



MET-SEAM®

MET-SEAM® MS 460 / MS 360
ROOFING SYSTEM

INSTALLATION GUIDE

MET-SEAM® MS 460 / MS 360 ROOFING SYSTEM

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INTRODUCTION

Only those professional installers who have attended a Met-Seam installation training course are approved for installing the MS range of standing seam systems. It is important that you review and understand this complete guide before beginning installation.

The information in this Installation Guide has been prepared as recommended details and solutions, however, each project will have its own individual requirements and therefore the need to alter some details to suit a particular need maybe required. Met-Seam Limited cannot assume any responsibility for the actual selection or installation of materials, although on request we will carry out roof inspections on completed MS projects.

Met-Seam Limited recognises that this guide can not address every situation but the principles of each detail should be adhered to and used.

Only those professionals qualified to assess the information in this guide regarding suitability for a specific project should determine the selection. If in any doubt please contact Met-Seam Limited

Met-Seam Limited do not design roofs, however, we will advise and assist such professionals on the choice of materials, details and specifications.

To determine the true cost of any roofing system, the cost of maintenance and repair should be considered over the whole life of the roof. Met-Seam MS 460 and MS 360 roofing system is designed to require little or no maintained.

All the panels, flashings and trims in this Installation Guide are designed for installation on to a fully supported substrate, which has been professionally designed and constructed; Met-Seam Limited will offer advice and help to design professionals.

MET-SEAM® MS 460 / MS 360 ROOFING SYSTEM

MET-SEAM® MS 460 AND MS 360 ARE HIGHLY ENGINEERED STANDING SEAM SYSTEMS WHICH CAN BE USED TO PROVIDE A ROOF COVERING OR FAÇADE FOR THOSE SEEKING TO INCORPORATE THE ELEGANCE OF TRADITIONAL STANDING SEAM ROOFING WHILE UTILISING STATE OF THE ART AND QUALITY CONTROL PRODUCTION METHODS.

The design of the panel is quite unique and practical and includes a 'Seam' (female edge) and a 'Locking Leg' (male edge) which are both profiled into the panel. The Seam fits over the Locking Leg and snaps together. The Locking Leg has an anti-siphon design which is profiled into the panel and eliminates all capillary action in the joints. The Met-Seam stainless steel anchor clips are hooked over the 'Receiver' which is profiled into the Locking Leg and which also doubles up as a water barrier. The clips are fixed to the substrate using two Met-Seam® stainless steel screws per clip. The clips are then concealed by the next consecutive panel thus hiding all fixings.

The panels are roll formed in 0.6, 0.7 or 0.8 thick, Copper, Zinc, Steel or Aluminium with a maximum length determined by transport and handing considerations. Minimum pitch is $7\frac{1}{2}^\circ$ up to 90° , but also can be used for a soffit.

The easy one piece Met-Seam® MS Profile roofing system will result in very fast site installation times and will permit the internal fit-out program to start much earlier than most other current standing seam roofing systems.

Met-Seam® MS range of profiles are ideal for new build projects, or even cladding existing façades but can in certain situations be used for re-roofing and Met-Seam Limited will be able to offer advice and help on the best methods of achieving this.

SUGGESTED TOOL LIST FOR THE INSTALLATION OF MET-SEAM® MS SYSTEM

QTY.	PER SINGLE OPERATIVE	<input checked="" type="checkbox"/>
1 no.	Right Hand Snips	
1 no.	Left Hand Snips	
1 no.	Pelican Snips	
1 no.	Marking Plate	
1 no.	Plastic Wedge Shaped Mallet	
1 no.	Seaming Pliers 60mm 45°	
1 no.	Engineers Hammer	
1 no.	Tape Measure	
2 no.	Pencil	

QTY.	PER SQUAD OF TWO OPERATIVES	<input checked="" type="checkbox"/>
1 no.	Drip Edge Seamer	
1 no.	Screw Gun	
1 no.	Chalk Line	
1 no.	Clinch Pliers	
1 no.	Metal Hole Punch	
4 no.	Clamps for coil remainders	
1 no.	Engineers Steel Square	
1 no.	Skeleton Gun	
2 no.	Needle Files	

MAINTENANCE

One the benefits of the MS 360 and MS 460 system is the low maintenance requirements.

As with all external envelope materials of buildings a regular visual check should be carried out at least once a year and additional visual checks should be carried out after severe weather conditions and the results recorded in a report. In the unlikely event of the system being damaged for example: debris striking a panel, it is important that a full roof inspection be carried out by Met-Seam Ltd. or the roofing contractor who installed the system.

STORAGE OF MATERIALS

During the installation of the system attention should be paid to the storage of the materials. Zinc in particular can develop areas of White Rust on the surface when not ventilated adequately.

Materials should be ideally stored inside and out of the elements with the polythene protection on the delivery casing removed; if this is not possible then the polythene ends of the delivery casing should be removed to allow an air flow through the panels. Materials should be kept dry until installed.

PROTECTIVE FILM

The plastic protective film which is fitted directly to some metals should be removed as soon as the system is installed. If other trades are working above the installation you may wish to leave the protective film on for a while but it is recommended that it is not left on for longer than four weeks from date of installation, as the film is not UV resistant and this may make removing the film very difficult and slow.

WORKING ON THE ROOF

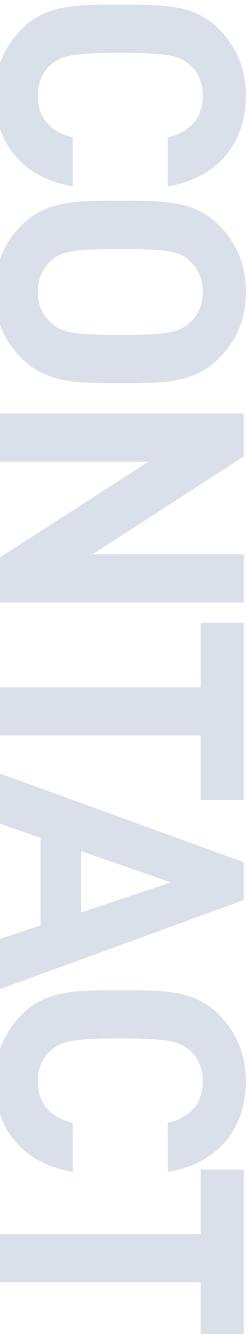
During installation avoid walking on the standing seams; always walk on the flat pan areas. Try to vary the area of entering and exiting the roof each day to avoid repeated ware and damage to the surface of the panels. Do not walk on the flashings and in particular the ridge as this may bend them out of shape.

HEALTH AND SAFETY

The surface of the metal can be slippery with or without the protective film and in particular in wet or frosty conditions. Health and Safety precautions should be taken, including Risk Assessments and Method Statements as well as wearing Personal Protective Equipment including, suitable non-slip foot wear, edge protection, body harnesses, etc. The edges of the metal may be sharp, wearing anti cut and non-slip gloves will help against cuts to the hands.

WARRANTIES

After a site inspection of the works by Met-Seam Limited and depending on any recommended remedial work being carried out, Met-Seam Limited will issue the building owner with a ten year systems warranty. The system installer will be expected to match this warranty with a ten year workmanship warranty.



PERMISSIBLE CONTACTS

05

KEY

ZN ZINC

CU COPPER

AL ALUMINIUM

CONTACT WITH OTHER METALS

	ZN	CU	AL
Zinc	ok	•	ok
Copper	•	ok	•
Aluminium	ok	•	ok
Lead <small>WHEN TREATED WITH PATINATED OIL</small>	ok	ok	•
Galvanised Steel	ok	•	•
Stainless Steel	ok	ok	ok

RUN-OFF WATER FROM

	ZN	CU	AL
Zinc	ok	•	ok
Copper	•	ok	•
Aluminium	ok	•	ok
Lead <small>WHEN TREATED WITH PATINATED OIL</small>	ok	ok	•
Galvanised Steel	ok	•	•
Portland Cement	•	ok	•
Plaster	•	ok	•
Asphalt	•	•	•

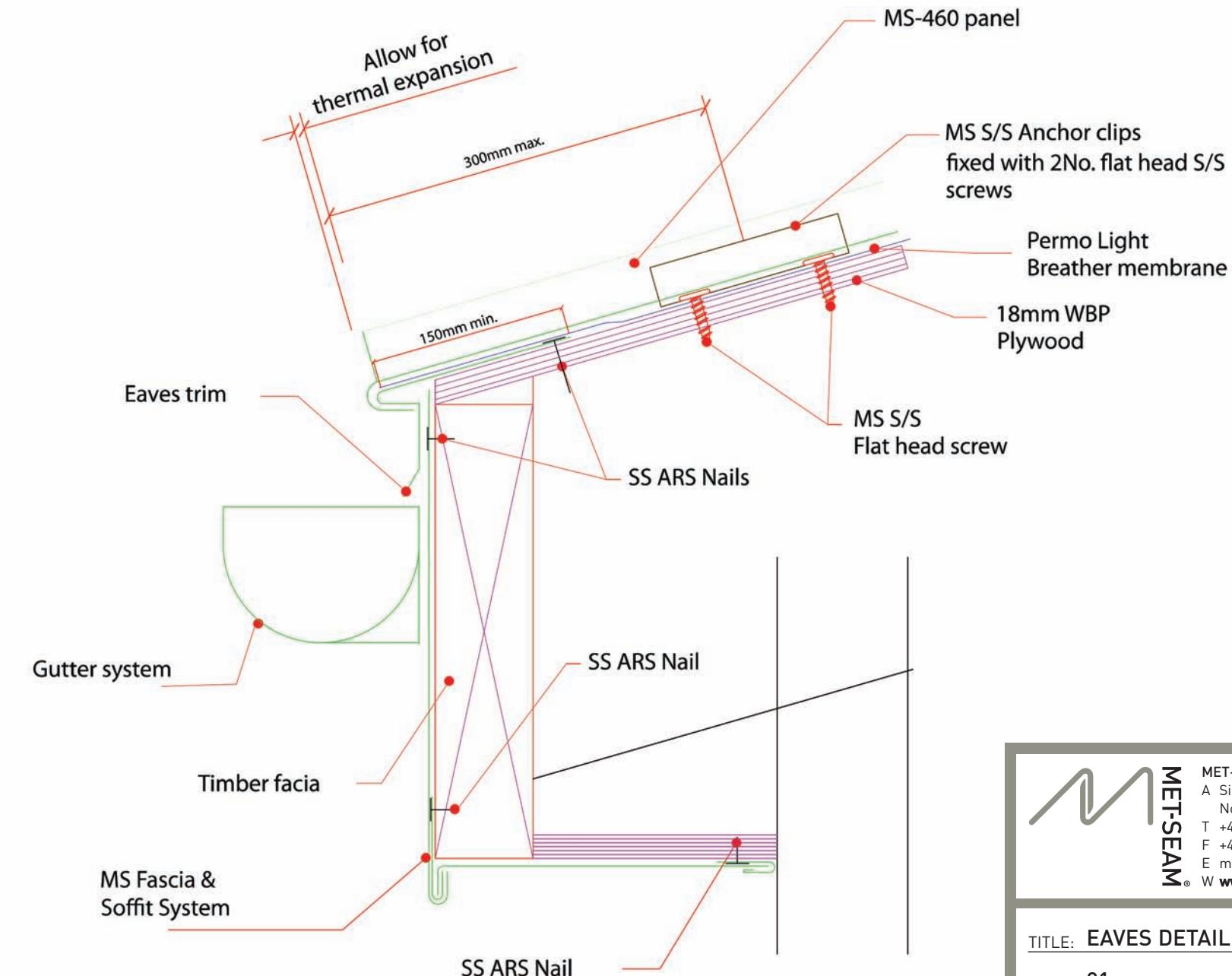
CONTACT WITH TIMBERS

	Min. pH	Max. pH	ZN	CU	AL
Oak	3.3	3.9	•	•	•
Chestnut	3.4	3.6	•	•	•
Red Cedar	3.4	4.0	•	•	•
Oregan Pine	3.4	4.4	•	•	•
Beech	3.8	5.2	•	ok	•
Larch	4.3	4.7	•	ok	ok
Red Pine	4.3	5.1	•	ok	ok
Birch	4.6	5.3	•	ok	ok
White Pine	4.8	5.3	ok	ok	ok
Fir/Spruce	4.8	5.3	ok	ok	ok

01

EAVES DETAIL

1. Install pre-fabricated Eaves Flashing and fix using 2 rows of 25mm stainless steel ring shank nails at 150mm c/c.
2. Ensure that the breathable membrane, Permo Light, is out over the top of the Eaves Flashing.
3. Trim or cut the panel to allow the panel to fold down and around the Eaves Flashing and at the same time cut the seam to allow for the folding of the metal to close off the seam end.
4. Snap the panel into place and slide the panel up so as the folded end of the panel fits around the Eaves Flashing, ensure to allow for expansion and tighten up the welt.



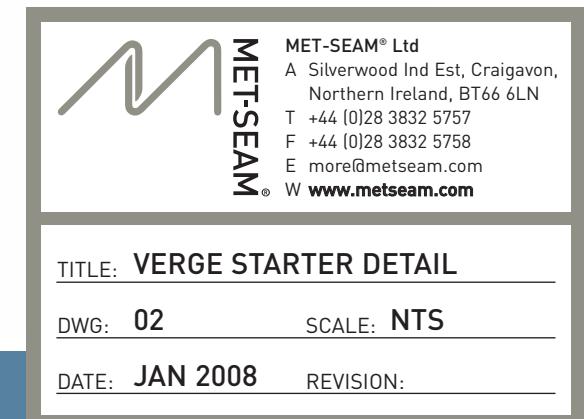
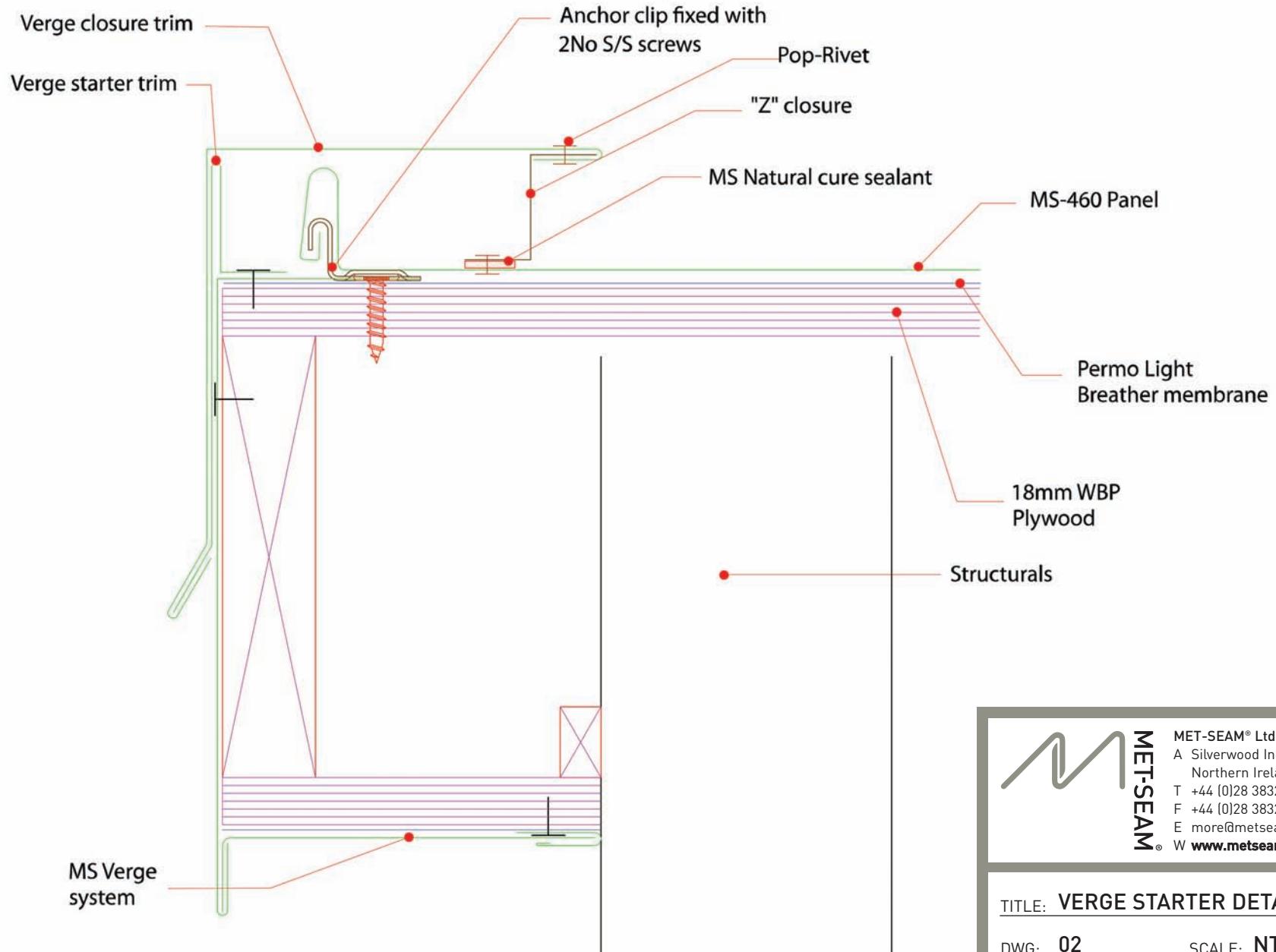
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TITLE: EAVES DETAIL	
DWG: 01	SCALE: 1:5
DATE: JAN 2008 REVISION:	

02

VERGE STARTER DETAIL

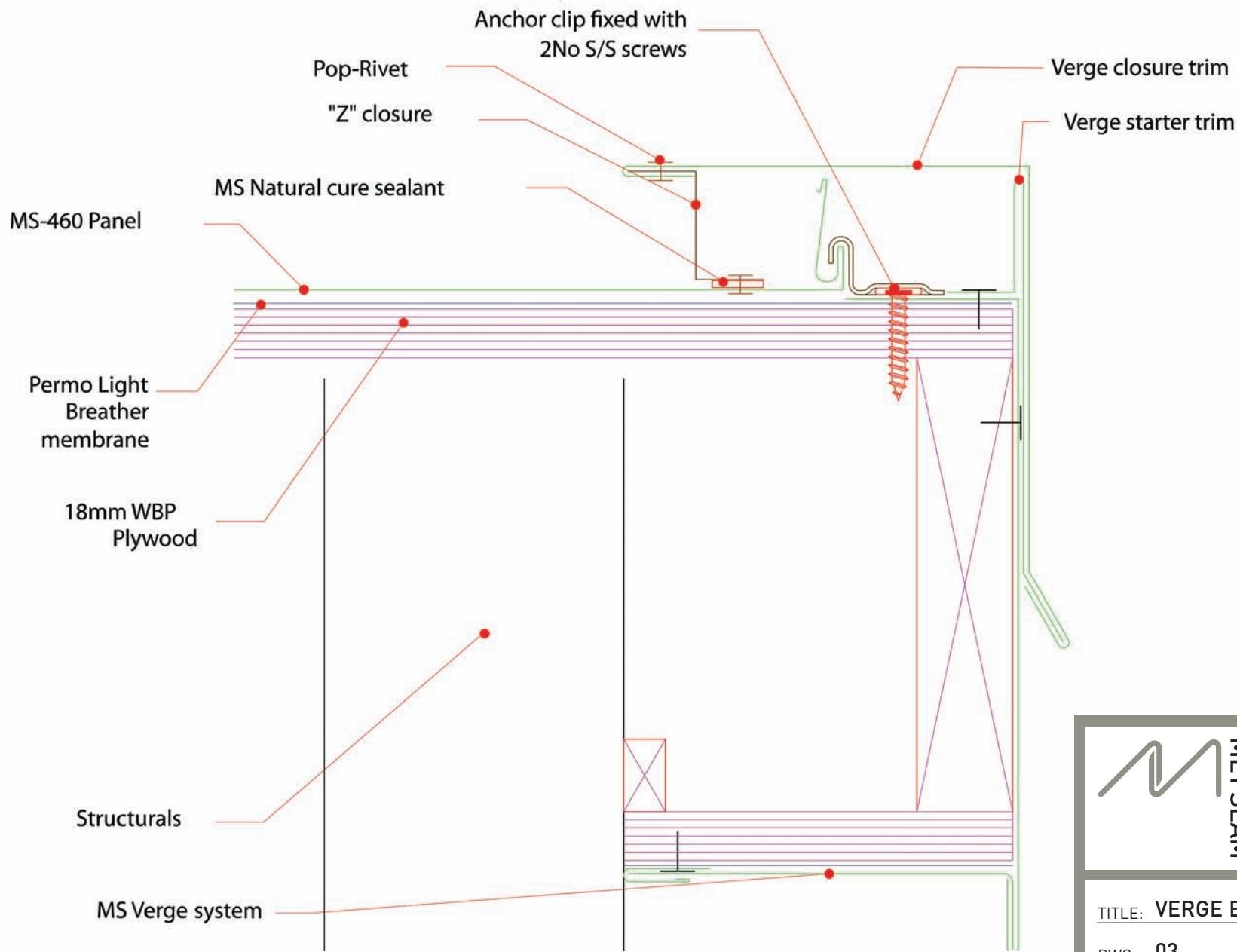
1. Install pre-fabricated Verge Starter Trim and fix using 25mm stainless steel ring shank nails at 150mm c/c fixing into both the decking and fascia board.
2. Install Met-Seam Anchor clip with two Met-Seam Stainless Steel screws at max. 300mm c/c.
3. Apply Trans 7 Sealant to underside of 'Z' closure and pop-rivet 'Z' closure to panel at max. 300mm c/c. (NOTE: Do not fix through to the decking as this will prevent natural expansion of the panel.)
4. Snap the panel into the Anchor clip.
5. Install the pre-fabricated Verge Closure Flashing and secure using a pop-rivet at the upper end of the flashing.



