



... and the insulation is perfect



Pitched Roofs
SOLITEX MENTO®
2021 New Zealand Technical Guide





NZ Building Code Compliance

The New Zealand Building Code (NZBC) provides for different paths of compliance for roof installation or replacement.

1. NZBC has an Acceptable Solution path through Clauses E2/AS1.
2. NZBC allows for Alternative Solutions such as the NZ Metal Roof Manufacturers Association (NZMRM) Code of Practice and BRANZ Appraisals.
3. NZBC cited codes and standards
4. Building work that complies with the Building Act 2004, Schedule 1 "Building work for which building consent not required"

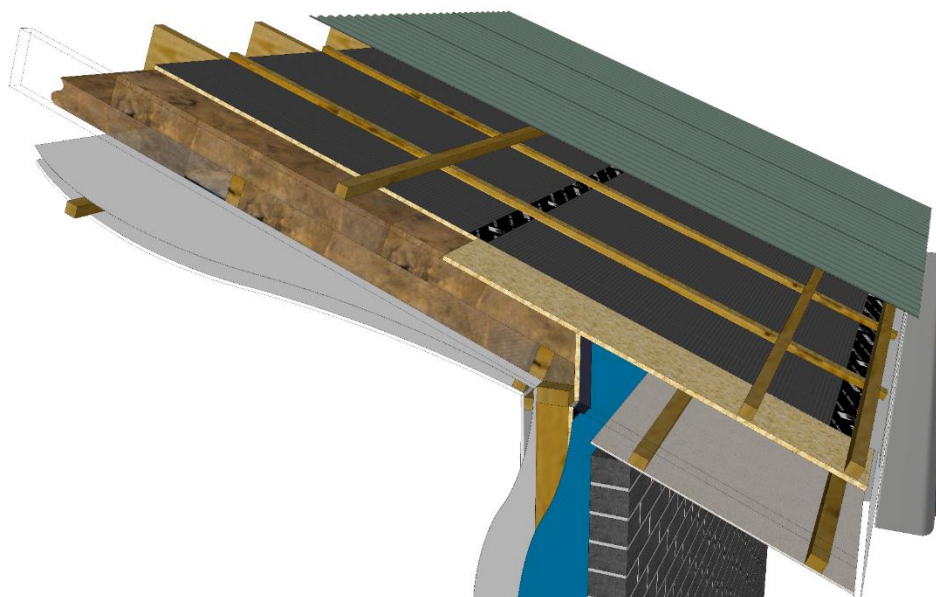
Pro clima considers that the Building Code provides a minimum standard for performance and durability. This Technical Guide offers a best practice solution which exceeds NZBC with the objective to provide better guidance on air tightness, prevention of water ingress and energy efficiency. Providing building occupants with a warm, dry and healthy indoor environment for living, working and recreation. Pro clima ethos is centred on sustainability, providing for solutions that advance the performance and durability of buildings beyond the minimum requirements of the code.



Above Sheathing Ventilation

Although not a requirement of the New Zealand Building Code (NZBC), for a better than code solution, pro clima recommend the use of an Above Sheathing Ventilation as a robust design for;

1. Increasing drying capacity of the roof cavity
2. Providing a dedicated path for water shedding
3. Reducing heat transmission into the buildings conditioned spaces.

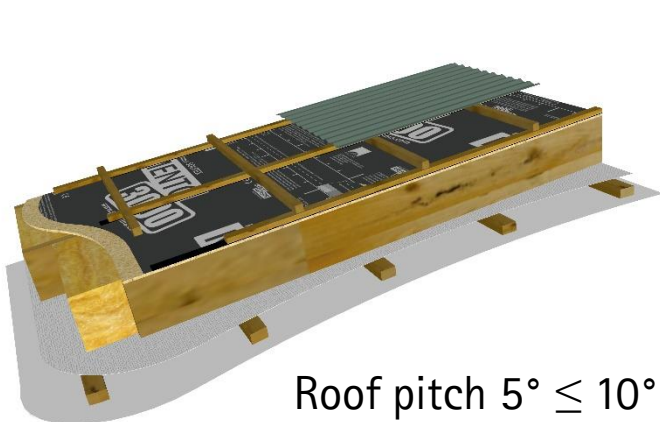


Further details are available through dedicated Above Sheathing technical literature, available on the pro clima NZ website. The illustrations in this technical guide are based on Above Sheathing Ventilation design.

