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FVA Group Pty Ltd



Fairview - AS 4284 testing on facades

Test Report - Stryum with Rigid Membrane

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Job Title: Fairview - AS 4284 testing on facades			
Report Title: Test Report - Stryum with Rigid Membrane			
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Rev. 01	Updated company name, pipe penetration detail		
Rev. 02			

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EXECUTIVE SUMMARY

Vipac Engineers and Scientists were commissioned by Fairview Pty Ltd / FVA Group Pty Ltd (the client) to perform AS/NZS 4284:2008 testing for their cladding system.

The sample was installed by the client at the Vipac test laboratory in Port Melbourne, and the sample was tested by Vipac Engineers and Scientists during February 2020.

The test sample was found to have the below results for AS/NZS 4284:2008 compliance:

Test Date	AS/NZS4284:2008 Test	Result
06/02/2020	Clause 8.2 Preliminary tests	Complies +3500Pa, -4000Pa SLS Preload
06/02/2020	Clause 8.3 Structural test at serviceability limit state	Complies with Span deflection requirements at +3500Pa, -4000Pa
06/02/2020	Clause 8.5 Static water test	Complies 1050Pa
06/02/2020	Clause 8.6 Cyclic water test	Complies Stage 1: 525Pa – 1050Pa Stage 2: 700Pa – 1400Pa Stage 3: 1050Pa – 2100Pa
06/02/2020	Clause 8.8 Structural test at ultimate limit state	Complies +4500, -5000

Table 1: Test results summary

Full details are contained within this report.

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1 INTRODUCTION

Document Type:	Test Report
Company:	Fairview Pty Ltd / FVA Group Pty Ltd
Product:	Stryum with Siniat Board
Test Date:	February 2020
Testing Authority:	Vipac Engineers & Scientists

2 TEST REFERENCE & APPLICATION STANDARD

AS/NZS 4284:2008	Testing of Building Facades
-------------------------	-----------------------------

3 TEST SPECIMEN

Details of the test sample can be found in Appendix A and B of this report.

4 TEST EQUIPMENT

Measurement	Instrument Type/Make	Model	Vipac Serial Number
Deflection	Dial gauges/ Mitutoyo	3058S-19	000034597
			000033756
			000034596
			000033758
			000034598
Distance	Tape Measure / Stanley	8m	000033666
Pressure	Digital Manometer / PCE	PCE-PDA-10L	000033540
Water flow rate	Flow meter/ Siemens	Mag 6000	000031229
Time	Stopwatch/ Dick Smith	Y1299	000033567

Table 2: Instruments used throughout testing

5 TEST RESULTS

5.1 CLAUSE 8.2 – PRELIMINARY TESTS

Test Standard: AS/NZS 4284:2008 – Testing of Building Facades

Test Date: 06/02/2020

5.1.1 CRITERIA: STATIC PRESSURE

Test sample shall withstand the Serviceability Limit State pressure with no structural damage or distortion.

Applied Load: Nominated Serviceability Pressure: +3.5 kPa, -4.0 kPa

Duration: 10 seconds

5.1.2 CRITERIA: STATIC AND CYCLIC WATER TESTS

Under static and cyclic water tests there shall be no leaks. A leak is considered to occur when one or more of the following occur:

- a) Water appears on any inside surface of the façade, visible from an occupied space.
- b) Uncontrolled water appears on any inside surface of the façade (uncontrolled water is defined as any leakage not contained and drained away after 5 minutes).
- c) Water appears that is likely to wet insulation, fixtures and finishes.
- d) Water appears in other locations specified as unacceptable by the Specifier

Static water test: **Applied Load:** Nominated pressure: +1.050 kPa

Duration: water spray operated for 5 minutes at 0 kPa chamber pressure, followed by water spray and pressure at the test pressure for 15 minutes. Observe for 5 minutes after removal of both water and air pressure.

Cyclic water test: **Applied Load:** Nominated pressures:

Stage	Lower pressure	Upper pressure	Cycle Duration
Stage 1	0.525 kPa	1.050 kPa	5 minutes
	0 kPa		2 minutes
Stage 2	0.700 kPa	1.400 kPa	5 minutes
	0 kPa		2 minutes
Stage 3	1.050 kPa	2.100 kPa	5 minutes
Observation	0 kPa		5 minutes

Table 3: Cyclic pressure lower and upper limits, cycle time of 3 seconds to 5 seconds

Applied Water: Water spray rate: 3.0 L/m²min

Measured spray area: 8.6 m²

Resulting spray flow rate: 25.9 l/min

Results: The preliminary static and cyclic water tests were completed successfully.

Conclusion: The preliminary test of the façade complies with the requirements of AS/NZS 4284:2008

5.2 CAUSE 8.3 – STRUCTURAL TEST AT SERVICEABILITY LIMIT STATE (SLS)

Test Standard: AS/NZS 4284:2008 – Testing of Building Facades

Test Date: 06/02/2020

Formulae: The net mid-span deflection (d) of each member is given by the following:

$$d = D_m - D_e$$

where:

D_m = Mid span displacement

D_e = Average of end displacements

Criteria: According to AS/NZS4284:2008 no framing member shall deflect by an amount greater than span/250mm. Successive member displacement shall not exceed 3.0mm. The maximum displacement of a framing member shall not exceed 20mm. All components of the sample are required to remain structurally intact as detailed on test sample drawings with no signs of visible damage or distortion.

Applied Load: +3.0, -3.5kPa

Results:

Span Detail	Span [mm]	Pressure direction	Measured pressure [Pa]	Measured Span Deflection [mm]	Span deflection Ratio
Span 1 (Node 1,2,3)	1150	Positive	3010	1.37	842
		Negative	-3540	-1.50	769
Span 2 (Node 3,4,5)	1150	Positive	3010	1.90	605
		Negative	-3540	-1.38	581
Span 3 (Node 1,3,5)	2300	Positive	3010	5.10	451
		Negative	-3540	-5.27	436

Table 4: Span deflection results - +3.0kPa, -3.5kPa

Zero Stage	Node 1 [mm]	Node 2 [mm]	Node 3 [mm]	Node 4 [mm]	Node 5 [mm]
Z1	0.00	0.00	0.00	0.00	0.00
Z2	0.15	0.18	0.16	0.15	0.09
Z4	-1.47	-1.89	-2.74	-2.46	-2.32
Z5	-1.73	-2.19	-3.01	-2.68	-2.49
Z7	-1.46	-2.05	-3.01	-2.69	-2.57

Table 5: Residual deflection result - +3.0kPa, -3.5kPa



Figure 2: Node locations (1-5 from bottom to top)

Conclusion: The test sampled complied with the structural span deflections limits of $\text{Span}/250$.

5.3 CLAUSE 8.5 – STATIC WATER TEST

Test Standard: AS/NZS 4284:2008 – Testing of Building Facades

Test Date: 06/02/2020

Criteria: Under static water test there shall be no leaks. A leak is considered to occur when one or more of the following occur:

- a) Water appears on any inside surface of the façade and is visible from an occupied space.
- b) Uncontrolled water appears on any inside surface of the façade.
- c) Water appears that is likely to wet insulation, fixtures and finishes.
- d) Water appears in other locations specified as unacceptable by the Specifier

Applied Load: Nominated Pressure: +1.050 kPa

Duration: water spray operated for 5 minutes at 0 kPa chamber pressure, followed by water spray and pressure at the test pressure for 15 minutes. Observe for 5 minutes after removal of both water and air pressure.

Applied Water: Water spray rate: 3.0 L/m²min

Measured spray area (inside pressure chamber): 8.64 m²

Resulting spray flow rate: 25.9 l/min

Results: The Static water test was completed with no uncontrolled water penetration occurring.

Conclusion: The Static water results of the test sample comply with the specified limits set out in AS/NZS 4284:2008.

5.4 CLAUSE 8.6 – CYCLIC WATER TEST

Test Standard: AS/NZS 4284:2008 – Testing of Building Facades

Test Date: 06/02/2020

Criteria: Under cyclic water test there shall be no leaks. A leak is considered to occur when one or more of the following occur:

- a) Water appears on any inside surface of the façade and is visible from an occupied space.
- b) Uncontrolled water appears on any inside surface of the façade.
- c) Water appears that is likely to wet insulation, fixtures and finishes.
- d) Water appears in other locations specified as unacceptable by the Specifier

Applied Load: Nominated Pressures:

Stage	Lower pressure	Upper pressure	Cycle Duration
Stage 1	0.525 kPa	1.050 kPa	5 minutes
	0 kPa		2 minutes
Stage 2	0.700 kPa	1.400 kPa	5 minutes
	0 kPa		2 minutes
Stage 3	1.050 kPa	2.100 kPa	5 minutes
Observation	0 kPa		5 minutes

Table 8: Cyclic pressure lower and upper limits, cycle time of 3 seconds to 5 seconds

Applied Water: Water spray rate: 3.0 L/m²min

Measured spray area (inside pressure chamber): 8.64 m²

Resulting spray flow rate: 25.9 l/min

Results: The Cyclic water test was completed with the test was completed with no uncontrolled water penetration occurring.

Conclusion: The Cyclic water results of the test sample comply with the specified limits set out in AS/NZS 4284:2008.

5.5 CLAUSE 8.8 – STRUCTURAL TEST AT THE ULTIMATE LIMIT STATE

Test Standard: AS/NZS 4284:2008 – Testing of Building Facades

Test Date: 06/02/2020

Criteria: There shall be no disengagement or partial disengagement of any framing member or panel, no failure of fixings, stops or locking devices. No repeated glass breakage or cracking of glass.

Applied Load: Ultimate Limit State Pressures: + 4.5 kPa, - 5.0 kPa
Apply the pressure from zero to ultimate limit state in 50-60 seconds, apply ultimate limit state for 10 seconds.

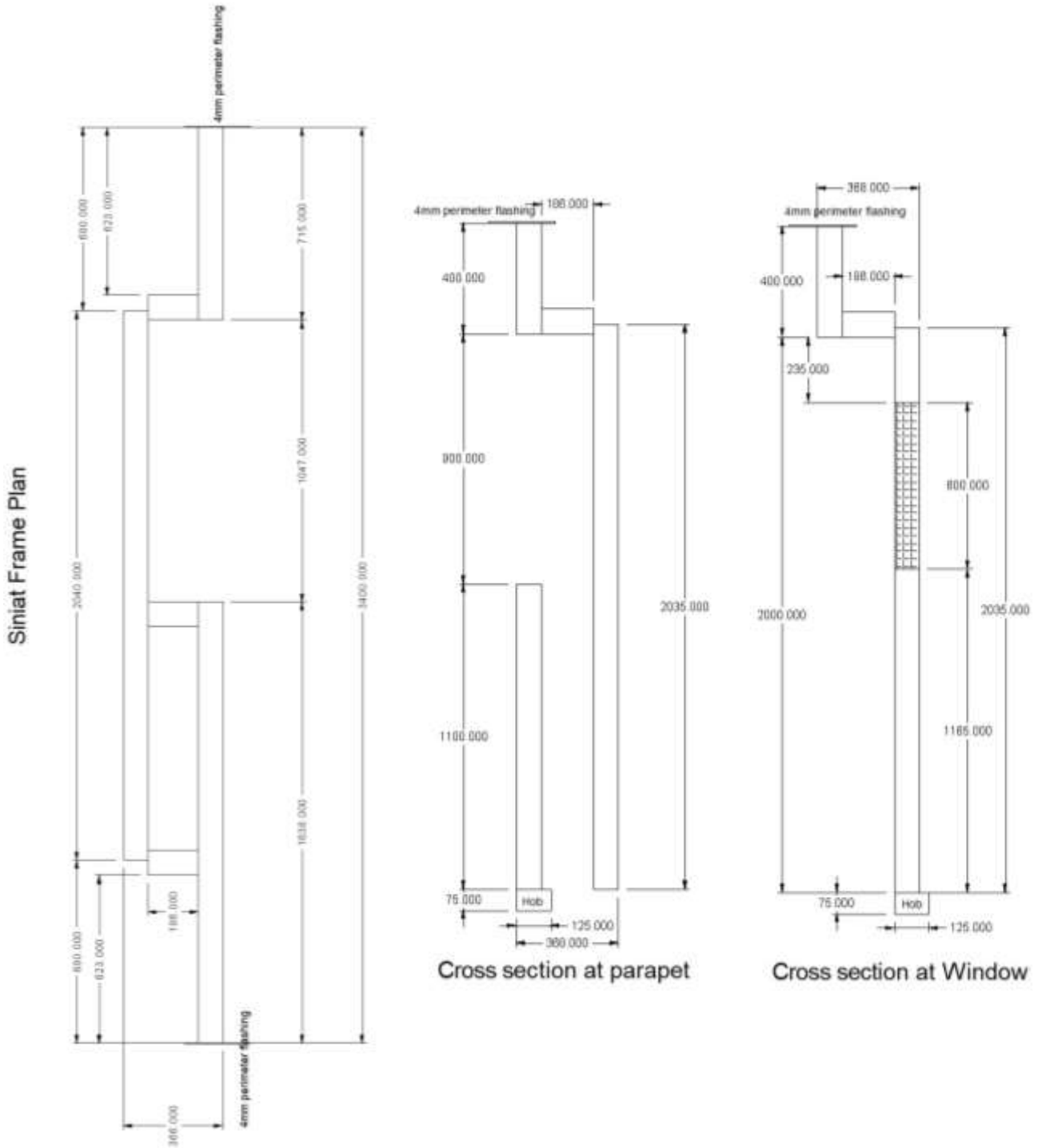
Results:

Test Pressure [kPa]	Results
+ 4.5	All criteria met
- 5.0	All criteria met

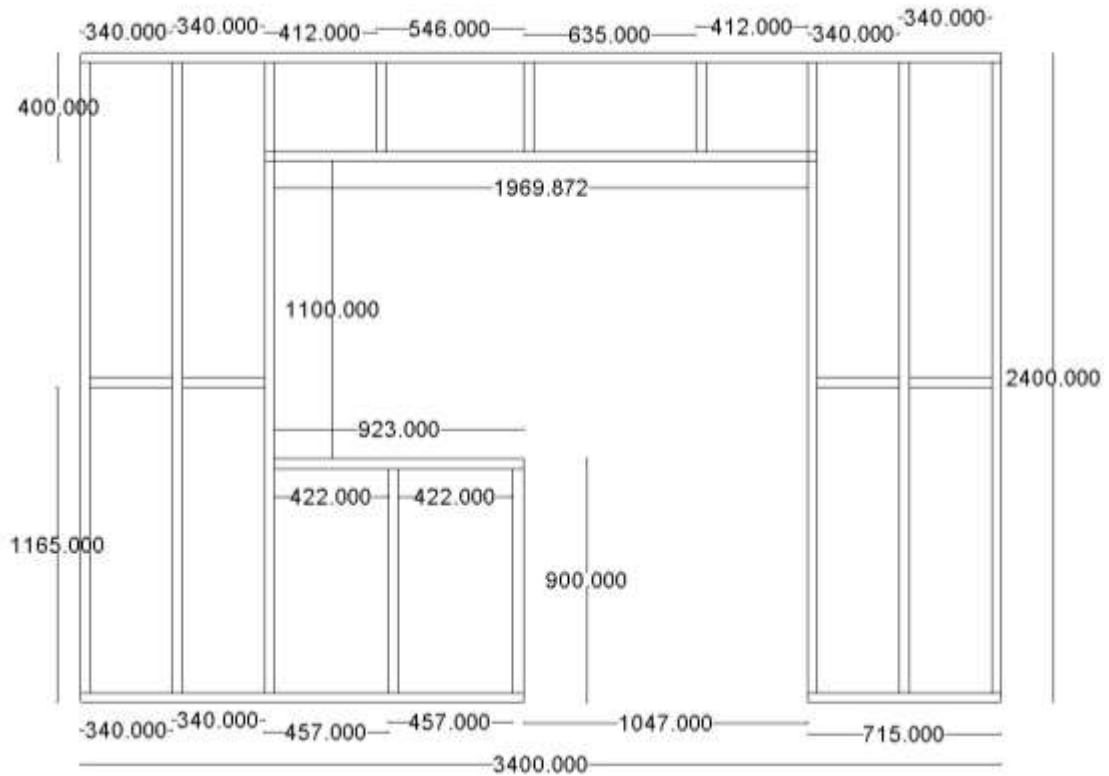
Table 9: Results, Ultimate Limit State

Conclusion: The Ultimate limit state results of the test sample comply with the requirements of AS/NZS 4284:2008.