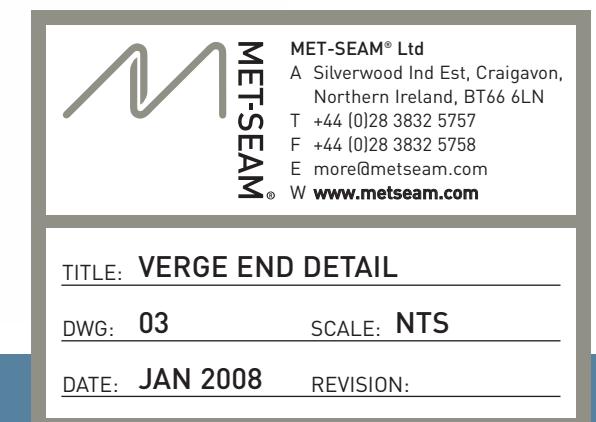
03

VERGE END DETAIL

1. Secure the last panel using the Met-Seam Anchor Clip fixed with two Met-Seam Stainless Steel screws.
2. If the panel needs to be cut to the appropriate width, cut it using a pair of snips as close to the edge of the verge as possible, so that the Starter Cleat will hold the cut panel in place.
3. Apply Trans 7 Sealant to underside of 'Z' closure and pop-rivet 'Z' closure to panel at max. 300mm c/c. (NOTE: Do not fix through to the decking as this will prevent natural expansion of the panel.)
4. Install pre-fabricated Verge Starter Trim and fix using 25mm stainless steel ring shank nails at 150mm c/c fixing into both the decking and fascia board.
5. In the case of a cut panel, only fix into the fascia board using two rows of 25mm stainless steel ring shank nails at 150mm c/c
6. Install the pre-fabricated Verge Closure Flashing and secure using a pop-rivet at the upper end of the flashing.



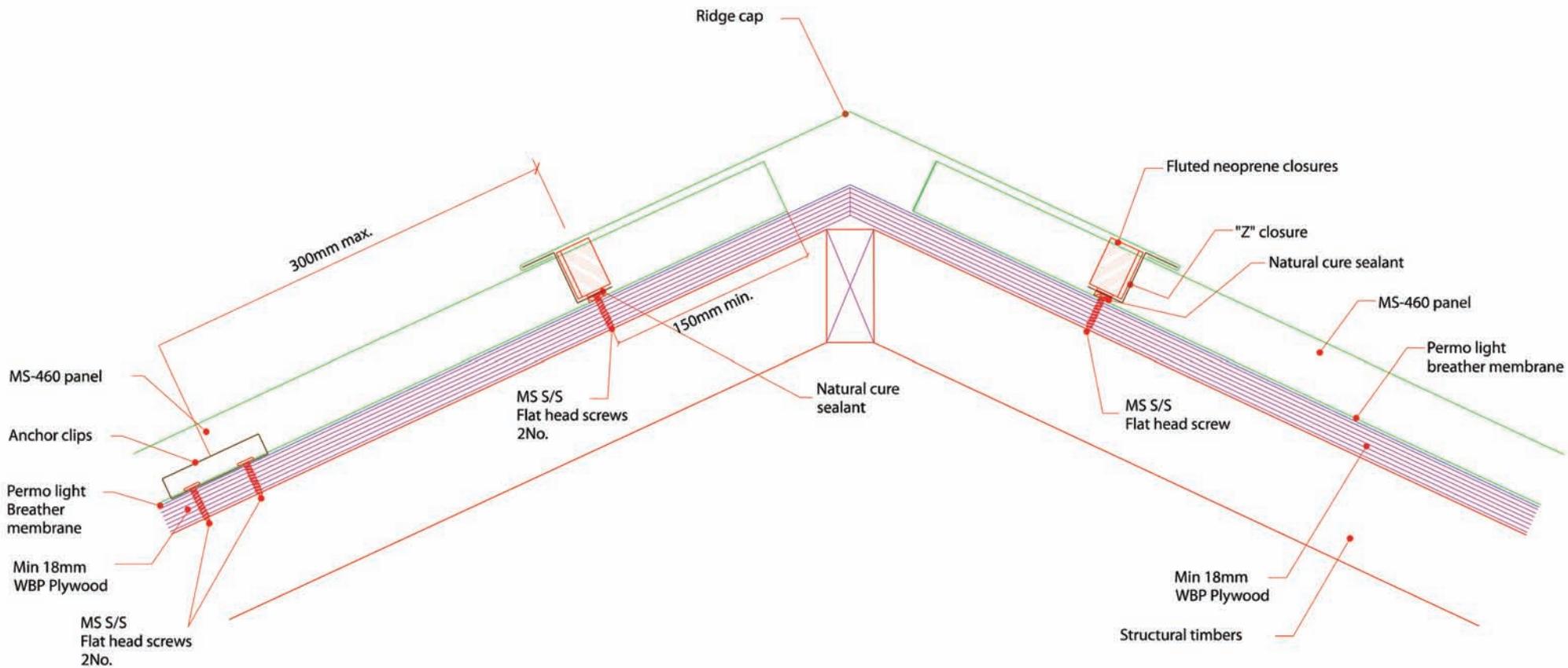
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04

HIP OR RIDGE DETAIL

1. Apply Trans 7 Sealant to the underside of the 'Z' closure and secure between seams using five Met- Seam Stainless Steel screws for the MS 460 panels and four for the MS 360 panels. (These are fixed through to the deck to prevent expansion upwards of the panels). Ensure that the 'Z' closure is a minimum of 150mm from the end of the MS panel. On the Hip the 'Z' closure should be cut to length and shape on site from standard 3m long lengths.
2. Install the Neoprene foam filler behind the 'Z' closure and seal each side to the seam using Trans 7 Sealant. (Use fluted Neoprene foam filler for the ridge and straight Neoprene foam filler for the hip cutting to shape on site).
3. Hook the pre-fabricated Hip/Ridge flashing over the 'Z' closure on one side and fold on site the other side of the flashing over the 'Z' closure on the opposite side. Pop-rivet the upper end only of the Hip/Ridge flashing to the 'Z' closure to allow for expansion.
4. Install pre-fabricated Hip/Ridge butt straps underneath at joining lengths of Hip/Ridge flashing, apply two strips of Trans 7 Sealant each side and pop-rivet the butt strap to the Hip/Ridge flashing on one end only to allow for expansion.



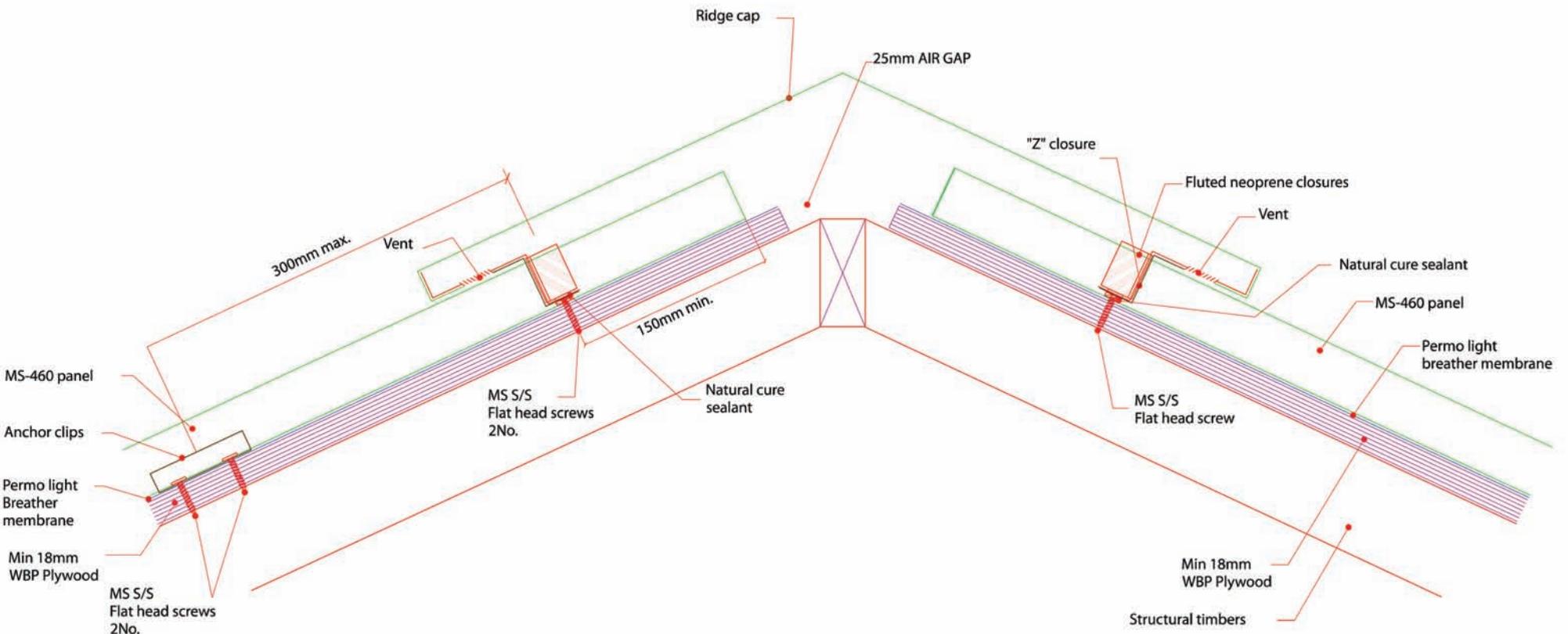
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05

VENTED RIDGE DETAIL

1. Ensure that the breather membrane 'Permo Light' does not cover the air gap in the decking.
2. Apply Trans 7 Sealant to the underside of the Vented 'Z' closure and secure between seams using five Met-Seam Stainless Steel screws for the MS 460 panels and four for the MS 360 panels. (These are fixed through to the deck to prevent expansion upwards of the panels).
3. Install Fluted Neoprene foam filler behind the Vented 'Z' closure and seal each side to the seam using Trans 7 Sealant.
4. Hook the pre-fabricated Ridge flashing over the Vented 'Z' closure on one side and fold on site the other side of the flashing over the Vented 'Z' closure on the opposite side. Pop-rivet the upper end only of the Ridge flashing to the Vented 'Z' closure to allow for expansion.
5. Install pre-fabricated Ridge butt straps underneath at joining lengths of Ridge flashing, apply two strips of Trans 7 Sealant each side and pop-rivet the butt strap to the Hip/Ridge flashing on one end only to allow for expansion.



15

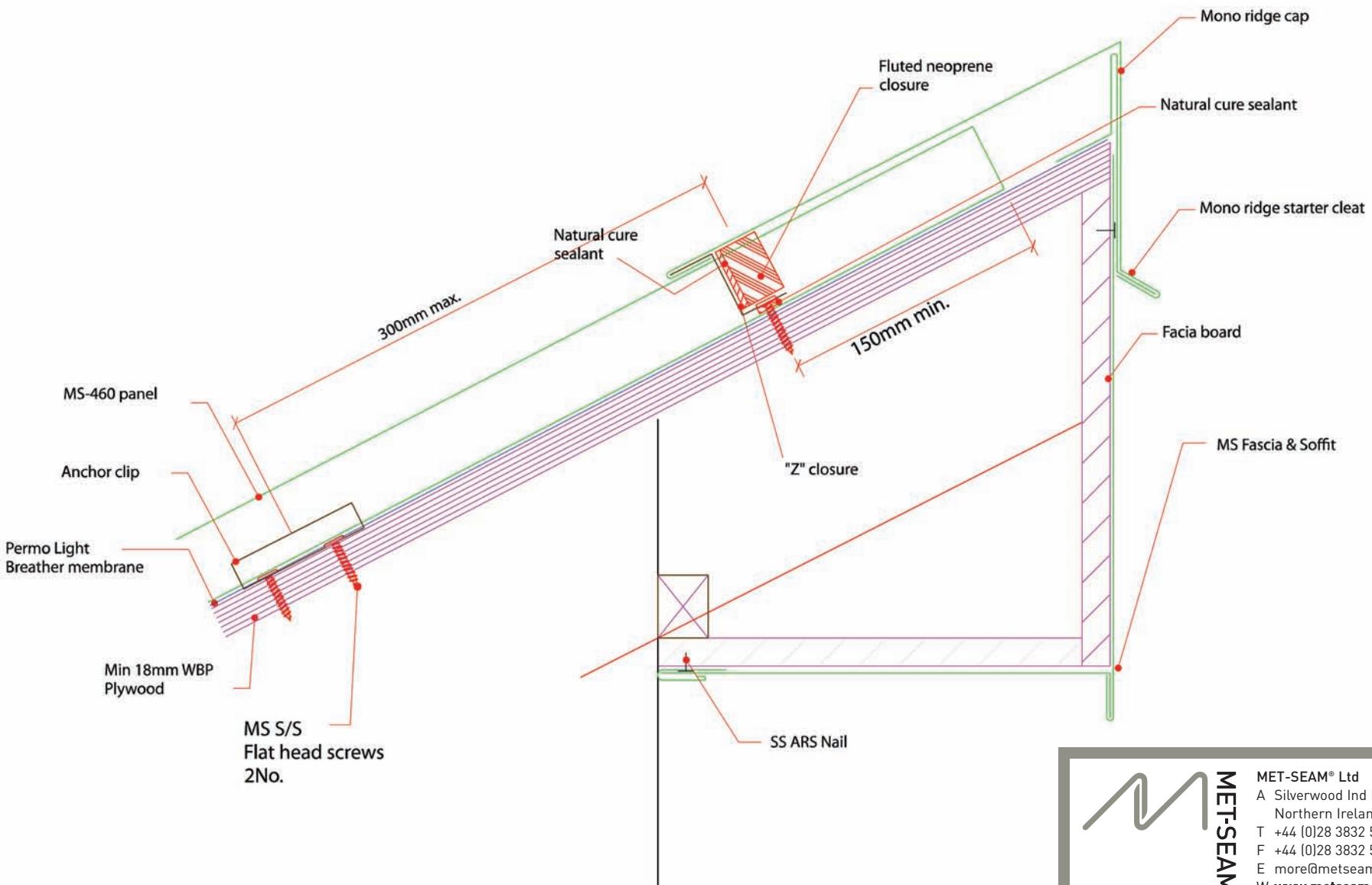
05 | VENTED RIDGE DETAIL

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TITLE: VENTED RIDGE DETAIL	
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06

MONO RIDGE DETAIL

1. Install the MS panel as close to the roof peak as possible.
2. Apply Trans 7 Sealant to the underside of the 'Z' closure and secure between seams using five Met-Seam Stainless Steel screws for the MS 460 panels and four for the MS 360 panels. (These are fixed through to the deck to prevent expansion upwards of the panels). Ensure that the 'Z' closure is a minimum of 150mm from the end of the MS panel.
3. Install Fluted Neoprene foam filler behind the 'Z' closure and seal each side to the seam using Trans 7 Sealant.
4. Fix the pre-fabricated Edge Drip to the bottom of the fascia board using two rows of 25mm ring shank stainless steel nails at 150mm c/c
5. Fix pre-fabricated Edge Trim to soffit board, tight to the vertical structure using 25mm ring shank stainless steel nails at 150mm c/c
6. Install one end of the pre-fabricated Metal Soffit into the Edge Trim and the other into the Edge Drip. Use a pair of Clinch Pliers to ensure the Metal Soffit does not dislodge from the Edge Trim.
7. Hook the bottom of the metal pre-fabricated Fascia over the Drip Edge and fix at the top using 25mm ring shank stainless steel nails to the fascia board. Use only enough nails to temporarily hold the Fascia in place as the Starter Cleat fixings will pertinently fix the Fascia.
8. Fix pre-fabricated Starter Cleat using two rows of 25mm ring shank stainless steel nails at 150mm c/c through the metal fascia and into the fascia board, ensuring that the Starter Cleat covers the stainless steel nails which were temporarily holding the metal fascia at the top.
9. Install the pre-fabricated Mono Ridge Flashing by hooking it over the Starter Cleat and folding the other end over the 'Z' closure on site.
10. Tighten up welt joint at the bottom of the fascia, edge drip and soffit

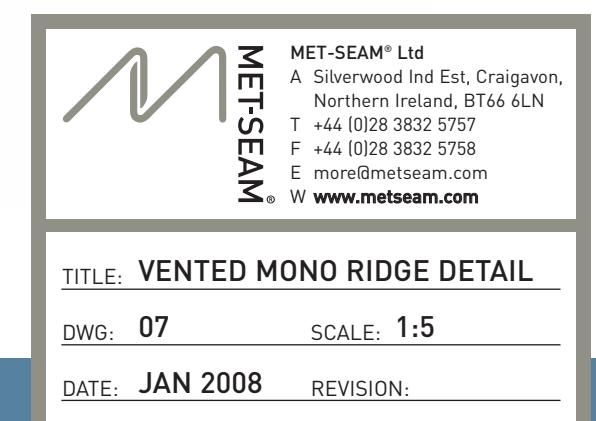
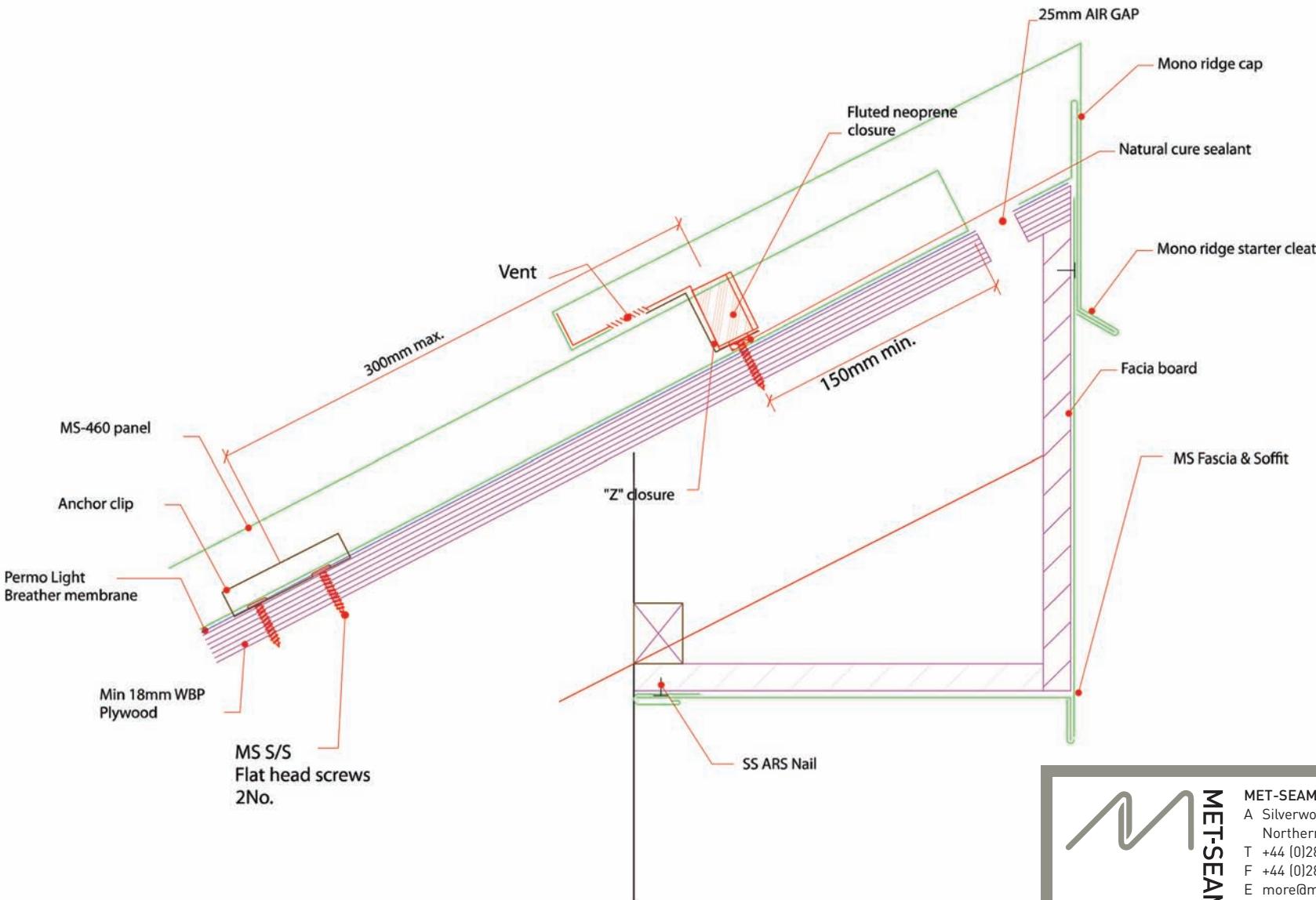