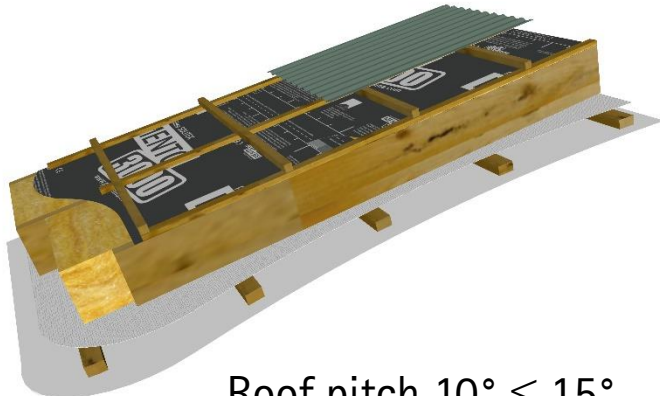


Risk Factors Based on Pitch

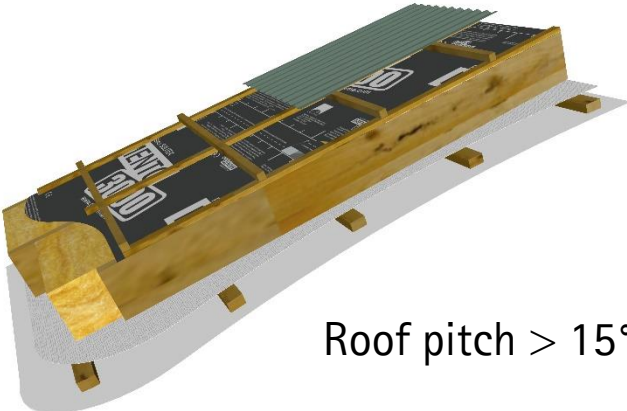
Roof pitch can be grouped as follow...



Roof pitch $5^\circ \leq 10^\circ$



Roof pitch $10^\circ \leq 15^\circ$



Roof pitch $> 15^\circ$

Note: the NZBC and NZMRM code of practice allow for a lower criteria, however pro clima is promoting best practice solutions. Pro Clima products can be used as part of NZBC and NZMRM CoP solutions.

The same principles apply for skillion and truss roofs





Risk Factors Based on Pitch

It is essential that moisture sensitive materials (timber, timber boards etc.) in the structure are protected from wetting during construction.

The risks of rain leaks prior to cladding is dependent on the pitch of the roof. Lower pitch roofs present a greater risk that water may leak through laps, fixing holes and imperfections.

The recommendations on materials used to protect against this are in 3 categories:

- **Low Pitch** ⇒ High Risk
Minimum 5° pitch and up to and including 10°
- **Medium Pitch** ⇒ Medium Risk
More than 10° and up to and including 15°
- **High Pitch** ⇒ Low Risk
More than 15°

All Pro Clima New Zealand recommended systems are designed to maximise drying potential for any residual construction moisture and management of water vapour during operation. Exterior vapour permeability of SOLITEX MENTO® products allows outward drying capacity, and utilising INTELLO® with intelligent vapour variable properties allows for inward drying capacity. Bi-directional drying (inwards & outwards) is always most preferable.



SOLITEX MENTO® - Outstanding Thermal Resistance

SOLITEX MENTO® 1000

-40°C to 100°C

0.0% Shrinkage @ 70°C

Up to 30 Days UV Exposure

Highly vapour permeable (Class 4)



SOLITEX MENTO®
Weather Resistive Barrier (WRB)

All SOLITEX MENTO® roof membranes provide outstanding temperature resistance, due to the TEEE functional layer used in the membranes, and are suitable for use under the following roof types:

- dark or light coloured metal
- tile
- slate
- shingle

SOLITEX MENTO® 3000

-40°C to 120°C

0.0% Shrinkage @ 70°C

Up to 90 Days UV Exposure

Highly vapour permeable (Class 4)





SOLITEX MENTO® - Easy Watertight Connections

SOLITEX MENTO® 1000 connect

-40°C to 100°C

0.0% Shrinkage @ 70°C

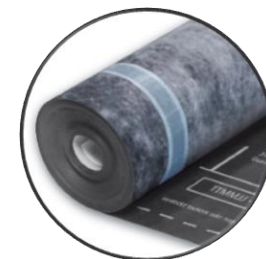
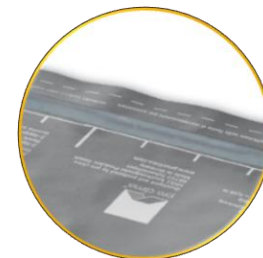
Up to 30 Days UV Exposure

Highly vapour permeable (Class 4)



connect Technology

SOLITEX MENTO® roof membranes are available with two integrated self-adhesive strips for optimum waterproofing on the overlap joints.



SOLITEX MENTO® 3000 connect

-40°C to 120°C

0.0% Shrinkage @ 70°C

Up to 90 Days UV Exposure

Highly vapour permeable (Class 4)





SOLITEX MENTO® System – Sealing Products

Accessory products used to enhance performance and provide suitable protection may include:



TESCON **EXTORA**®
Weathertight Sealing Tape



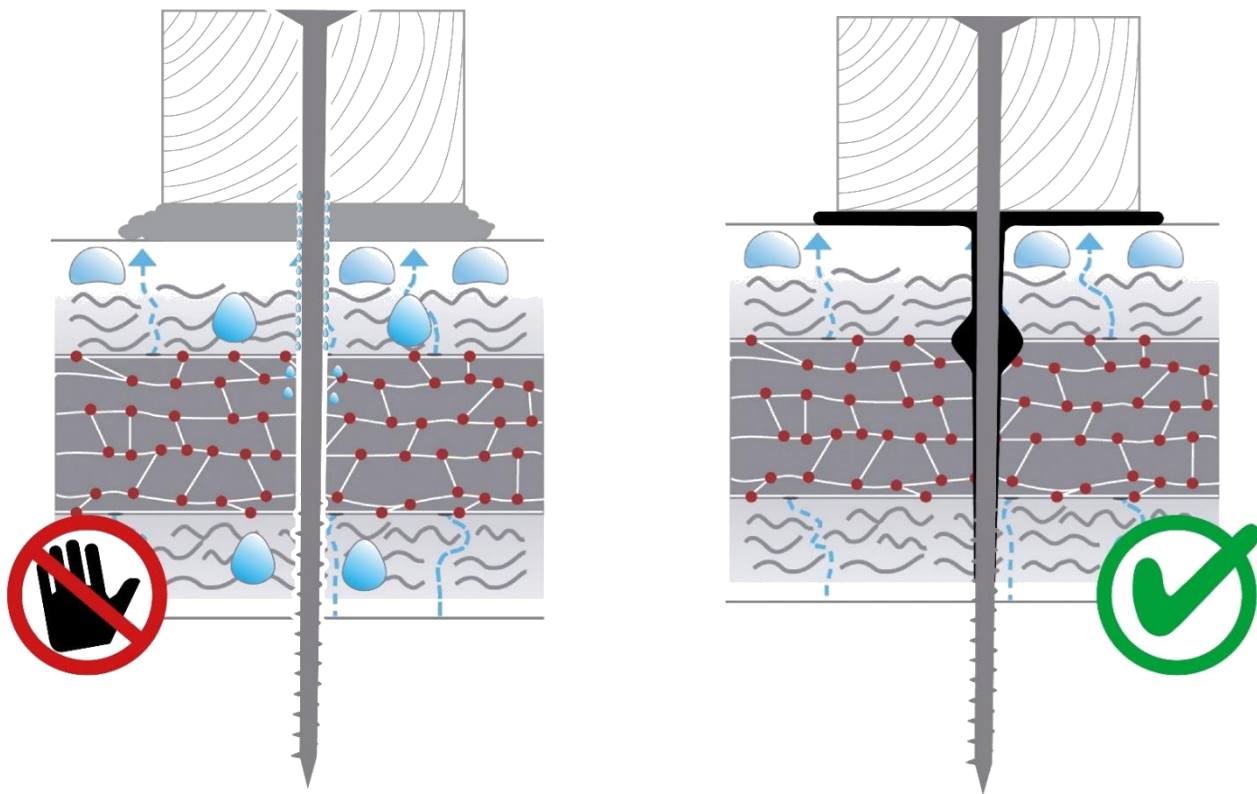
TESCON® **NAiDECK**
Double Sided Self-Sealing Strip



DUPLEX
Double Sided Tape



ORCON® **CLASSIC**
Multi-Purpose Liquid Adhesive



TESCON® NAIDECK is designed to be used under the vertical battens to seal nail or screw penetrations. Screws are the preferred fixing method as they clamp the battens down onto TESCO® NAIDECK for optimal seals. TESCO® NAIDECK is made from butyl and entrains into the screw thread providing a weathertight seal. This is particularly important on low slope roofs but is also highly beneficial for additional security on all battened roofing systems with or without rigid sheathings.

This ensures any rain on the membrane prior to cladding does not lead to leakage through nail or screw penetrations ensuring the structural timbers and rigid sheathing boards stay dry. All temporary fixing staples should be located either hidden within the 150 mm overlap between SOLITEX MENTO® layers or under the battens.



Option 1 low pitch: Minimum 5° and up to and including 10°

Recommended

Low Pitch Roofs: Recommended Solution

- Low pitch is considered 10° or less, but must be at least 5° or more.
- It is recommended that SOLITEX MENTO® connect is used to ensure optimum weather protection on the membrane overlaps.
- It is recommended that TESCON® NAIDECK is used under the vertical battens to seal nail or screw penetrations used to fix the battens.
- Screws are the preferred fixing method as they clamp the battens down onto the TESCON® NAIDECK for optimal seals. TESCON® NAIDECK is made from butyl and entrains into the screw thread providing a weathertight seal at the screw penetration.
- Rigid sheathings are recommended to support SOLITEX MENTO® membranes at 10° or less. This ensures every square centimetre of the SOLITEX MENTO® drainage plane is always draining downhill and also provides an optimum substrate to allow pressure to be applied to SOLITEX MENTO® connect membranes using a pro clima PRESSFIX tool.



Special Note

The vapour permeability of different timber sheathings can vary substantially depending on the binders used. OSB strands are encased in binders and the quality of binders can make the boards vapour permeable or vapour resistive. Plywood adhesives used to bond the ply layers can also be of variable properties depending on the country of origin and manufacturing processes. The adhesives may add vapour resistance and affect the overall drying capacity of the system.

