Normally, structural integrity is not affected. However, structural integrity must be reviewed if the distortion results from an extreme external influence.

Since many factors are involved outside of our control, Roofing Industries cannot realistically assure the total elimination of undulation in the pan.

Eurostyle® panelok® has the option of a double swage in each pan as an architectural feature, to assist in reducing undulation if required. Different swage options, including single swage, are available on request and must be specified at time of order.

Low gloss paint coatings are also available which assist in minimising the visual apparentness of any undulations and must be specified at time of coil ordering.

Penetration flashings for Eurostyle® panelok® must be installed by the installation contractor only and other trades must not cut any holes unless under the supervision of the roofing contractor.

Ensure placement of penetrations does not interfere with panel joints. Eurostyle® panelok® is an alternative solution to E2/AS1 and is to be designed and installed to manufacturer's recommendations.

THERMAL EXPANSION/CONTRACTION

All metal cladding and flashings are subject to expansion and contraction caused by changes in temperature, and their design should allow for this movement. The energy produced should be absorbed without damage to the cladding, fixings or structure.

Eurostyle® panelok® interlocking panel system allows for thermal expansion in the panel joints.

NOGG/GIRT SPACING LIMITATIONS AND RECOMMENDATIONS

E2/AS1 states that a specific design may produce a more optimum spacing for fixing than as presented in this document. For profiles such as Eurostyle® panelok® that is particularly applicable and as such the manufacturer's information should be used.

Manufacturers' recommendations for maximum spacings are as per the NZ MRM Metal Roof and Wall Cladding Code of Practice (MRM COP).

WIND LOADINGS

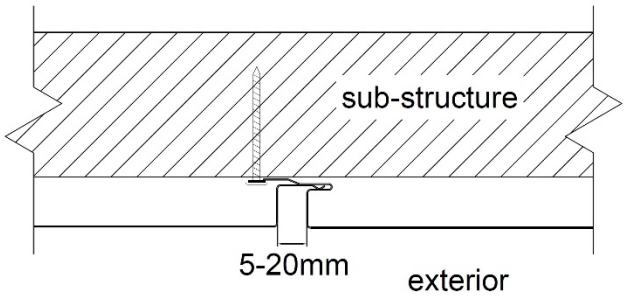
Firstly, it is necessary for the designer to calculate the design wind load for the cladding following acceptable practice, by reference to AS/NZS 1170, and/or NZS 3604 as appropriate. For further explanation of this refer to the MRM COP.

The wind suction forces on Eurostyle® panelok® cladding are transferred through to the building via the fasteners into the structure. The performance criteria are the number of fasteners per square metre, which can be varied by the spacing of battens/noggs/girts, or the width of the panels.

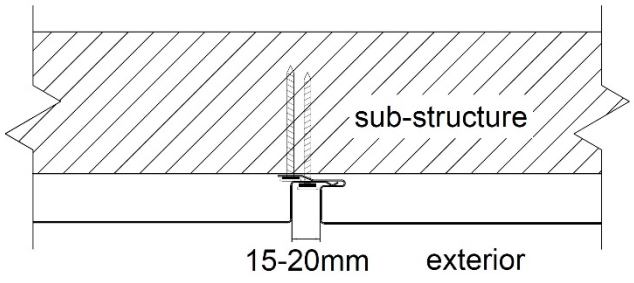
WIND ZONES

Eurostyle® panelok® is typically screw-fixed through the flange extending from the female part of the clip-lock joint only, which provides a 'secret fixed' appearance with no visible fixing.

Where required, the profile is also screw-fixed through the pan (i.e. both male and female legs of the lap) with wafer head fixings including a neoprene sealing washer, as fixing through the pan provides additional integrity to the clip-lock connections between panels. In this case the minimum shadow line for the negative detail is 15mm. The following sketches are provided for 'Secret Fixed' and 'Additional Pan Fixed' options.



Secret Fixed



Additional Pan Fixed

The following table outlines guidance for Eurostyle® panelok® fixing requirements for buildings within the scope of NZS 3604 and NASH standards, for up to Extra High Wind Zones. SED Wind Zones require specific design by a suitably qualified structural engineer, contact Roofing Industries for guidance.

Guide to Maximum Wind Zone for Secret Fixed option

Nogg/Girt Spacing (mm)	Panel Face Width (mm)		
	215	265	400
400	Extra High	Extra High	Extra High
600	Very High*	High*	N/R*
800	Medium*	Medium*	N/R*

Notes: N/R = Not Recommended *****Additional Pan Fixed option required to achieve Extra High Wind Zone

Please note for 265mm and 400mm outside face widths, a continuous 50mm wide blocking strip of thickness to suit the panel depth is to be installed down the middle of the back of each panel to support the outside face.