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07

VENTED MONO RIDGE DETAIL

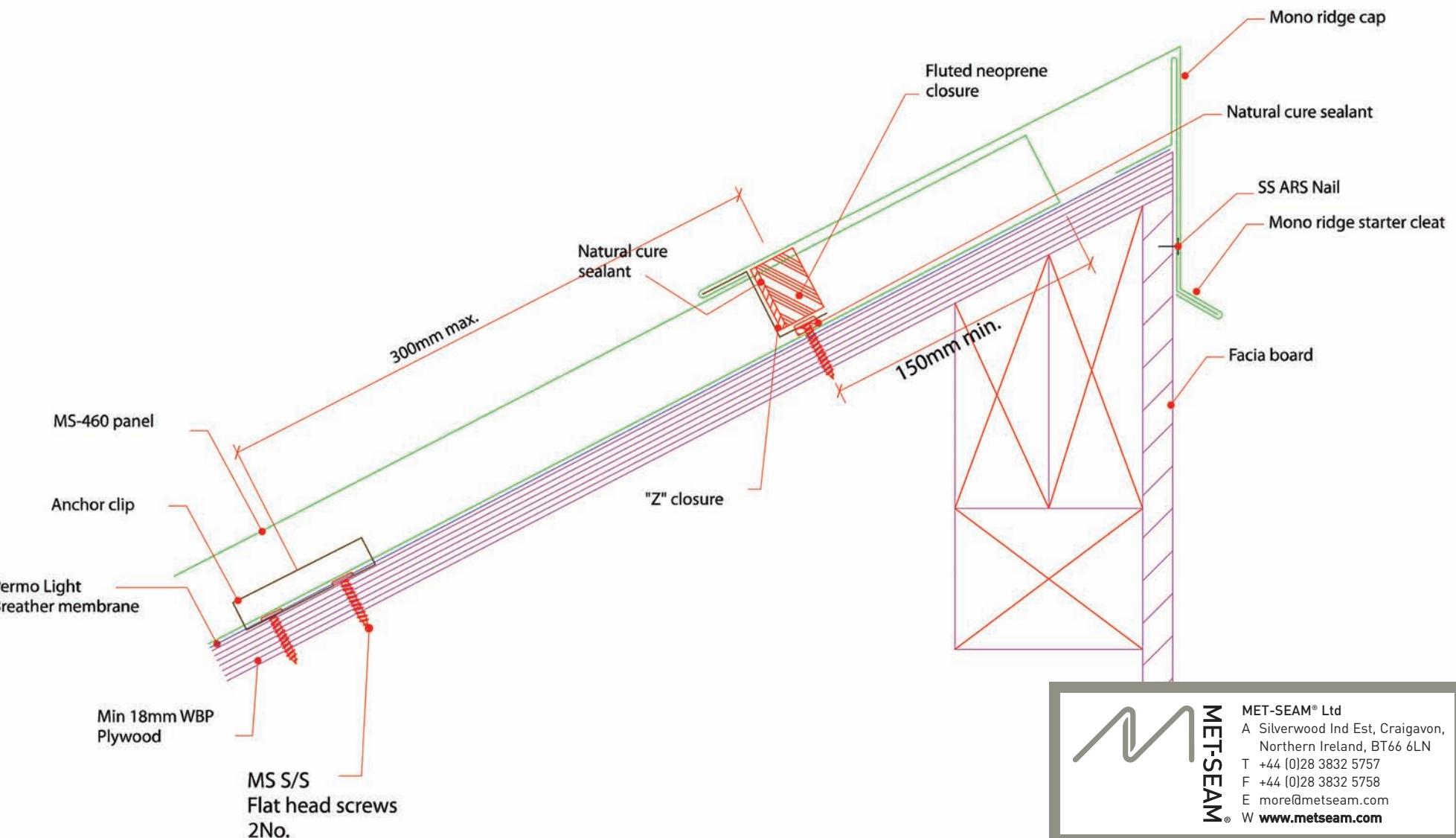
1. Ensure that the breather membrane 'Permo Light' does not cover the gap in the decking.
2. Install the MS panel as close to the gap in the decking as possible. (A gap in the decking needs to be formed by the deck installer to allow for an air flow)
3. Apply Trans 7 Sealant to the underside of the Vented 'Z' closure and secure between seams using five Met-Seam Stainless Steel screws for the MS 460 panels and four for the MS 360 panels. (These are fixed through to the deck to prevent expansion upwards of the panels). Ensure that the 'Z' closure is a minimum of 150mm from the end of the MS panel.
4. Install Fluted Neoprene foam filler behind the Vented 'Z' closure and seal each side to the seam using Trans 7 Sealant.
5. Fix pre-fabricated Starter Cleat using two rows of 25mm ring shank stainless steel nails at 150mm c/c to fascia board, ensuring the top of the cleat will support the Mono Ridge Flashing.
6. Install the pre-fabricated Mono Ridge Flashing by hooking it over the Starter Cleat and folding the other end over the 'Z' closure on site.



08

MONO RIDGE DETAIL 2

1. Install the MS panel as close to the roof peak as possible.
2. Apply Trans 7 Sealant to the underside of the 'Z' closure and secure between seams using five Met-Seam Stainless Steel screws for the MS 460 panels and four for the MS 360 panels. (These are fixed through to the deck to prevent expansion upwards of the panels). Ensure that the 'Z' closure is a minimum of 150mm from the end of the MS panel.
3. Install Fluted Neoprene foam filler behind the 'Z' closure and seal each side to the seam using Trans 7 Sealant.
4. Fix pre-fabricated Starter Cleat using two rows of 25mm ring shank stainless steel nails at 150mm c/c to fascia board, ensuring the top of the cleat will support the Mono Ridge Flashing.
5. Install the pre-fabricated Mono Ridge Flashing by hooking it over the Starter Cleat and folding the other end over the 'Z' closure on site.



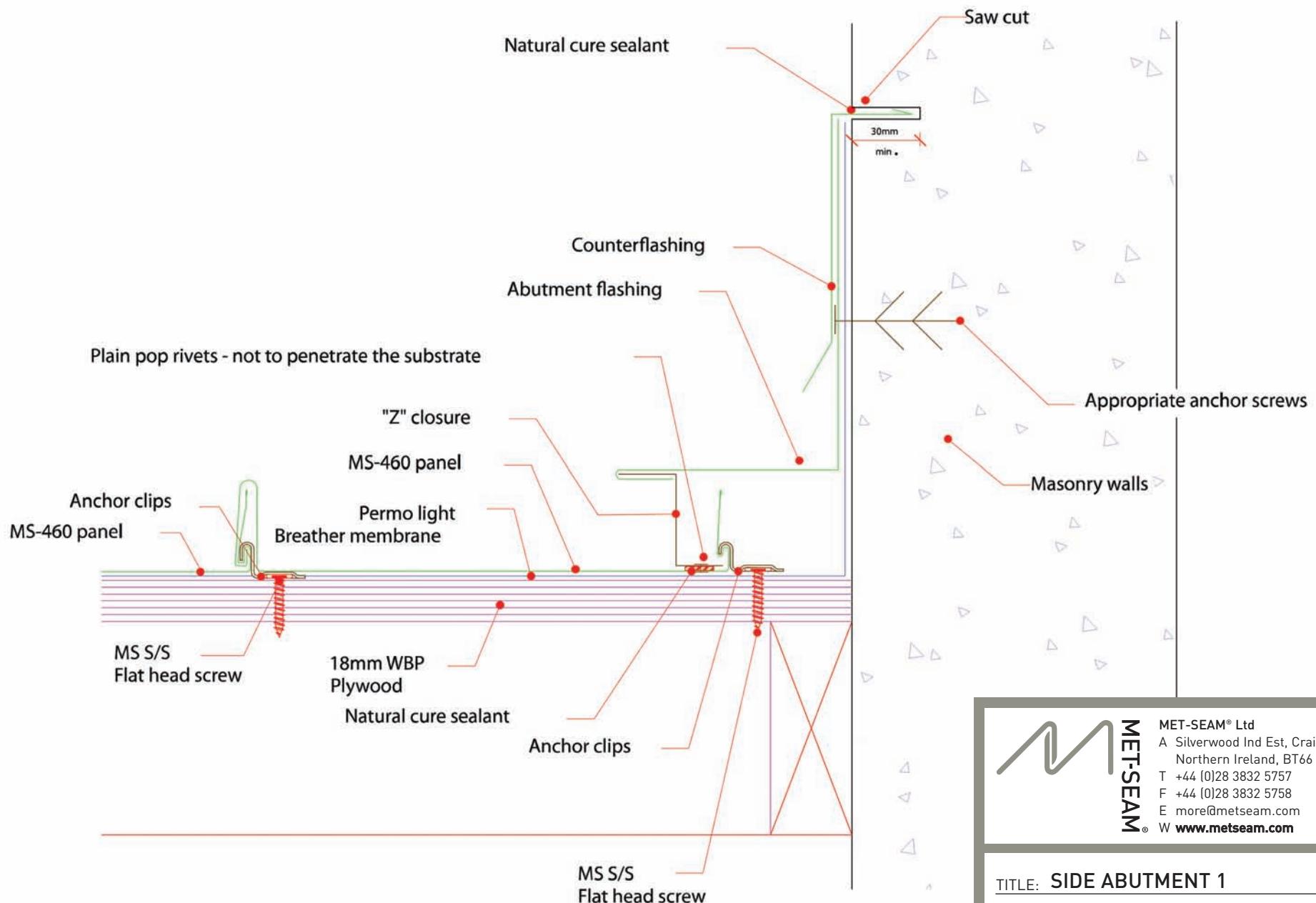
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09

END SIDE WALL ABUTMENT

1. Turn the breather membrane, Permo Light, up the abutment structure a minimum of 190mm high.
2. Secure the last panel using the Met-Seam Anchor Clip fixed with two Met-Seam Stainless Steel screws.
3. If the last MS panel needs to be cut, cut it using a pair of snips, use the cut off section of panel by slipping it underneath the cut panel and sealing them using Trans 7 Sealant
4. Apply Trans 7 Sealant to underside of the 'Z' closure and pop-rivet the 'Z' closure through the cut panel and the cut off piece of panel at min. 300mm c/c. (NOTE: Do not fix through to the decking as this will prevent natural expansion of the panel.)
5. Install Met-Seam Anchor clip with two Met-Seam Stainless Steel screws at max. 300mm c/c.
6. Hook one end of the pre-fabricated Abutment Flashing over 'Z' closure and fix the other leg to the abutment structure
7. Install the pre-fabricated Counter Flashing over the Abutment Flashing and seal it using Trans 7 Sealant into the abutment structure chase.
8. The abutment structure chase needs to be a minimum of 150mm above the Abutment Flashing which in turn will be approximately 42mm above the decking which means the chase needs to be approximately 192mm above the decking.

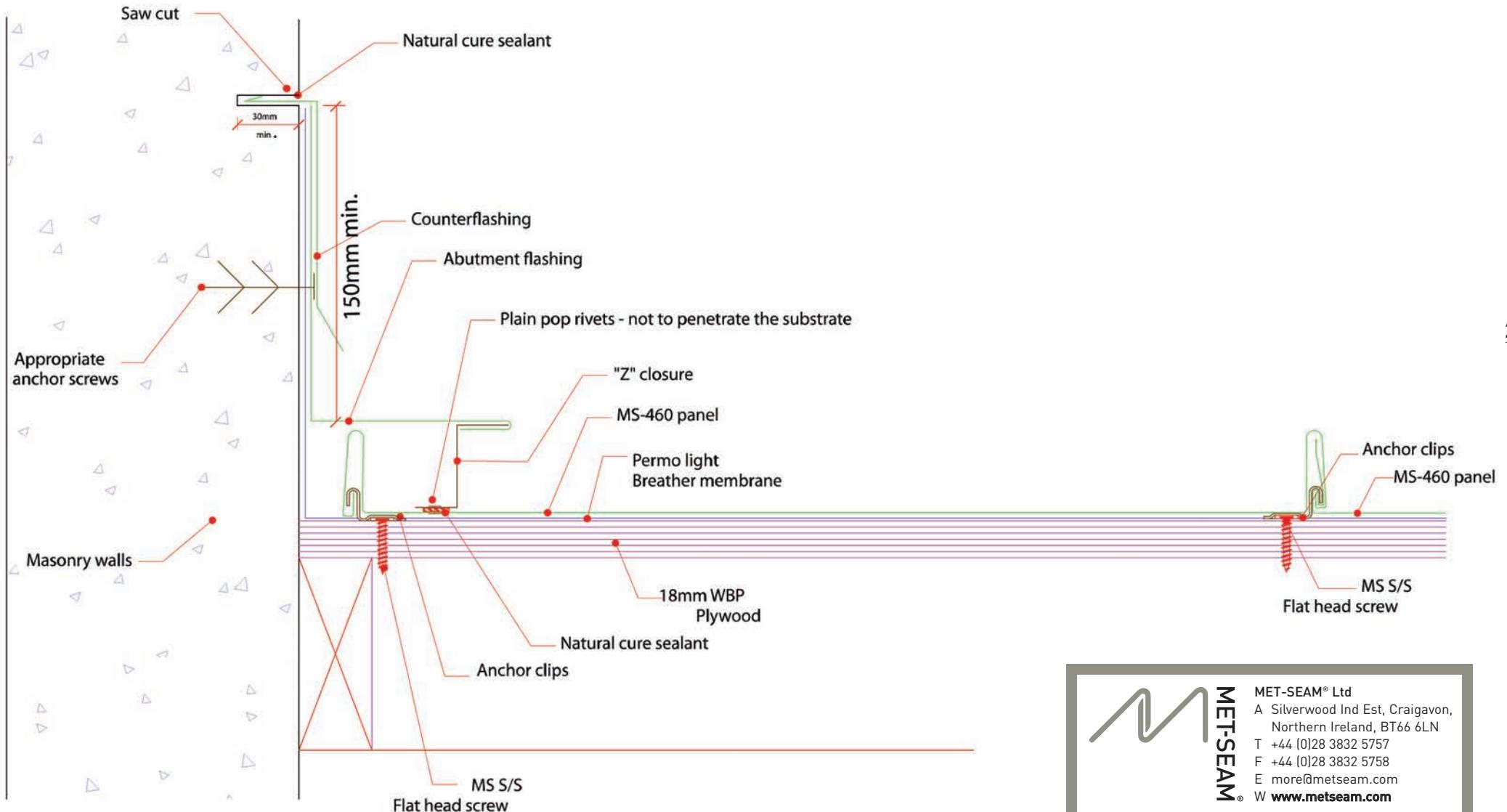


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DWG: 09	SCALE: NTS
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10

STARTING SIDE WALL ABUTMENT

1. Turn the breather membrane, Permo Light, up the abutment structure a minimum of 190mm high.
2. Install Met-Seam Anchor clip with two Met-Seam Stainless Steel screws at max. 300mm c/c.
3. Apply Trans 7 Sealant to underside of 'Z' closure and pop-rivet 'Z' closure to panel at min. 300mm c/c. (NOTE: Do not fix through to the decking as this will prevent natural expansion of the panel.)
4. Snap the panel into the Anchor clip.
5. Hook one end of the pre-fabricated Abutment Flashing over 'Z' closure and fix the other leg to the abutment structure.
6. Install the pre-fabricated Counter Flashing over the Abutment Flashing and seal it using Trans 7 Sealant into the abutment structure chase.
7. The abutment structure chase needs to be a minimum of 150mm above the Abutment Flashing which in turn will be approximately 42mm above the decking which means the chase needs to be approximately 192mm above the decking.

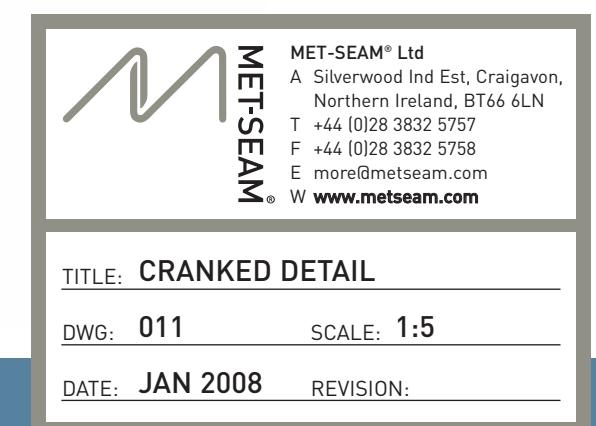
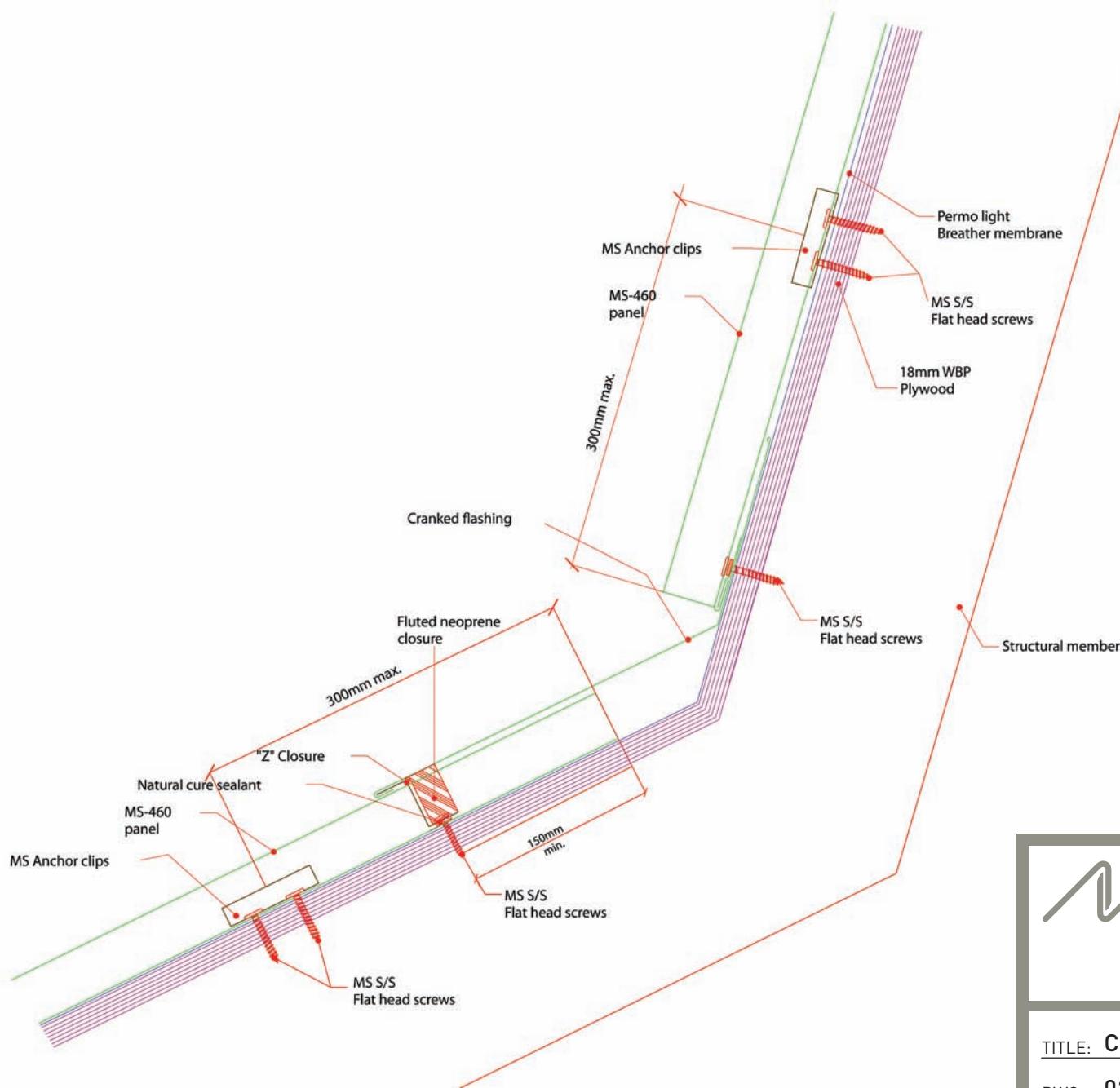


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CRANKED DETAIL

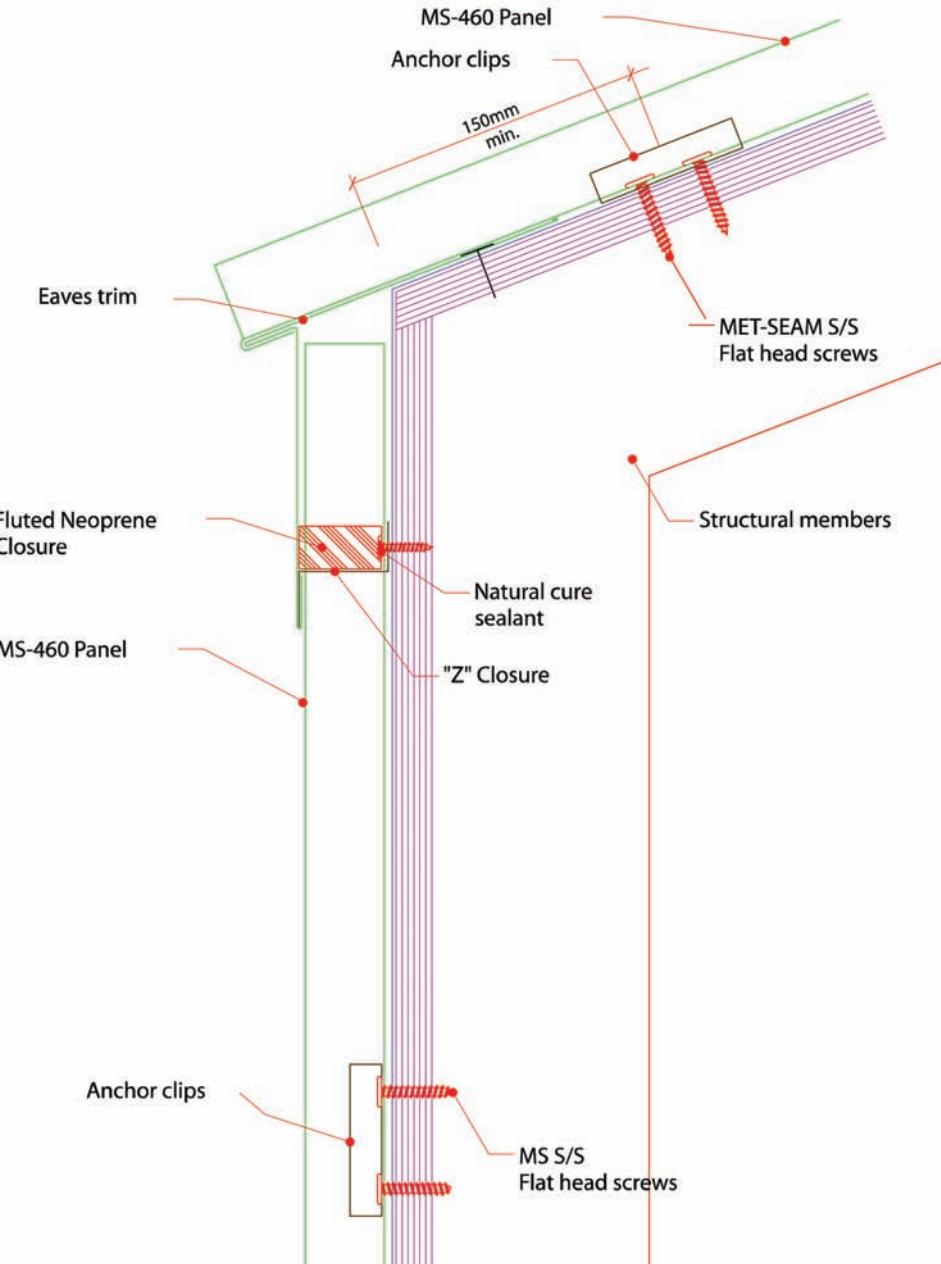
1. The lower MS panels need to be installed first.
2. The breather membrane, Permo Light, should be continuous between the lower and upper sections of the structure.
3. Apply Trans 7 Sealant to the underside of the 'Z' closure and secure between seams using five Met- Seam Stainless Steel screws for the MS 460 panels and four for the MS 360 panels. (These are fixed through to the deck to prevent expansion upwards of the panels).
4. Install the Fluted Neoprene foam filler behind the 'Z' closure and seal each side to the seam using Trans 7 Sealant.
5. Hook the pre-fabricated Cranked Flashing over the 'Z' closure on one side and the fix the other leg of the flashing to the upper part of the structure, to temporarily hold the flashing in place.
6. Install the pre-fabricated Joggle Cleat using Met- Seam Stainless Steel screws fixed at min. 300mm c/c into the structure.
7. Trim or cut the MS panel to allow the panel to fold down and around the Joggle Cleat and at the same time cut the seam to allow for the folding of the metal to close off the seam end.
8. Snap the panel into place and slide the panel up so as the folded end of the panel fits into the Joggle Cleat, ensure to allow for expansion and tighten up the metal.



