# 4161PI PRO CLIMA INTERNAL AIRTIGHTNESS SYSTEM

## 1. GENERAL

 If you have pre-customised this work section using the "questions and answers" provided as part of the downloading process, it may be necessary to amend some clauses to suit the final project-specific version.

 The section must still be checked and customised to suit the project being specified, by removing any other irrelevant details and adding project-specific details and selections.

 This section relates to the application of **Pro Clima NZ Limited** internal air tightness and moisture control system (IAS).

 It includes:

 - INTELLO® PLUS vapour check membrane

 - AEROSANA® VISCONN range of spray and brush applied sealant/membranes

 - DASATOP® vapour check membrane for refurbishment

 - associated sealing tapes, adhesives and accessories

 Modify or extend the above description to suit the project being specified.

 The pro clima Intelligent Airtightness System (IAS) comprised of the INTELLO PLUS vapour check range of products is intended to reduce the potential for interstitial condensation, heat loss due to convection, structural degradation, dry rot and mould growth when installed in a residential situation.

 Note: The provision of pro clima vapour control membranes is not covered in the NZBC and consequently may be considered as an alternative solution in respect to the Building Code. Reference should be made to the Ministry of Business, Innovation, and Employment (MBIE) Determination 2011/050, decision 24 May 2011 (determination from DBH).

 Consult with Pro Clima NZ Limited for further advice.

 Note: The pro clima Intelligent Airtightness System (IAS) recommends the installation of a strip of INTELLO PLUS membrane during framing. Refer to clause HIGH PERFORMANCE REINFORCED VAPOUR CONTROL LAYER CONNECTION STRIP for information. Ensure that reference is made to this in the appropriate carpentry/wall framing section.

### 1.1 RELATED WORK

 Refer to ~ for ~

 Include cross references to other sections where these contain related work.

### 1.2 ABBREVIATIONS AND DEFINITIONS

 Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

 The following abbreviations apply specifically to this section:

 IAS Intelligent Airtightness System

 ACH Air Changes per Hour

 MVTR Moisture Vapour Transmission Rate

 PET Polyethylene terephthalate

 PP Polypropylene

 **Documents**

### 1.3 DOCUMENTS

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

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

 [NZS 3602](http://www.masterspec.co.nz/redirect.aspx?pl=299) Timber and wood-based products for use in building

 [NZS 3603](http://www.masterspec.co.nz/redirect.aspx?pl=300) Timber structures standard

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

 [NZS 3622](http://www.masterspec.co.nz/redirect.aspx?pl=1174) Verification of timber properties

 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.

 Check with Pro Clima NZ Limited to ensure that you have the most up to date information.

 [AS/NZS 4859.1](http://www.masterspec.co.nz/redirect.aspx?pl=697):2002 is cited in the [NZBC H1](http://www.masterspec.co.nz/redirect.aspx?pl=258)/AS1. New version [AS/NZS 4859.1](http://www.masterspec.co.nz/redirect.aspx?pl=697) &.2:2018 not yet cited.

 [AS/NZS 4859.1](http://www.masterspec.co.nz/redirect.aspx?pl=697):2002 superseded by [AS/NZS 4859.1](http://www.masterspec.co.nz/redirect.aspx?pl=697):2018 Part 1 and [AS/NZS 4859](http://www.masterspec.co.nz/redirect.aspx?pl=290).2:2018 Part 2

 [NZBC E3](http://www.masterspec.co.nz/redirect.aspx?pl=234)/AS1 Internal moisture

 [NZBC G4](http://www.masterspec.co.nz/redirect.aspx?pl=246)/AS1 Ventilation

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

 [NZS 4218](http://www.masterspec.co.nz/redirect.aspx?pl=317) Thermal insulation - Housing and small buildings

 [NZS 4243.1](http://www.masterspec.co.nz/redirect.aspx?pl=1027) Energy efficient - Large buildings - Building thermal envelope

