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| Please find below our current Masterspec Specification for Viking WarmSpan.Our focus is to ensure that you have the right information and technical support required to make specifying our roofing and waterproofing solutions easy.If you require any of our CAD details you can find them on our website [www.vikingroofspec.co.nz](http://www.vikingroofspec.co.nz)For any further support please do not hesitate to contact us on 0800 729 799.Kind Regards,The team at Viking RoofspecVK_ROFS_4C_SL_TCD T: 0800 729 799 F: 0800 729 788info@vikingroofspec.co.nz[www.vikingroofspec.co.nz](http://www.vikingroofspec.co.nz) |

**4422VS VIKING WARMSPAN SYSTEM**

1. **GENERAL**

 This section relates to the **Viking WarmSpan System**, comprising a wide spanning steel deck with a rigid PIR insulation installed with a Viking membrane waterproof covering.

 It includes;

* A wide spanning 0.55g zincalume steel substrate (Metcom 7 profile) with an integrated vapour barrier (where required).
* **Viking Polyiso** rigid insulation roof panels installed on top of the roof substrate
* with a membrane of **Viking Epiclad**, **Viking Enviroclad or Viking Bituclad** fully adhered over the top.

 Modify expand this clause to suit requirements of this specification section. For specific technical information contact Viking Roofspec on 0800 729 799.

 The Viking Warm Roof System comprises a single or double layer of Viking Polyiso insulation roof panels (depending on R-value requirements) installed with a single ply external waterproof covering over the top (either Viking Epiclad or Viking Enviroclad).

### 1.1 RELATED WORK

 Refer to ~ for ~

 Refer to 4422VB VIKING BUTYLCLAD AND EPICLAD MEMBRANE ROOFING and 4422VE VIKING ENVIROCLAD & ENVIROCLAD FBS MEMBRANE for Enviroclad rubber sheets as a single-layer external waterproof membrane.

 Refer to 7411 RAINWATER SPOUTING SYSTEMS for rainwater disposal.

 Include cross references only to other work sections where they include directly related work.

 **Documents**

### 1.2 DOCUMENTS

 Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

 [NZBC E2](http://www.masterspec.co.nz/redirect.aspx?pl=347)/AS1 External moisture

 [NZBC H1](http://www.masterspec.co.nz/redirect.aspx?pl=258)/AS1 Energy Efficiency

 [AS/NZS 1170.2](http://www.masterspec.co.nz/redirect.aspx?pl=1110) Structural design actions - Wind actions

 AS 3566 Self-drilling screws for the building and construction industries

 [NZMRM CoP](http://www.masterspec.co.nz/redirect.aspx?pl=1236) NZ metal roof and wall cladding Code of Practice (CoP)

 Metalcraft Roofing Metcom7 product literature

 Holmes Solutions Engineering Report

 Metal

 Delete from the DOCUMENTS clause any document not cited. List any additional cited documents.

 The following are related documents and if referred to in the work section need to be added to the list of DOCUMENTS.

 [NZBC B2](http://www.masterspec.co.nz/redirect.aspx?pl=223)/AS1 Durability

 [NZBC E1](http://www.masterspec.co.nz/redirect.aspx?pl=227)/AS1 Surface water

 [NZBC F2](http://www.masterspec.co.nz/redirect.aspx?pl=236)/AS1 Hazardous building material

 [AS/NZS 1604.3](http://www.masterspec.co.nz/redirect.aspx?pl=1183) Specification for preservative treatment - plywood

 [NZS 3101](http://www.masterspec.co.nz/redirect.aspx?pl=294) Concrete structures standard - the design of concrete structures

 [NZS 3604](http://www.masterspec.co.nz/redirect.aspx?pl=301) Timber-framed buildings

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

 Manufacturer's and supplier's documents relating to this part of the work:

 Viking Waterproofing Membrane Systems manual

 List documents relating to this part of the work, i.e. technical product/system specifications, test reports, appraisals, certification, etc. Normally they will be referred to in the text by the abbreviated title.