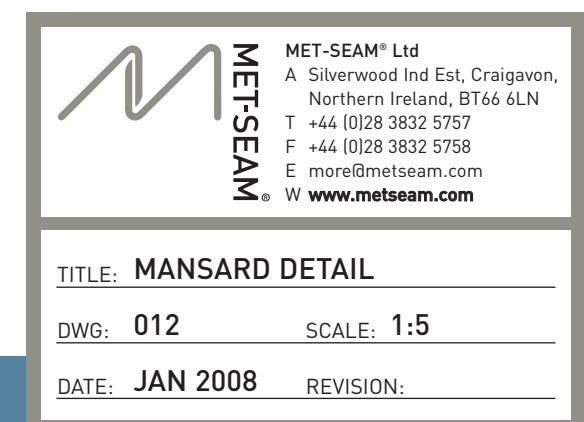
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MANSARD DETAIL

1. The lower MS panels needs to be installed first.
2. Apply Trans 7 Sealant to the underside of the 'Z' closure and secure between seams using five Met-Seam Stainless Steel screws for the MS 460 panels and four for the MS 360 panels. (These are fixed through to the deck to prevent expansion upwards of the panels).
3. Install the Fluted Neoprene foam filler behind the 'Z' closure and seal each side to the seam using Trans 7 Sealant.
4. Fix the pre-fabricated Mansard Flashing by hooking over the 'Z' closure and nailing to the upper decking using two rows of 25mm ring shank stainless steel nails at 150mm c/c. ensure that the breather membrane 'Permo Light' is out over the top of the Mansard Flashing
5. Install the upper MS panels by trimming or cutting the panel to allow the panel to fold down and around the Mansard Flashing and at the same time cut the seam to allow for the folding of the metal to close off the seam end.



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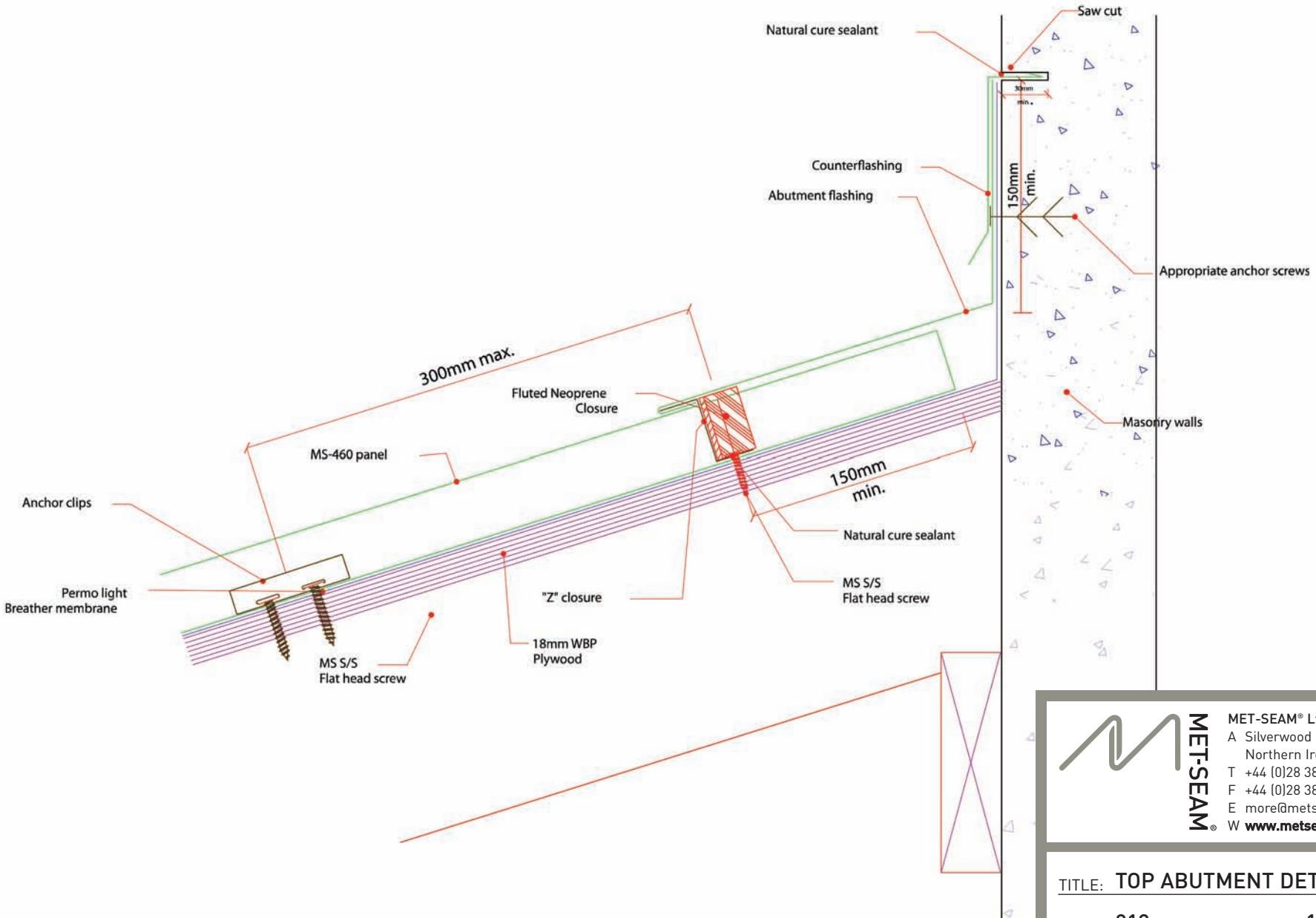


13

TOP ABUTMENT DETAIL

1. Turn the breather membrane, Permo Light, up the abutment structure a minimum of 190mm high.
2. Install the MS panel to within 25mm of the abutment structure.
3. Apply Trans 7 Sealant to the underside of the 'Z' closure and secure between seams using five Met-Seam Stainless Steel screws for the MS 460 panels and four for the MS 360 panels. (These are fixed through to the deck to prevent expansion upwards of the panels). Ensure that the 'Z' closure is a minimum of 150mm from the end of the MS panel.
4. Install the Fluted Neoprene foam filler behind the 'Z' closure and seal each side to the seam using Trans 7 Sealant.
5. Hook one end of the pre-fabricated Abutment Flashing over 'Z' closure and fix the other leg to the abutment structure.
6. Install the pre-fabricated Counter Flashing over the Abutment Flashing and seal it using Trans 7 Sealant into the abutment structure chase.
7. The abutment structure chase needs to be a minimum of 150mm above the Abutment Flashing which in turn will be approximately 42mm above the decking which means the chase needs to be approximately 192mm above the decking.

13 | TOP ABUTMENT DETAIL



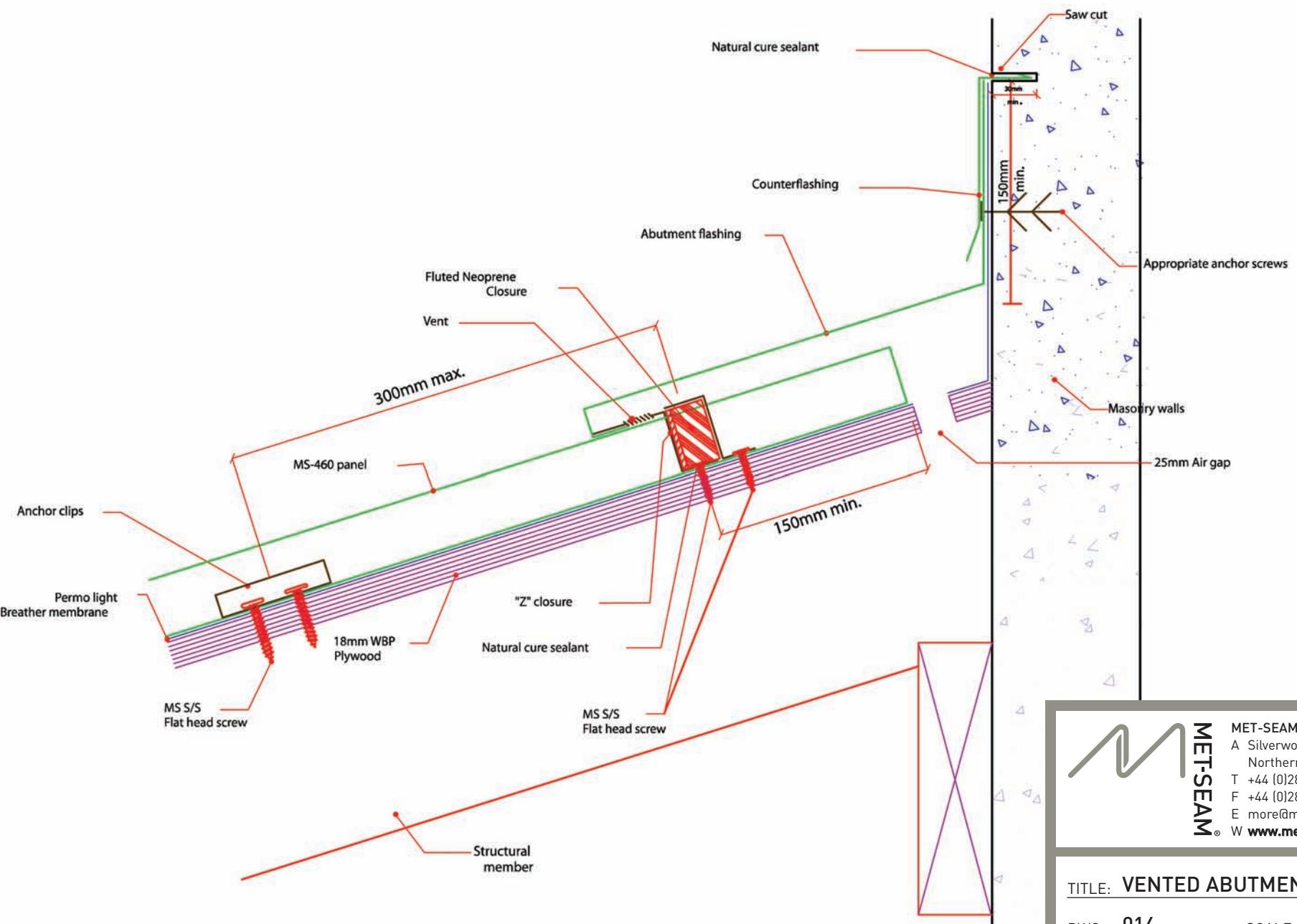
31

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TITLE: TOP ABUTMENT DETAIL	
DWG:	013
SCALE:	1:5
DATE:	JAN 2008
REVISION:	

14

VENTED TOP ABUTMENT DETAIL

1. Ensure that the breather membrane 'Permo Light' does not cover the gap in the decking.
2. Install the MS panel as close to the gap in the decking as possible. (A gap in the decking needs to be formed by the deck installer to allow for an air flow)
3. Apply Trans 7 Sealant to the underside of the Vented 'Z' closure and secure between seams using five Met-Seam Stainless Steel screws for the MS 460 panels and four for the MS 360 panels. (These are fixed through to the deck to prevent expansion upwards of the panels). Ensure that the 'Z' closure is a minimum of 150mm from the end of the MS panel.
4. Install Fluted Neoprene foam filler behind the Vented 'Z' closure and seal each side to the seam using Trans 7 Sealant.
5. Hook one end of the pre-fabricated Abutment Flashing over the Vented 'Z' closure and fix the other leg to the abutment structure.
6. Install the pre-fabricated Counter Flashing over the Abutment Flashing and seal it using Trans 7 Sealant into the abutment structure chase.
7. The abutment structure chase needs to be a minimum of 150mm above the Abutment Flashing which in turn will be approximately 42mm above the decking which means the chase needs to be approximately 192mm above the decking.



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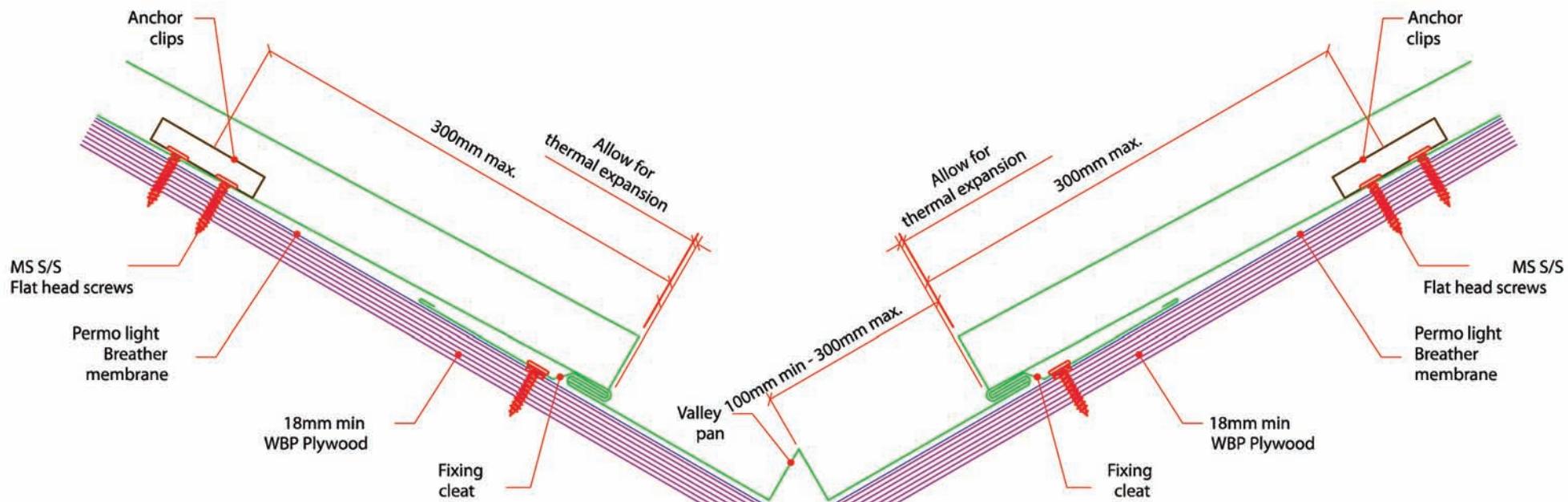
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DWG: 014	SCALE: NTS
DATE: JAN 2008 REVISION:	

15

VALLEY DETAIL

1. Install the breather membrane 'Permo Light' up the length of the valley with 750mm each side of the centre.
2. Fix the pre-fabricated Valley Flashing using 25mm ring shank stainless steel nails at 150mm c/c.
3. Install the main area breather membrane 'Permo Light' ensuring that it is out over the top of the Valley Flashing.
4. Apply Trans 7 Sealant to the underside of the Joggle Cleat and fix through the Valley Flashing using Met- Seam Stainless Steel screws fixed at min. 300mm c/c into the structure.
5. Trim or cut the MS panel to allow the panel to fold down and around the Joggle Cleat and at the same time cut the seam to allow for the folding of the metal to close off the seam end.



35

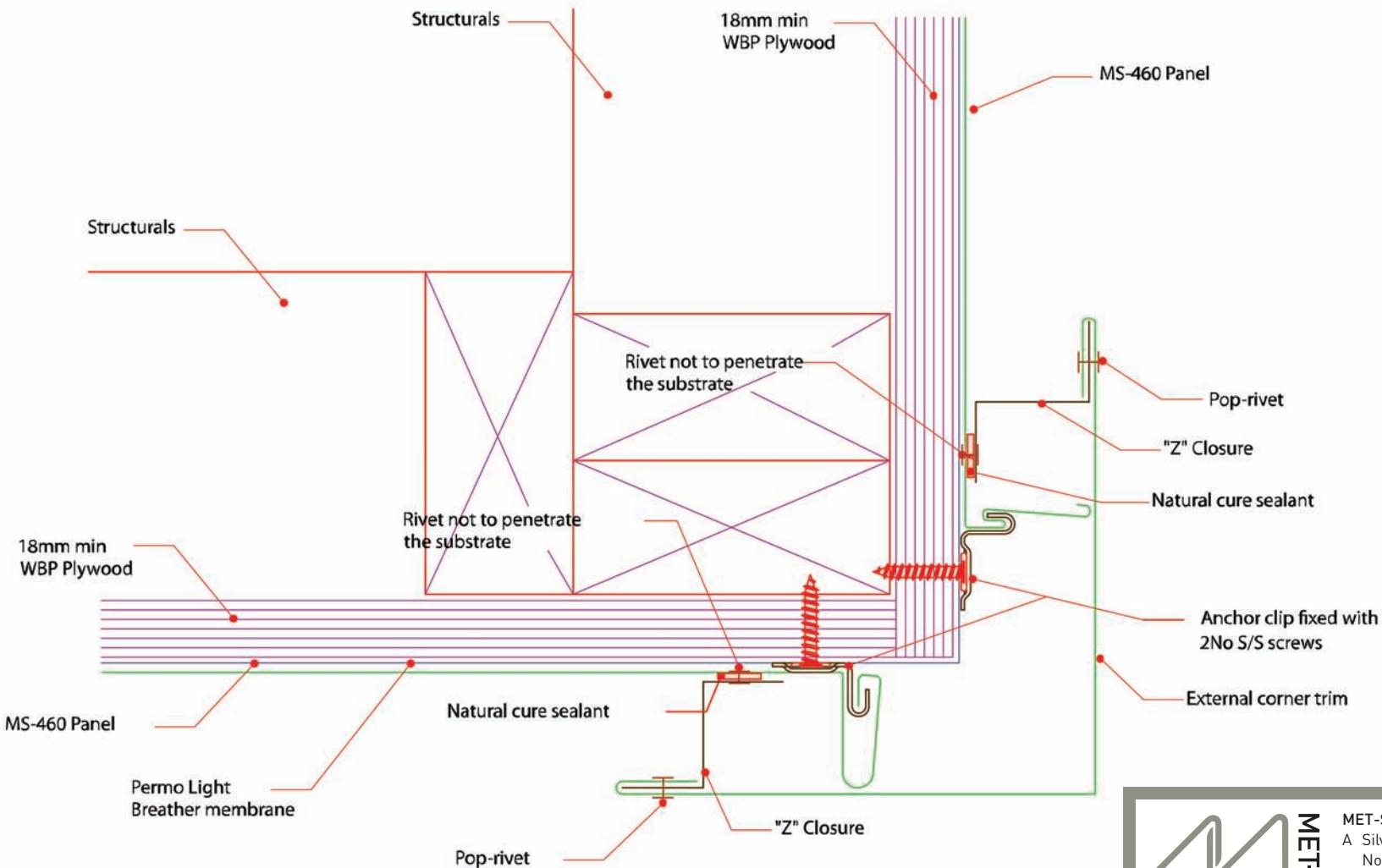
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TITLE: VALLEY DETAIL	
DWG:	015
SCALE:	1:5
DATE:	JAN 2008
REVISION:	

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MET-SEAM® MS 460 / MS 360 INSTALLATION GUIDE

EXTERNAL CORNER

1. Install the breather membrane 'Permo Light' continuously around the external corner.
2. Secure the last panel on each side of the external corner using the Met-Seam Anchor Clip fixed with two Met-Seam Stainless Steel screws.
3. If the last MS panel at each side needs to be cut, cut them using a pair of snips, use the cut off section of panel by slipping it underneath the cut panel and sealing them using Trans 7 Sealant
4. Apply Trans 7 Sealant to underside of the 'Z' closure and pop-rivet the 'Z' closure through the cut panel and the cut off piece of panel at min. 300mm c/c. (NOTE: Do not fix through to the decking as this will prevent natural expansion of the panel.)
5. Install Met-Seam Anchor clip with two Met-Seam Stainless Steel screws at max. 300mm c/c.
6. Hook the pre-fabricated External Corner Flashing over one 'Z' closure and fold on site the other end of the External Corner Flashing around the other 'Z' closure. Pop-rivet both sides to the 'Z' closures at the upper end only.