 [AS/NZS 4859.1](http://www.masterspec.co.nz/redirect.aspx?pl=697):2002 Materials for the thermal insulation of buildings - General criteria and technical provisions

 [AS/NZS 4859.1](http://www.masterspec.co.nz/redirect.aspx?pl=697):2018 Thermal insulation materials for buildings - Part 1: General criteria and technical provisions

 [AS/NZS 4859](http://www.masterspec.co.nz/redirect.aspx?pl=290).2:2018 Thermal insulation materials for buildings - Part 2: Design

### 1.4 MANUFACTURER/SUPPLIER DOCUMENTS

 Pro Clima documents relating to work in this section are:

 INTELLO® PLUS Technical Brochure

 INTELLO® PLUS Installation Instructions

 Tescon VANA Application Guide

 INTELLO® PLUS Connection Strip Data Sheet

 AEROSANA® VISCONN Technical Brochure

 DASATOP® Technical Brochure

 Manufacturer/supplier contact details

 Company: **Pro Clima NZ Limited**

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

 Email: info@proclima.co.nz

 Telephone: 0800 PRO CLIMA (776 254)

 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**

### 1.5 WARRANTY - MANUFACTURER/SUPPLIER

 Provide a material manufacturer/supplier warranty:

 10 years For pro clima system

 - Provide this warranty on the pro clima standard form.

 - Commence the warranty from the date of purchase of the product from the manufacturer.

 Refer to the pro clima warranty agreement and the general section 1237 WARRANTIES for additional requirements.

 6 years If the products are installed in combination with products from third parties.

 10 years For the pro clima airtightness system and for individual pro clima construction products in combination with all approved thermal insulation materials if these products are installed solely in combination with pro clima standard products, insofar as products are available in the pro clima system for the relevant application.

 The six year warranty period for products begins from sale of the product to the supplier by the manufacturer (Moll bauökologische Produkte GmbH).

 The warranty period extends to ten years from sale of the product to the supplier by the manufacturer if installation of the products is carried out solely in combination with pro clima standard products.

 Contact pro clima for a copy of the full warranty agreement and approved materials.

 Modify or expand the clause to suit project or manufacturer/supplier requirements, options include:

 - Change the standard form to be used (check with the manufacturer/supplier, use the general section 1237WA WARRANTY AGREEMENT if required)

 - Commence the warranty from the date of practical completion of the contract works (check with the manufacturer/supplier)

### 1.6 WARRANTY - INSTALLER/APPLICATOR

 Provide an installer warranty:

 2 years: For installation

 - Provide this warranty on the installer/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 installer requirements, options include:

 - Change the standard form to be used (check with the installer, use the general section 1237WA WARRANTY AGREEMENT if required)

 - Commence the warranty from the date of installation (check with the installer)

 **Requirements**

### 1.7 NO SUBSTITUTIONS

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

### 1.8 INSTALLATION SKILL LEVELS

 Installers to be experienced in the installation of pro clima products and familiar with Pro Clima NZ Limited technical literature and the related documents listed in this design.

 **Performance - airtightness**

### 1.9 QUALITY PERFORMANCE

 Confirm in SELECTIONS the airtightness level required for this project based on a pressure difference of 50 pascals.

## 2. PRODUCTS

 Select the system for this work and then use the PRODUCTS and EXECUTION clauses required for the particular system. Consult the manufacturer for any special requirements.

 **Intelligent airtightness system (IAS)**

### 2.1 INTELLIGENT AIRTIGHTNESS SYSTEM (IAS)

 Intelligent Airtightness System (IAS), an airtightness and moisture control system, comprised of the following:

 - Humidity-variable vapour control and airtightness membrane INTELLO® PLUS

 - Sprayable airtightness sealant / membrane AEROSANA® VISCONN

 - Humidity-variable fibre-reinforced brush-on sealant AEROSANA® VISCONN FIBRE

 - Humidity-variable refurbishment vapour control layer DASATOP®

 - Multi-purpose adhesive tape TESCON VANA

 - Adhesive tape TESCON PROFIL for joinery connection

 - Multi-purpose liquid adhesive ORCON

 - Airtightness grommets KAFLEX and ROFLEX for cable and pipe penetrations

 - Airtightness box for power points and light switches INSTAABOX.