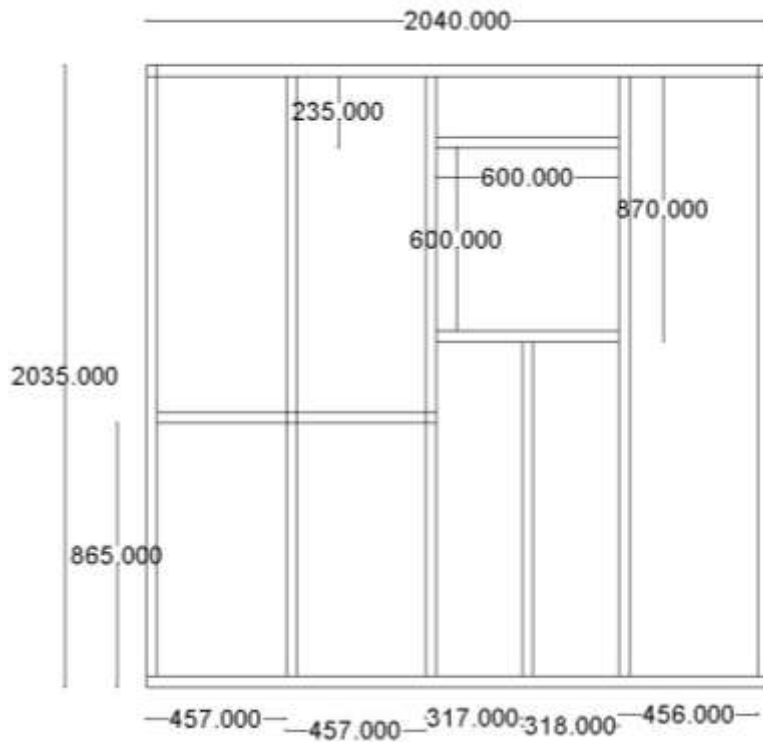
Appendix A TEST SAMPLE STRUCTURE



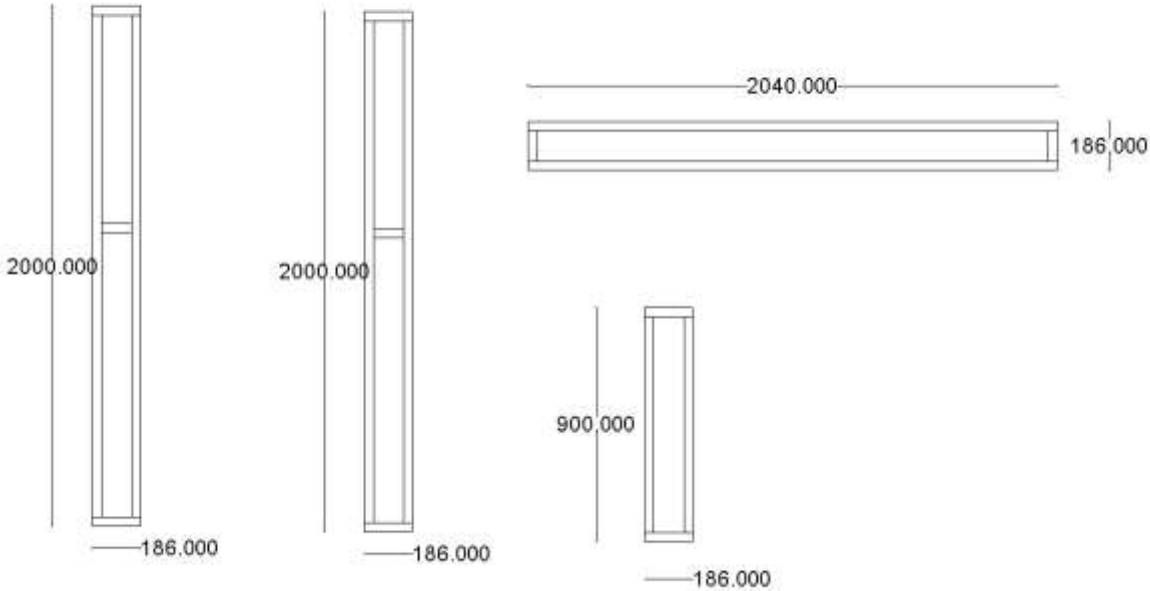
Face Frame Siniat



Back Frame Siniat



Infills Siniat





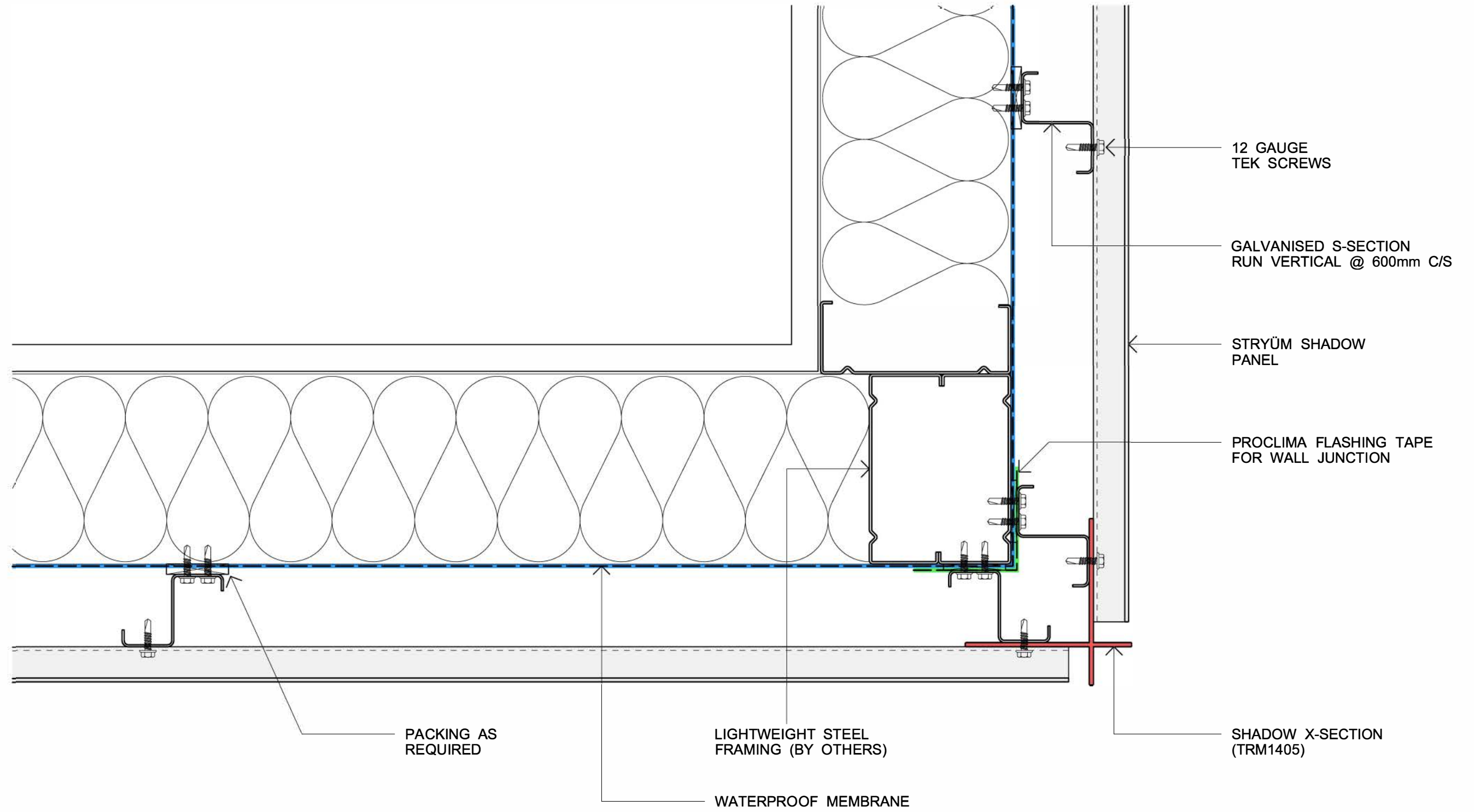
Appendix B TEST SAMPLE DETAILS

This page is blank and the details are attached in the following pages.

Stryüm 4284

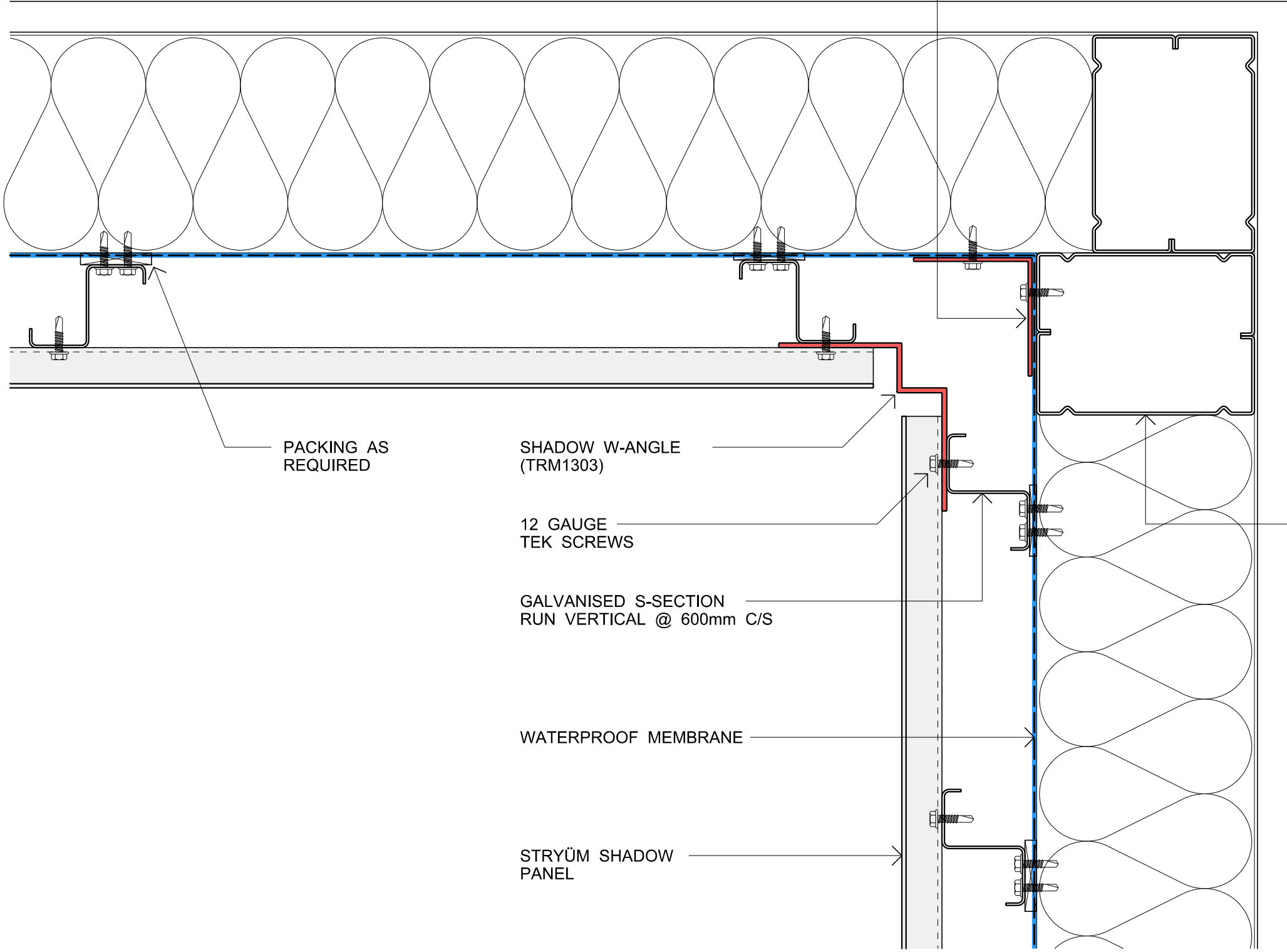
Drawings

Shadow Horizontal



EXTERNAL CORNER 1

L ANGLE INSTALLED OVER
WATERPROOF MEMBRANE
(REQUIRED FOR SARKING ONLY)



PACKING AS
REQUIRED

SHADOW W-ANGLE
(TRM1303)