 Viking Roofspec contact details

 Web: [www.vikingroofspec.co.nz](http://www.vikingroofspec.co.nz)

 Email: info@vikingroofspec.co.nz

 Telephone: 0800 729 799

 Facsimile: 0800 729 788

 It is important to ensure that all personnel on site have access to accurate, up to date technical information on the many products, materials and equipment used on a project. In most cases individual products are not used in isolation, but form part of a building process. Also a particular manufacturer's and/or supplier's requirements for handling, storage, preparation, installation, finishing and protection of their product can vary from what might be considered the norm. Access to technical information can help overcome this potential problem.

 **Warranties**

### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

 Provide a material manufacturer/supplier warranty:

 20 years: For **Viking Warm Roof System**

 - Provide this warranty on the **Viking Warm Roof Product Warranty** standard form.

 - Commence the warranty from the date of practical completion of the contract works.

 Refer to the general section 1237 WARRANTIES for additional requirements.

 Modify or expand the clause to suit project or manufacturer/supplier requirements.

### 1.5 WARRANTY - INSTALLER/APPLICATOR

 Provide an installer/applicator warranty:
5 years: For **Viking Warm Roof System**

 - Provide this warranty on the installer/applicator standard form.

 - Commence the warranty from the date of practical completion of the contract works.

 Refer to the general section 1237 WARRANTIES for additional requirements.

 Check general section 1237 WARRANTIES for the date of commencement of warranties; which is normally practical completion of the contract. Refer to the chosen conditions of contract as it may also contain information on warranties/guarantees.

### 1.6 WARRANTY - VIKING FULL SYSTEM WARRANTY

 Provide a Viking Full System Warranty for materials and installation:

 20 years: For **Viking Warm Roof System**

 - Apply for when the project consists of over 300m² of materials and the Approved Applicator holds Stage 3 of his Viking Roofspec Licence.

 - Provide this warranty on the Viking Full System Warranty job completion form.

 - Commence the warranty from the date of completion of fixing.

 Refer to the section 1237 WARRANTIES for additional requirements.

 Modify or expand the clause to suit project requirements.

 **Requirements**

### 1.7 QUALIFICATIONS

 Installation of the membrane to be carried out by Viking Approved Applicators approved by Viking Roofspec. Installation of substrates must be completed by tradespersons with an understanding of roof, deck and balcony construction and in accordance with instructions given in Manufacturers Technical Literature.

### 1.8 NO SUBSTITUTIONS

 Substitutions are not permitted to any specified Viking membrane waterproofing materials, or associated products, components or accessories.

 **Performance**

### 1.9 TEST

 Flood test horizontal applications with a minimum 50mm depth of water for 24 hours. Make good any lack of watertightness when the surface is completely dry.

 Not all applications can be checked. All gutters should be checked.

### 1.10 PERFORMANCE

 Accept responsibility for the weather-tight performance of the completed roofing system, including all penetrations through the roof and junctions with walls and parapets. All penetrations to comply with [NZBC E2](http://www.masterspec.co.nz/redirect.aspx?pl=347)/AS1 and Viking Roofspec recommendations.

 Refer to later EXECUTION clause on co-operating with others on the installation of elements which penetrate or adjoin the roofing system; including walls and parapets, skylights, sundry elements fixed through the roofing surface, service pipework, etc.

## 2. PRODUCTS

 **Materials**

2.1 METCOM7 STEEL DECK

Metcom7 0.55 Zincalume x 933mm wide sheet, fixed in accordance with the Holmes engineering summary sheet and span tables. A maximum span of 3.6m is allowable.

### 2.2 POLYISO INSULATION

 **Viking Polyiso**, polyisocyanurate insulation panels. Refer to SELECTIONS for size options.

### 2.2 TAPERED POLYISO INSULATION

 **Viking Tapered Polyiso**, tapered polyisocyanurate insulation panels. Refer to SELECTIONS for size options.

### 2.3 WATERPROOFING MEMBRANE

 **Viking Enviroclad**, a scrim-reinforced thermoplastic polyolefin (TPO) membrane. Refer to SELECTIONS for size and colour options.

 Option 1: delete the option below when using Enviroclad as the waterproofing covering over the top.

### 2.4 WATERPROOFING MEMBRANE

 **Viking Epiclad**, single ply, flexible synthetic EPDM rubber membrane. Refer to SELECTIONS for size and colour options.

### 2.5 WATERPROOFING MEMBRANE

 **Viking Bituclad**, Two-Layer polyester-reinforced APP or SBS modified bitumen membrane. Refer to SELECTIONS for size and colour options.

