

Tekton Consulting

Tekton Group Ltd, PO Box 45045, Lower Hutt 5042, ph: +64 27 2300120

Compliance with the Building Code for E2 External Moisture

for

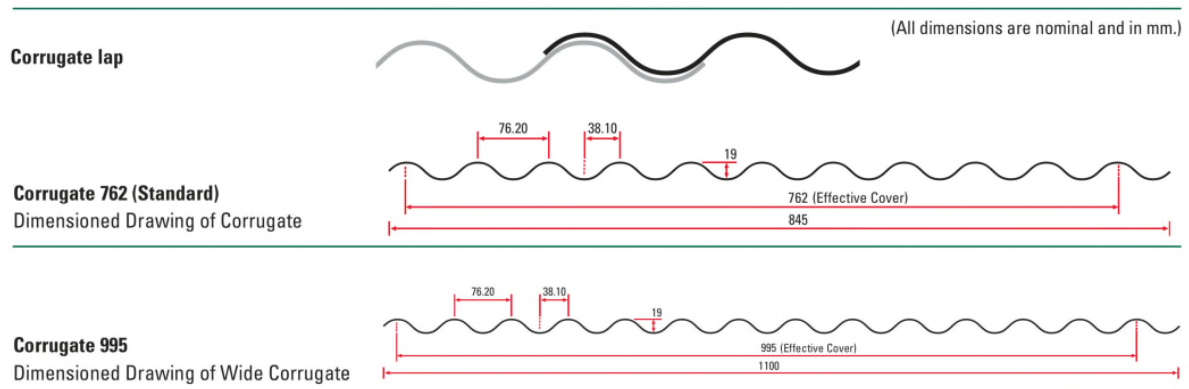
Roofing Industries Corrugate Roof and Wall Cladding

Executive Summary

This report presents arguments supporting the use of Roofing Industries **Corrugate** profile as roofing and vertically and horizontally fixed wall cladding complying with the requirements of the Building Code regarding E2 External Moisture.

Background

Corrugate is a corrugate profile roofing and wall cladding.



The scope of Acceptable Solution E2/AS1ⁱ provides for corrugate profile roofing with a minimum crest height of 16.5 mm.

It also provides for metal cladding of corrugate profile to be used as wall cladding when direct fixed vertically (up to and including Risk Score 20).

It allows horizontal fixing over a drained and ventilated cavity (up to and including Risk Score 20).

E2/AS1 considers direct fixed vertical corrugate as cavity construction. Vertical fixing on cavity is not provided for because solid cavity battens would normally compromise the ventilation and drainage of the cavity. However, using castellated battens or ventilated battens (as an alternative solution) overcomes this and is widely accepted. For corrugate profiles, vertical fixing on cavity (should that be considered) is no different than direct fixing, which is permitted up to and including Risk Score 20.

Corrugate profile and E2/AS1

Acceptable Solution E2/AS1 covers a range of profiles:

8.4.4 Profiles

Profiles covered in this Acceptable Solution are shown in Figure 38, and consist of:

- Corrugated** – curved with a crest height of 16.5 mm minimum,
- Trapezoidal** – symmetrical or asymmetrical with a minimum crest height of 19 mm, and for asymmetrical a flat or lightly profiled pan width of 210 mm maximum between crests, and
- Trough profile** – with vertical ribs at a minimum height of 38 mm, and flat or lightly profiled pans of 210 mm maximum between crests.

E2/AS1 para 8.4.4	Corrugate	
minimum crest height of 16.5 mm	19 mm	Complies

It also applies to particular grades of material:

8.4.3.2 Steel

Materials for the manufacture of profiled steel roof cladding shall:

- have a BMT of 0.4 mm minimum
- be grade G550, or G300 for rolled, crimped, or trough profile roofing

c) be selected for corrosion protection according to the intended exposure zone as shown in Table 20.

(The same requirements are repeated for profiled steel cladding, in para 9.6.3.2)

E2/AS1 paras 8.4.3.2/9.6.3.2	Corrugate	
BMT 0.4 mm minimum	0.40 or 0.55 mm	Complies
Grade G550 or G300	G550	Complies
be selected for corrosion protection according to the intended exposure zone.....	Various coating options available.	Complies

The **Corrugate** profile meets the characteristics specified in E2/AS1 in all respects for roofing and when used within the limitations of E2/AS1 it complies with E2 External Moisture.

Analysis

Roofing

For roofing, the acceptable solution E2/AS1 provides for corrugate profile roofing limited to those with a minimum crest height of 16.5 mm.

The **Corrugate** profile meets the characteristics specified in E2/AS1 in all respects.

Wall Cladding

The **Corrugate** profile meets the characteristics specified in E2/AS1 in all respects for cladding and when used within the limitations of E2/AS1 it complies with E2 External Moisture.

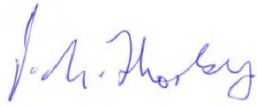
Conclusions

Corrugate roofing meets the requirements in Acceptable Solution E2/AS1 for corrugate profile metal roofing and meets the performance requirements of E2 External Moisture.

Corrugate direct fixed vertically as wall cladding (up to and including Risk Score 20) complies with E2/AS1 and meets the performance requirements of E2 External Moisture.

Corrugate fixed vertically over a nominal 20 mm drained cavity as wall cladding (up to and including Risk Score 20) complies with E2/AS1 and meets the performance requirements of E2 External Moisture.

Corrugate fixed horizontally over a nominal 20 mm drained cavity as wall cladding (up to and including Risk Score 20) complies with E2/AS1 and meets the performance requirements of E2 External Moisture.



P N Thorby

ⁱ Verification Methods E2/VM1 and Acceptable Solutions E2/AS1, E2/AS2 and E2/AS3 for New Zealand Building Code Clause E2 External Moisture Third edition (Amendment 10), 5 November 2020