INSTALLATION IN HIGH, VERY HIGH AND EXTRA HIGH WIND ZONES

In strong and/or adverse wind conditions, the cladding may "flutter" which may cause a "drumming" noise. For High Wind Zones and above, Roofing Industries recommends consideration be given to the following to help mitigate potential wind noise:

- Use continuous 50mm wide blocking strips of thickness to suit the panel depth, installed down the middle of the back of each panel to support the outside face
- Reducing the batten spans to 400mm maximum centres
- Including optional swages in the pan
- Only install into timber when the moisture content is 18% or less (i.e. the maximum moisture content as specified in NZS 3604 and the MRM COP)
- For wall cladding, use approved drained battens such as castellated timber batten, approved proprietary drained steel or plastic battens.

FIXINGS

Wall claddings are typically fixed through the pan of the profile. Eurostyle® panelok® is fixed with screws through the flange extending from the female part of the clip-lock joint. There are no penetrations through the weather-exposed parts of the profile.

Additional screw fixing using wafer head fixings with a neoprene washer through the Eurostyle® panelok® pan provides additional integrity to the clip-lock connections between panels. Where fixings penetrate the weather-exposed part of the profile, the neoprene washers mitigate the risk of water penetration. Refer to Wind Zones section.

Each Eurostyle® panelok® panel must be fixed into **all** nogg/girt lines and top/bottom plates.

Konnect Ruspert (TT10-12X65CL4WASQ2GRU) fixings, Konnect T17 Timber (TT10-12X50CL5N) fixings incorporating a low-profile hex. head or 10g-12 x 45mm wafer head fixings are used with minimum 30mm embedment into structural timber battens or timber framing, adjusting fastener length where non-structural battens are used to account for batten thickness etc. Note for 10g-12 x 45mm, 10g refers to a 10-gauge screw, where 12 refers to 12 threads per inch (TPI) and 45mm is a 45mm long shank.

DIRECT FIX

Eurostyle® panelok® must be isolated when laid directly on timber battens, plywood or other incompatible materials using a suitable isolator in-between.

Be aware that the temperature build-up of dark colours is higher than those of lighter colours and as a result darker colours will thermally expand more which can also cause noise and canning. Refer to the MRM COP for further information on noise.

The MBIE Guide to Tolerances document for cladding advises that noise from thermal expansion is normal and should be expected. Refer to MBIE - Guide to Tolerances, Materials and Workmanship in New Residential Construction.

SHEET ENDS

For vertical panel installation, stop end the top of the panel, and at the bottom use a 15mm 90-degree turnback.

Where horizontal panel installation is being considered, contact Roofing Industries for specific advice.

PROFILE SIDE LAPS

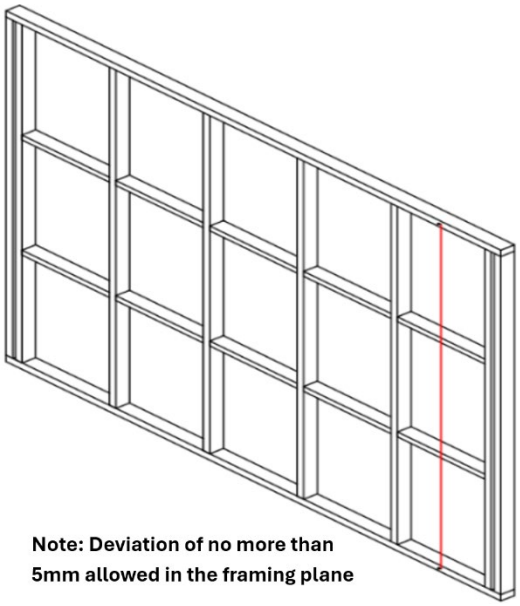
The side lap is formed by the clip-lock connection between panels, where a formed metal tongue is fitted into a matching female part. The joint incorporates a capillary break that provides a drainage path down the lap joint for moisture. Should water pass across the capillary break it would track to the fixing flange, draining down the face of the fixing flange rather than onto the wall underlay. In the unlikely event that external moisture did migrate to the underlay, the underlay characteristics are such that the framing is protected.

MOUNTINGS ON EUROSTYLE® PANELOK®

Any structures or components mounted onto Eurostyle® panelok® wall cladding for example (but not limited to) awnings, louvres, light fixtures, signage and the like need to be designed accordingly by a suitably qualified structural engineer and installed in accordance with that design.

Consideration shall also be taken to any impact on the weathertightness and durability of the wall cladding.

FRAME TOLERANCE



Note: Deviation of no more than 5mm allowed in the framing plane

It is important that the structure is suitable for the installation of wall cladding.