 Option 2: delete the option above when using Epiclad as the waterproofing covering over the top.

 **Components - Polyiso insulation**

### 2.5 CONTACT ADHESIVE - INSULATION TO SUBSTRATE

 **Fast Adhesive Dual Cartridge**, a polyurethane 2-pack solvent based contact adhesive system. To adhere the insulation to substrate.

### 2.6 VAPOUR BARRIER - FOR ZONE 3 (COLD CLIMATE) AREAS ONLY

###  **Viking Integrated Vapour Barrier – A vapour barrier tape and an industrial silicone forming the vapour barrier in conjunction with the steel deck**

 OR

 **Viking Vapour Barrier Membrane** a rubberised asphalt membrane laminated with a heavy polyethylene film on one face and a siliconised, removable release sheet on the adhesive side.

 NOTE: Delete when not building in Cold Climate areas. Viking Peel and Stick Waterproofing Membrane to be used as a self adhesive waterproofing membrane to [NZBC H1](http://www.masterspec.co.nz/redirect.aspx?pl=258)/AS1 for Cold Climate areas (South Island and North Island Central Plateau and specialised cool stores).

 **Components - Enviroclad installed over Polyiso**

### 2.7 CONTACT ADHESIVE - ENVIROCLAD TO INSULATION

 **Sure Weld Bonding Adhesive**, proprietary solvent based contact adhesive. To adhere **Viking Enviroclad** to insulation.

### 2.8 CUT EDGE SEALANT (CLEAR)

 **Enviroclad Cut Edge Sealant**, proprietary sealant for sealing exposed scrim on cut edges.

### 2.9 MEMBRANE CLEANER

 **Enviroclad** proprietary membrane cleaner.

### 2.10 WELDABLE UNREINFORCED PROPRIETARY MEMBRANE

 **Enviroclad** proprietary unreinforced moulded TPO membrane that can be used to waterproof difficult areas.

### 2.11 T-JOINT COVERS

 **Enviroclad** proprietary unreinforced moulded TPO disks that can be welded for sealing T-joint lap intersections.

### 2.12 PIPE FLASHINGS

 **Enviroclad** proprietary unreinforced moulded TPO flashings that can be welded for flashing pipe penetrations.

### 2.13 POURABLE POCKETS

 **Enviroclad** proprietary unreinforced moulded TPO surrounds that can be welded for encasing groups of pipe penetrations.

### 2.14 THERMOPLASTIC POURABLE SEALER

 **Enviroclad** proprietary thermoplastic pourable sealer for infilling of pourable pocket.

### 2.15 SPLICE WIPES

 **Enviroclad** proprietary HP splice wipes for cleaning and drying membrane prior to welding.

 **Components - Epiclad installed over Polyiso**

### 2.16 CONTACT ADHESIVE - EPICLAD TO INSULATION

 **Viking Epiclad EPDM** contact adhesive.

### 2.17 LAP PRIMER

 **Viking** HP 250 lap primer.

 To provide a clean surface for Epiclad EPDM prior to the application of lap tapes and flashing tapes.

### 2.18 LAP TAPE

 **Viking Superseal Self Adhesive Lap Tape**, 76mm.

 Do not expose Superseal to UV.

### 2.19 LAP SEALANT

 **Viking Lap Sealant**.

 Use for sealing the edges of Epiclad EPDM membrane.

### 2.20 FLASHING TAPE

 **Viking Flashing Tape**, 150mm.

 Can be used for Epiclad with lap primer but without the need for adhesive. Can be exposed to ozone and UV.

 **Accessories**

### 2.21 WALKWAY MATS

 **Viking walkway mat/roll**.

 Used to protect areas of roof or deck exposed to frequent foot traffic.

### 2.22 SCUPPER OUTLETS

 **Viking Scupper** roof drainage outlets, 200mm x 75mm to [NZBC E2](http://www.masterspec.co.nz/redirect.aspx?pl=347)/AS1.

 Other size options available from Viking Roofspec are 65mm x 100mm, 100mm x 100mm, 50mm x 40mm. These are alternative solutions and do not comply with [NZBC E2](http://www.masterspec.co.nz/redirect.aspx?pl=347)/AS1.