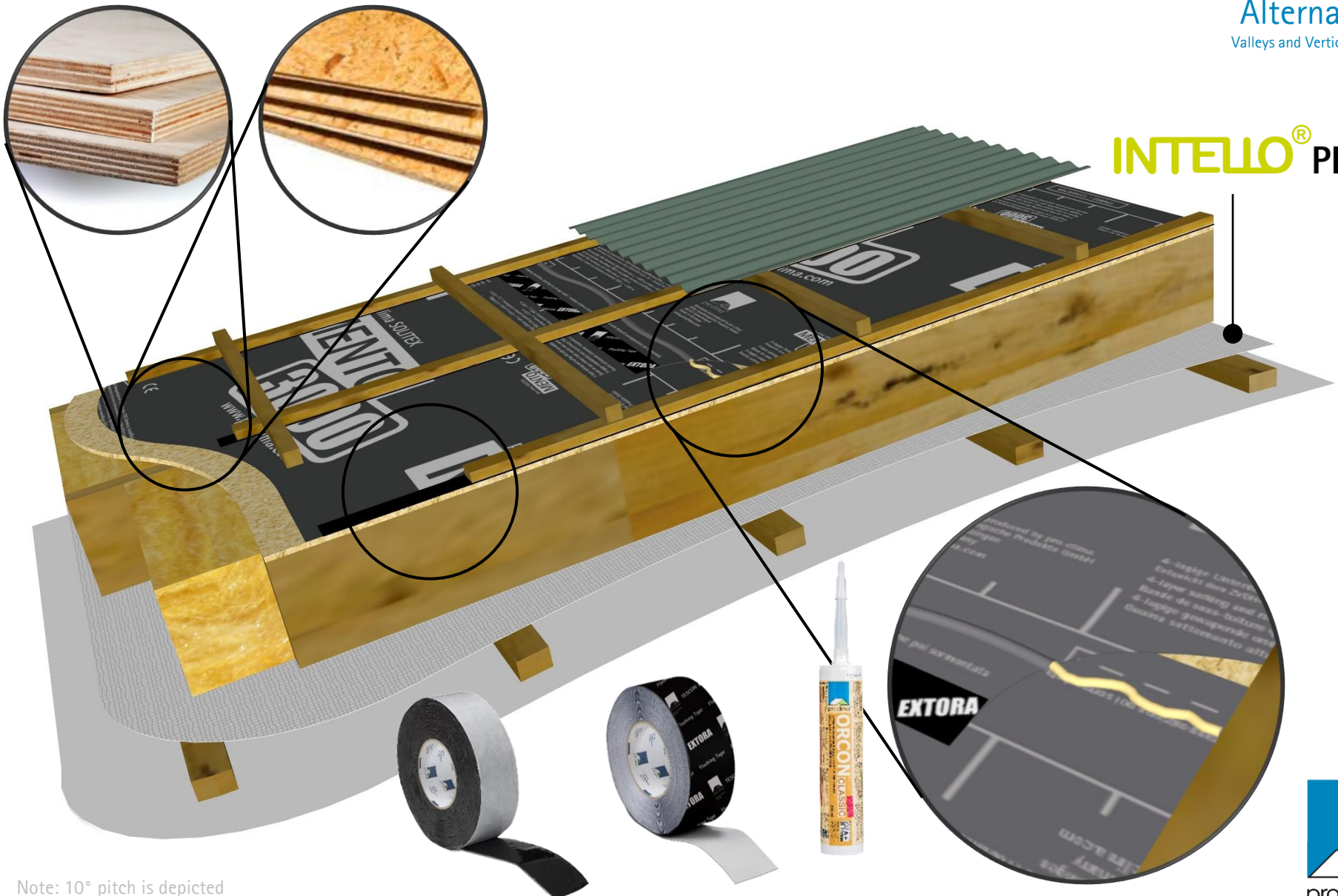
It is recommended that a WUFI® professional is engaged to advise on suitable products. Visit www.wufi.co.nz.



Option 2 low pitch: Minimum 5° and up to and including 10°

Alternative
Valleys and Vertical Joints

INTELLO® PLUS



Note: 10° pitch is depicted





Option 2 low pitch: Minimum 5° and up to and including 10°

Alternative
Valleys and Vertical Joints

Low Pitch Roofs: Alternative Solution

- Low pitch is considered 10° or less, but must be at least 5° or more.
- For scenarios where SOLITEX MENTO® connect is not possible or has not been specified or where this scenario occurs at ridges and valleys.
- An alternative joint connection utilises ORCON® within the 150 mm overlap and taped over with TESCON EXTORA®.
- Suitable pressure needs to be applied to TESCON EXTORA® using pro clima PRESSFIX.
- Do not use the PRESSIFX tool on ORCON® joints. Apply only gentle pressure on the ORCON® joint and ensure a thick bead of ORCON® remains.
- It is recommended that TESCON® NAIDECK is used under the vertical battens to seal nail or screw penetrations used to fix the battens.
- Screws are the preferred fixing method as they clamp the battens down onto the TESCON® NAIDECK for optimal seals. TESCON® NAIDECK is made from butyl and entrains into the screw thread providing a weathertight seal at the screw penetration.
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Special Note

The vapour permeability of different timber sheathings can vary substantially depending on the glue used. OSB strands are encased in adhesive and the quality of adhesive can make the boards vapour permeable or vapour resistive. Plywood glues used to bond the ply layers can also be of variable properties depending on the country of origin and manufacturing processes. The adhesives may add vapour resistance and affect the overall drying capacity of the system. Roof colour selection & ventilation strategy under the cladding can also have a large impact to hygrothermal behaviour.

It is recommended that a WUFI® professional is engaged to advise on suitable products.