Particular attention should be paid to the squareness of the structure and alignment of the studs, noggs and framing, which is required to be within acceptable tolerance.

Prior to installation, the installer is to consider sheeting set out, for example to accommodate windows, doors, and penetrations. During installation, the installer must check alignment of the framing using string line or a straight edge, particularly around penetrations to ensure the wall cladding is plumb and true.

Where sheets are cut, for example to accommodate corners and around penetrations etc. they require packers to support the flashings.

Eurostyle® panelok® laid directly onto cavity battens requires alignment of the studs, noggs and framing to be within a 5mm tolerance to mitigate batten creasing.

CANNING

Canning is the visible waviness or undulations in the flat areas of metal cladding or wide flat panel flashings. The apparentness of these undulations can be affected by several factors such as the angle of viewing, direction and clarity of the light, sheet length, colour and temperature. In addition, the high gloss levels of brand-new sheets can highlight these undulations but with time natural weathering reduces reflectivity which in turn reduces the visible effect of canning.

The property/building owner, builder and specifier must be aware that these undulations can occur in wide pan profiles. Please note canning is aesthetic in nature only and does not affect the performance or material warranty of the cladding.

The inclusion of optional swaging may assist in reducing the apparentness of canning. Some paint finishes, colours and/or higher gloss levels can show more canning than others and as such lower gloss paint finishes are recommended.

Please note the MRM COP states the following in respect of canning:

“The use of both types of fully supported metal cladding without structural ribs gives rise to undulations in the wide flat pan, which are not only to be expected but an architectural feature of fully supported cladding. A perfectly flat metal surface cannot be obtained when using wide flat panels, and designers should be aware that fully supported wall cladding will reflect light unevenly, particularly when it is new, and it will not change by increasing the thickness of the cladding.”

Canning is also covered in MBIE’s Guide to Tolerances for New Residential Construction, which states:

- Oil canning is a common occurrence with products which have standing seam or wider profiles patterns. This is not considered a defect and will become less apparent with weathering.

STRIPPABLE FILM

Eurostyle® panelok® is supplied with strippable film to give temporary protection from scratching. Strippable film should be removed from underlaps while laying and removed entirely before UV sets the adhesive, making it difficult to remove without leaving glue residue on the sheet. Traffic across sheets should be kept to a minimum, particularly with self-supporting products.

HANDLING, STORAGE AND INSTALLATION

The following points, although not exhaustive, provide practical guidance to product handling storage and installation -

- Read the pack label for important guidance and inspect packs for any damage.
- Store Eurostyle® panelok® packs and accessories on site using evenly spaced and supportive dunnage, clear of the ground and under cover, to keep dry.
- Product surface protected with strippable film is to be stored under cover, away from UV light.
- If packs become wet and the product is not used immediately, separate the sheets to allow air circulation and drying.
- Do not drag sheets across each other or across rough surfaces.
- Other trades should be made aware of this by the main contractor.
- Installation should be undertaken by experienced installers.
- Flashings should be notched over the ribs and all sheeting should be edge fixed.
- Refer to the Eurostyle® panelok® drawings at www.roof.co.nz

For further guidance refer to Roofing Industries Handling and Storage Guide, E2/AS1, the MRM COP and MRM Metal Long Run Roofing and Cladding Installation Guide. Failure to install all products to industry requirements may void the warranty.

MAINTENANCE

Regular maintenance should be performed as necessary to remove dirt, salt and pollutants extend the life of the cladding and accessories. Industry maintenance guide(s) are available from www.roof.co.nz and should be consulted in order that warranty conditions are fulfilled.

BRANCHES

Branch	Address	Phone	Email
Auckland	(Head Office) 5 John Glenn Avenue, North Harbour 0632	Ph: (09) 414 4585	E: auckland@roof.co.nz
Whangarei	4A Fraser Street, Whangarei 0112	Ph: (09) 437 2040	E: northland@roof.co.nz
Pukekohe	212 Manukau Road, Pukekohe, South Auckland 2120	Ph: (09) 238 0050	E: franklin@roof.co.nz
Hamilton	63 Tasman Road, Avalon, Te Rapa 3200	Ph: (07) 849 5115	E: waikato@roof.co.nz
Tauranga	80 Portside Drive, Mt Maunganui 3116	Ph: (07) 578 2650	E: tauranga@roof.co.nz
Taupo	1158 Rakaunui Road, Taupo 3351	Ph: (07) 376 7971	E: taupo@roof.co.nz
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Cromwell	3 Proctor Way, Cromwell 9310	Ph: (03) 928 6869	E: cromwell@roof.co.nz
Invercargill	133 Bill Richardson Drive, Avenal 9810	Ph: (03) 218 7663	E: invercargill@roof.co.nz