12 GAUGE
TEK SCREWS

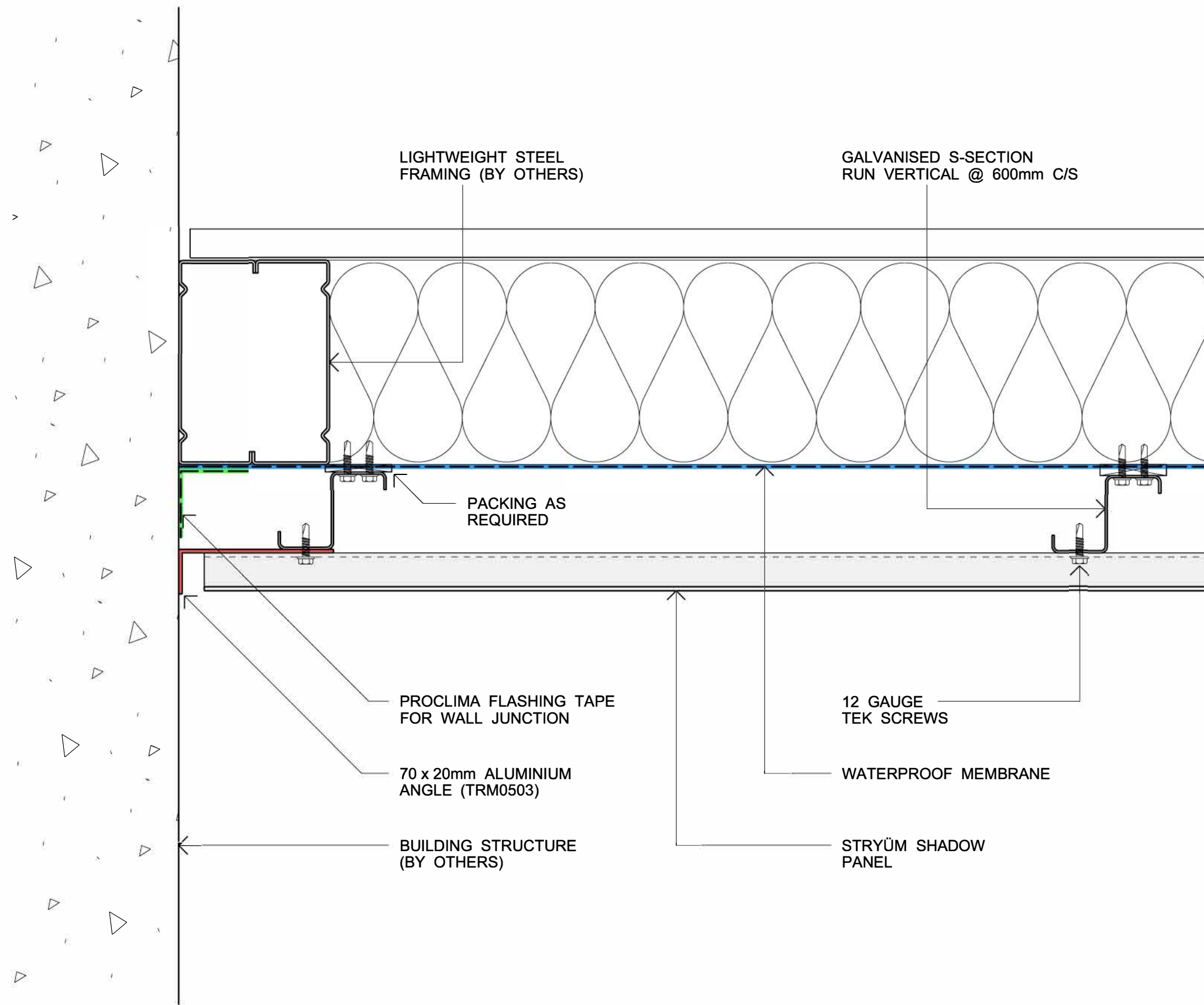
GALVANISED S-SECTION
RUN VERTICAL @ 600mm C/S

WATERPROOF MEMBRANE

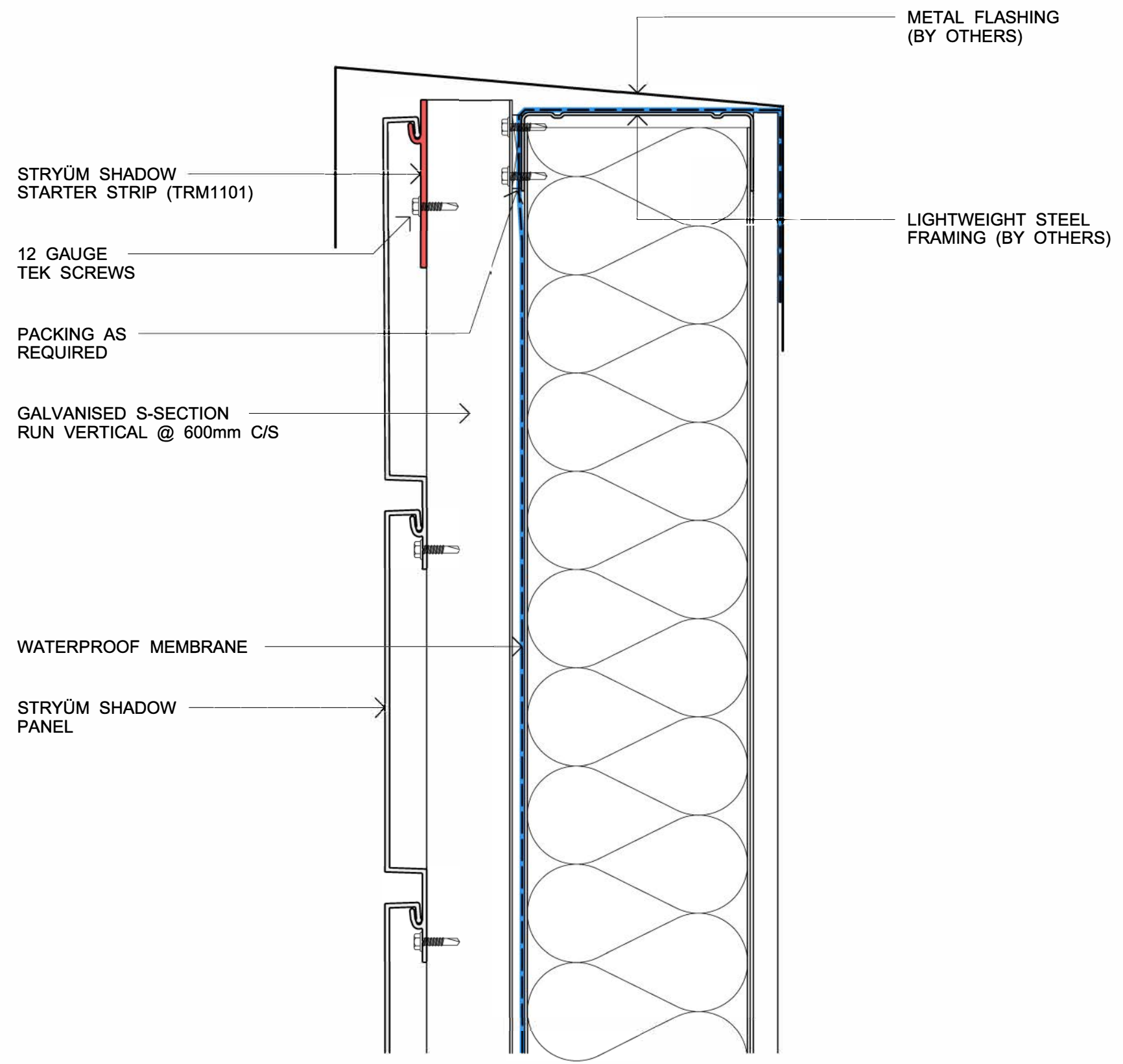
STRYÜM SHADOW
PANEL

LIGHTWEIGHT STEEL
FRAMING (BY OTHERS)