 The IAS system is designed to reduce the potential for interstitial condensation, heat loss due to convection, structural degradation, dry rot and mould growth.

 **Materials**

### 2.2 HIGH PERFORMANCE REINFORCED VAPOUR CONTROL LAYER CONNECTION STRIP

 INTELLO® PLUS High performance reinforced vapour control layer connection strip, comprised of PP microfibre fleeces with PP reinforcement and polyethylene copolymer membrane. Designed to connect air tightness membranes at junctions between internal walls and external walls / ceilings. Supplied in rolls 300mm wide x 50m long.

 Installed during framing stage.

 There is an optional product installed during framing stage for buildings with two or more storeys which provides a connection between IAS layers at the mid floor. Refer to Pro Clima NZ Limited for assistance with the "Mid Floor Connection Strip" using pro clima SOLITEX EXTASANA.

### 2.3 HIGH PERFORMANCE REINFORCED VAPOUR CONTROL LAYER

 INTELLO® PLUS High performance reinforced vapour control layer, comprised of PP microfibre fleeces with PP reinforcement and polyethylene copolymer membrane. Used as a vapour control and airtightness membrane for all externally diffusion-open constructions. Supplied in rolls 1.5m wide x 20m and 50m long, and 3m wide x 50m long.

 INTELLO PLUS is grid reinforced making it easier to install tight, while avoiding tearing of the membrane under pressure.

 Contact Pro Clima NZ Limited for further information and recommendations.

### 2.4 SPRAYABLE AIRTIGHTNESS SEALANT

 AEROSANA® VISCONN sprayable airtightness sealant, comprised of an aqueous acrylic dispersion high humidity-variable control and airtight layer. Applied by spray or brush on surfaces such as non-plastered masonry or porous panels. Provides a bonding course between sub-surface and subsequent coatings. Can be plastered / painted over and provides adhesion for Pro Clima adhesive tapes.

 Suitable for interior and exterior surfaces, for building component joints, and for strengthening sub-surfaces during renovation works.

### 2.5 FIBRE-REINFORCED BRUSH-ON AIRTIGHTNESS SEALANT

 AEROSANA® VISCONN FIBRE sealant comprised of an aqueous acrylic dispersion fibre-reinforced, high humidity-variable vapour control layer. Applied by brush to cracks and joints of up to 20mm wide. Large joints can be covered in combination with AEROSANA® FLEECE. Provides a bonding course between sub-surface and subsequent coatings. Can be plastered / painted over and stuck over with all Pro Clima adhesive tapes.

 Suitable for interior and exterior surfaces, for building component joints and cracks.

### 2.6 HUMIDITY VARIABLE VAPOUR CONTROL LAYER - FOR REFURBISHMENTS

 DASATOP® airtightness and vapour control membrane, comprised of a polyethylene copolymer with tear resistant PP fleece reinforcement. Has a high humidity-variable MVTR value which protects the supporting structure and insulation layer. Installed from the outside over existing rafters and across sarking in roof renovation projects.

 Supplied in rolls 1.5m wide x 50m long.

 Suitable for application to the interior of the insulation layer.

 **Components**

### 2.7 MULTI-PURPOSE ADHESIVE TAPE

 TESCON VANA multi-purpose adhesive tape comprised of special fleece made from PP and solid acrylic adhesive with siliconized release paper. Used to secure and provide permanent airtight seal of overlaps between INTELLO® PLUS membranes, joints between membranes and smooth, non-mineral surfaces. Supplied in rolls 60mm wide x 30m long.

 Also suitable for sealing joints between wood-based panels, e.g. flooring sheets.

### 2.8 CORNER SEALING TAPE

 TESCON® PROFIL corner sealing tape comprised of special fleece made from PP and solid acrylic adhesive with siliconized release paper in individual strips 12 / 23 / 25mm. Supplied in rolls 60mm wide x 30m long.