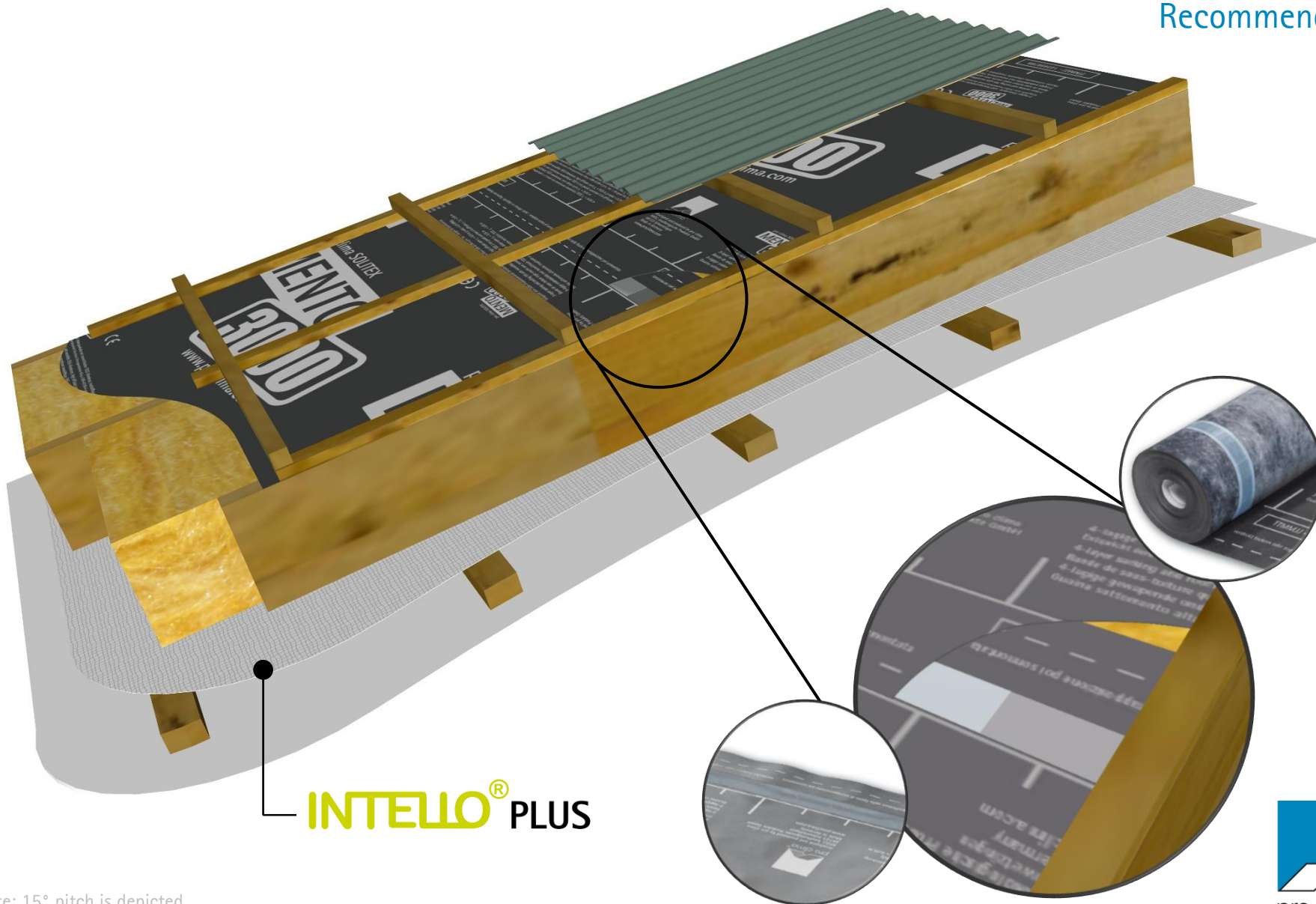
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MEDIUM PITCH: More than 10° and up to and including 15°

Recommended



INTELLO[®] PLUS

Note: 15° pitch is depicted





MEDIUM PITCH: More than 10° and up to and including 15°

Recommended

Medium Pitch Roofs: Recommended Solution

- Medium pitch is considered more than 10° but less than or equal to 15°.
- It is recommended that SOLITEX MENTO® connect is used to ensure optimum weather protection on the membrane overlaps.
- Sagging or draping membrane installation is NOT recommended.

Special Note

If using rigid sheathings, the vapour permeability of different timber sheathings can vary substantially depending on the glue used. OSB strands are encased in adhesive and the quality of adhesive can make the boards vapour permeable or vapour resistive. Plywood glues used to bond the ply layers can also be of variable properties depending on the country of origin and manufacturing processes. The adhesives may add vapour resistance and affect the overall drying capacity of the system.

Roof colour selection & ventilation strategy under the cladding can also have a large impact to hygrothermal behaviour.