 Note: overflows can be smaller refer [NZBC E2](http://www.masterspec.co.nz/redirect.aspx?pl=347)/AS1, fig 63.

### 2.23 LEAF AND GRAVEL GRATES

 **Viking Gravel/Leaf Grates**.

 Available in a variety of shapes and sizes to suit pipes from 60mm to 200mm.

### 2.24 ROOF OUTLETS

 **Surefix Roof Outlets**, roof drainage outlets.

 Available with a clamping ring and grate or without.

### 2.25 DRYLIGHT SKYLIGHT

 1220mm x 1220mm single piece skylight with white monolithic plastic frame.

 To be used with Enviroclad only.

### 2.26 DRYLIGHT FLASHING SLEEVE

 TPO flashing sleeve for waterproofing skylight to the membrane.

 **Finishes**

 Viking Butylclad and Epiclad EPDM membranes do not need to be painted, however Viking Roofspec provide the following paint options when required.

### 2.27 ALUMINIUM PAINT

 **Viking** compatible aluminium paint system. Refer to SELECTIONS for option.

### 2.28 PAINT

 **Viking** compatible paint system. Refer to SELECTIONS for option.

Components – Bituclad Membrane System

2.31 BITUCLAD SAND BASE SHEET

 3mm APP modified, sand finished, reinforced, torch on base sheet

2.32 BITUCLAD CAP SHEET

 4mm APP modified, mineral chip finished, torch on cap sheet

 For use on all substrates prior to the installation of the membrane.

 Accessories

### 2.33 VENTS

 Aluminium vent

 Used for disbursement of vapours from roof cavities

### 2.34 BITUCLAD SCUPPER OUTLETS

 Scupper outlet sizes 60mm x 40mm; 100mm x 65mm; 100mm x 100mm or

 200mm x 75mm.

### 2.35 CLAMP RING ROOF DRAINS OR OVERFLOWS

 80mm, 100mm or 150mm clamp sealed drains and overflows

2.36 BITUCLAD DROPPER OUTLETS

 Proprietary 80mm and 100mm dropper outlets

 Other size options available from Viking Roofspec are 65mm x 100mm, 100mm x 100mm, 50mm x 40mm. These are alternative solutions and do not comply with [NZBC E2](http://www.masterspec.co.nz/redirect.aspx?pl=347)/AS1.

 Note. Overflows can be smaller refer [NZBC E2](http://www.masterspec.co.nz/redirect.aspx?pl=347)/AS1, fig 63.

 Available in a variety of shapes and sizes to suit pipes from 60mm to 200mm.

 Available with a clamping ring and grate or without.

 Equipment

### 2.37 TORCH

 LPG gas torch with a trigger control; complete with gas bottle, regulators and hose.

 Note: DO NOT APPLY HEAT DIRECTLY TO THE INSULATION SUBSTRATE.

## 3. EXECUTION

 **Conditions**

 Refer to Viking Roofspec Technical Literature for detailed information and call 0800 729 799 for technical assistance.

### 3.01 GENERALLY

 All work and materials to comply with Viking Membrane Waterproofing Systems manual, and [NZBC E2](http://www.masterspec.co.nz/redirect.aspx?pl=347)/AS1.

### 3.02 STORAGE

 Take delivery of **Viking Polyiso** sheets and **Viking** membrane rolls undamaged and include for site handling facilities where required. Provide dry storage. Store membrane rolls horizontally only. Stack off the ground on a level surface and with accessories.

### 3.03 WEATHER

 Lay membrane in fair weather, with ambient air temperature no less than 7°C.

### 3.04 EQUIPMENT

 Viking Roofspec recommend the approved applicator use the following equipment:

 - automatic welding machine

 - hand held welding machine

 - roller

 - Battery or pneumatically powered DUAL caulking guns

 **Application - preparation**

### 3.05 PRELIMINARY WORK

 Ensure that preliminary work, including formation of falls, flashing rebates, grooves, ducts, is complete and properly constructed to enable the system to work as intended. This work and the substrate to be smooth, clean, dry and stable.

 Check with the BCA to confirm requirements in addition to the NZBC.