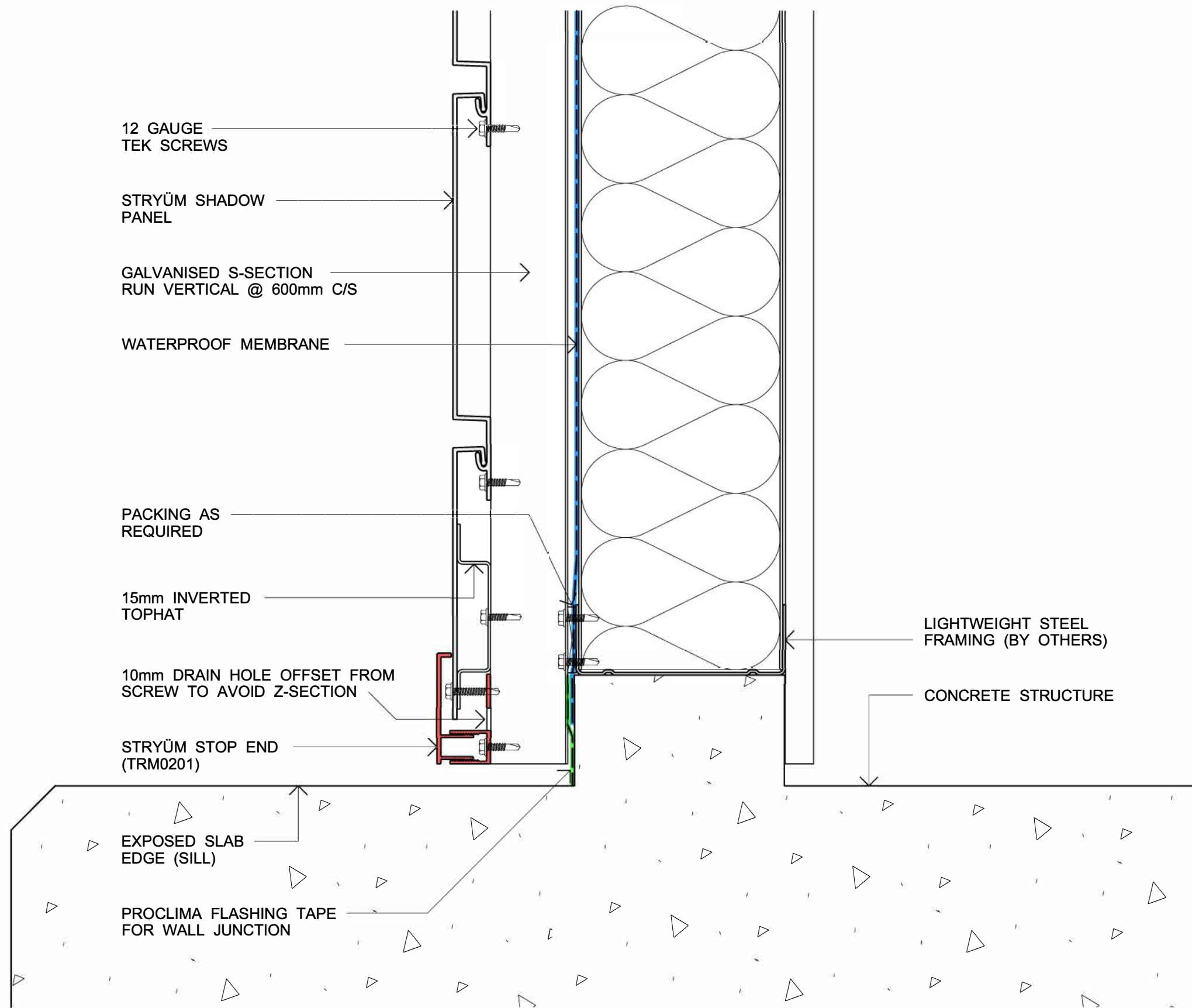
INTERNAL CORNER



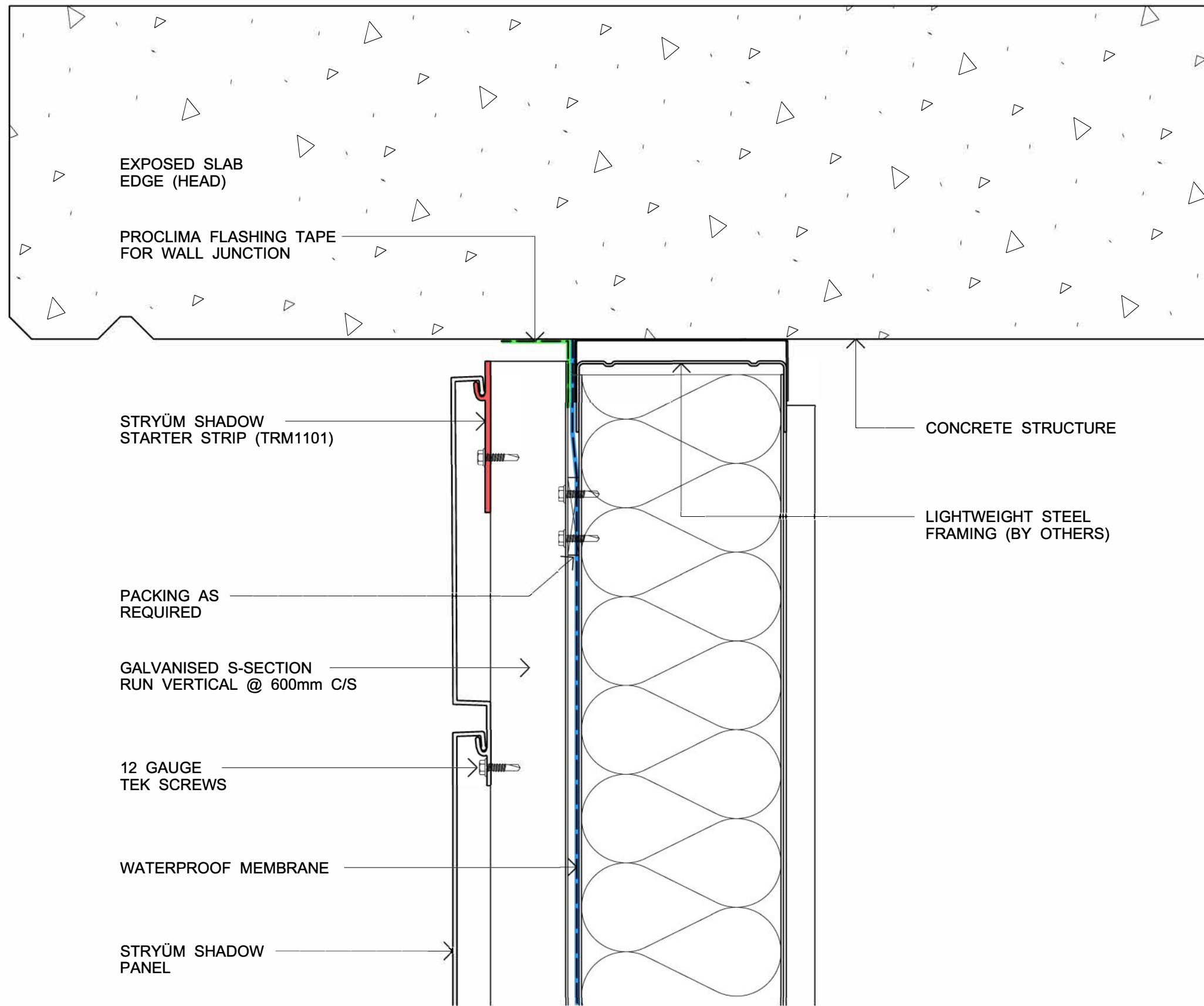
PANEL START / END DETAIL



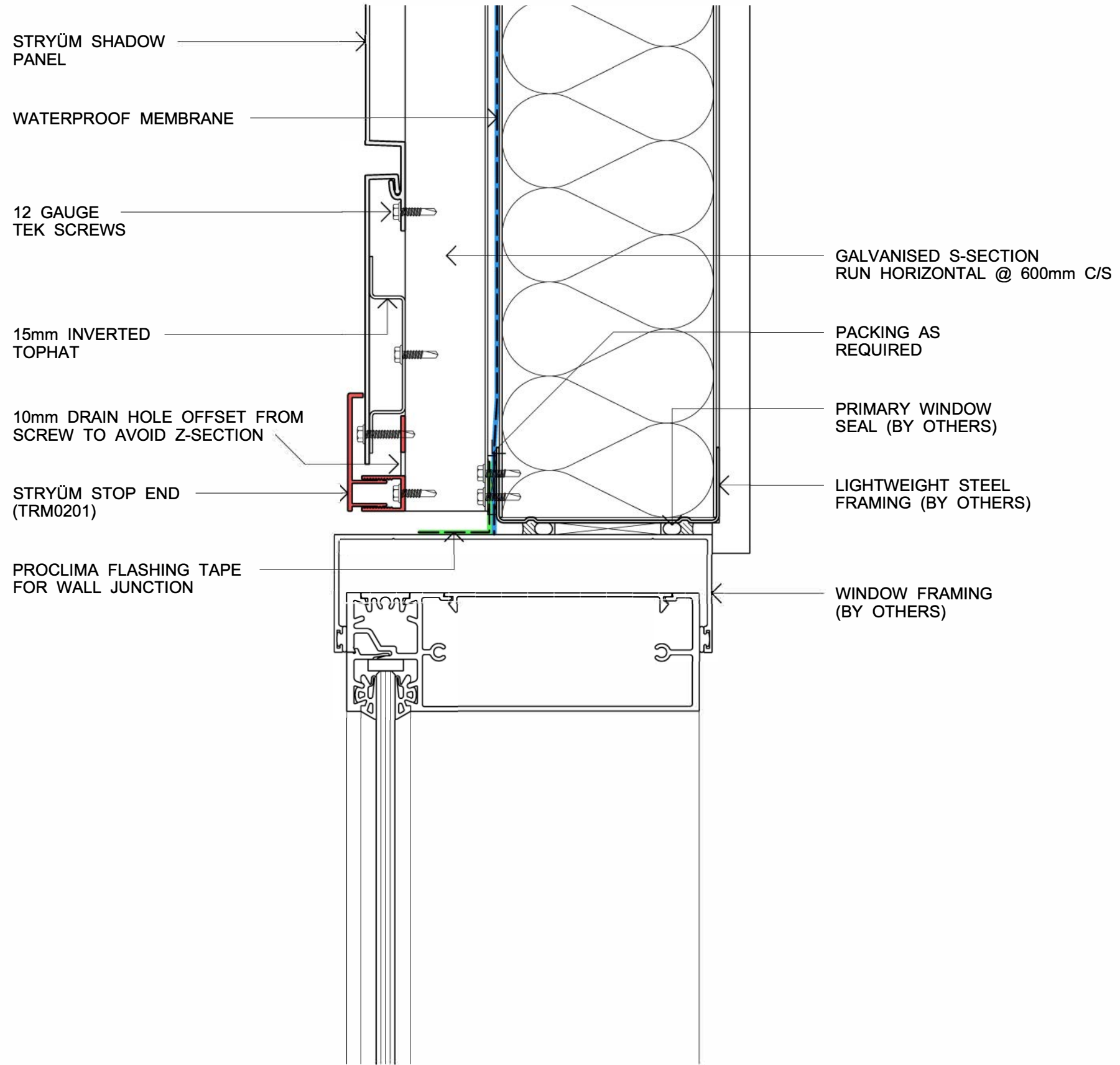
PARAPET DETAIL



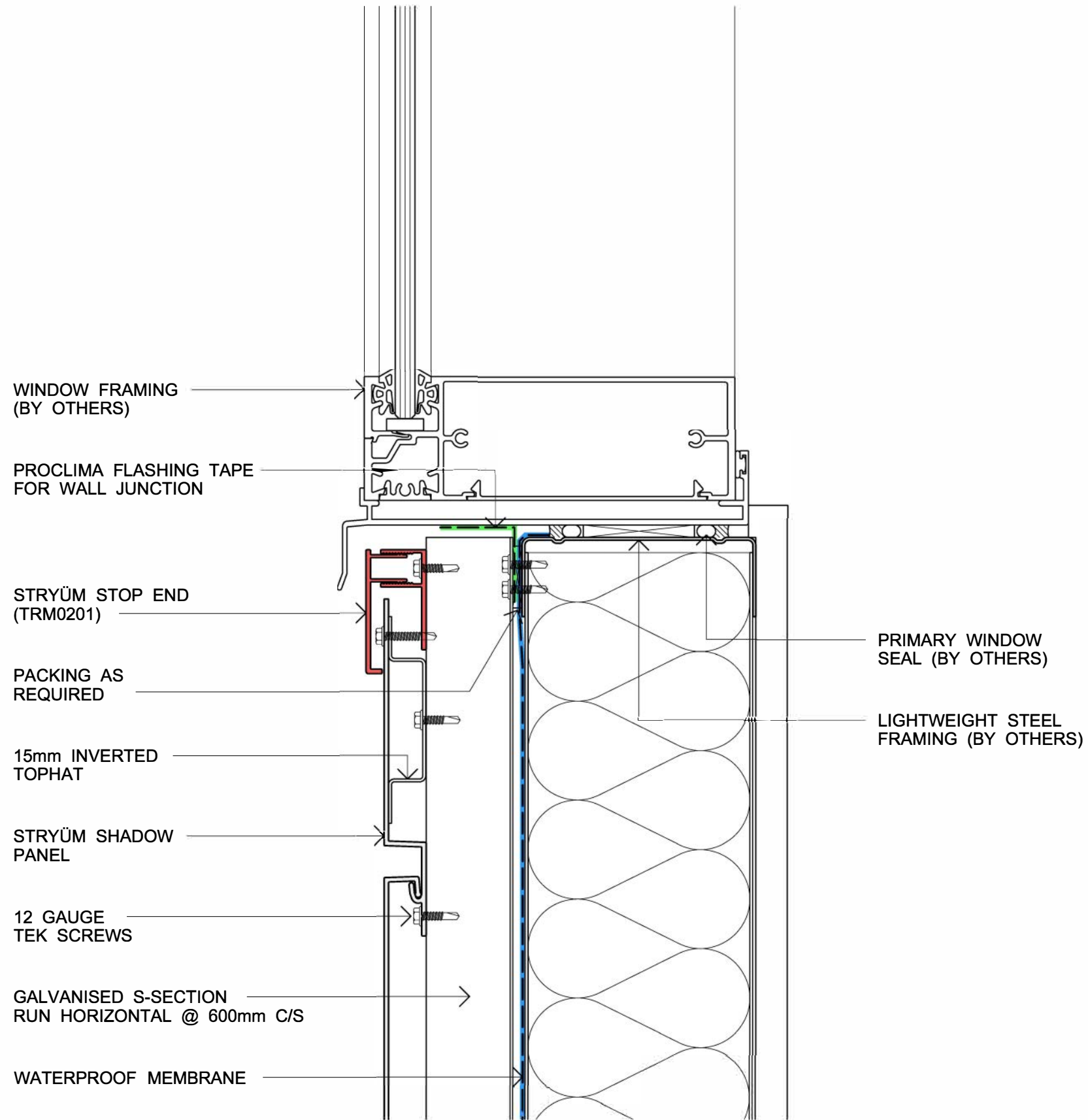
SLAB JUNCTION - FLOOR



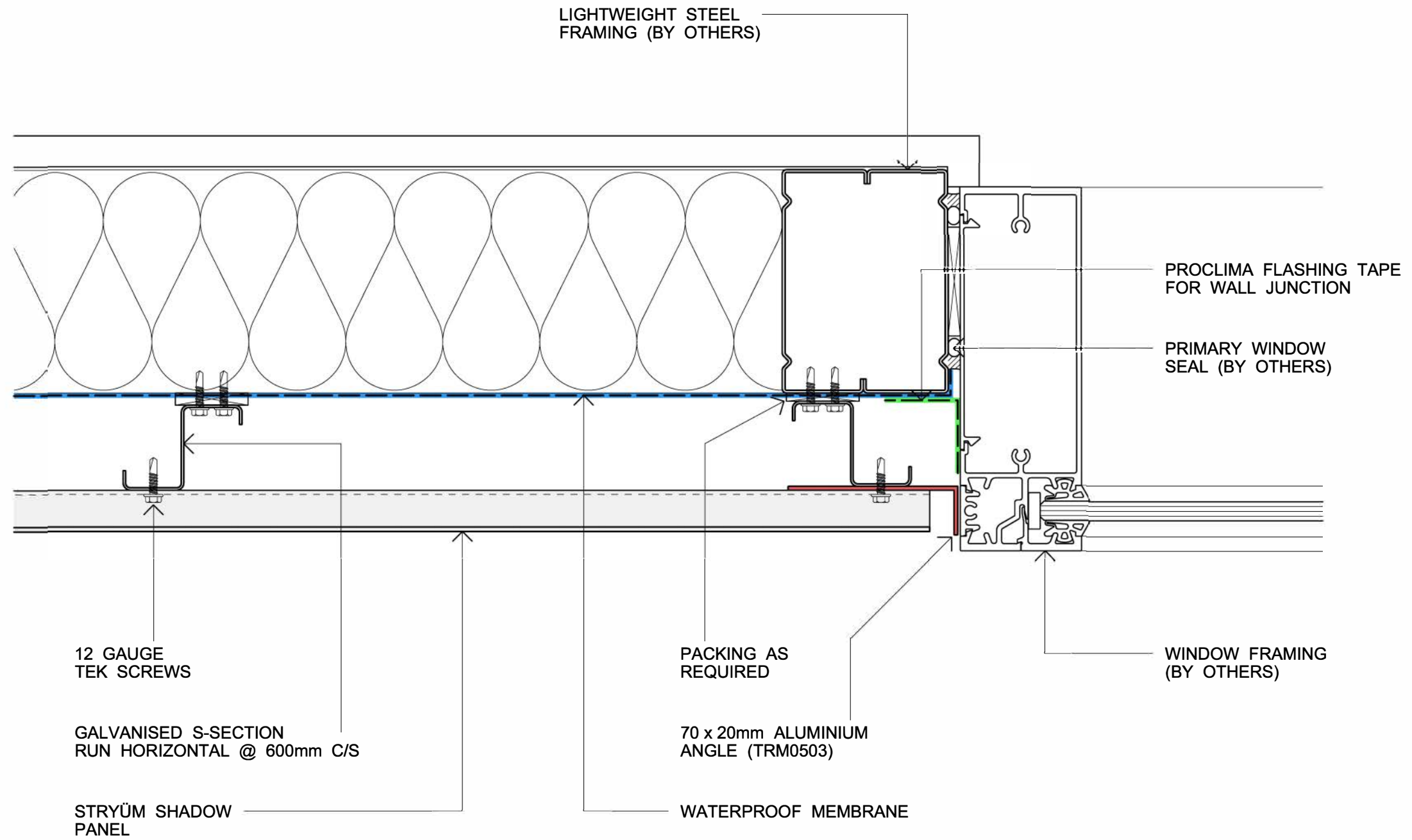
SLAB JUNCTION - HEAD



WALL OPENING DETAIL - HEAD

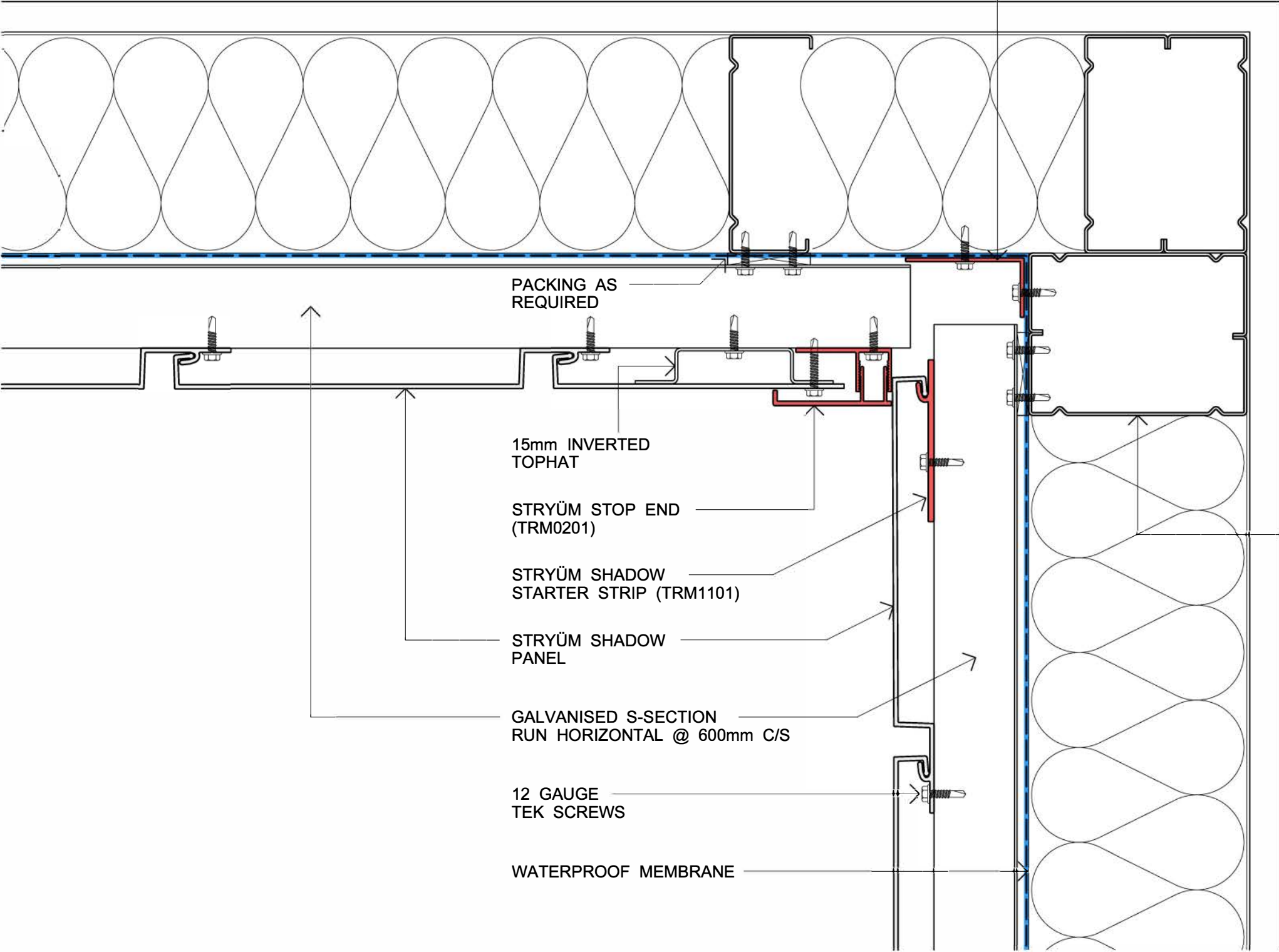


WALL OPENING DETAIL - SILL



WALL OPENING DETAIL - JAMB

L ANGLE INSTALLED OVER
WATERPROOF MEMBRANE
(REQUIRED FOR SARKING ONLY)



PACKING AS
REQUIRED

15mm INVERTED
TOPHAT

STRYÜM STOP END
(TRM0201)

STRYÜM SHADOW
STARTER STRIP (TRM1101)