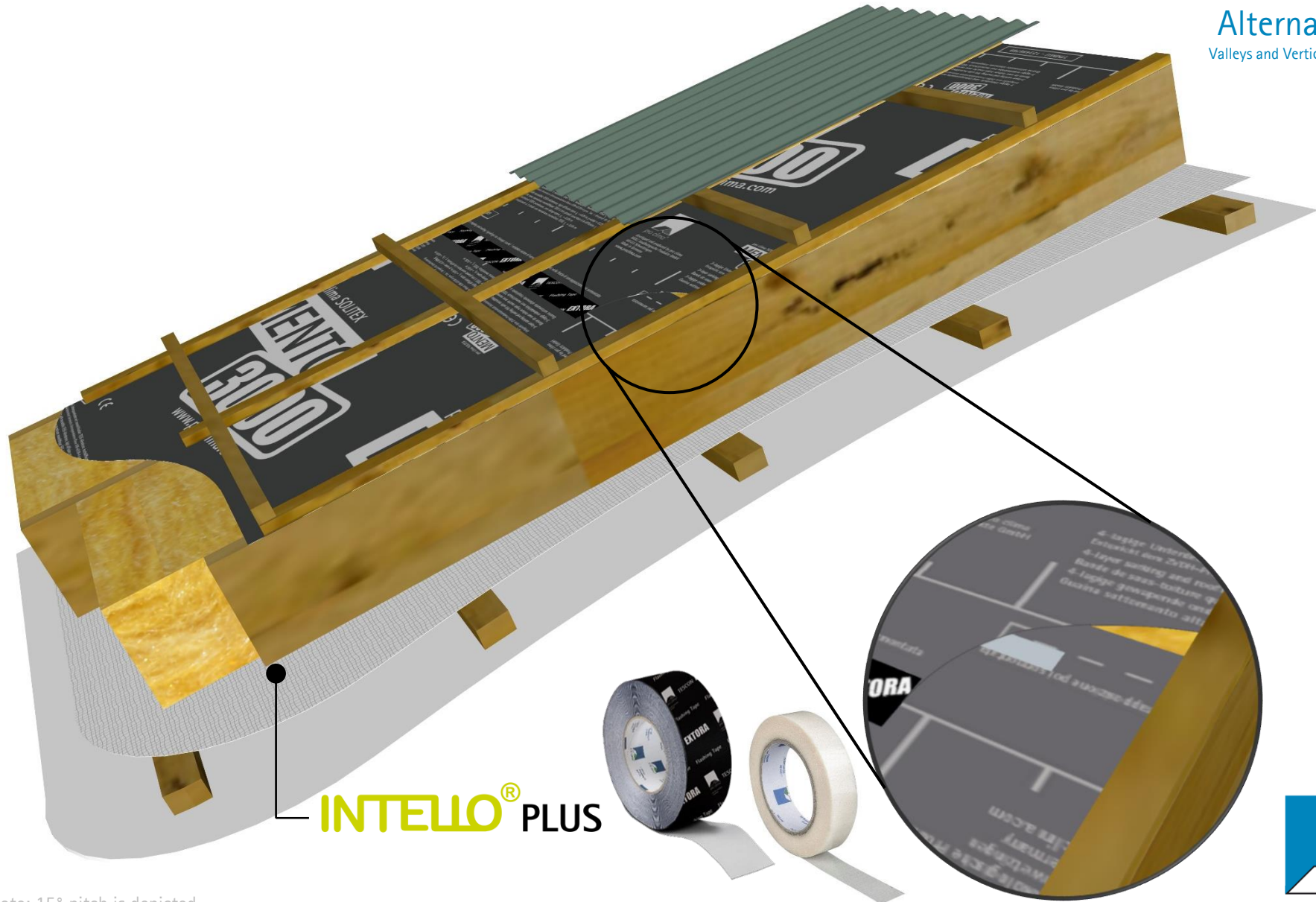
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Visit www.wufi.co.nz.

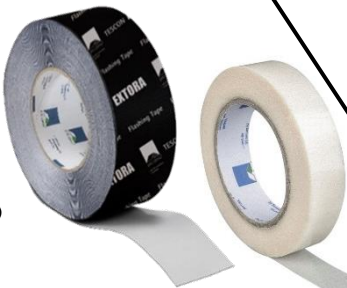


MEDIUM PITCH: More than 10° and up to and including 15°

Alternative
Valleys and Vertical Joints



INTELLO[®] PLUS



Note: 15° pitch is depicted





MEDIUM PITCH: More than 10° and up to and including 15°

Alternative
Valleys and Vertical Joints

Medium Pitch Roofs: Alternative Solution

- Medium pitch is considered more than 10° but less than or equal to 15°.
- For scenarios where SOLITEX MENTO® connect is not possible or has not been specified or where this scenario occurs at ridges and valleys.
- An alternative joint connection utilises DUPLEX within the 150 mm overlap and taped over with TESCON EXTORA®.
- Suitable pressure needs to be applied to DUPLEX and TESCON EXTORA® using pro clima PRESSFIX.
- SOLITEX MENTO® membrane should be installed taut to ensure sufficient pressure can be applied on the joining tapes.
- Sagging or draping membrane installation is NOT recommended.