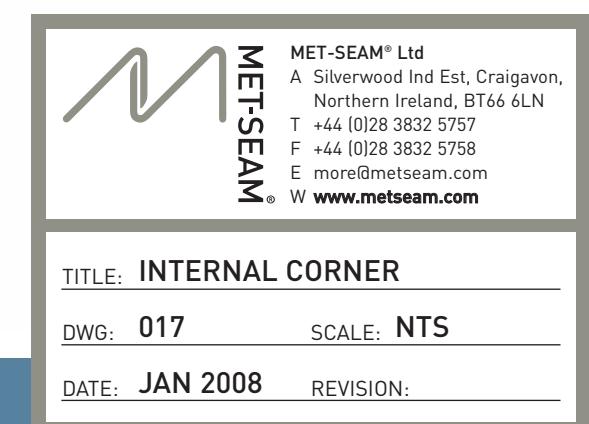
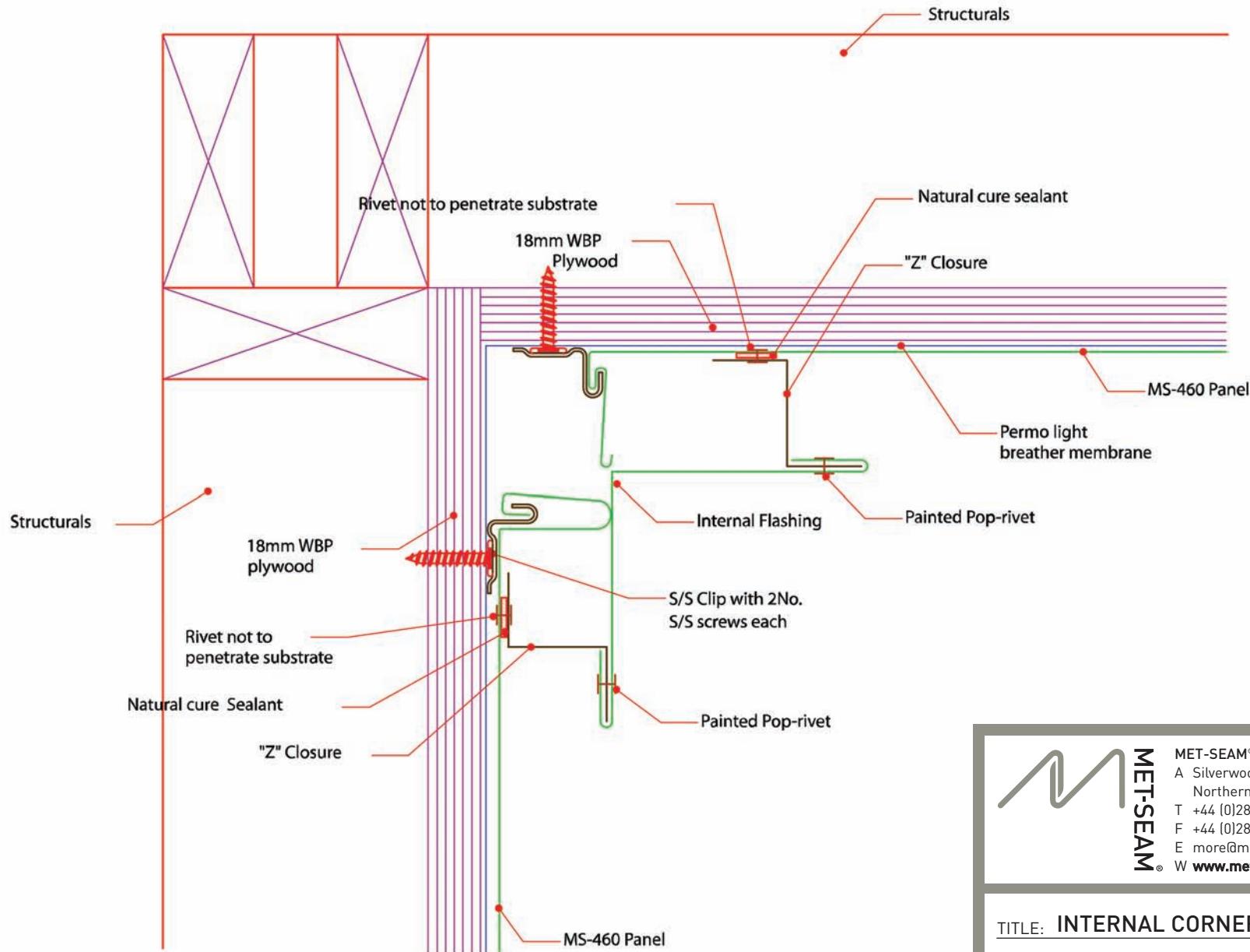


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TITLE: EXTERNAL CORNER	
DWG: 016	SCALE: NTS
DATE: JAN 2008 REVISION:	

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INTERNAL CORNER FLASHING

1. Install the breather membrane 'Permo Light' continuously around the internal corner.
2. Secure the last panel on each side of the internal corner using the Met-Seam Anchor Clip fixed with two Met-Seam Stainless Steel screws.
3. If the last MS panel at each side needs to be cut, cut them using a pair of snips, use the cut off section of panel by slipping it underneath the cut panel and sealing them using Trans 7 Sealant
4. Apply Trans 7 Sealant to underside of the 'Z' closure and pop-rivet the 'Z' closure through the cut panel and the cut off piece of panel at min. 300mm c/c. (NOTE: Do not fix through to the decking as this will prevent natural expansion of the panel.)
5. Install Met-Seam Anchor clip with two Met-Seam Stainless Steel screws at max. 300mm c/c.
6. Hook the pre-fabricated Internal Corner Flashing over one 'Z' closure and fold on site the other end of the Internal Corner Flashing around the other 'Z' closure. Pop-rivet both sides to the 'Z' closures at the upper end only.



18

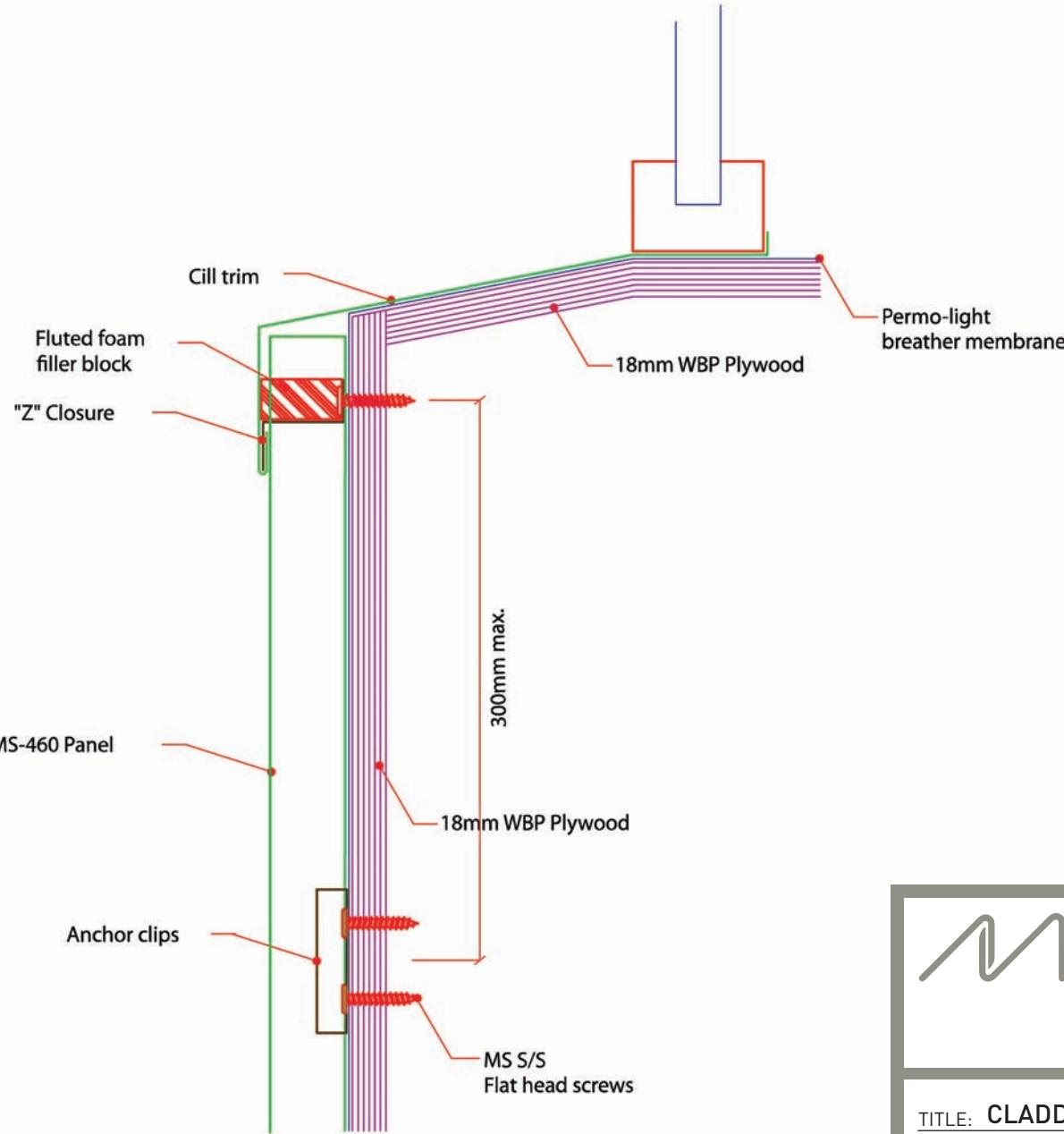
SILL DETAIL (SEE ALSO ALTERNATIVE SILL DETAIL 20)

How the Sill Detail is flashed against the window may vary on each project, e.g. some windows will use a pressure plate in which case the window is installed first. For this detail we have assumed the metal Sill is fixed first and the window installed later.

40

It is important that the window installer does not damage the metal or force the window into place, to the extent that the metal is bent down, creating a 'well' or 'back fall' in the Sill Flashing.

1. Install the breather membrane 'Permo Light' into the window opening and trim off surplus after the window has been installed.
2. The vertical MS panel is fitted first.
3. Apply Trans 7 Sealant to the underside of the 'Z' closure and secure between seams using five Met-Seam Stainless Steel screws for the MS 460 panels and four for the MS 360 panels. (These are fixed through to the deck to prevent expansion upwards of the panels).
4. Install the Fluted Neoprene foam filler behind the 'Z' closure and seal each side to the seam using Trans 7 Sealant.
5. Hook the pre-fabricated Sill Flashing over the 'Z' closure and into the window opening. Fix with temporary site made clips to hold in position until the windows are installed. Do not fix through the Sill Flashing to avoid any possible leakage. Ensure that Trans 7 sealant is used for any external sealing between the window and the metal.



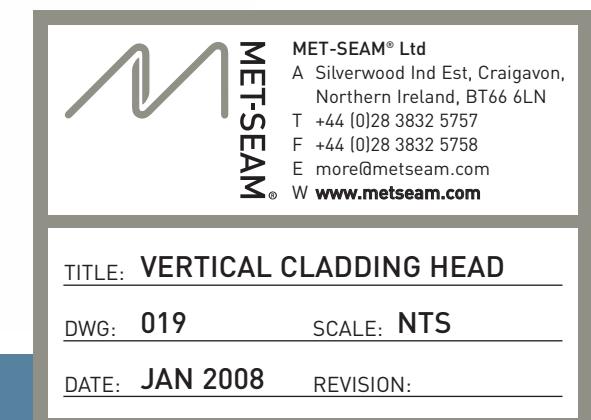
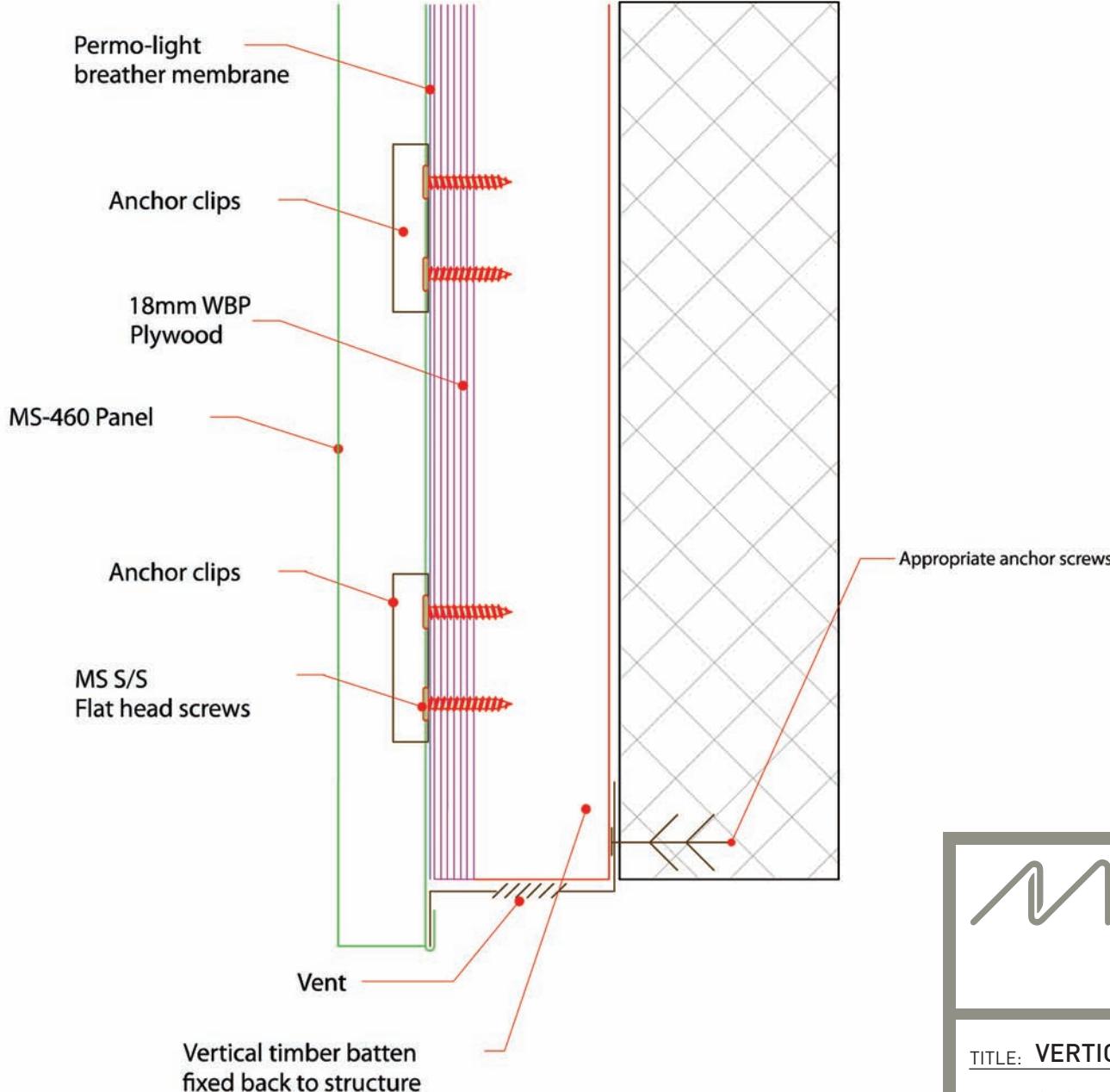
41



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VERTICAL CLADDING HEAD DETAIL

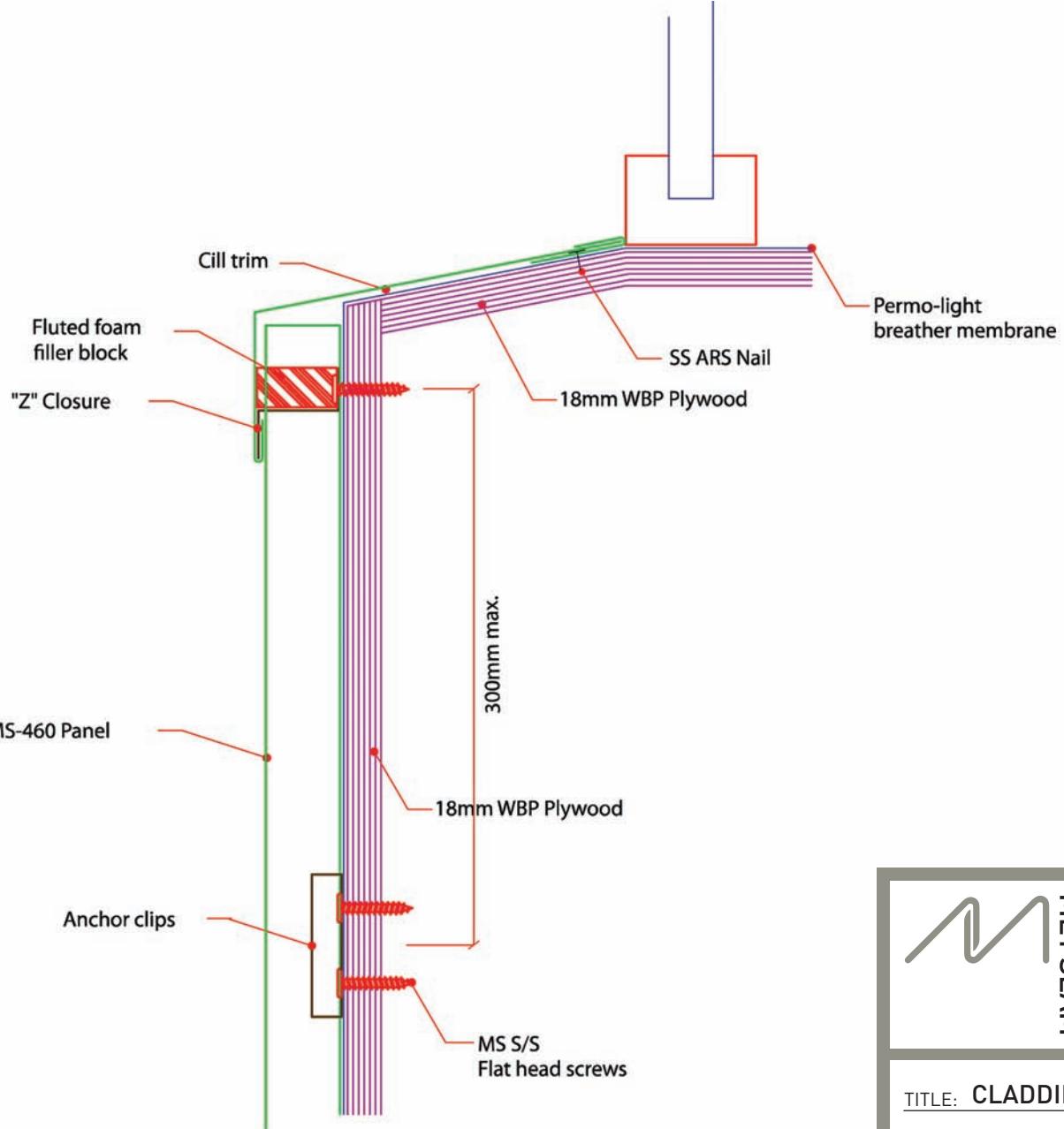
1. Fix one leg of pre-fabricated Head Flashing to the structure.
2. Trim or cut the MS panel to allow the panel to fold down and around the Head Flashing and at the same time cut the seam to allow for the folding of the metal to close off the seam end.



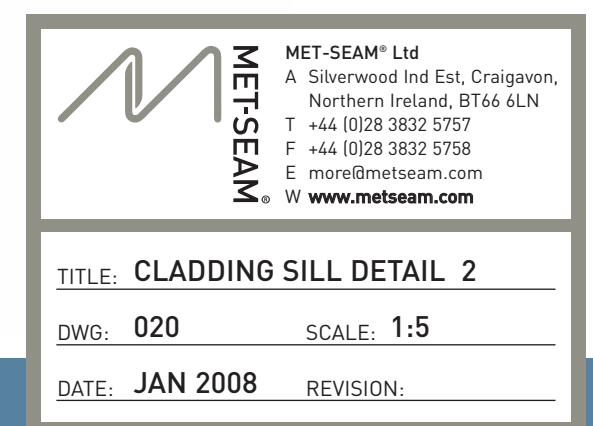
20

ALTERATIVE SILL DETAIL

1. Install the breather membrane 'Permo Light' into the window opening and trim off surplus after the window has been installed.
2. The vertical MS panel is fitted first.
3. Apply Trans 7 Sealant to the underside of the 'Z' closure and secure between seams using five Met- Seam Stainless Steel screws for the MS 460 panels and four for the MS 360 panels. (These are fixed through to the deck to prevent expansion upwards of the panels).
4. Install the Fluted Neoprene foam filler behind the 'Z' closure and seal each side to the seam using Trans 7 Sealant.
5. Apply Trans 7 Sealant to the underside of the pre-fabricated Edge Trim and fix the Edge Trim tight to the window frame using 25mm ring shank stainless steel nails at 150mm c/c. and maximum 50mm from window jamb each side.
6. Hook the pre-fabricated Sill Flashing over the 'Z' closure and into the Edge Trim. Use a pair of Clinch Pliers to ensure the Sill Flashing does not dislodge from the Edge Trim. Do not fix through the Sill Flashing to avoid any possible leakage.
7. Seal between the window and metal using Trans 7 sealant.