 Suitable for permanent airtight connection between INTELLO® PLUS membranes and windows and doors.

### 2.9 WINDOW AND DOOR SEALING TAPE

 CONTEGA® IQ window and door connection strip comprised of PP microfibre fleeces, used for airtight or weathertight connection to window and door frames to the air tightness layer, wall underlay or other weathertightness layer. Supplied in rolls 90mm wide x 30m long.

 1 self-adhesive strip used for masonry construction and 2 self-adhesive strip used for timber construction.

 Suitable for "euro style" joinery without liners/reveals.

### 2.10 PLASTERED CONNECTIONS SEALING TAPE

 CONTEGA® PV fleece tape for interior airtight plaster connections, comprised of PET fleece with functional membrane and plaster reinforcement. Used for connections between INTELLO® PLUS membrane or wood-based panels and surfaces that will be plastered (brickwork or concrete). Supplied in rolls 200mm wide x 15m long.

### 2.11 DOUBLE SIDED TAPE

 DUPLEX Double sided tape comprised of siliconized release paper, used for bonding the overlaps of membranes and fixing of membranes to steel frame structures. Supplied in rolls 25mm wide x 20m long.

### 2.12 MULTI-PURPOSE ADHESIVE

 ORCON® Classic multi-purpose adhesive, for bonding pro clima membranes to rough adjoining structural components or mineral surfaces. Supplied in a 310ml cartridge or 600ml sausage.

 **Accessories**

### 2.13 FIXING BATTEN - FOR REFURBISHMENTS

 DASATOP® FIX fixing batten comprised of MDF/HDF fibreboard, used to secure positioning of a sub and top refurbishment vapour control layer on sides of rafters.

 Used in conjunction with DASATOP® airtightness and vapour control membrane.

 DASATOP® FIX board simplifies the installation of sub and top installation of DASATOP® installed around existing rafters.

### 2.14 CRACK / JOINT COVERING FLEECE

 AEROSANA® FLEECE malleable PET fleece material used to cover cracks or joints in conjunction with AEROSANA® VISCONN (wider than 3mm) and AEROSANA® VISCONN FIBRE (wider than 20mm). Supplied in rolls 150mm wide x 25m long (2 rolls per pack).

### 2.15 SEALING GROMMETS - SINGLE AND DOUBLE

 KAFLEX mono/duo sealing grommets 145mm x 145mm, manufactured from special reinforced paper with solid acrylic adhesive and EPDM. Single and double models for round cables of diameter 6-12mm.

 Designed for permanent airtight sealing of penetrations of cables and pipes through an airtightness layer.

 Also suitable for sealing penetrations through roof and wall underlays, for indoor and outdoor applications.

### 2.16 SEALING GROMMETS - MULTI

 KAFLEX multi sealing grommet 140mm x 140mm, manufactured from EPDM rubber. Multiple cable grommet for up to 16 round cables of diameter 6mm-12mm.

 Designed for permanent airtight sealing of penetrations of cables and pipes through an air tightness layer.

 Also suitable for sealing penetrations through roof and wall underlays, for indoor and outdoor applications.

### 2.17 SEALING PATCH FOR ALREADY INSTALLED CABLES

 KAFLEX post sealing patch for already installed cables 140mm x 140mm, manufactured from special reinforced paper and solid acrylic adhesive. Designed to provide a durable seal to an installed cable that is already connected. Can be used in combination with internal or external membranes and applied to cold and wet surfaces.

### 2.18 SEALING GROMMETS - FOR PIPES

 ROFLEX 20 sealing grommet for pipes manufactured from special reinforced paper with EPDM and solid acrylic adhesive, 140mm x 140mm in size. Sealing grommet for pipes of diameter 15mm-30mm.

 Designed for permanent airtight sealing of penetrations of cables and pipes through an airtightness layer.