### 3.06 ACCEPTANCE OF SUBSTRATE

 Confirm that the substrate, including sumps, outlets and projections, will ensure work of the required standard. Ensure the fall complies with [NZBC E2](http://www.masterspec.co.nz/redirect.aspx?pl=347)/AS1 8.5 Membrane roofs and decks including correct fall to rainwater outlets to avoid ponding..

 [NZBC E2](http://www.masterspec.co.nz/redirect.aspx?pl=347)/AS1 states the minimum slope for roofs is 2° and 1.5° for decks.

3.09 STEEL “TRAY DECK” SUBSTRATE – Metcom 7

 Fix steel to the Holmes Solutions Engineering Report and manufacturers specifications in compliance with NZBC. Ensure pitch meets minimum requirements for a *membrane* roof. (minimum to [NZBC E2](http://www.masterspec.co.nz/redirect.aspx?pl=347)/AS1, 8.5.1, - 1:30 for roofs, 1:40 for decks and 1:100 for gutters).

 Steel profile for new roofs to match Metalcraft Metcom 7 or equivalent with:

 - minimum 25mm PIR insulation

 Amend the above clause if the plywood substrate is specified elsewhere, such as in 4337 PLYWOOD ROOFING AND DECKING. Do not use hardboard or MDF board.

 WARNING: Do not use light oil solvent based preservative (LOSP).Plywood substrates are best fixed with stainless steel, self-tapping, counter-sunk screws. Specify in 4337 PLYWOOD ROOFING AND DECKING, along with a requirement to bring the substrate up to an acceptable standard for this clause. Do not use hardboard or MDF board. Refer [NZBC E2](http://www.masterspec.co.nz/redirect.aspx?pl=347)/AS1. Refer to Plywood Manufacturers span tables for alternative solutions using thicker plywood or purpose made plywood flooring products.

 **Application - insulation**

### 3.10 GENERAL

 Substrate to be clean and dry before application of the insulation.

 Modify to suit project by adding concrete or plywood substrate.

### 3.11 INTERGRATED VAPOUR BARRIER - FOR ZONE 3 (COLD CLIMATE) AREAS ONLY

 Ensure Viking Vapour Barrier silicone sealant and vapour tapes are used in conjunction with neoprene washers on all fixings to provide the integrated vapour barrier under the Viking Polyiso panels. Viking Warm Roof System requires either the use of the integrated vapour barrier or a separate vapour barrier sheet, for Cold Climate areas according to [NZBC H1](http://www.masterspec.co.nz/redirect.aspx?pl=258)/AS1.

 NOTE: This is only a requirement for Cold Climate areas according to [NZBC H1](http://www.masterspec.co.nz/redirect.aspx?pl=258)/AS1. Delete when not building in Cold Climate areas.

### 3.12 R-VALUE/ THICKNESS

 Refer to SELECTIONS for thickness. Note minimum thicknesses for steel profile.

 Establish the R-value for the climate area and building type by referring to [NZBC H1](http://www.masterspec.co.nz/redirect.aspx?pl=258) AS1.

### 3.13 PREPARATION

 Carry out an adhesive test using a half sheet of **Viking Polyiso** on the substrate and wait 24 hours. For proper adhesion ensure the facer material delaminates after the pull-off-test. Consult a Viking Roofspec representative for advice when the facer material does not delaminate.

### 3.14 APPLY ADHESIVE

 Adhere **Viking Polyiso** sheets in a brick bond pattern using **Fast Adhesive** system**,** approximately 15mm diameter bead, in sweeping ribbons 300mm apart.

 NOTE: Where there are no parapets, install a timber batten around the perimeter as a protective frame. Timber to have an arrised edge for the membrane to be installed over. Ribbons must be a maximum 150mm apart for an entire 1200mm perimeter from the roof edge.

### 3.15 TEST ADHESIVE BEFORE LAYING

 Test adhesive using the string test before laying the **Polyiso** panels.

### 3.16 LAY INSULATION

 Roll the entire insulated roof area with a minimum 70 kg roller immediately after each sheet is laid. Viking Roofspec recommends one person is designated to do this. On completion use a sander or other appropriate levelling tool to smooth over uneven edges.

### 3.17 LAY SECOND LAYER INSULATION - WHERE REQUIRED

 Ensure the top layer has sheets positioned in staggered half-drops both length and width ways to eliminate points where sheet joints are vertically concurrent.