Special Note

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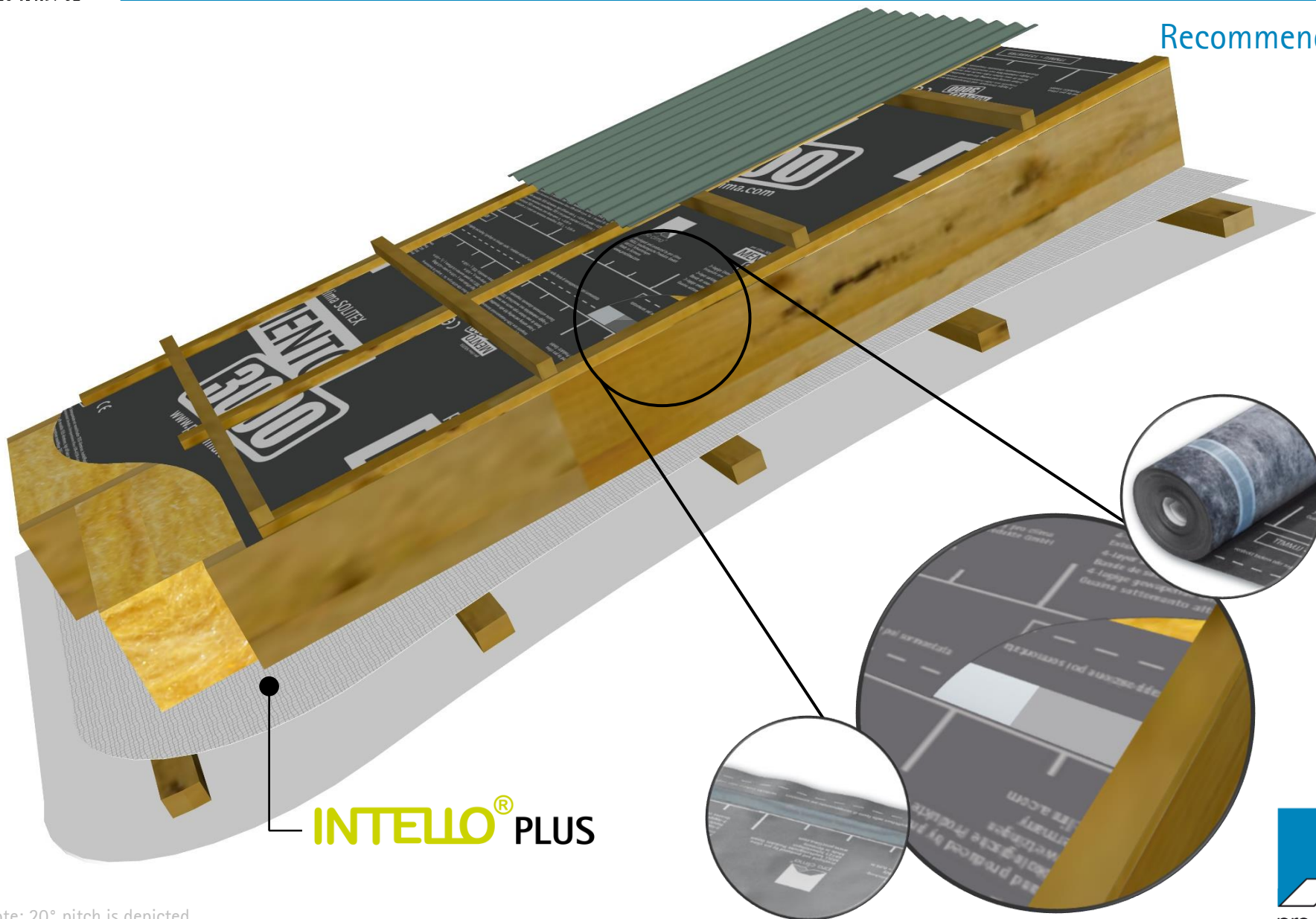
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HIGH PITCH: More than 15°

Recommended



INTELLO[®] PLUS

Note: 20° pitch is depicted





HIGH PITCH: More than 15°

Recommended

High Pitch Roofs: Recommended Solution

- High pitch is considered more than 15°.
- It is recommended that SOLITEX MENTO® connect is used to ensure optimum weather protection on the membrane overlaps.
- Sagging or draping membrane installation is NOT recommended.