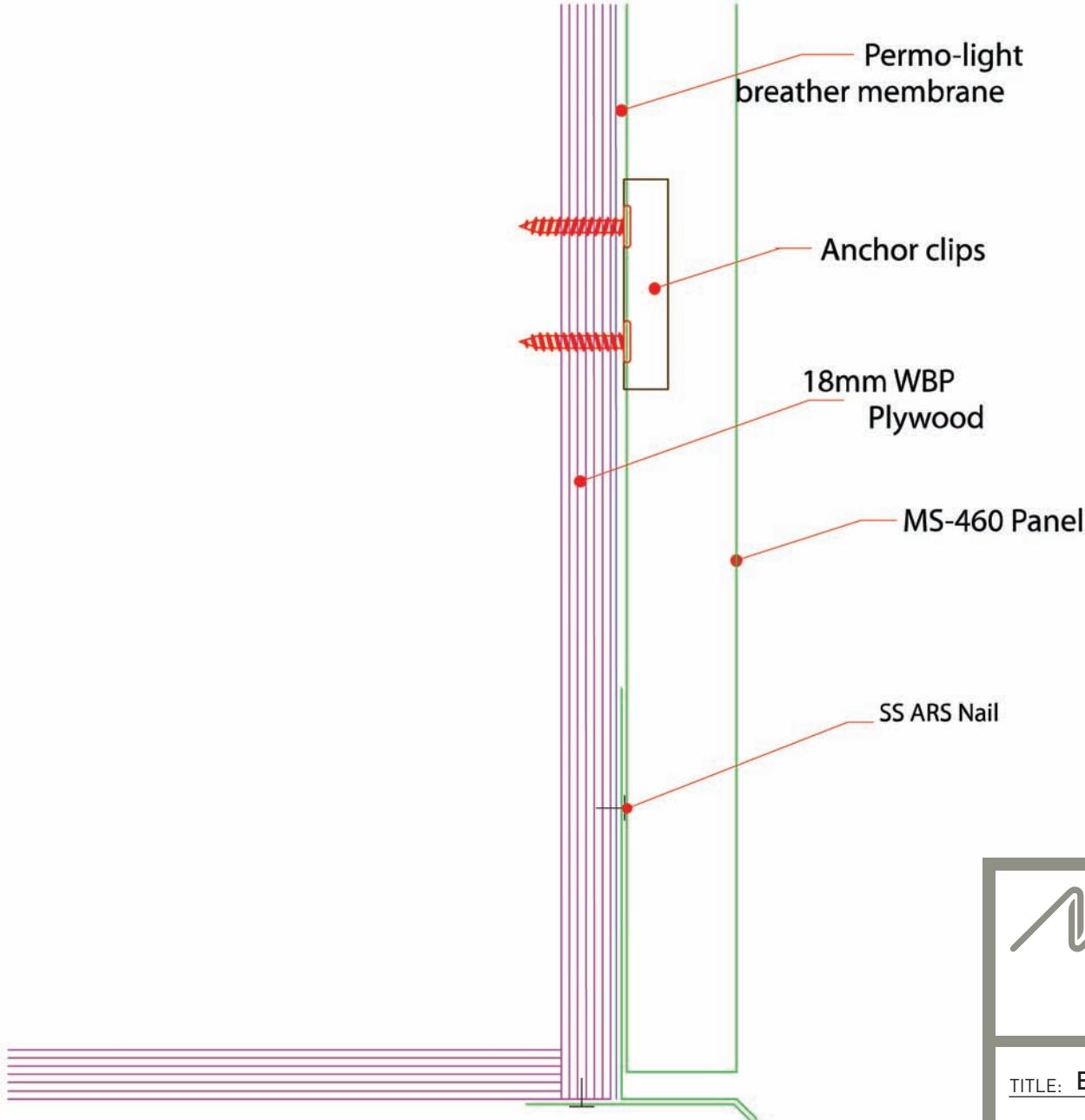
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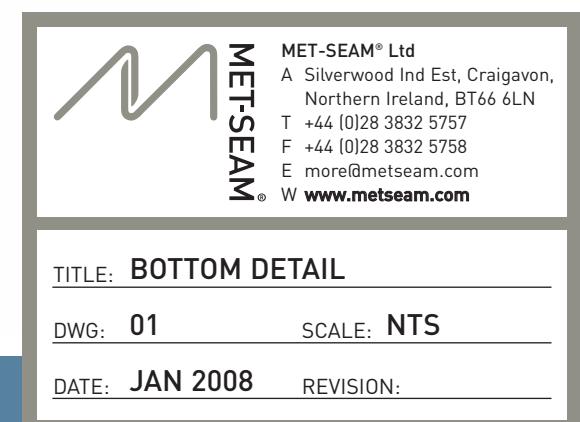
21

BOTTOM DETAIL

1. Fix the pre-fabricated Bottom Flashing to the decking using two rows of 25mm ring shank stainless steel nails at 150mm c/c.
2. Trim or cut the MS panel to allow for natural expansion. Allow a minimum of 1mm clearance above the Bottom Flashing for every 1m in length of the MS panel and at the same time cut the seam to allow for the folding of the metal to close off the seam end.



47



22

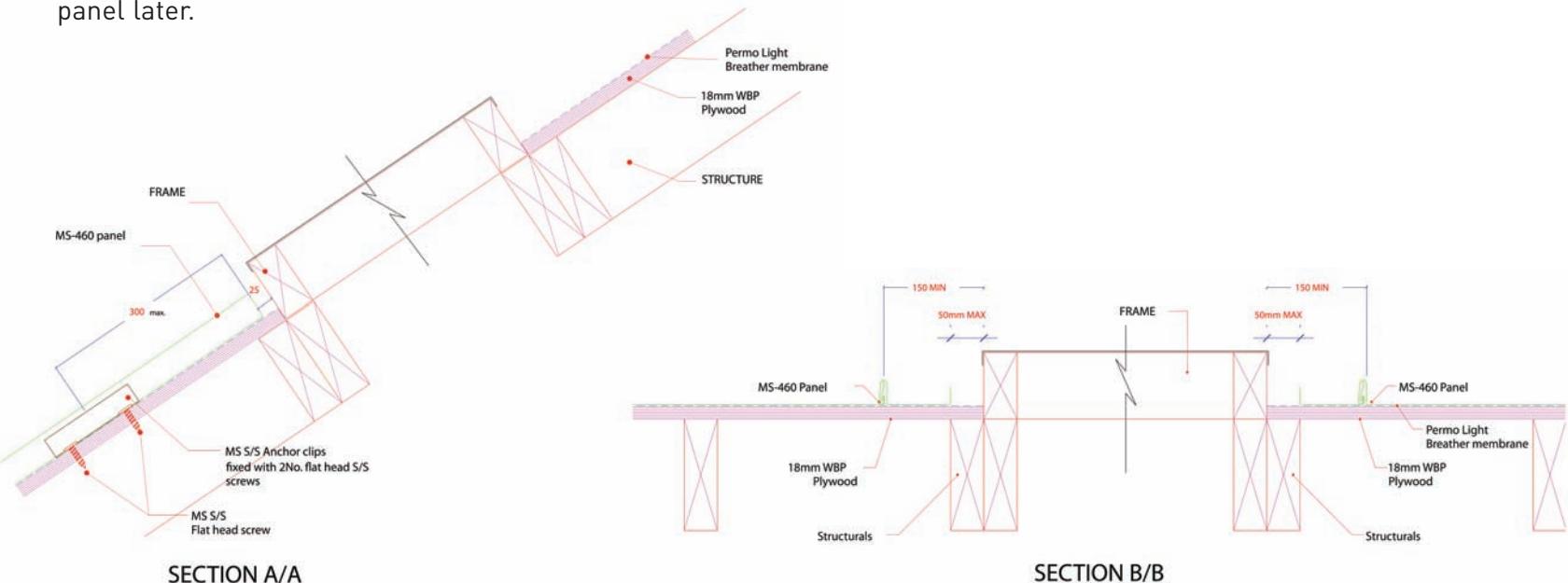
SQUARE PENETRATION DETAIL

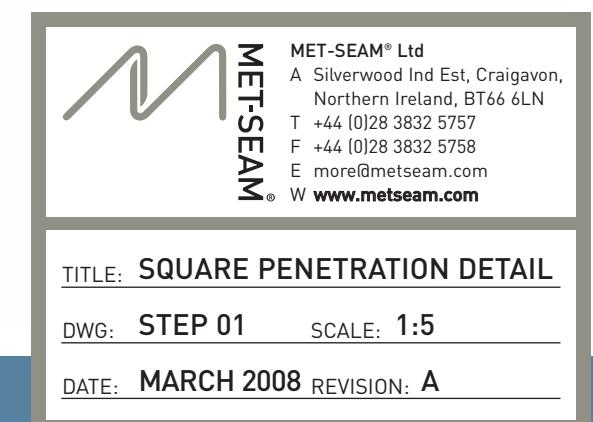
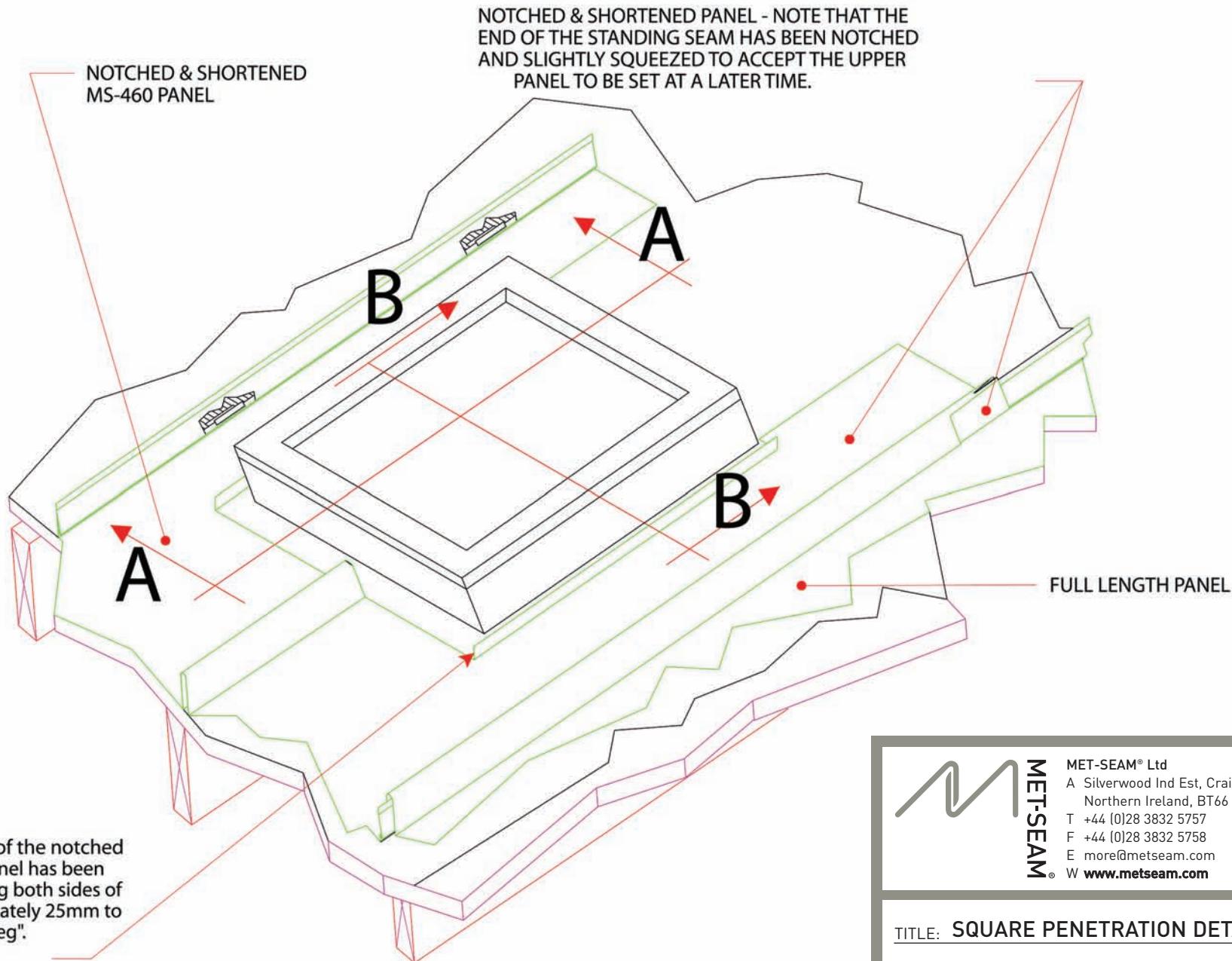
STEP 01

Working either left to right or right to left cut the panels surrounding the penetration leaving room for expansion (25 mm) on the lower and left and right side, the panels should extend 300mm above the penetration.

Turn a water check on either side of the penetration, notch and squeeze the over cloak to receive the upper panel later.

48





22

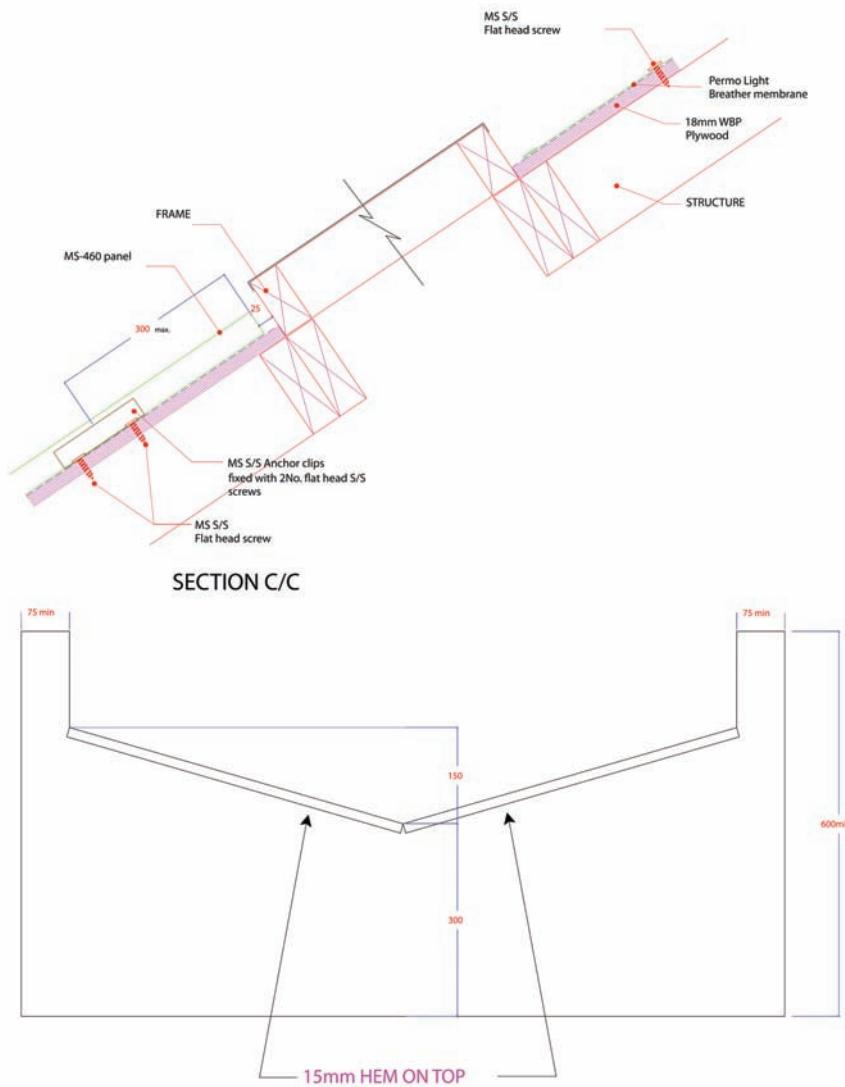
STEP 02

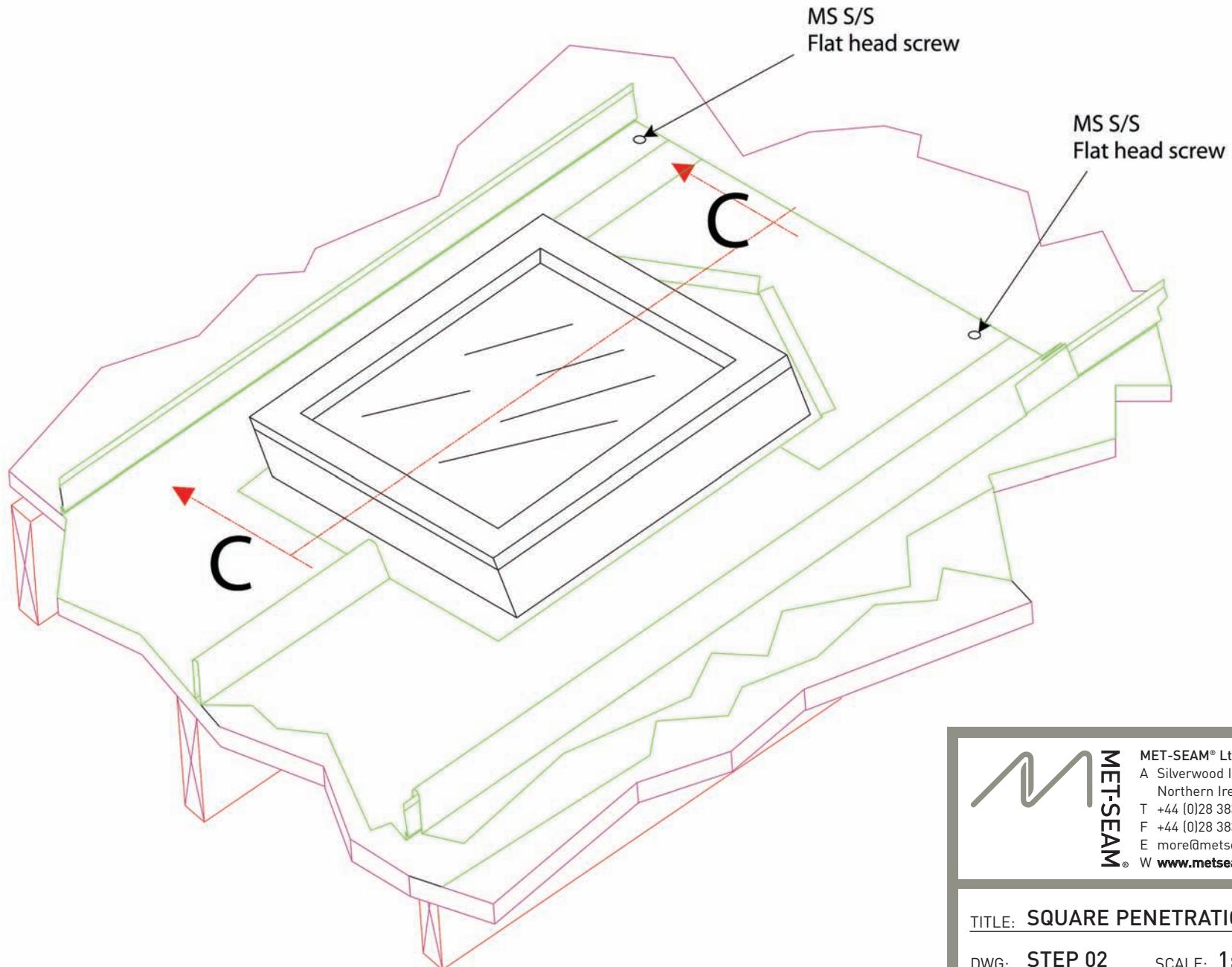
SQUARE PENETRATION DETAIL

Fabricate the rainwater diverter as per the drawing to the on site dimensions.

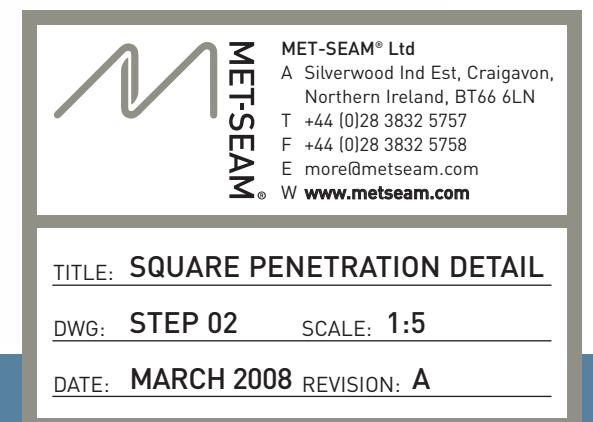
This can then be fixed in place either by soldering or using clip strips (single lock welts).