 Delete when second layer is not required.

### 3.18 LAY TAPERED INSULATION

 Where required lay tapered **Polyiso** panels to promote watershed to desired drainage points.

 **Application - Enviroclad installed over Polyiso**

### 3.19 POSITION

 Position membrane over insulation and fold membrane back to expose half of the underside.

### 3.20 APPLY ADHESIVE

 Apply **Sure Weld Bonding Adhesive** to the exposed underside of the membrane and to the corresponding insulation substrate. Apply using a plastic core medium nap paint roller at a coverage rate of 2m² per litre per finished surface (includes coverage on both membrane and insulation).

### 3.21 INSTALL MEMBRANE SHEETS

 Allow adhesive to dry tacky and roll the coated membrane onto the coated insulation substrate. Brush down the bonded section of **Enviroclad** membrane immediately with a soft bristle broom. Fold back the unbonded half of the sheet and repeat procedure.

### 3.22 LAP JOINTS

 Install adjoining **Enviroclad** membrane sheets in the same manner, overlapping edges a minimum of 50mm to provide for a minimum 40mm hot air weld.

### 3.23 HOT AIR WELD

 Hot air weld the adjoining **Enviroclad** membrane sheets to a minimum of 40mm with an automatic hot air welding machine with nominal settings of 4 metres per minute at 470°C variable to conditions. Refer to Viking Roofspec for more information on use of automatic hot air welding machine.

 Adjoining sheets of membrane are overlapped approximately 50mm and joined together with a minimum 40mm hot-air weld.

### 3.24 MEMBRANE CLEANER

 Ensure membrane that has been exposed to the elements for approximately 7 days is prepared with membrane cleaner. Wipe the surface where the membrane cleaner has been applied with a clean, dry HP Splice Wipe to remove cleaner residue prior to hot-air welding.

### 3.25 INSPECT

 Inspect, test joints and welded details on completion (with seam-probe tool). Flood test with a minimum 50mm depth of water for 24 hours.

### 3.26 PENETRATIONS

 Form and finish upstands, downturns, penetrations, sumps and vents to conform with the Viking Roofspec required details.

 Where metal flashings and sleeves are shown in the detailing, specify under PRODUCTS.

### 3.27 PENETRATIONS AND JUNCTIONS

 Check that adjoining walls and parapets are prepared ready for the installation of the membrane. Confirm that openings have been prepared ready for the installation of skylights and other penetrations through the roof. Required work includes the following:

 - roofing installation neatly finished to all sides of openings and to wall and parapet junctions

 - installation of flashings (those required to be installed prior to installation of penetrating elements and/or wall linings).

 **Application - Epiclad installed over Polyiso**

### 3.28 POSITION

 Position the first length of sheet running across the fall of insulation starting from the lowest side of the substrate. Cut oversize to ensure adequate material is allowed for edge details, and for vertical terminations to finish at least 50mm above any adjacent internal floor levels. Block down the sheet securely along the edge side.

### 3.29 APPLY ADHESIVE

 Apply adhesive to both the exposed membrane and the exposed substrate, one half at a time. Do not thin adhesive with solvent.

### 3.30 LAY SHEETS

 When the adhesive is tack dry roll the sheet onto the insulation substrate, taking note of the time limits set by the manufacturer. Unfold the sheet and adhere to substrate working progressively from the centre towards the edge of the sheet. Do not position the membrane with any tension. Smooth out wrinkles with a soft bristle broom. Repeat the process for the other half of the sheet. Mark lap width on adhered sheet, 76mm. Lay the next sheet with leading edge over the adhered sheet up to the marked line and repeat process.

### 3.31 LAP JOINTS

 Apply 76mm lap tape to lap Epiclad. Solvent wipe lap area with HP 250 lap primer using primer pad. Following application of lap tape, pressure roll the tape with roller and do the same with subsequent top layer of lap.

### 3.32 INSPECT

 Inspect and test joints on completion.

### 3.33 PENETRATIONS

 Form and finish upstands, downturns, penetrations, sumps and vents to conform with the Viking Roofspec required details.

 Where metal flashings and sleeves are shown in the detailing, specify under PRODUCTS.