STRYÜM SHADOW
PANEL

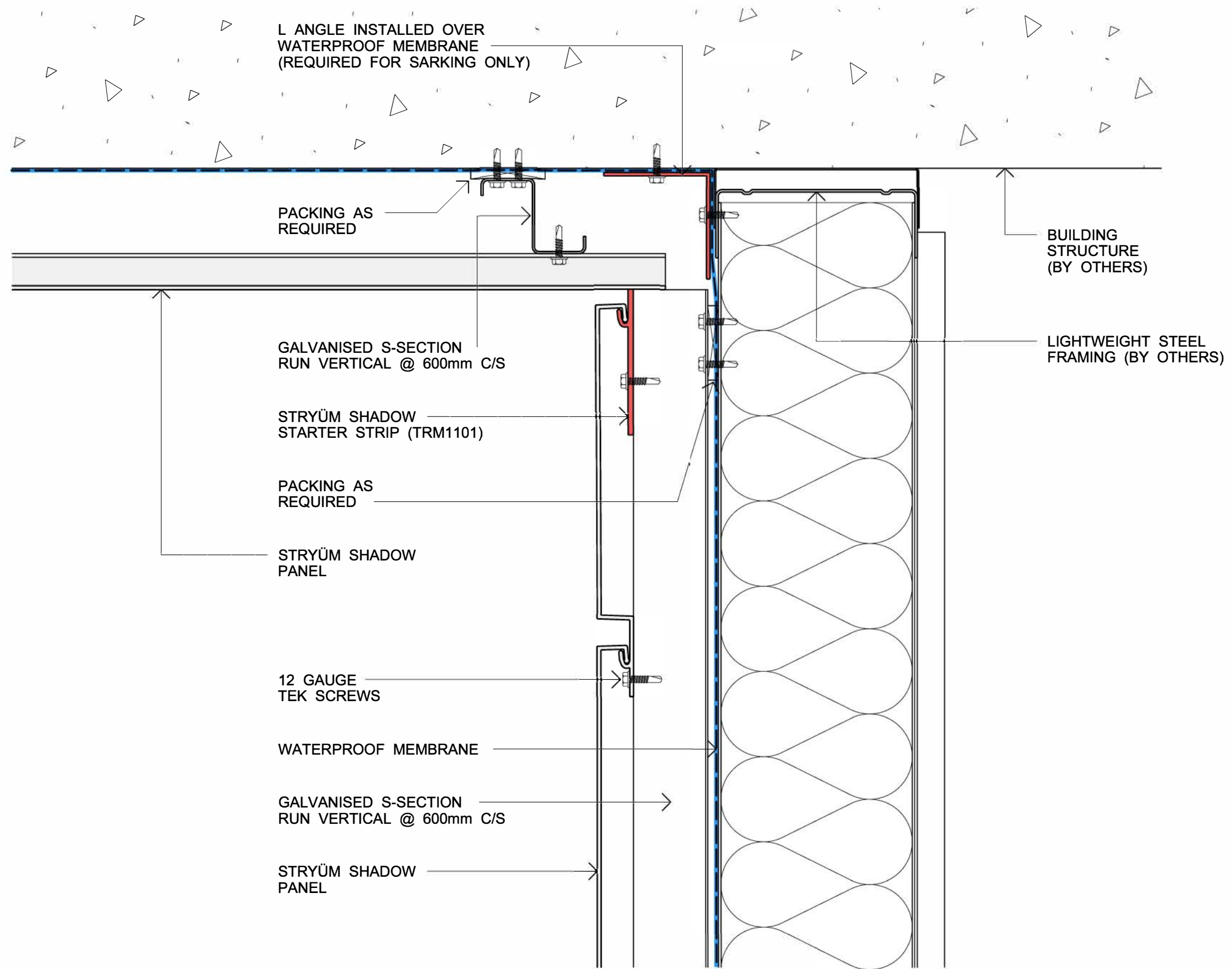
GALVANISED S-SECTION
RUN HORIZONTAL @ 600mm C/S

12 GAUGE
TEK SCREWS

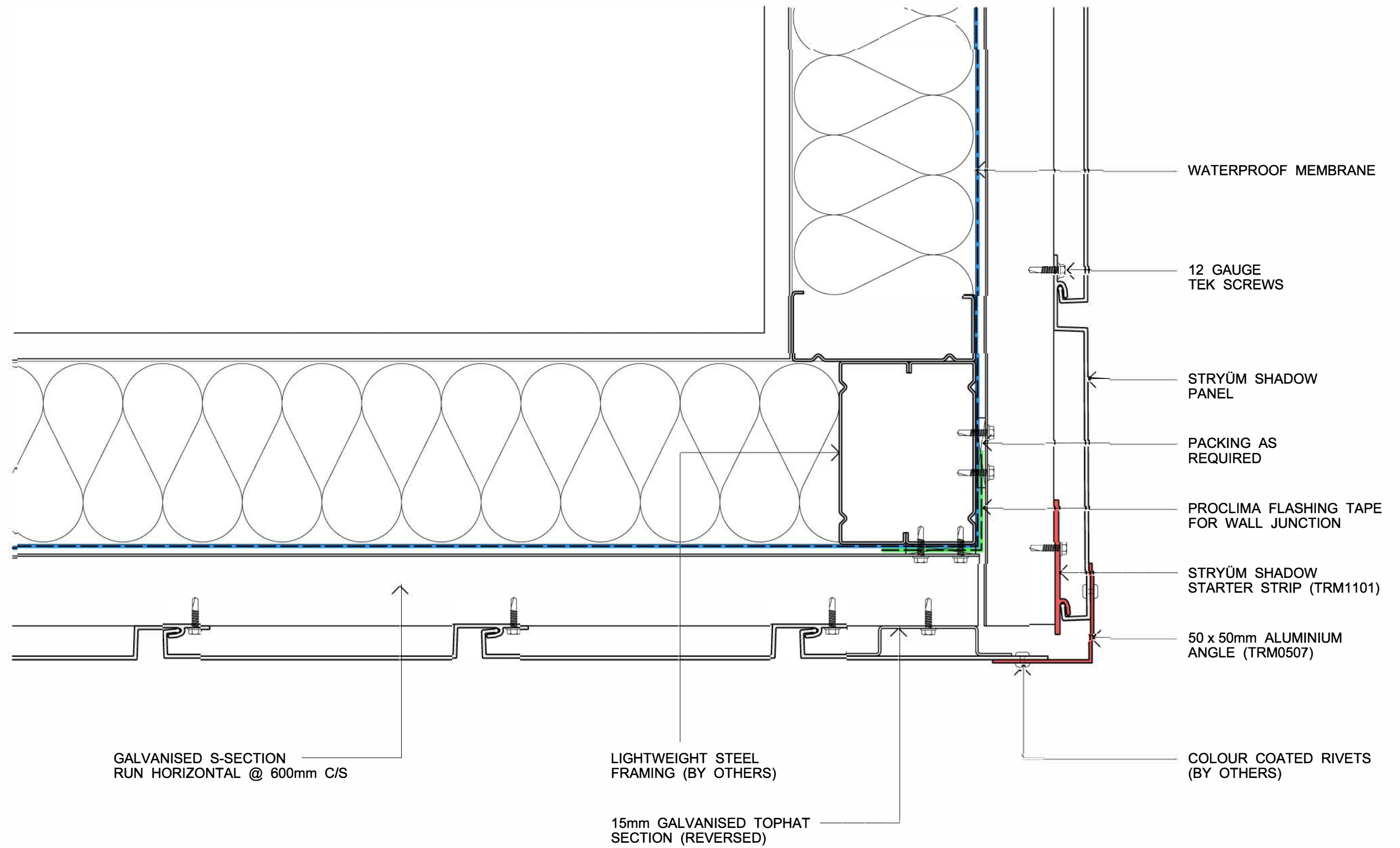
WATERPROOF MEMBRANE

LIGHTWEIGHT STEEL
FRAMING (BY OTHERS)