50





51



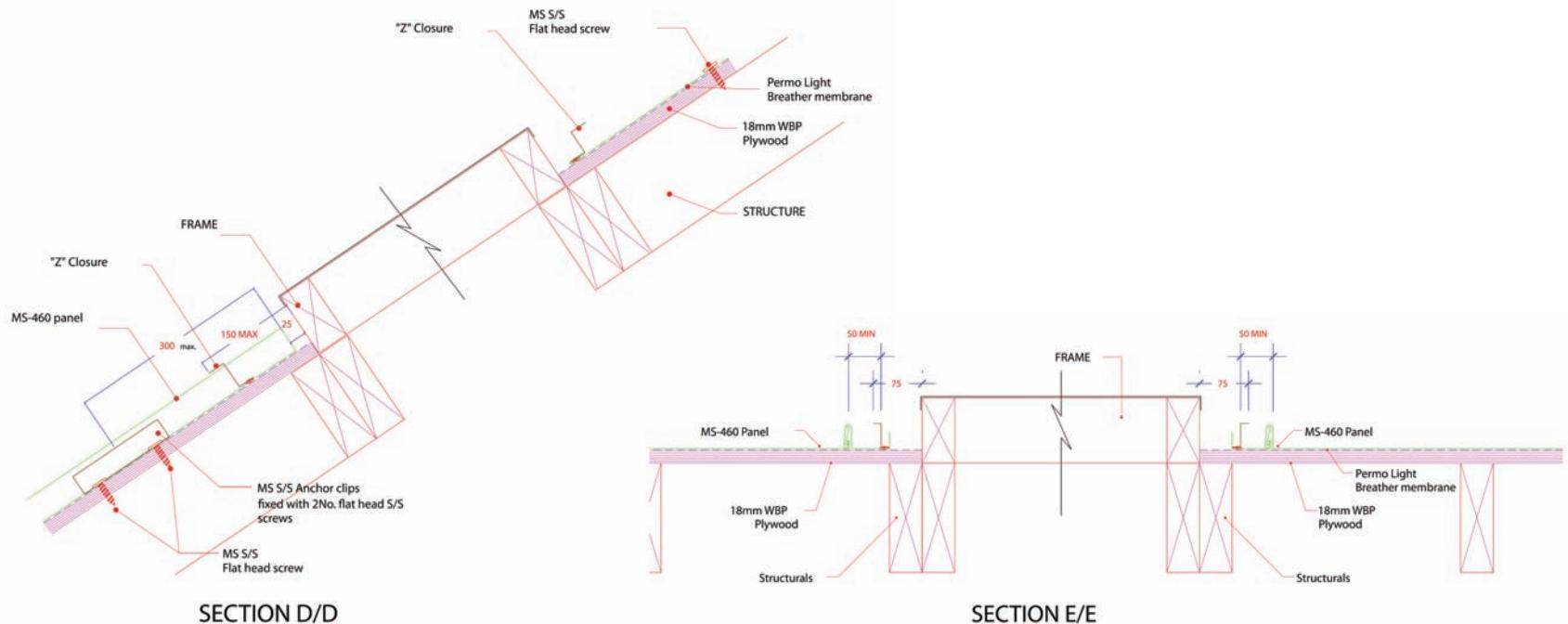
22

SQUARE PENETRATION DETAIL

STEP 03

Install the 'Z' closure in a bed of Trans 7 sealant fixed at 150mm centres around the penetration in one continuous piece if possible notching both top and bottom horizontal legs only, try to keep the closing lap joint to the lower end of the penetration

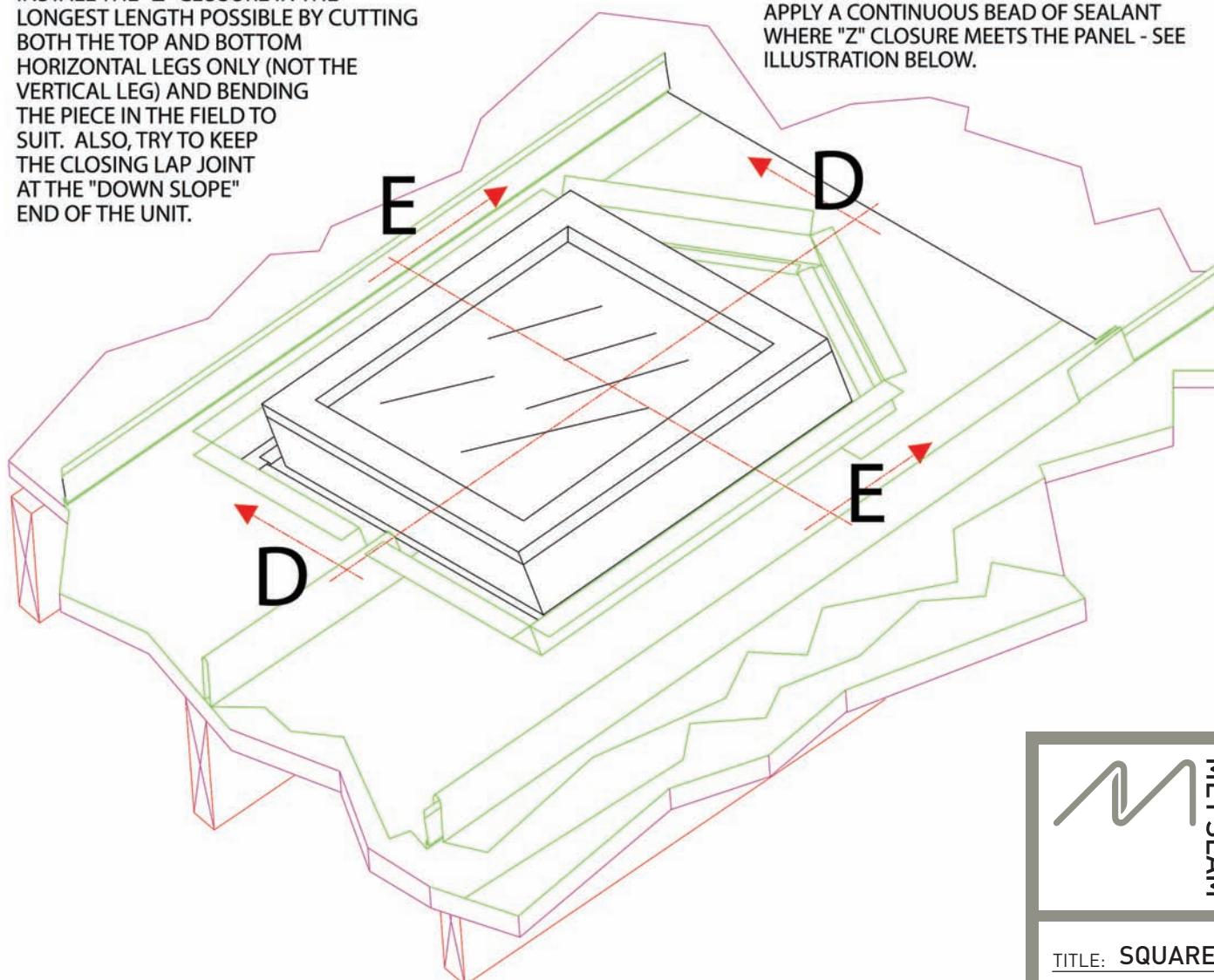
52



INSTALL THE "Z" CLOSURE IN THE LONGEST LENGTH POSSIBLE BY CUTTING BOTH THE TOP AND BOTTOM HORIZONTAL LEGS ONLY (NOT THE VERTICAL LEG) AND BENDING THE PIECE IN THE FIELD TO SUIT. ALSO, TRY TO KEEP THE CLOSING LAP JOINT AT THE "DOWN SLOPE" END OF THE UNIT.

SEAT THE "Z" CLOSURE IN A CONTINUOUS BEAD OF CAULK OR A STRIP OF DOUBLE FACED CAULK TAPE BEFORE SECURING IN PLACE AND THEN APPLY A CONTINUOUS BEAD OF SEALANT WHERE "Z" CLOSURE MEETS THE PANEL - SEE ILLUSTRATION BELOW.

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TITLE: SQUARE PENETRATION DETAIL

DWG: STEP 03 **SCALE:** 1:5

DATE: MARCH 2008 **REVISION:** A

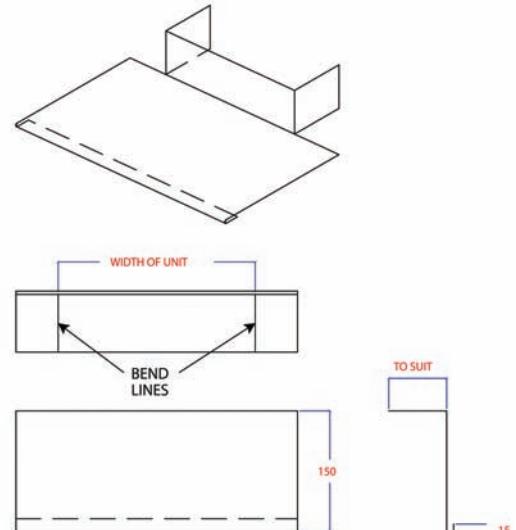
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SQUARE PENETRATION DETAIL

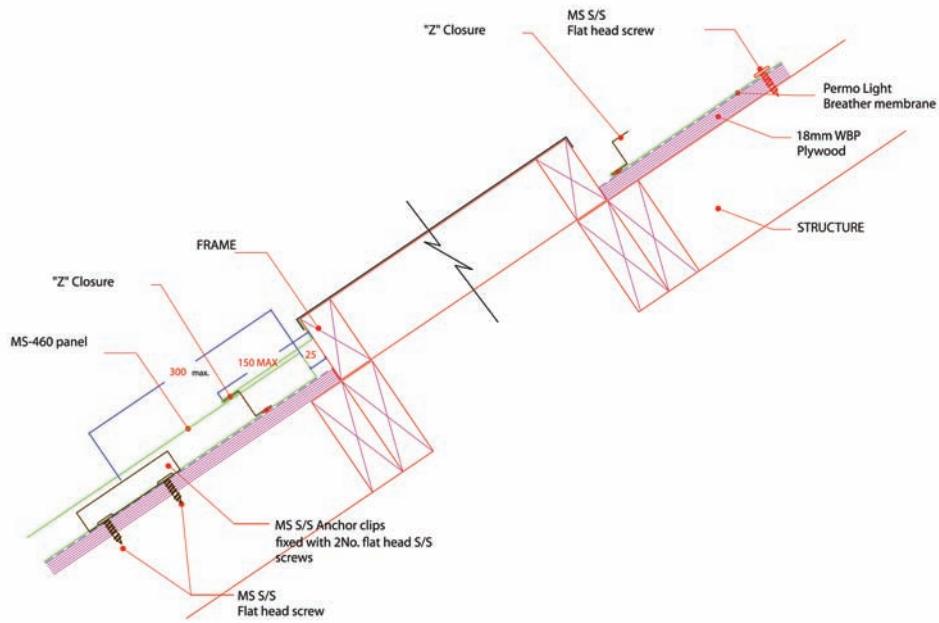
STEP 04

The flashings are fabricated as per Step 4 Elevation and fitted to the 'Z' closure with the tabs fixed into the penetration using 2 x 25mm ring shank stainless steel nails on either side.

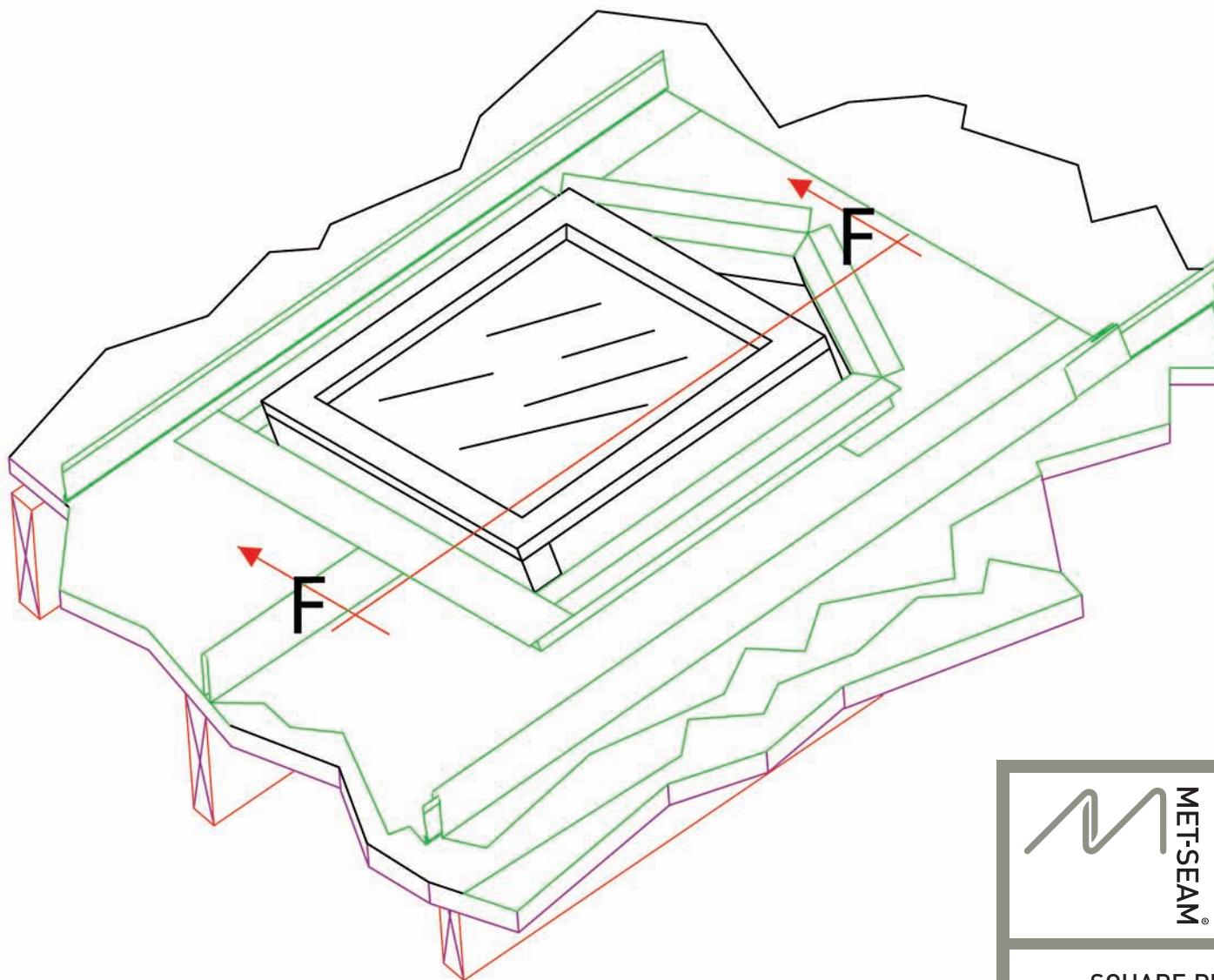
54



SLIDE TOP LEG UP UNDER TOP TRIM OF SKYLIGHT UNIT AND THEN AFTER CUTTING CAREFULLY ALONG THE MAIN FOLD LINE, RAP THE REMAINING TABS UP THE SIDES OF SKYLIGHT.



SECTION F/F



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| **DWG:** STEP 04 **SCALE:** 1:5 |
| **DATE:** MARCH 2008 **REVISION:** A |

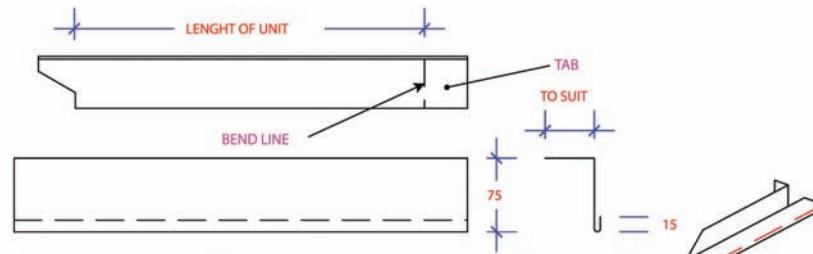
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SQUARE PENETRATION DETAIL

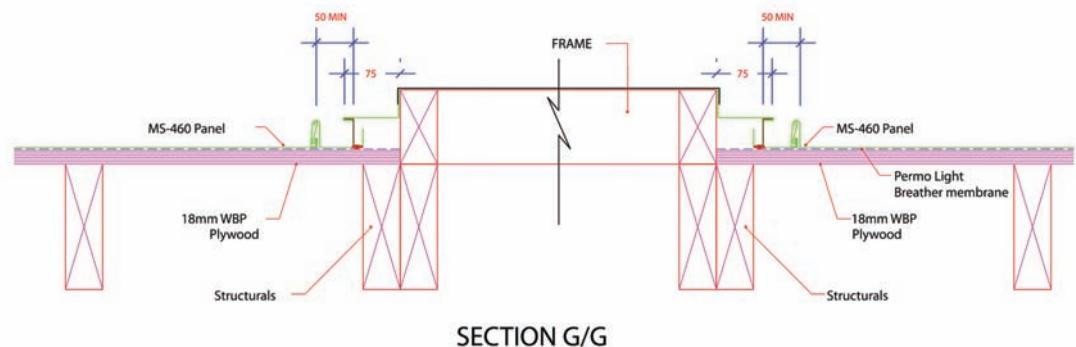
STEP 05

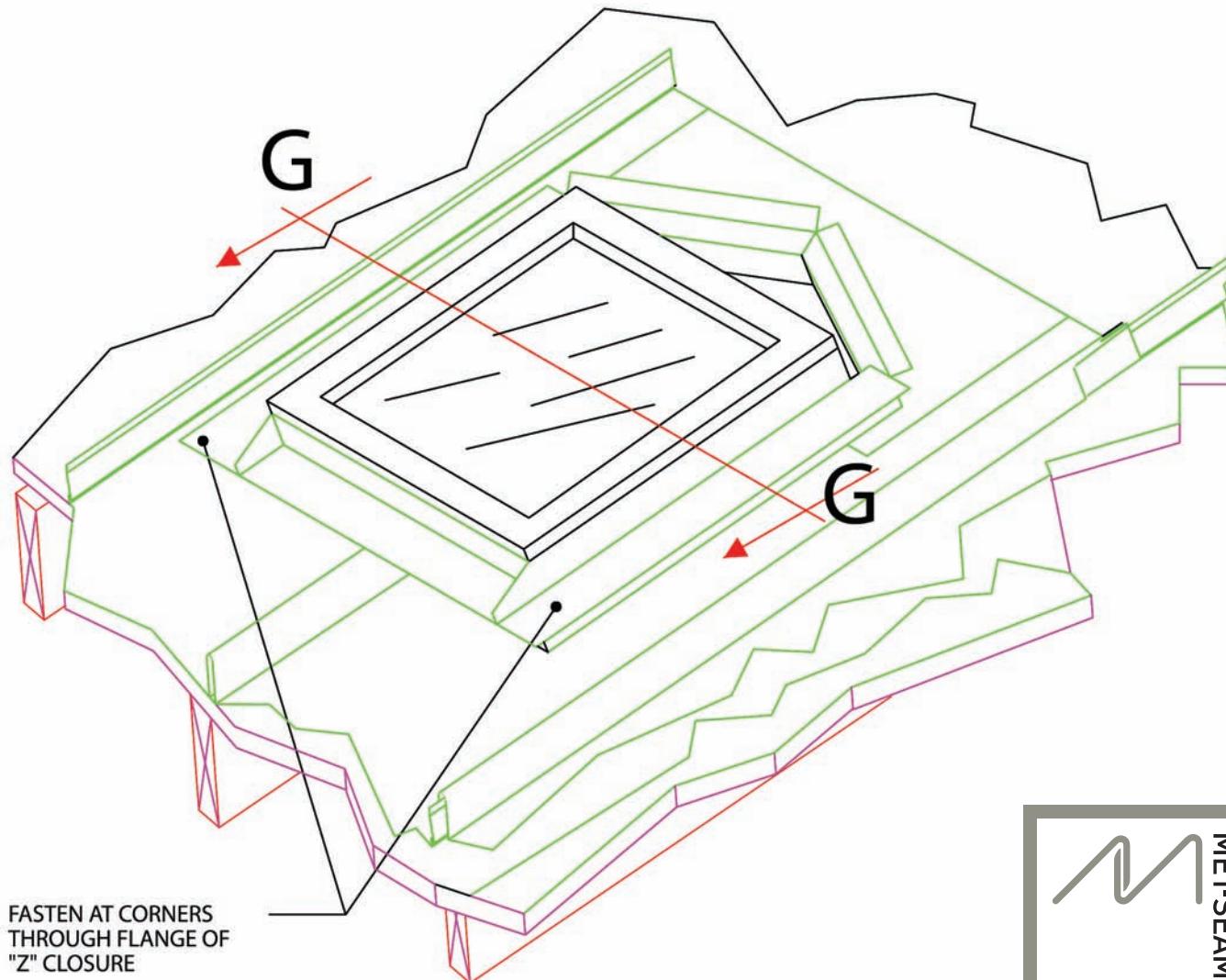
Again fabricate the side flashings as per Step 5 Elevation these are then bedded in Trans 7 sealant at the intersection with the lower flashing and fixed to the penetration using 25mm ring shank stainless steel nails.

56



SLIDE TOP LEG UP UNDER TOP TRIM OF
UNIT AND, AFTER CUTTING, CAREFULLY, RAP
THE TOP TAB AROUND THE HEAD OF THE SKYLIGHT.





22

| STEP 05 |

SQUARE PENETRATION DETAIL

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TITLE: SQUARE PENETRATION DETAIL	
DWG:	STEP 05
SCALE:	1:5
DATE: MARCH 2008 REVISION: A	

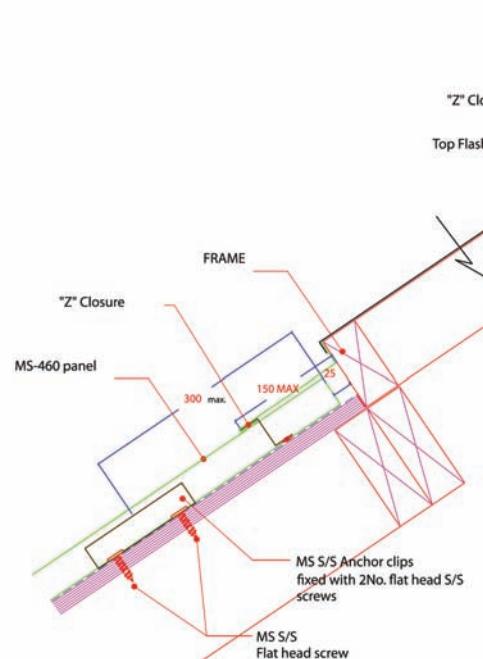
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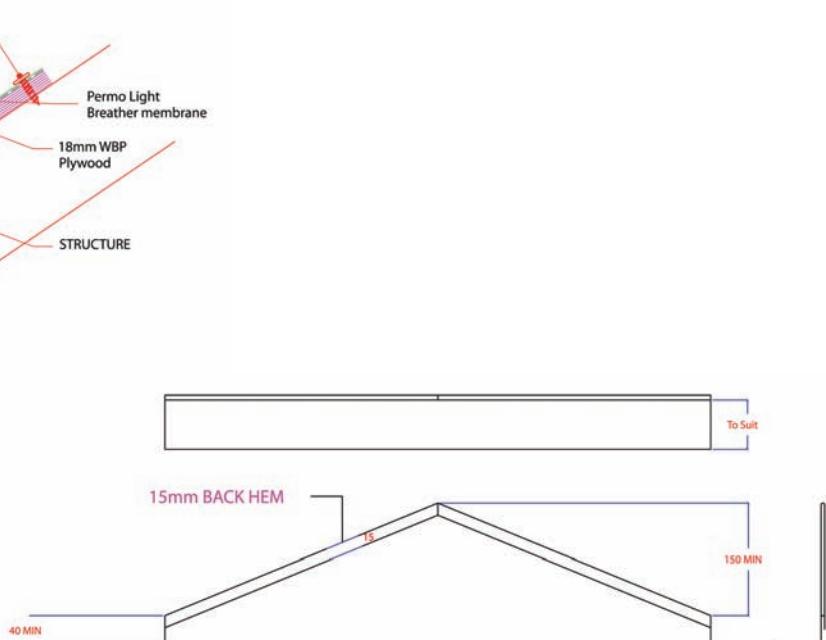
STEP 06

The top flashing is now installed in the same manor finally sealing each flashing intersection with a continuous bead of Trans 7 sealant.