### 3.34 PENETRATIONS AND JUNCTIONS

 Check that adjoining walls and parapets are prepared ready for the installation of the roofing. Confirm that openings have been prepared ready for the installation of skylights and other penetrations through the roof. Required work includes the following:

 - roofing installation neatly finished to all sides of openings and to all wall and parapet junctions

 - installation of flashings (those required to be installed prior to installation of penetrating elements and/or wall linings).

 **Application – Bituclad installed over Polyiso**

### 3.13 INSTALL BASE MEMBRANE

 Unroll the Bituclad Sand Base Sheet base membrane and align in position. commence at the low end of the roof ensuring that the polyethylene burn-off film is face down.

### 3.14 RE-ROLL MEMBRANE HALF WAY

 Re-roll the membrane half way leaving the other half of the roll fully extended, to ensure that the membrane will remain aligned during the welding process.

### 3.15 TORCH BASE MEMBRANE

 Evenly torch off the film surface of the membrane using a sweeping motion to maintain even heat across the roll. Allow a bead of bitumen to flow from between the lap seam a distance of 6mm to 10mm from the membrane edge. The bleed line should be consistent and uninterrupted. To repair laps that are not fully bonded insert a hot trowel between affected seams and lightly torch. DO NOT APPLY HEAT DIRECTLY TO THE INSULATION SUBSTRATE.

### 3.16 SIDE AND END LAPS

 Side laps to be a minimum of 75mm and end laps to be a minimum of 150mm.

### 3.17 INSTALL CAP MEMBRANE

 Unroll the Bituclad Mineral sheet cap membrane and align in position. Position the cap sheet with the centre of the cap sheet covering the lap join of the base sheet. Commence at the low end of the roof ensuring that the polyethylene burn-off film is face down.

### 3.18 RE-ROLL MEMBRANE HALF WAY

 Re-roll the membrane half way leaving the other half of the roll fully extended, to ensure that the other half of the membrane remains aligned during the welding process.

### 3.19 TORCH CAP MEMBRANE

 Evenly torch off the film surface of the membrane using a sweeping motion to maintain even heat across the roll. Allow a bead of bitumen to flow from between the lap seam a distance of 6mm to 10mm from the membrane edge. The bleed line must be consistent and uninterrupted. To repair laps that are not fully bonded insert a hot trowel between affected seams and lightly torch. DO NOT APPLY HEAT DIRECTLY TO THE INSULATION SUBSTRATE.

### 3.20 SIDE AND END LAPS

 Side laps to be a minimum of 75mm and end laps to be a minimum of 150mm. Heat head lap of mineral surfaced sheet and scrape off the mineral chip to allow for adhesion of the membrane joint.

 The mineral surfaced sheet has a longitudinal edge without mineral chip.

### 3.21 PENETRATIONS & JUNCTIONS

 Form and finish upstands, downturns, penetrations, outlets and vents to conform to current Viking Roofspec Standard Details. Confirm installation of all required flashings and terminations, to leave membrane watertight upon project completion.

### 3.22 VENTING – ROOF/DECK CAVITIES

###  Ventilation is not necessarily required when installing a Warm Roof- consult Viking regarding the structure for further advice. Where Polyisocyanurate insulation exceeds 75mm in total, no ventilation should be required. Where required, provide adequate ventilation per E2/AS1. If applying roof mounted proprietary vents, install a minimum one Viking roof vent for the first 40m² of flat roof area and one vent per 90m² thereafter. Check that the cavity is cross ventilated to allow air movement across the entire cavity.

 Modify this clause to suit the project specified.

### 3.19 INSPECT

 Inspect all welds and repair if necessary. Ensure no fire danger or risk exists, prior to completion.

### 3.20 PENETRATIONS & JUNCTIONS

 Detail upstands, downturns, penetrations, outlets and vents to meet Viking Roofspec Standard Details. Confirm installation of all required flashings and terminations, to leave membrane watertight upon project completion.

 Finishing

### 3.22 FOOT TRAFFIC

 Keep foot traffic to a minimum after laying the membrane. Lay protection as required for foot traffic or later works.

 Traffic concentration points would include roof hatches, access doors, rooftop ladders and walkways. Traffic of once a month or more would be sufficient to justify walkway protection. Viking Roofspec supply protective walkway pads and rolls.