 Also suitable for sealing penetrations through roof and wall underlays, for indoor and outdoor applications.

### 2.19 SEALING GROMMETS - CONDUIT

 ROFLEX 20 multi conduit grommet manufactured EPDM rubber, 200mm x 200mm in size. Multi conduit grommet for up to 9 conduits.

 Designed for permanent airtight feed-through of pipes through the airtight sealing layer or under the roof.

### 2.20 SEALING GROMMETS - FOR PIPES

 ROFLEX 30 / 50 / 100 / 150 / 200 / 250 / 300 sealing grommets for pipes manufactured from EPDM rubber. Models supplied in sizes 140mm x 140mm to 500mm x 500mm.

 Designed for permanent airtight sealing of penetrations of cables and pipes 30mm - 320mm in diameter through an airtightness layer. Also suitable for sealing penetrations through roof and wall underlays for indoor and outdoor applications when used in conjunction with TESCON VANA (internal) or TESCON EXTORA (external) adhesive tape over grommets.

### 2.21 INSTALLATION BOX

 INSTAABOX installation box, manufactured from flexible and extensible polyethylene, designed for airtight installation of light switches and power plugs for wall systems where no service cavity is provided.

 Installed prior to, and holds up to three flush boxes, has pre-pressed exit points for cables up to 20mm in diameter. Unit supplied 260mm x 130mm x 55mm deep (internal dimensions). Seal exit points with ORCON once cables are pushed through.

 **Quality control**

### 2.22 VERIFICATION OF INSTALLATION OF INTELLIGENT AIRTIGHTNESS SYSTEM (IAS)

 pro clima WINCON system used to test air leakage at the time of installation, by depressurizing the building. System consists of the following:

 - WINCON Installation verification fan

 - WINCON Transport box

 - WINCON Tape

 - Draegar smoke stick kit CH 216

 WINCON fan can be hired from PCNZ. Used before lining to ensure the application has been complete and free from any defects (air leakages).

 Used in the same way as a plumber pressure tests pipework.

### 2.23 MEASUREMENT OF BUILDING AIRTIGHTNESS PERFORMANCE

 BlowerDoor verification device, used to measure infiltration rates in existing buildings by both pressurizing and depressurizing buildings.

 This procedure is used to ascertain leakage against a world wide standard, but only required tor buildings fhat are designed for, and required to meet a particular standard eg. Passive House, where the required air leakage rate is <0.6 AC/H using a standard testing procedure. Currently [NZBC H1](http://www.masterspec.co.nz/redirect.aspx?pl=258) 3.3c states "airtightness must be taken into consideration", but is not covered in NZBC.

 For more information contact Pro Clima NZ Limited.

## 3. EXECUTION

 **Conditions**

### 3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

 Refer to 1270 CONSTRUCTION for requirements relating to delivery, storage and handling of products.

 Use this standard generic clause and if appropriate add additional special requirements.

### 3.2 ROUTINE MATTERS

 Refer to 1250 TEMPORARY WORKS & SERVICES for protection requirements.

 Refer to 1270 CONSTRUCTION for requirements relating to defective or damaged work, removal of protection and cleaning.

 Use this standard generic clause and if appropriate add additional special requirements.

### 3.3 GENERAL REQUIREMENTS

 Design application and installation to Pro Clima NZ Limited product literature.

### 3.4 TIMBER FRAMING REQUIREMENTS

 Timber framing to be in accordance with the requirements of the relevant timber framing section.

 Timber framing species, grade and in service moisture content to [NZS 3602](http://www.masterspec.co.nz/redirect.aspx?pl=299), [NZBC B2](http://www.masterspec.co.nz/redirect.aspx?pl=223)/AS1 and treatment to [NZS 3640](http://www.masterspec.co.nz/redirect.aspx?pl=307), [NZBC B2](http://www.masterspec.co.nz/redirect.aspx?pl=223)/AS1. Structural grade (SG) to [NZS 3604](http://www.masterspec.co.nz/redirect.aspx?pl=301), [NZS 3622](http://www.masterspec.co.nz/redirect.aspx?pl=1174) with properties to [NZS 3603](http://www.masterspec.co.nz/redirect.aspx?pl=300).