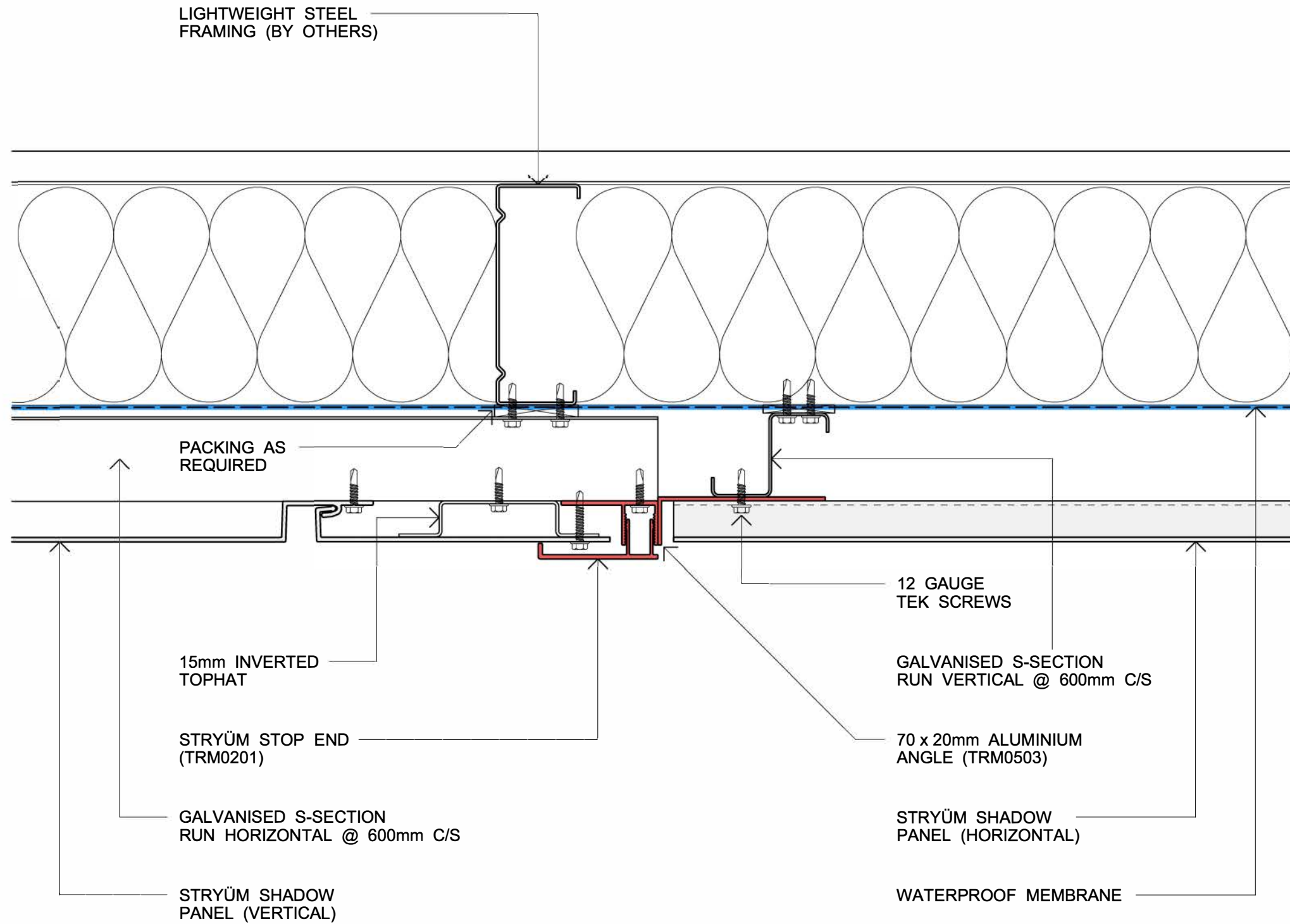
INTERNAL CORNER 1



SOFFIT JUNCTION 1a - VERTICAL TO HORIZONTAL

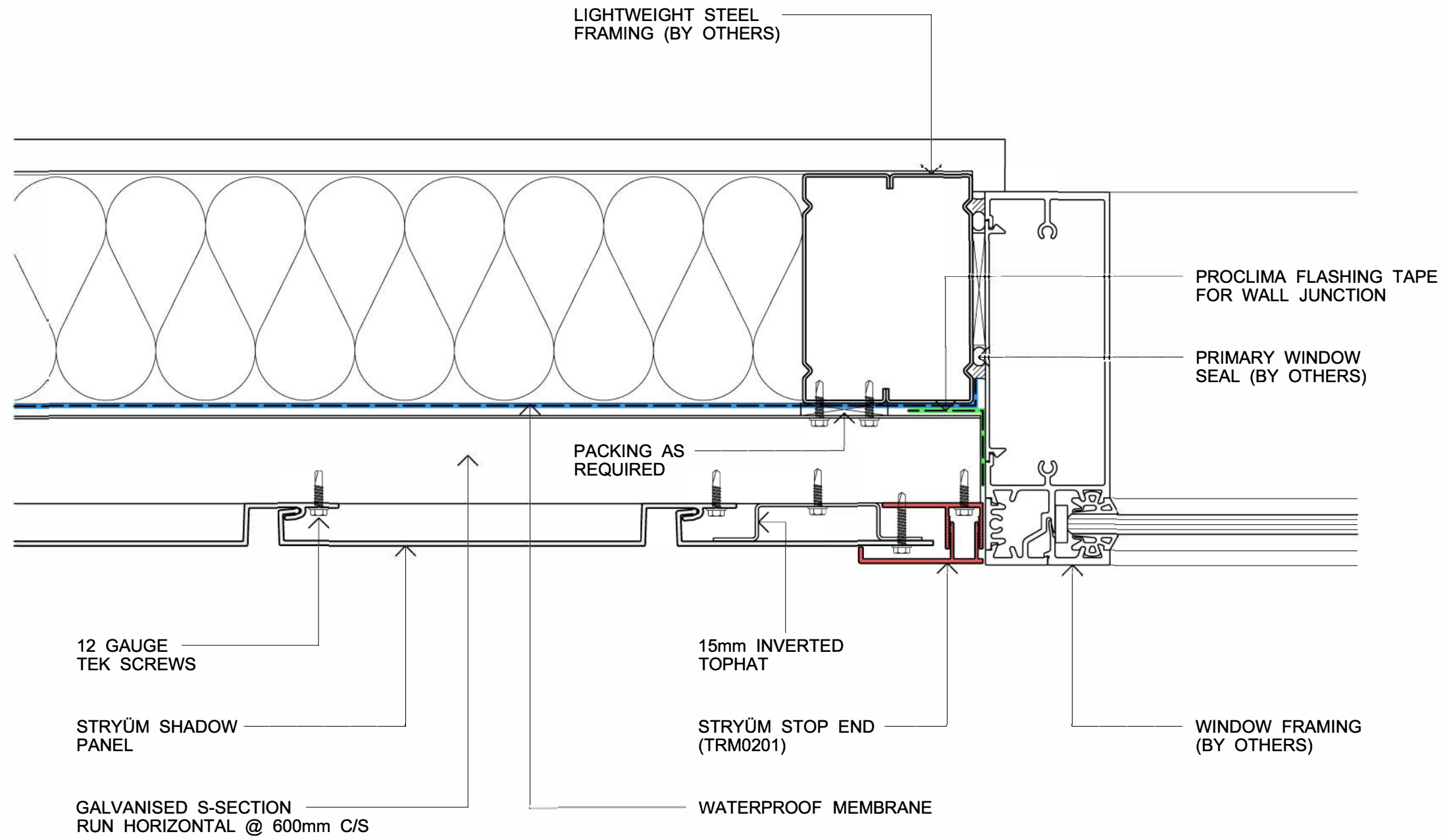


SOFFIT JUNCTION 2 - HORIZONTAL TO VERTICAL

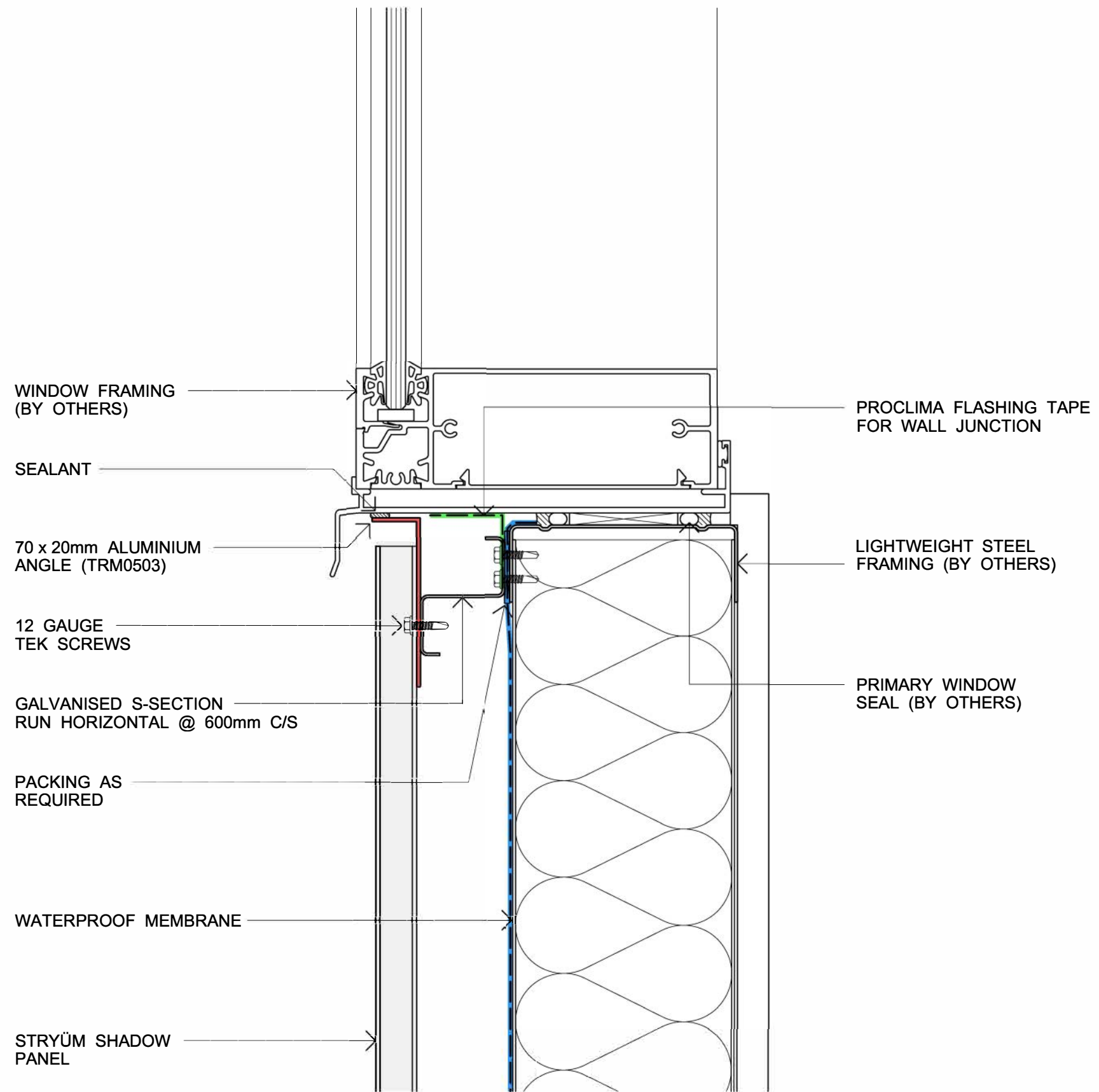


PANEL HORIZONTAL TO VERTICAL INTERSECTION DETAIL

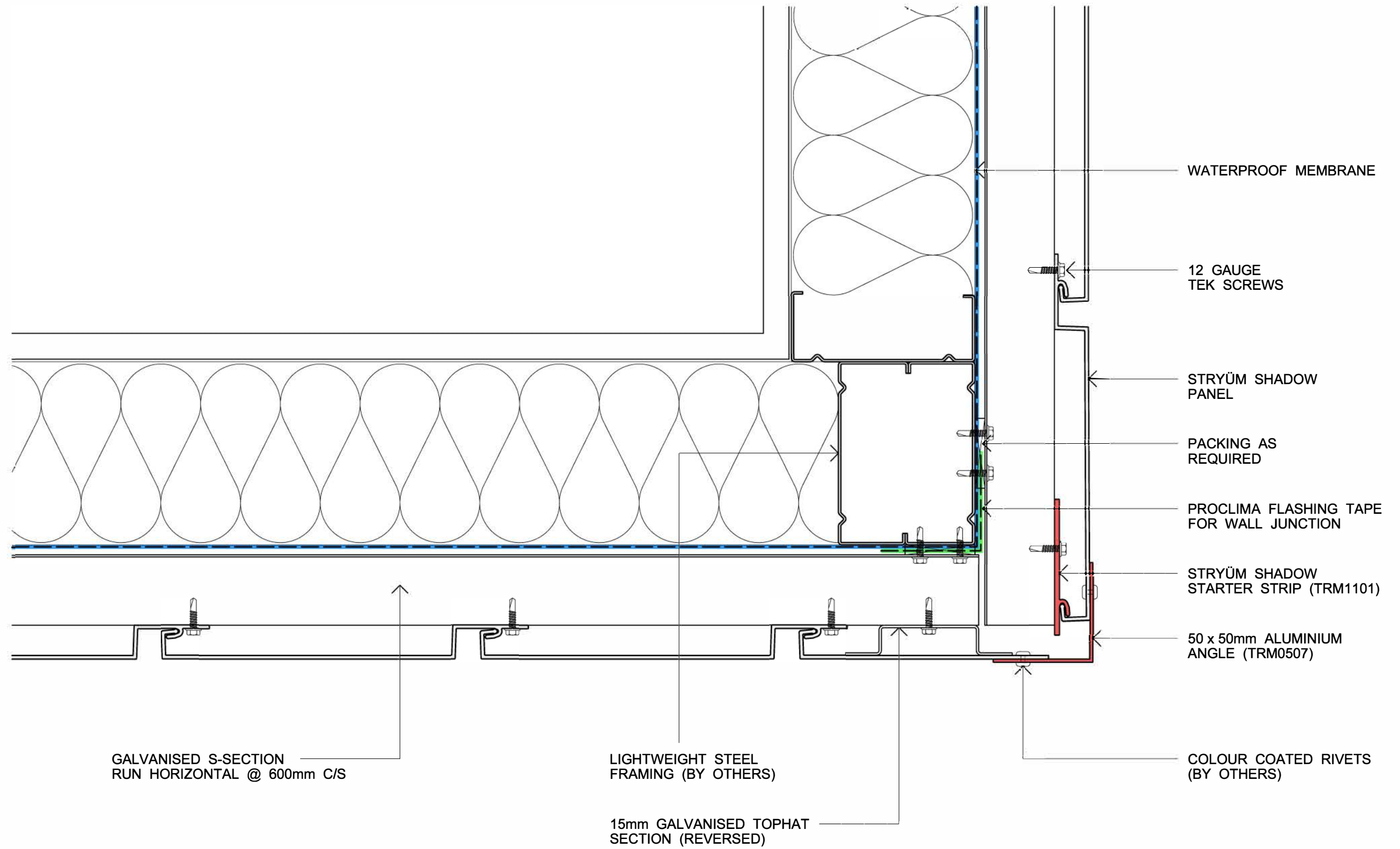
Shadow Vertical



WALL OPENING DETAIL - JAMB

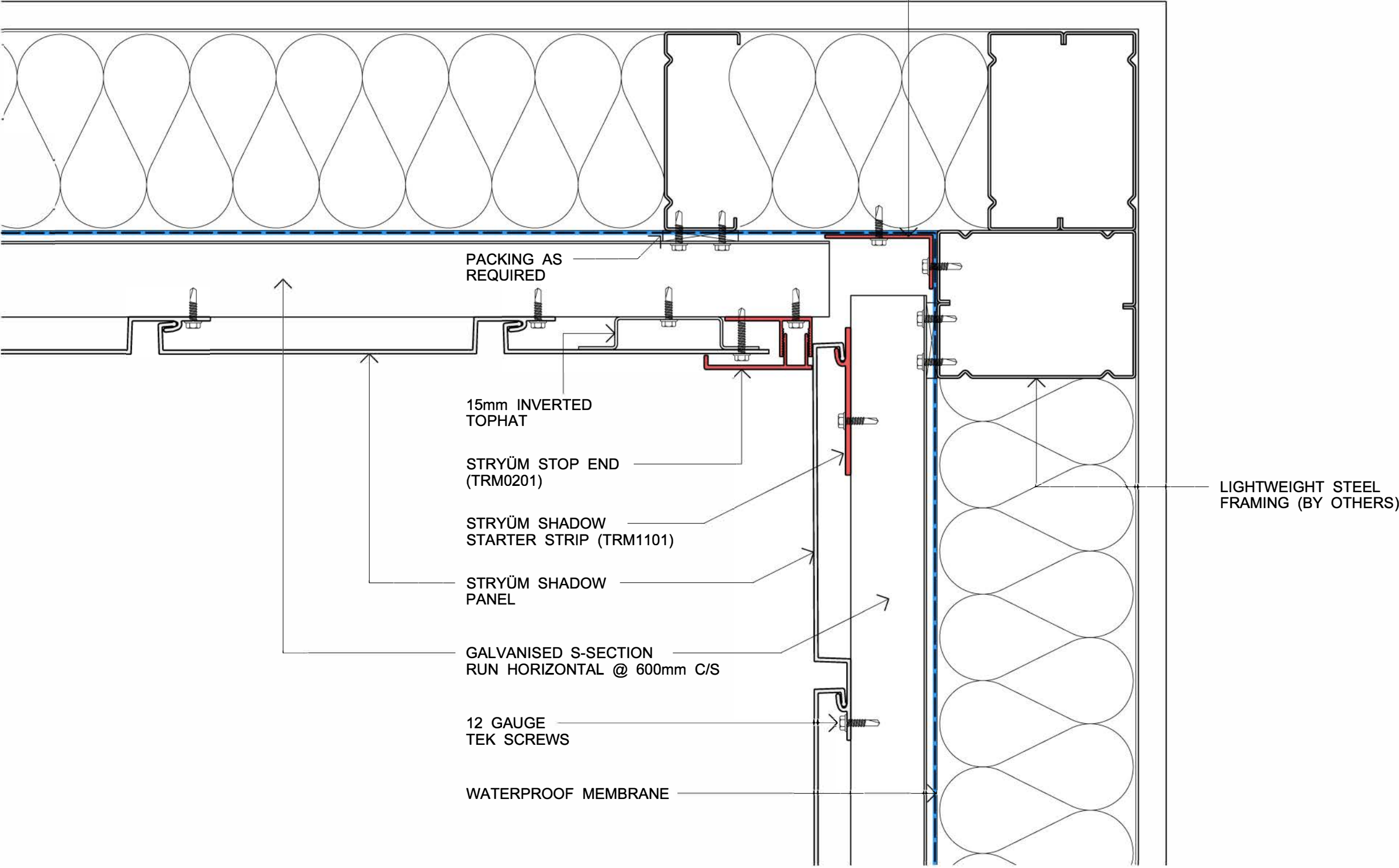


WALL OPENING DETAIL - SILL

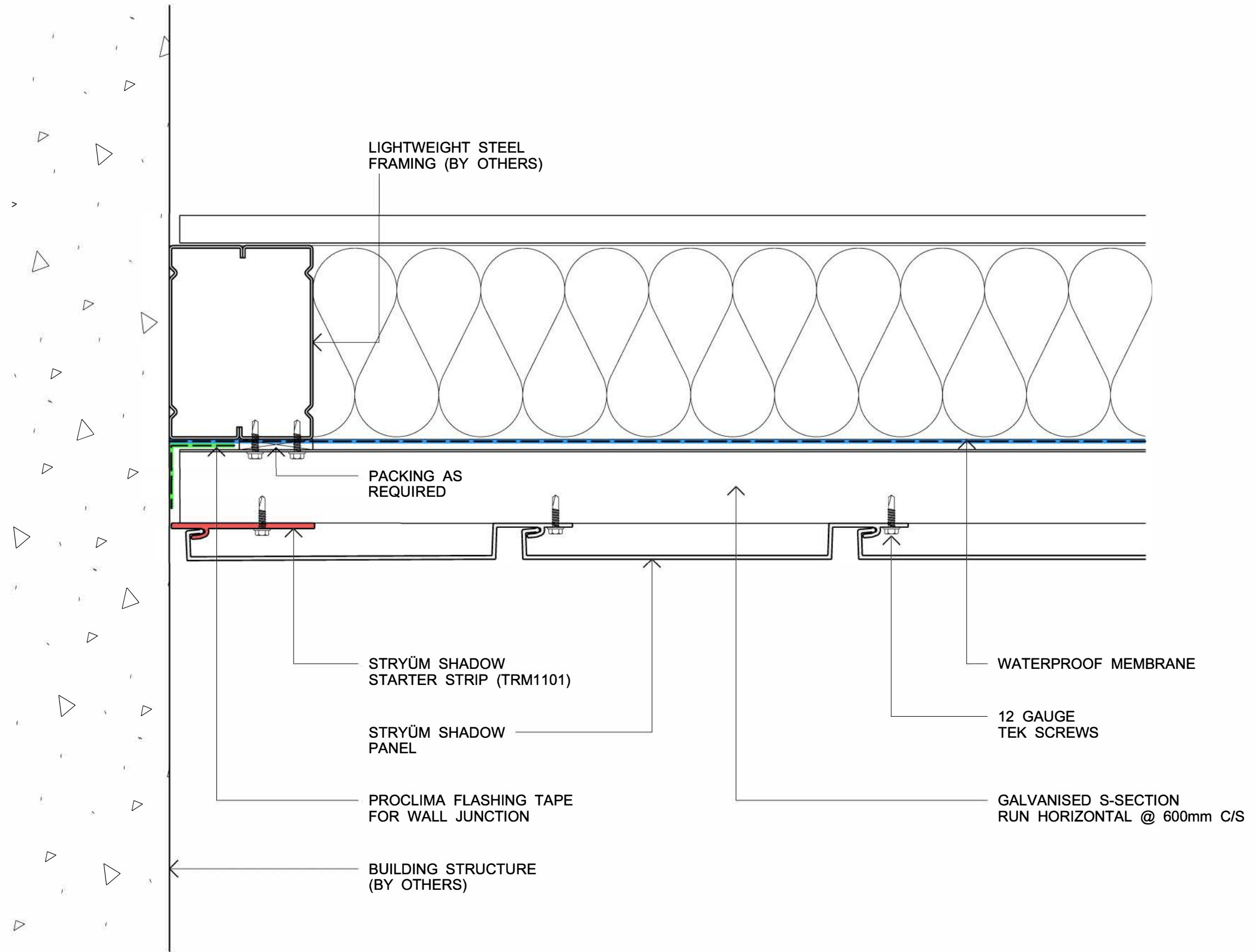


EXTERNAL CORNER 1 - 50x50 ANGLE

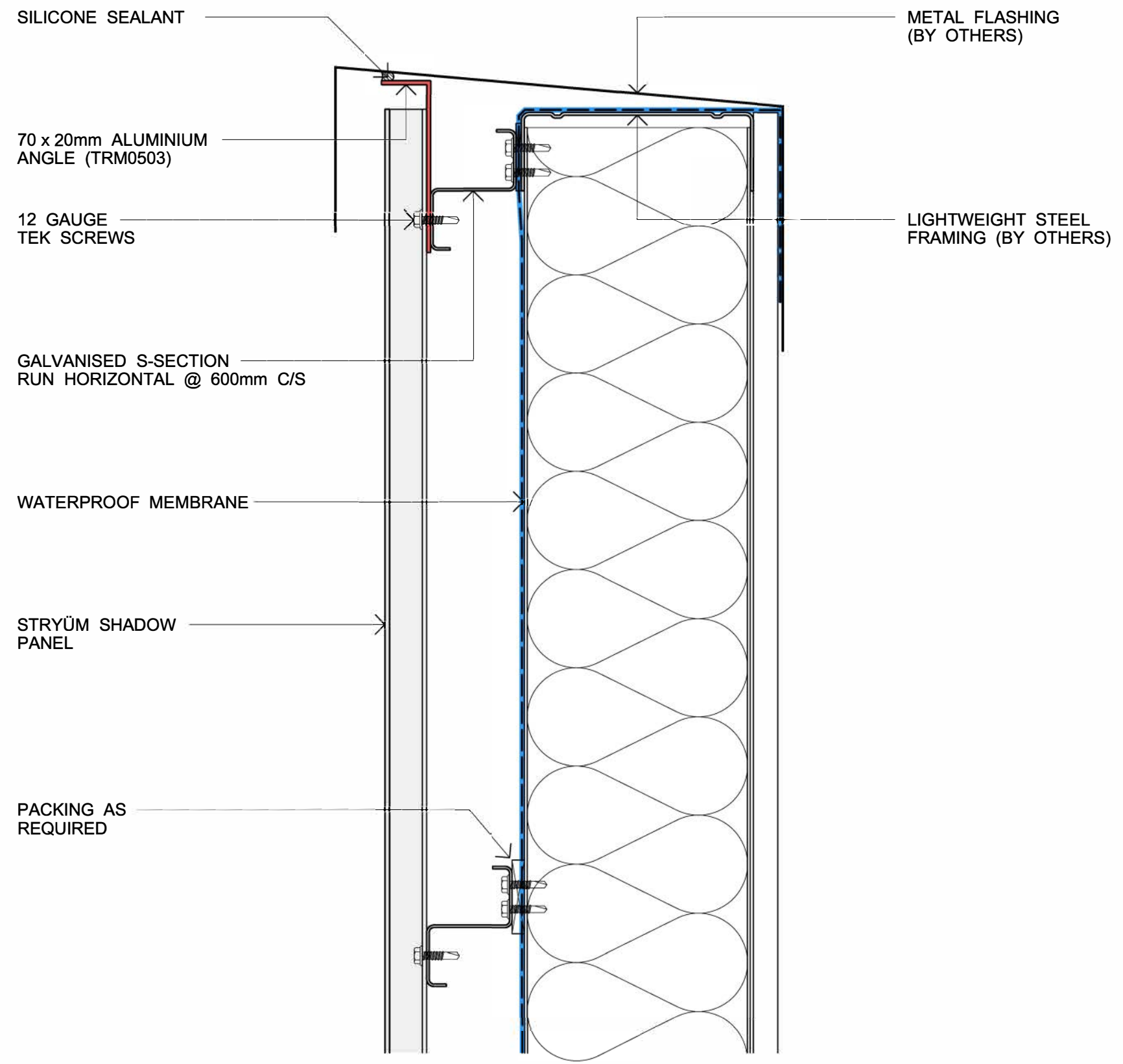
L ANGLE INSTALLED OVER
WATERPROOF MEMBRANE
(REQUIRED FOR SARKING ONLY)