### 3.23 ACCESS BOARDS

 Provide access boards for later operations and remove when no longer needed.

### 3.24 ACCEPTANCE

 Inspect the completed work. Protect and maintain roofing until completion of the contract works.

 Modify this clause to suit the project specified.

 **Finishing**

### 3.35 ACCEPTANCE

 Arrange for an inspection of the completed work. Protect and maintain roofing until completion of the contract works.

### 3.36 SUBSEQUENT WORK

 Make good any covering cut or deformed by later work. Making good to take the form of inserting a new whole or part infill sheet to maintain the appearance of the covering as originally laid.

 **Completion**

### 3.37 CLEAN UP

 Clean up as the work proceeds.

### 3.38 LEAVE

 Leave work to the standard required by following procedures.

### 3.39 REMOVE

 Remove debris, unused materials and elements from the site.

## 4. SELECTIONS

 Where there is a NO SUBSTITUTIONS clause in GENERAL, no substitutions are permitted to any of the specified systems, components and associated products listed in the following SELECTIONS.

 Where in SELECTIONS, a material, component or accessory is named by brand, manufacturer or model number; substitutions are not permitted unless otherwise agreed.

 **Materials**

### 4.1 INTERGRATED VAPOUR BARRIER - FOR ZONE 3 ONLY

 Location: Over Metcom 7 profile deck

 Brand/type: **Viking Vapour Tape** (VWS140) for penetrations

 **Viking Industrial Silicone** (VWS150) for sealing sheet joins

 Thickness: Vapour Tape 1.5mm

 Industrial Silicone 5mm bead

 Size: Vapour Tape 1.62mm x 152mm x 22.9m

 Industrial Silicone 5mm bead

 NOTE: This is only a requirement for Cold Climate areas according to [NZBC H1](http://www.masterspec.co.nz/redirect.aspx?pl=258)/AS1. Delete when not building in Cold Climate areas.

### 4.2 POLYISO INSULATION

 Location: ~

 Type/Brand: **Viking Polyiso**

 Thickness: ~ 25mm, 50mm or 75mm

 Size: 1220mm x 2270mm (2.77m²)

 Options:

 Thickness: 25mm, 38mm, 50mm, 63mm, 76mm

### 4.3 TAPERED POLYISO INSULATION

 Location: ~

 Type/Brand: **Viking Tapered Polyiso**

 Thickness: ~mm

 Size: 1220mm x 1220mm (1.44m²)

 Options:

 Thickness: 63mm down to 38mm, 38mm down to 12mm

 NOTE: Thickness full at the thick end and slopes vary.

### 4.4 ENVIROCLAD MEMBRANE

 Location: ~

 Brand/type: **Viking Enviroclad**

 Thickness: ~mm

 Size: 3.0 metres wide x 30.4 metres long

 Colour: ~

 Finish: smooth

 Options:

 Thickness: 1.14mm or 1.5mm

 Colour: Grey or white, tan available on indent

 Size: 3.6 metres width available on indent

### 4.5 EPICLAD RUBBER MEMBRANE

 Location: ~

 Brand/type: **Viking Epiclad**

 Thickness: ~mm

 Size: ~ metres wide x ~ metres long

 Colour: black

### 4.6 BITUCLAD TOW LAYER TORCH-ON MEMBRANE

 Location: ~

 Brand/type: **Viking Bituclad**

 Thickness: 3mm Base Sheet- 4mm Mineral Chip Cap Sheet. (7mm)

 Size: 1m x 10m

 Colour: Grey, Black

 Options:

 Thickness/size: 1.14mm thick, 2.1 metres wide x 15.2 metres long

 1.14mm thick, 3.0 metres wide x 15.2 metres long

 1.14mm thick, 6.0 metres wide x 15.2 metres long

 1.5mm thick, 3.0 metres wide x 15.2 metres long

 1.5mm thick, 6.0 metres wide x 15.2 metres long

 Roll lengths of 30 m are available on indent.

 Colour option: White available on indent.

### 4.7 ACCESSORIES

 Location: ~

 Type: ~

 Type options: Viking Scupper

 Walkway rolls

 Viking Gravel/ Leaf Grates

 Roof outlets:

 - Surefix Roof Outlets, available with a clamping ring and grate or without

 - Roof drainage outlets, with grill or dome,