### 3.5 STORAGE

 Store building underlays and accessory materials, under conditions that ensure no deterioration or damage. Store rolls in an upright position on a smooth floor and protected from sunlight, UV radiation and moisture.

### 3.6 PROTECT

 INTELLO® PLUS membrane must be protected from lengthy exposure to sunlight and UV radiation, from both direct, external exposure or through glazing, and reflected light. Protection must be complete, temporary discontinuous or perforated coverings are unsuitable.

 Note: Ensure that the design and final installation permanently prevent exposure to sunlight, direct or indirect. Discontinuous or perforated linings may not not provide permanent, complete covering protection, so an appropriate intermediate layer (like fabric) between lining and INTELLO® PLUS may be required.

 For more information contact Pro Clima NZ Limited.

### 3.7 INSPECTION

 Before starting work, check that the building construction phase will allow work of the required standard. Carry out remedial work identified before installing vapour control layer.

 **Preparation**

### 3.8 PREPARATION

 Before starting work, ensure all surfaces are stable, dry, smooth, and free from dust, dirt, silicone and grease. Sweep or vacuum clean and wipe all surfaces.

 **Application**

### 3.9 FIX HIGH PERFORMANCE REINFORCED VAPOUR CONTROL LAYER CONNECTION STRIP

 Fix INTELLO® PLUS connection strip to junction of external and internal wall and uppermost ceiling framing, in accordance with INTELLO® PLUS Installation Instructions and as follows:

 Note: This element is to be installed during framing stage and is left in place until insulation and services are in place and the remainder of the IAS (INTELLLO®) PLUS is ready to be installed.

 - Prior to erecting internal wall, fix the INTELLO® PLUS connection strip to the junction where the internal wall meets the external wall using staples at 200mm centres. Apply pro clima ORCON adhesive to connect the INTELLO® PLUS connection strip to the floor.

 - Erect the internal wall allowing an even overhang of the connection strip either side of the internal wall.

 - Once all of membrane is installed apply TESCON VANA adhesive tape to the overlap between INTELLO® PLUS membrane and the INTELLO® PLUS connection strip to form a continuous airtightness layer.

### 3.10 FIX HIGH PERFORMANCE REINFORCED VAPOUR CONTROL LAYER

 Fix INTELLO® PLUS High performance reinforced vapour control layer to external wall and upper most ceiling framing in accordance with INTELLO® PLUS Installation Instructions and as follows:

 - Mark external studs using a vivid marker and rigid measure at a distance of 1.48m from the floor to indicate where the upper edge of the INTELLO® PLUS is to be aligned.

 - Unroll INTELLO® PLUS for whole wall section allowing sufficient material for "relaxed" corners, returns onto intersecting wall studs and fixing to joinery. Cut wall sections after stapling main sections. Ensure membrane is fixed on wall with writing facing into the room.

 - Staple along the entire upper edge of membrane to every stud first, then on a middle stud run a hand down toward the floor to tighten the membrane, ensure there is a 20mm return for fixing to floor. Apply the staples, starting from the bottom at 100mm to 150mm centres.

 - Using the printed markings as a guide overlap the upper sheet by 150mm and staple both sheets along the entire length first. As above run a hand down the middle stud toward the floor to tighten the membrane and staple. Ensure junctions between walls and ceilings are "relaxed". Avoid joining INTELLO® PLUS membranes in corners.

 - Tape INTELLO® PLUS with TESCON VANA adhesive tape so that is free of any tension or stress. Position the tape centrally and press firmly to secure using PRESSFIX. Cut a slit in any folds in the overlapping part of the membrane and re-tape.

 - Lay INTELLO® PLUS so that it completely covers the walls and ceiling and tape it with TESCON VANA, ensuring that an airtight seal is formed.