58



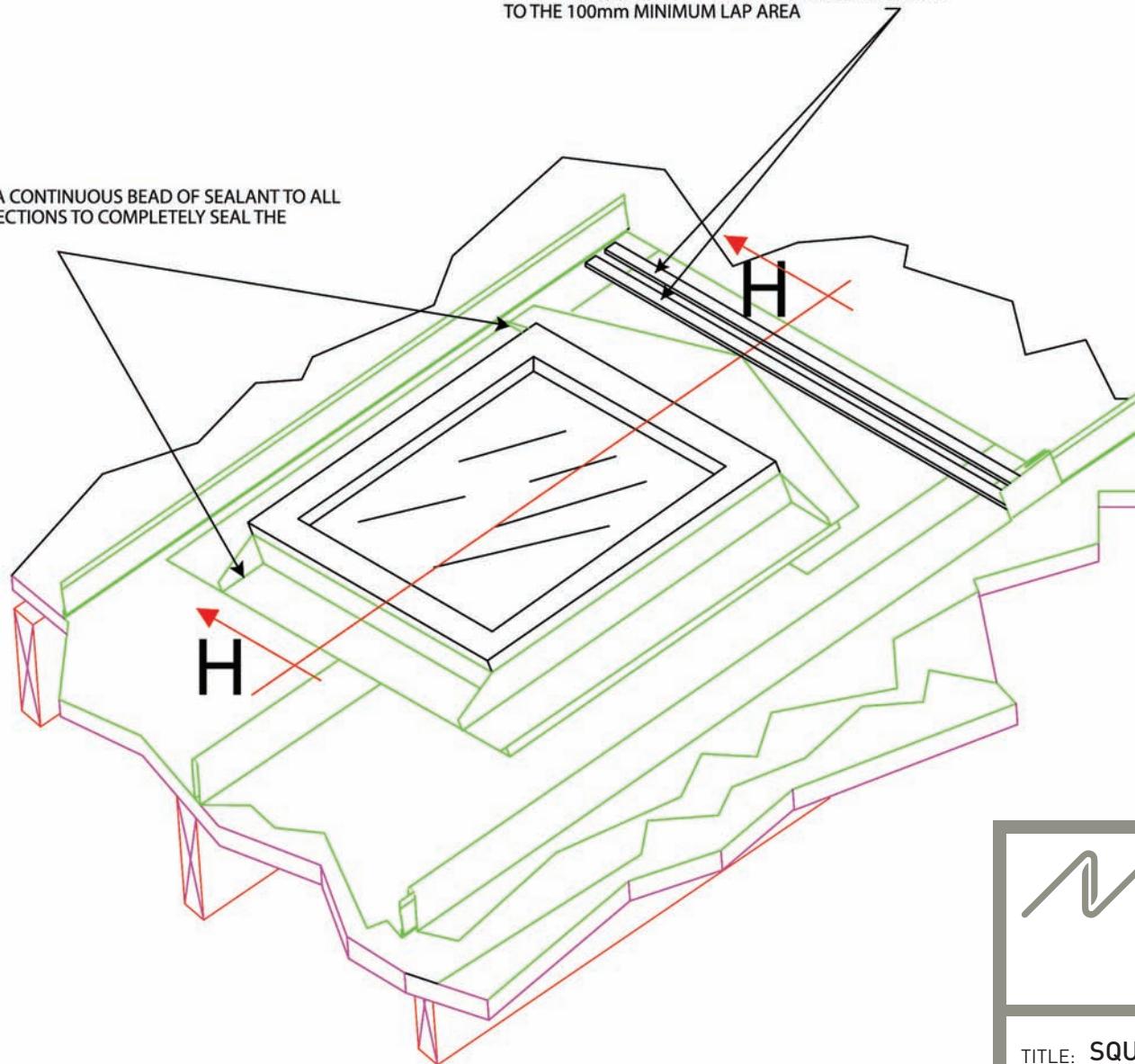
SECTION H/H



TOP FLASHING

APPLY A CONTINUOUS BEAD OF SEALANT TO ALL
INTERSECTIONS TO COMPLETELY SEAL THE
UNIT.

AFTER COMPLETING THIS STEP AND BEFORE PROCEEDING
APPLY TWO (2) ROWS OF DOUBLE FACED CAULK TAPE
TO THE 100mm MINIMUM LAP AREA



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TITLE: SQUARE PENETRATION DETAIL

DWG: STEP 06 SCALE: 1:5

DATE: MARCH 2008 REVISION: A

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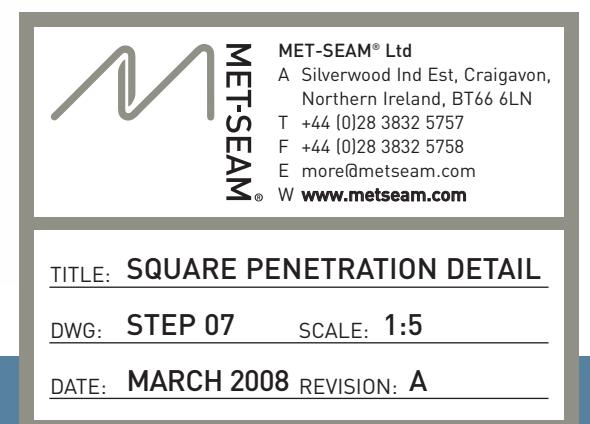
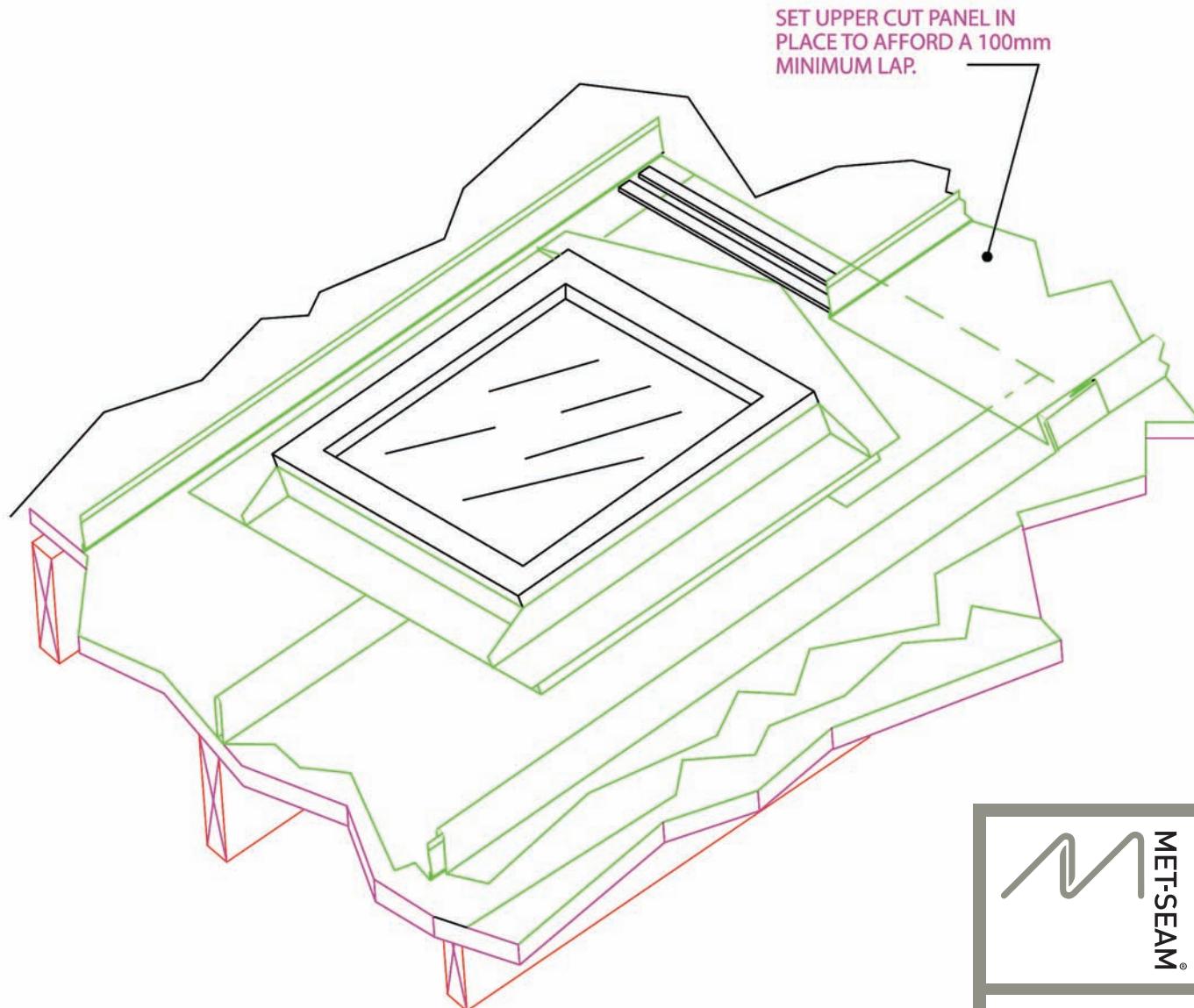
STEP 07

SQUARE PENETRATION DETAIL

60

Fix a continuous clip strip bedded in Trans 7 sealant and fixed at 150mm centres with 25mm ring shank stainless steel nails 100 mm (min) down on the rainwater diverter.

The upper panel is then fitted over, lapping the previously notched and squeezed seam (at step 1).



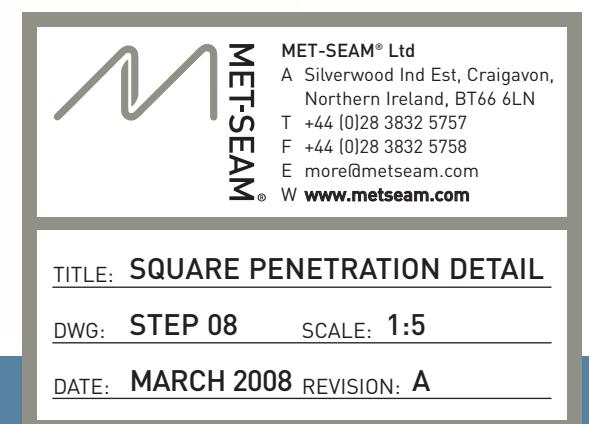
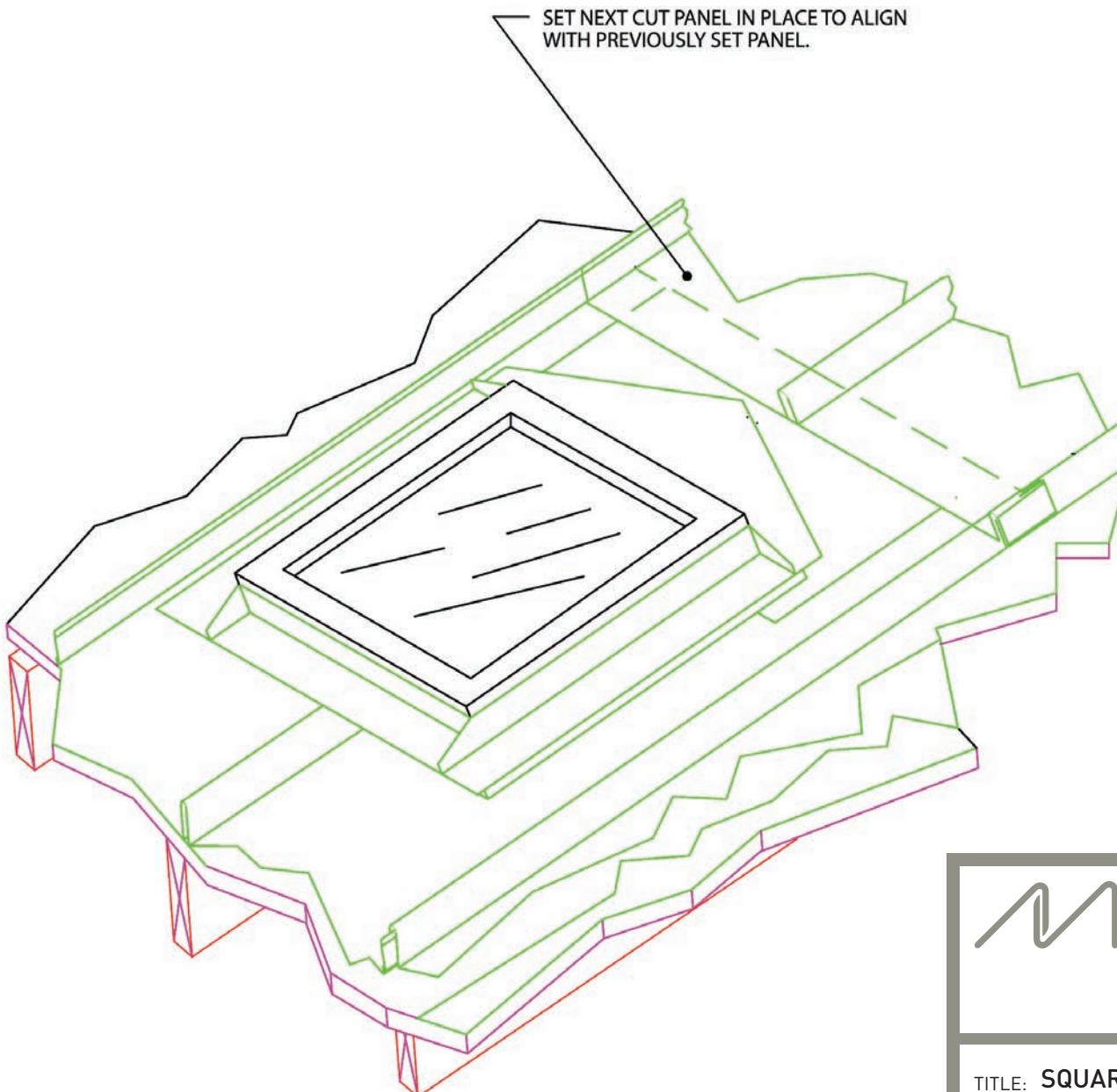
22

SQUARE PENETRATION DETAIL

STEP 08

The second upper panel is then fitted notching the under cloak so that the two seams butt to each other neatly.

The remainder of the panels can be fitted as normal.



MET-SEAM®
MS 460 / MS 360



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COMPANY NAME _____

PROJECT NAME _____

DATE _____

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MET-SEAM® MS 460 / MS 360 PANELS

Panel Ref	Description	Metal Type	Length of Panel	Quantity
Example	MS 460	VM Zinc Quartz Plus	3.755m	6 no.
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

MET-SEAM® MS ACCESSORIES

Item No.	Description	Size	Quantity
ATAS 001	MS Stainless Steel Anchor Clips	100 per bag	
ATAS 002	MS Stainless Steel Flat Head Screws 25mm long	100 per bag	
ZNV 300	"Z" Closure non- ventilated	3.0 m long	
ZV 300	"Z" Closure Ventilated	3.0 m long	
ZNV 452	"Z" Closure non-ventilated	452mm long	
ZV 452	"Z" Closure Ventilated	452mm long	
OPV 9210	Straight Neoprene Closures 40 x 25 x 1.00m	each	
OPV 9220	Fluted Neoprene Closures 40 x 25 x 920mm	each	
SOL 1030	Trans 7 Sealant 310ml cartridge	12No. per box	
OPU 0011	Permo-Light breather membrane 50m x 1.5m	75m ² per roll	
OPU 0014	Permo Tape	50m per roll	
RIVET CU	Pop Rivets - Copper	500 per box	
RIVET SS	Pop Rivets - Stainless Steel	500 per box	

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4th MARCH 2008

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- 1.2 These conditions replace any other terms and conditions previously agreed or existing between us.

2. ACCEPTANCE

- 2.1 Buyers orders are binding on Met-Seam only after Met-Seam's written acceptance.

3. CANCELLATION

- 3.1 Goods that have been brought into our stock for your specific order and then cancelled will be charged at 50% of your order value.

3. DELIVERY

- 3.1 Delivery dates given by Met-Seam are intended as estimates only and Met-Seam will accept no liability for delay in dispatch or delivery however caused nor for any loss or damage arising or resulting there from.
- 3.2 All actions carried out by us to effect delivery shall be done as your agent and at your cost.
- 3.3 If delivery is delayed beyond the date given by Met-Seam or required by the Buyer due to an act or default of the Buyer, delivery to the Buyer will be deemed to occur as soon as the Buyer is notified the goods are ready for delivery and they may be held hereafter for the Buyer's account and at his expense and risk.

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- 5.1 The price for the goods shall be Met-Seam's current trade price ruling for goods of the same description and quantity at the date of dispatch by Met-Seam whether such prices are greater or smaller than the price specified in the order accepted by Met-Seam. Any increase in price over the price specified in the accepted order shall not be payable unless Met-Seam gives to the Buyer prior notice of the increase before dispatch.

6. RETENTION OF TITLE

- 6.1 The risk in the goods shall pass from Met-Seam to the Buyer upon delivery/collection of such goods to the Buyer. However, notwithstanding delivery/collection and the passing of risk, the title and property of the goods, including full legal and beneficial ownership, shall not pass to the Buyer until Met-Seam has received payment in full for all goods and all other contracts between Met-Seam and the Buyer have been paid in full. Payment of the full price of the goods shall include the amount of any interest, VAT, carriage, insurance or other sum payable under the terms of this and all other contracts between Met-Seam and the Buyer.

7. TERMS OF PAYMENT

- 7.1 Unless otherwise agreed in writing, goods are payable month end after date of invoice.
- 7.2 Met-Seam reserves the right however, on notice to the Buyer, to require payment by pro-forma invoice before goods are dispatched.

- 7.3 Any collection costs are for the Buyer's account. In the event payment has not been made in accordance with these terms, interest at 1.5% per month shall become automatically due without notice to the Buyer. If the Buyer defaults in payment, Met-Seam may suspend all further deliveries/collections of all goods to be supplied to the Buyer until the default is rectified.

7.4 Met-Seam uses a collection service on overdue accounts therefore it is not in Met-Seams control as to the action taken by our collection service.

8. RISK OF LOSS

- 8.1 Unless otherwise agreed in writing, risk of loss, breakage or damage shall pass to the Buyer and Met-Seam's performance of the contract shall be considered completed at the moment the products arrive at the premises specified by the Buyer (the Buyer taking the risk of unloading and unpacking).

9. WARRANTY

- 9.1 All terms, conditions, warranties and representations whether expressed or implied, statutory or otherwise as to the description, condition, merchantability, fitness for any purpose or specification of the goods other than those contained herein are expressly included.

9.2 Met-Seam's only warranty is that the goods are of good merchantable quality and conform to Met-Seam's published specifications of the product's physical properties. Met-Seam will, at the Buyer's option, reimburse the cost of/or replace without charge, all goods shown to be otherwise than as warranted, provided that in the case of goods lost, broken or damaged in transit, the Buyer notifies the Company of such loss, breakage or damage verbally within 48 hours and in writing within 5 days of delivery and Met-Seam has been given an opportunity to verify the defect or deficiency claimed or, if so requested, the Buyer has returned the goods for purposes of such verification. Met-Seam's liability is limited to such replacement and Met-Seam accepts no further liability for damages consequential or otherwise, arising from breach of the foregoing warranty, other than in respect of the death or injury of any person arising from Met-Seam's negligence.

9.3 Statements or technical recommendations made by Met-Seam or its representatives (verbal, in writing, on our web site or in our brochures) to the Buyer or his representatives or customers in connection with the sale, use or installation by the Buyer or his customers of any product sold hereunder are given in good faith but their accuracy is not guaranteed nor shall such statements or recommendations affect Met-Seam's liability as herein defined or constitute a waiver by Met-Seam of any provision in these terms and conditions.

10. INSOLVENCY OF THE BUYER

- 10.1 If the Buyer shall make default in or commit a breach of any of his obligations under the contract for the purchase of the goods or any other order or contract with Met-Seam or if any distress or execution or other legal process shall be levied upon any of the Buyer's property, goods or assets, or if the Buyer shall commit any act of bankruptcy or if being a limited company the Buyer shall go into liquidation or suffer the appointment of a receiver of his undertaking, property or assets, or any part thereof, Met-Seam shall be entitled to recover from the Buyer any loss on sale of the goods comprised in the contract.

11. LAW

- 11.1 The construction, validity and performance of the contract shall be governed by the law of Northern Ireland. The Buyer agrees that service of any notice at their address as given in the invoice shall be valid and sufficient service.



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