Special Note

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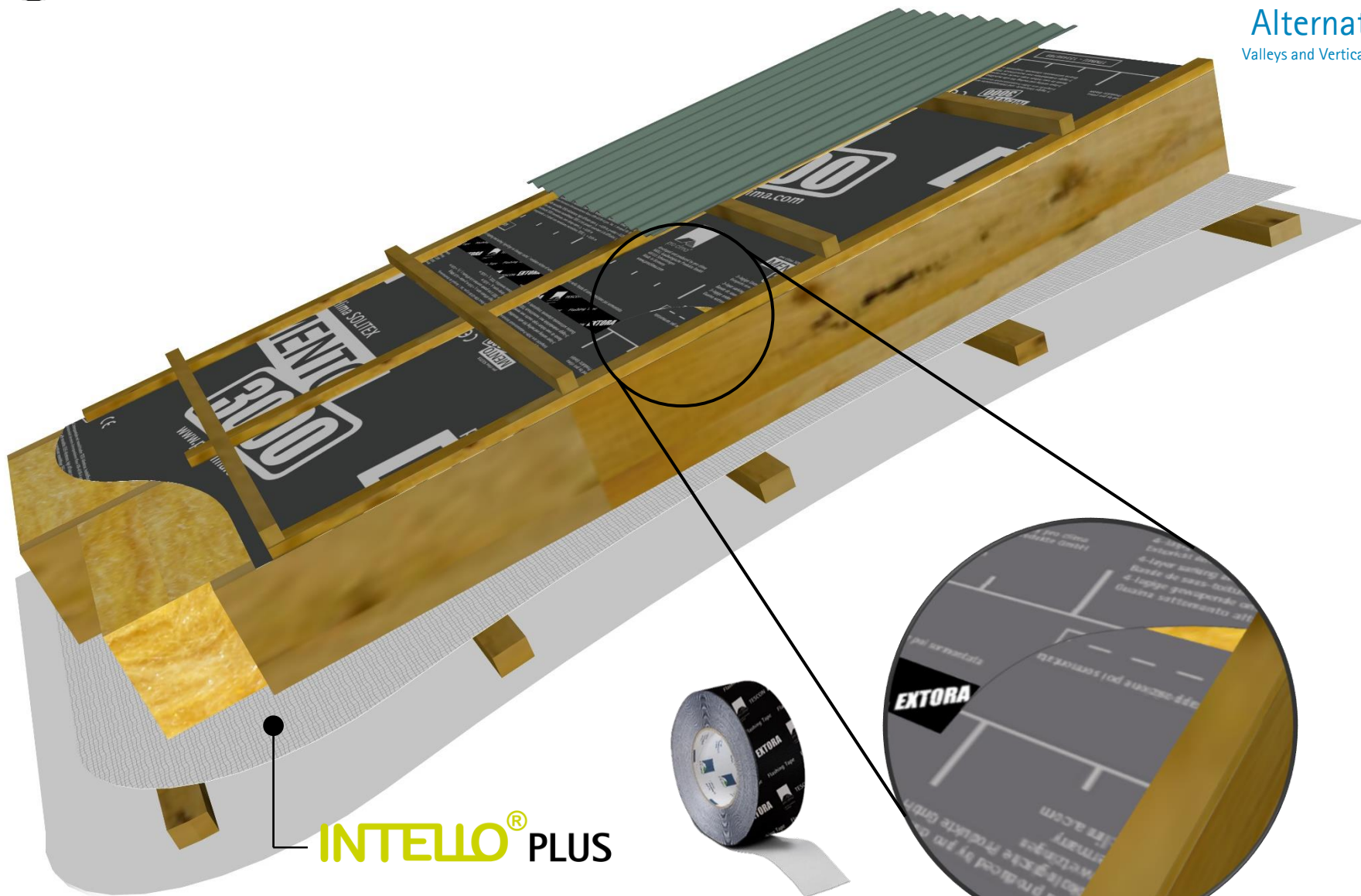
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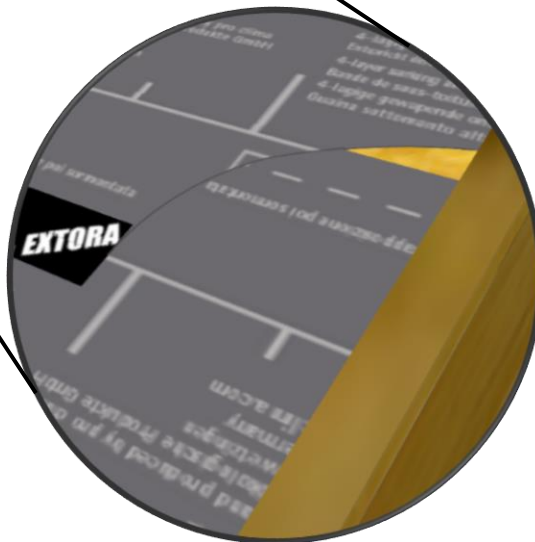


HIGH PITCH: More than 15°

Alternative
Valleys and Vertical Joints



INTELLO[®] PLUS



Note: 20° pitch is depicted



HIGH PITCH: More than 15°

Alternative
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High Pitch Roofs: Alternative Solution

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NZBC – E2/AS1 & NZMRM CoP

Codes and Standards – New Zealand

New Zealand Building Code offers a minimum requirement for roof underlays in Acceptable Solution NZBC E2/AS1 Table 23. The pro clima SOLITEX MENTO meets all the technical requirements of NZS2295:2006 Amendment 1, allowing use as part of the Acceptable Solution compliance path to below 5°. The NZ Metal Roofing Manufacturers Association Code of Practice, cited as a compliance path in NZBC, also offers Alternative Solutions below 5°.

Pro Clima (NZ) Ltd does not endorse the use of any membranes to facilitate drainage at such low pitches and although a product warranty meeting the building code is offered, a systems warrant for application under 5° falls outside Pro Clima Systems Warranty.

New Zealand Codes and Standards represent the minimum practice you are legally allowed to build whilst still being covered by the Building Act for minimum construction practices. In many circumstances this insufficiently protects the structure from condensation, rain during the construction sequence, accidental water ingress and consequential moisture damage.

INTELLO[®] PLUS

pro clima INTELLO[®] PLUS
Intelligent Air Barrier can greatly
reduce the risk of condensation in
low pitch metal profile roofing
with rigid drainage planes.



www.wufi.co.nz





... and the insulation is perfect



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