 - Apply ORCON Classic adhesive, forming a continuous bead approximately 5mm thick on floor and lay the membrane in the adhesive bed, leaving an expansion joint. Do not press the adhesive completely flat.

 - When installing an electrical flush box cut a hole in INTELLO® PLUS the same size as an INSTAABOX. Make the required number of holes and feed the cables through, then align the INSTAABOX and tape it to the INTELLO® PLUS with TESCON VANA, ensuring that an airtight seal is formed.

 Note: Internal framing to be installed (along with associated connection strip) after lining of external framing has been completed.

### 3.11 APPLY SPRAYABLE AIRTIGHTNESS SEALANT

 Apply AEROSANA® VISCONN sprayable airtightness sealant by spray or brush to surfaces in accordance with AEROSANA® VISCONN Installation Instructions.

 Allow drying time of approximately 12-48 hours (at 20°C, 65% relative humidity) depending on sub-surface and applied thickness.

### 3.12 APPLY BRUSH-ON AIRTIGHTNESS SEALANT

 Apply AEROSANA® FLEECE airtightness sealant for cracks or joints in accordance with AEROSANA® FLEECE Installation Instructions.

 Use sealant in conjunction with AEROSANA® VISCONN for covering cracks or joints wider than 3mm or with AEROSANA® VISCONN FIBRE for covering cracks or joints wider than 20mm.

### 3.13 FIX HUMIDITY-VARIABLE VAPOUR CONTROL LAYER - FOR REFURBISHMENTS

 Fix DASATOP® airtightness and vapour control membrane from the outside over the existing rafters or across sarking as shown on the drawings in accordance with DASATOP® Installation Instructions.

 DASATOP® specifically designed for roof restoration work from the outside.

 **Application - tape systems**

### 3.14 APPLY TESCON TAPE SYSTEMS

 Apply TESCON tape systems in accordance with pro clima TESCON Installation Guides.

 **Application - grommet and detail solutions**

### 3.15 INSTALL GROMMETS AND DETAIL SOLUTIONS

 Install grommets and detail solutions in accordance with pro clima KAFLEX, ROFLEX and INSTAABOX Installation Guides to seal around cable and pipe penetrations.

 **Quality control**

### 3.16 VERIFICATION OF INSTALLATION OF INTELLIGENT AIRTIGHTNESS SYSTEM (IAS)

 Carry out air leakage test using the pro clima WINCON system at the time of completing the installation. Identify leak points by feel or smoke pen, and fix leak immediately using either ORCON adhesive or TESCON VANA jointing tape in accordance with pro clima installation requirements.

 Quality control tool when creating an airtight thermal envelope. Recommended as a minimum for all projects where the pro clima IAS is installed.

### 3.17 MEASURING BUILDING PERFORMANCE

 To confirm infiltration rates use the Minneapolis BlowerDoor.

 BlowerDoor verification device used to measure infliltration rates in existing buildings by both pressurizing and depressurizing buildings.

 Building Performance requirements to be met are as follows:

|  |  |
| --- | --- |
| **Building type or performance standard being met** | **Design Air Permeability (DAP) of the conditioned building envelope (m³/hr/m²)** |
| Passive House |  0.6 |
| Passive House - low energy |  1.0 |
| Passive House retrofit (EnerPHit) |  1.0 |
| 'Moderately Airtight' house |  3.0 |
| Typical new NZ house built to NZBC |  5-7 |

 A design Air Permeability is recommended to be set for all projects where an airtightness layer will be used to provide a target for the contractor.

 Currently [NZBC H1](http://www.masterspec.co.nz/redirect.aspx?pl=258) 3.3c states "airtightness must be taken into consideration", but is not covered in NZBC.

 For more information contact Pro Clima NZ Limited.

 **Completion**

### 3.18 COMPLETION MATTERS

 Refer to 1270 CONSTRUCTION for completion requirements and if required commissioning requirements.

 Use this standard generic clause and if appropriate add additional special requirements.