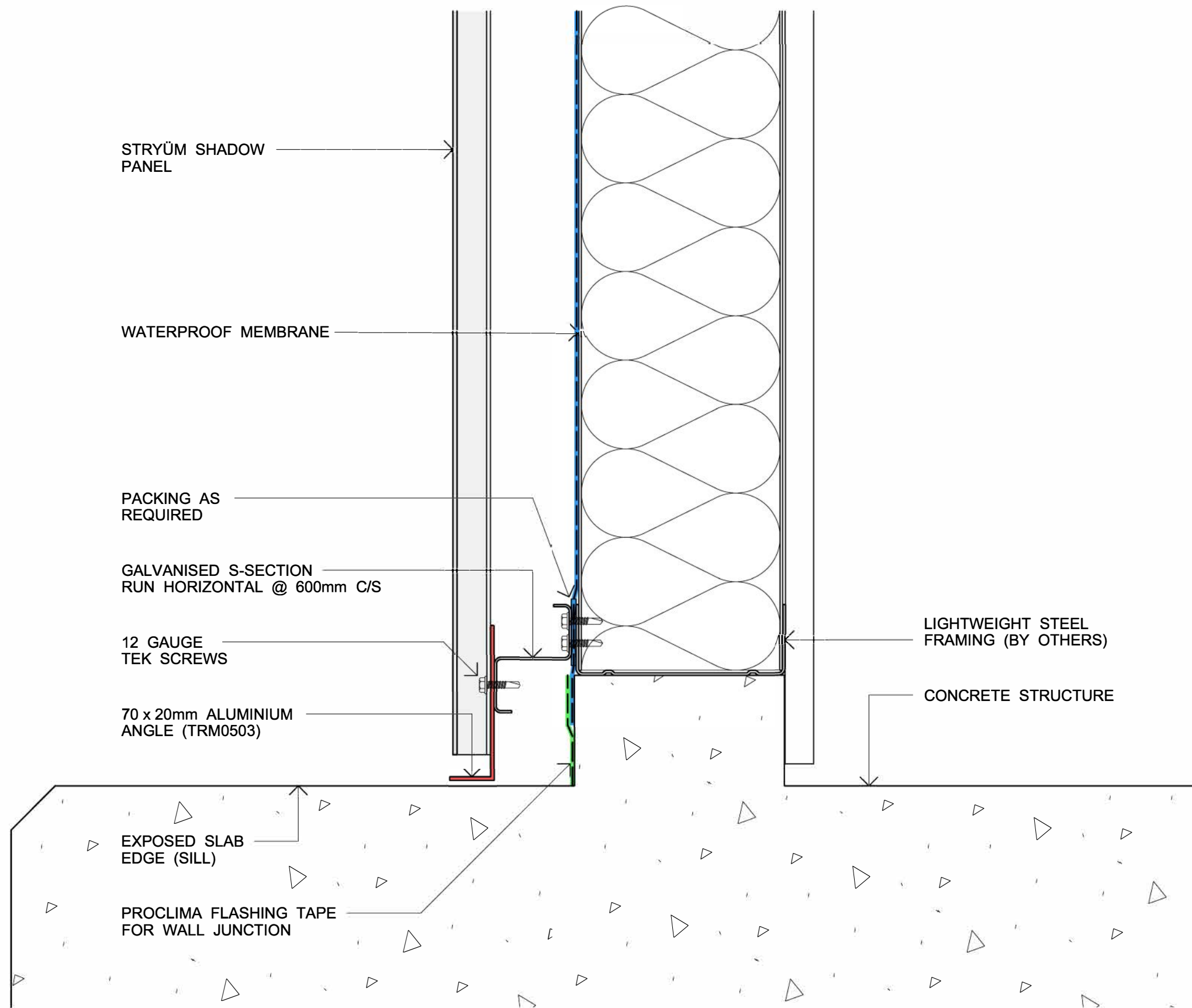
INTERNAL CORNER 1



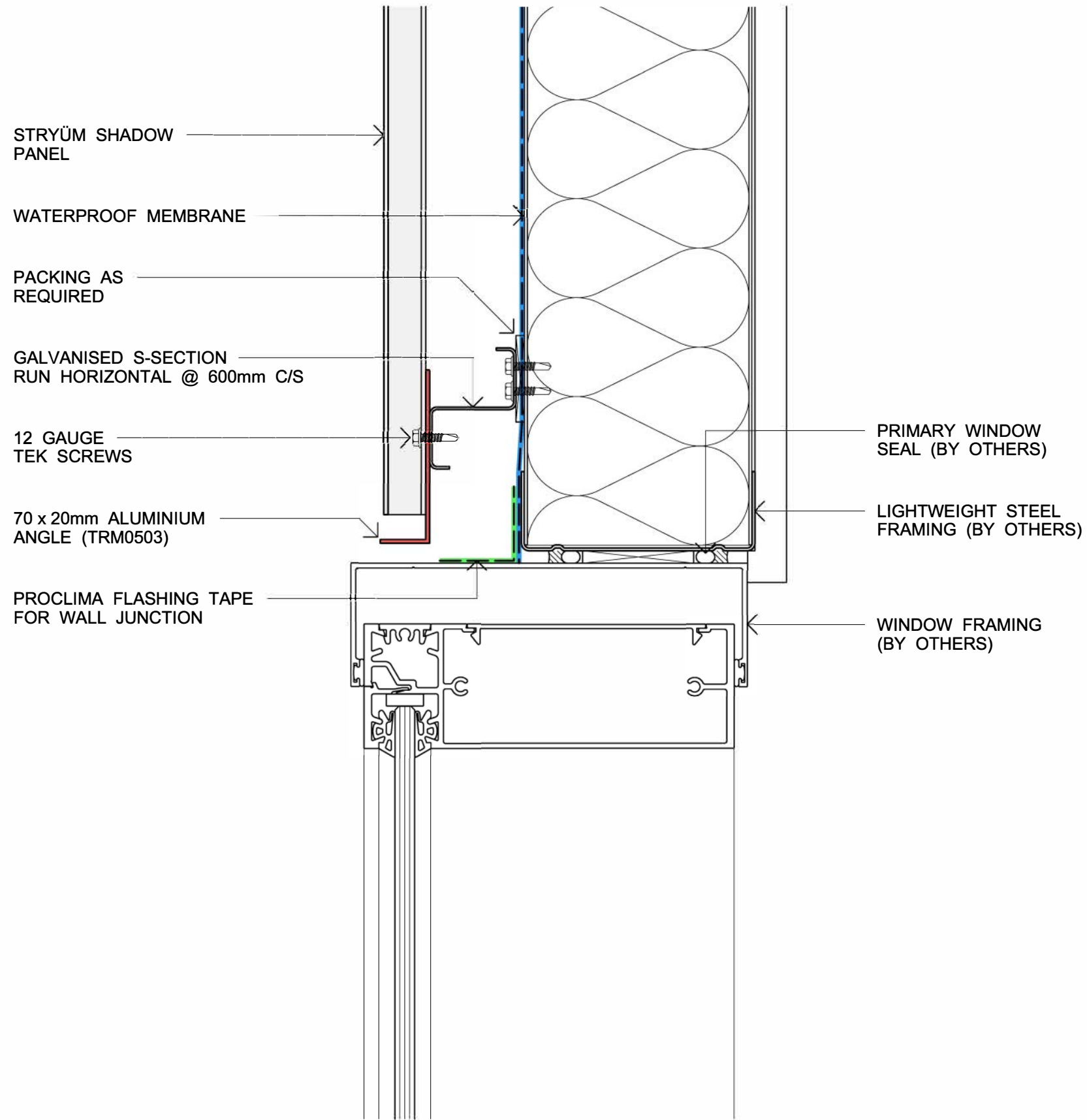
PANEL START DETAIL



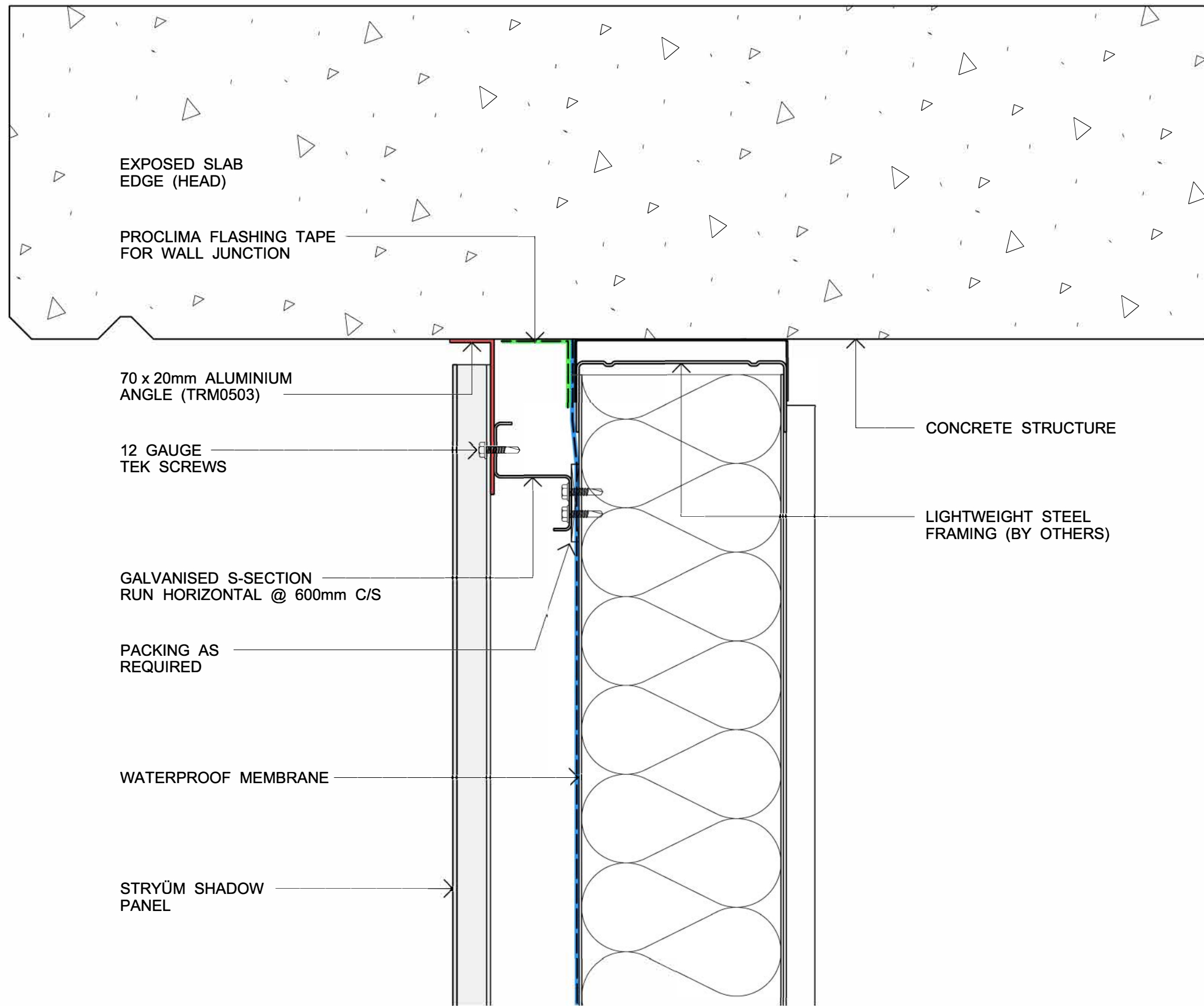
PARAPET DETAIL



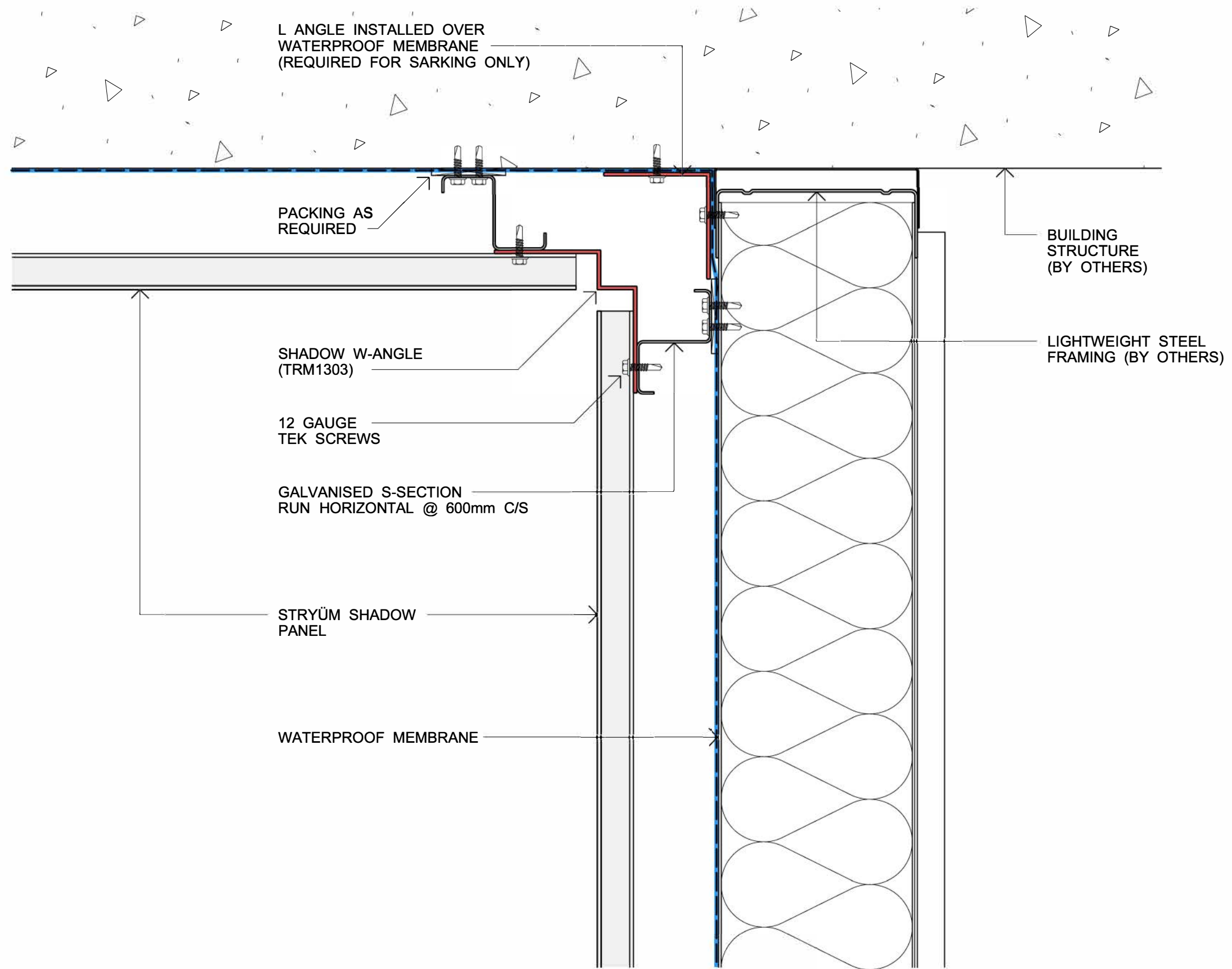
SLAB JUNCTION - FLOOR



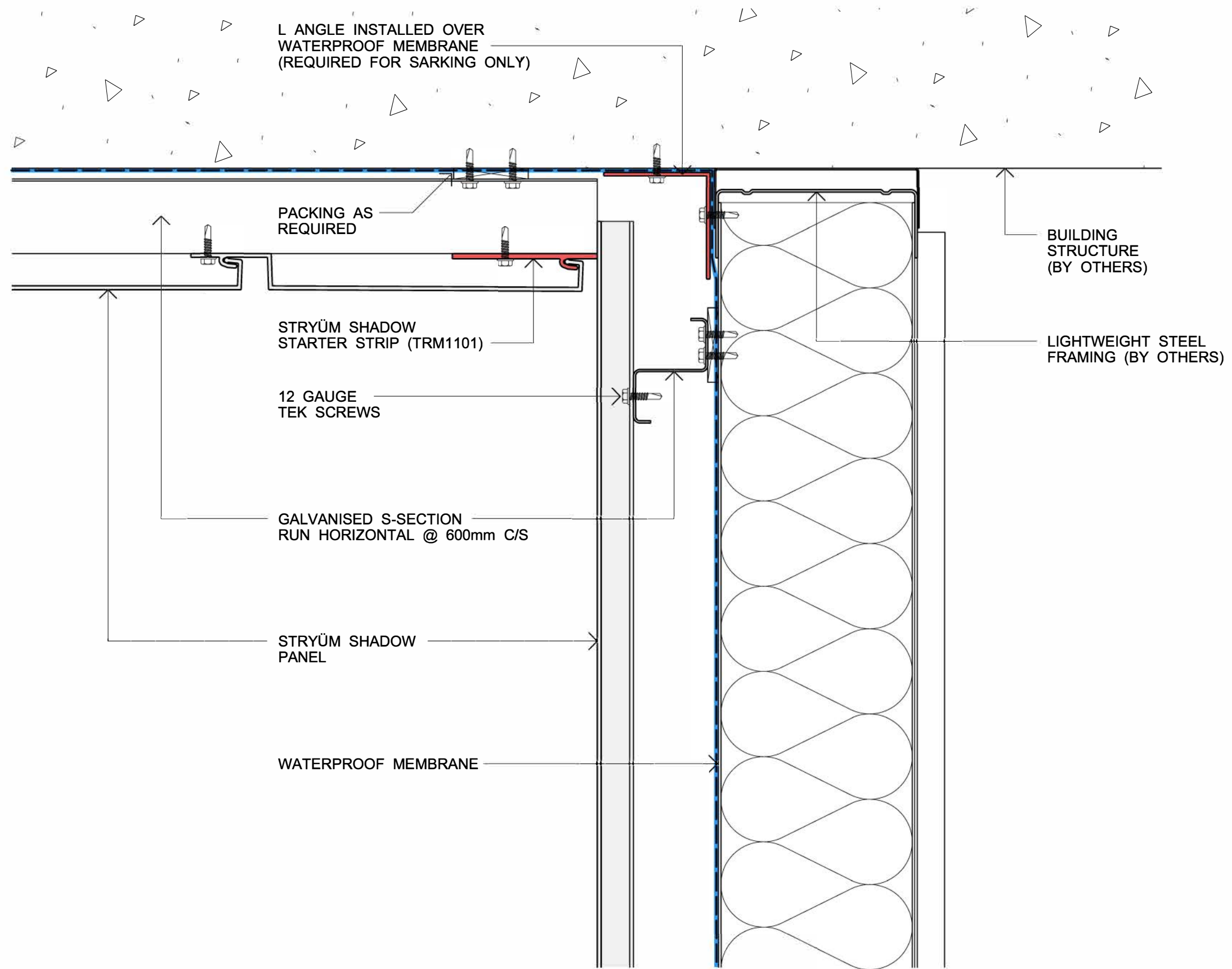
WALL OPENING DETAIL - HEAD



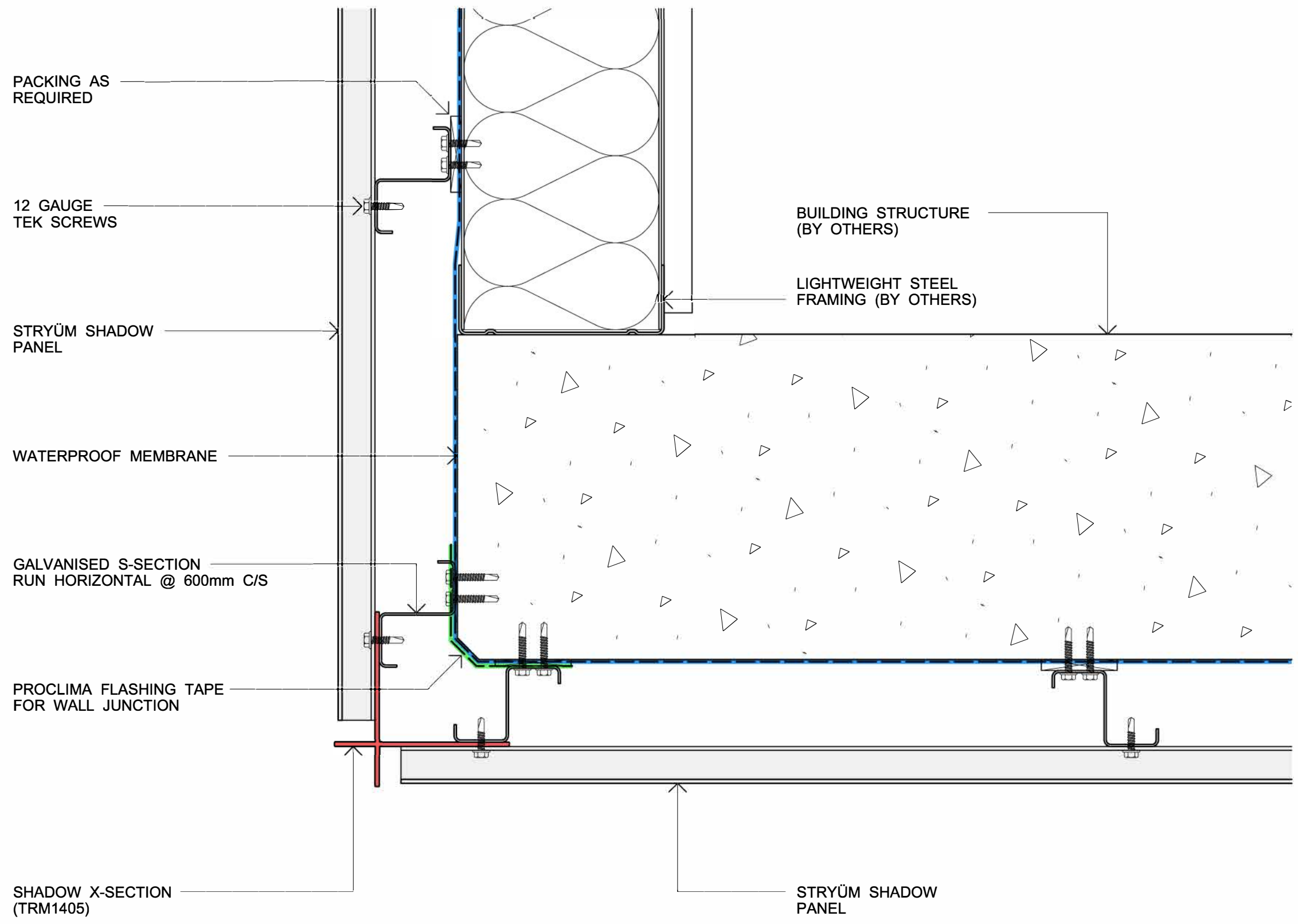
SLAB JUNCTION - HEAD



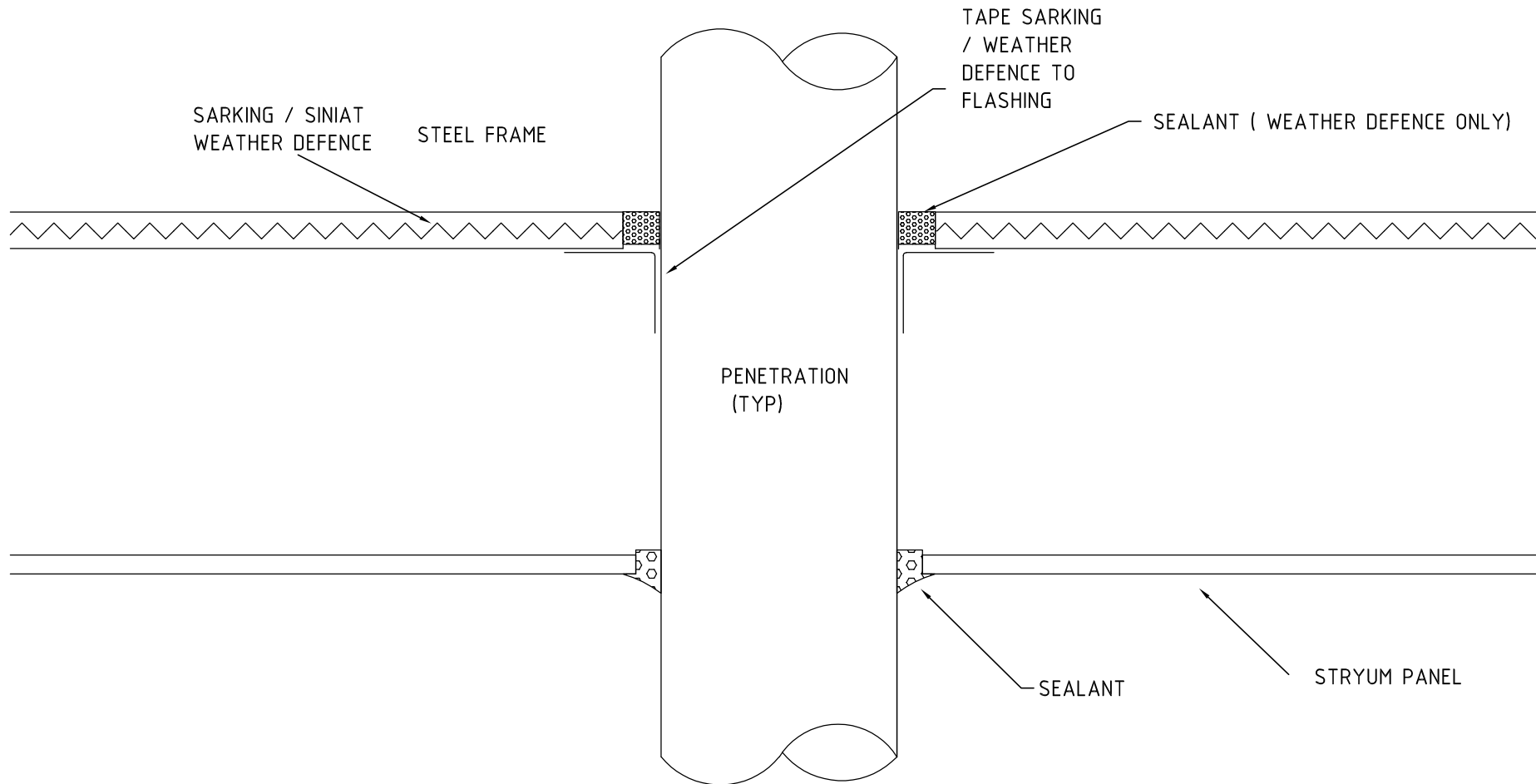
SOFFIT JUNCTION 1a - VERTICAL TO HORIZONTAL



SOFFIT JUNCTION 1b - VERTICAL TO HORIZONTAL



SOFFIT JUNCTION 2a - HORIZONTAL TO VERTICAL



12. TYPICAL PENETRATION DETAIL



Disclaimer:
 These details are limited to the generalised design specification for STRYUM and are intended for use by a technically skilled person only. Any use of the same is at their own discretion and risk.

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END OF REPORT