## 4. SELECTIONS

 For further details on selections go to [www.proclima.co.nz](http://www.proclima.co.nz/).

 Substitutions are not permitted to the following.

 If substitutions are permitted modify the statement above, ensure the NO SUBSTITUTIONS clause from GENERAL is treated the same.

 **Performance - airtightness**

### 4.1 QUALITY ASSURANCE

 Airtightness level: < ~

 Confirm Design Air Permeability (DAP), based on a pressure difference of 50 pascals. Refer to table in clause MEASURING BUILDING PERFORMANCE.

 Joinery selection is a key element in achieving airtightness.

 **Materials**

### 4.2 PRO CLIMA INTELLO PLUS CONNECTION STRIP

 Location: ~

 Manufacturer: Pro Clima NZ Limited

 Type: INTELLO® PLUS High performance reinforced vapour control layer connection strip

 Jointing tape: TESCON® VANA multipurpose adhesive tape

 Adhesive: ORCON® Classic multi-purpose adhesive (for connecting INTELLO® PLUS to floor)

 Note: INTELLO PLUS connection strip to be installed during framing stage at the junction between internal and external walls and uppermost ceiling.

### 4.3 PRO CLIMA INTELLO PLUS REINFORCED VAPOUR CONTROL LAYER

 Location: ~

 Manufacturer: Pro Clima NZ Limited

 Type: INTELLO® PLUS High performance reinforced vapour control layer

 Jointing tape: ~

 Joinery tape: ~

 Adhesive: ORCON® Classic multi-purpose adhesive

 Accessories: ~

 Options:

 Jointing tape: TESCON® VANA multipurpose adhesive tape

 DUPLEX double sided tape

 Joinery tape: TESCON® PROFIL corner sealing tape

 CONTEGA® IQ window and door connection strip

 CONTEGA® PV fleece tape for interior airtight plaster connections

 Accessories: KAFLEX mono/duo sealing grommets

 KAFLEX multi sealing grommet

 KAFLEX post sealing patch for already installed cables

 ROFLEX 20 sealing grommet for pipes

 ROFLEX 20 multi sealing conduit grommet for up to 9 conduits

 ROFLEX 30 / 50 / 100 / 150 / 200 / 250 / 300 sealing grommets for pipes

 INSTAABOX installation box

### 4.4 PRO CLIMA AEROSANA® VISCONN SPRAYABLE AIRTIGHTNESS SEALANT

 Location: ~

 Manufacturer: Pro Clima NZ Limited

 Type: AEROSANA® VISCONN sprayable airtightness sealant

 Accessory: AEROSANA® FLEECE PET fleece for covering cracks or joints

### 4.5 PRO CLIMA AEROSANA® VISCONN FIBRE-REINFORCED BRUSH-ON AIRTIGHTNESS SEALANT

 Location: ~

 Manufacturer: Pro Clima NZ Limited

 Type: AEROSANA® VISCONN FIBRE brush-on fibre-reinforced airtightness sealant

 Accessory: AEROSANA® FLEECE PET fleece for covering cracks or joints

### 4.6 PRO CLIMA DASATOP® HUMIDITY-VARIABLE VAPOUR CONTROL LAYER - FOR REFURBISHMENTS

 Location: ~

 Manufacturer: Pro Clima NZ Limited

 Type: DASATOP® airtightness and vapour control membrane

 Jointing tape: TESCON® EXTORA adhesive tape

 Accessories: ~

 Options:

 Accessories: KAFLEX mono/duo sealing grommets

 KAFLEX multi sealing grommet

 KAFLEX post sealing patch for already installed cables

 ROFLEX 20 sealing grommet for pipes

 ROFLEX 20 multi sealing conduit grommet for up to 9 conduits

 ROFLEX 30 / 50 / 100 / 150 / 200 / 250 / 300 sealing grommets for pipes

 DASATOP® FIX Board used to secure positioning of a sub and top refurbishment vapour control layer on sides of rafters

 ORCON® Classic multi-purpose adhesive