



# CLADDING AND FLASHING MATERIALS

Table 20 of Building Code Acceptable Solution E2/AS1 is often used to select building materials. Here are a few pointers to help you interpret the table correctly.

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E2/AS1 Table 20 is used to choose building envelope materials that are suitable for their end use, location and environment. The table covers claddings and flashings first, then fixings. Materials are listed under these headings, but you have to work through the rows and columns to find the appropriate materials for a particular situation (see Figure 1). There is a section of numbered explanatory notes at the end of Table 20. Where an item in the table has a number after it, refer to that number in the notes.

## How to use Table 20

Start with some questions:

Step 1: Where will the material be positioned in the building – hidden, exposed or sheltered?

Step 2: What durability is required – 15 or 50 years?

Step 3: What acceptable exposure zone applies from NZS 3604:2011 – B, C, D or E?

Materials can be used that have the acceptable exposure zone (B, C, D or E) listed in the table where the required durability (15 or 50 years) meets the correct exposure (hidden, exposed or sheltered).

## Hidden, exposed or sheltered

The second column of Table 20 – exposure – refers to where the building element is located:

- 'Hidden' elements are concealed behind another element and are not visible or accessible.

- 'Exposed' elements are visible and rain washed.

- 'Sheltered' elements are visible but not rain washed.

Use the sheltered designation for:

- elements that may be either sheltered and exposed (see note 2)

- all steel-based wall claddings (see note 8 in the table)

- hidden steel-coated elements located in a ventilated cavity in zones D and E (exposed to salt air) (see note 9 in the table).

## 15 or 50 years durability

Hidden elements require not less than 50 years durability under the Building Code. Use the far right column – 50 years – for choices.

Claddings, and exposed and sheltered flashings require not less than 15-year durability, so use the 15 years column.

## Acceptable exposure zones

The acceptable exposure zones column of E2/AS1 Table 20 contains letters – B, C, D and E. These are atmospheric corrosivity categories

based on the corrosion rates of mild steel in NZS 3604:2011 *Timber-framed buildings* and AS/NZS 2728:2007 *Prefinished/prepainted sheet metal products for interior/exterior building applications – Performance requirements*.

The zones are B (low), C (medium), D (high) and E (severe marine – breaking surf beachfronts). These use the limits outlined in NZS 3604:2011.

Before confirming material selection, designers should check with metal suppliers that the material is suitable for the environment it is to be used in so that the warranty will be valid.

Material	Exposure(1)(2)(4)(6)	Type	Acceptable Exposure Zones as per NZS 3604 – Section 4 (3)(4)(8)	
			15 years	50 years for hidden elements(2)(9)
<b>CLADDINGS AND FLASHINGS</b>				
Aluminium, zinc	Hidden(2) Exposed Sheltered		B,C,D,E B,C,D,E B,C,D,E	B,C,D,E
Copper, lead, or stainless steel	Hidden(2) Exposed Sheltered		B,C,D,E B,C,D,E B,C,D,E	B,C,D,E
<b>Factory painted</b>				
Aluminium-zinc coated or galvanised steel to AS/NZS 2728 (includes pre-painted tiles)	Hidden(9) Hidden Exposed Exposed(9) Sheltered Sheltered	Type 4 Type 6 Type 4 Type 6 Type 4 Type 6	B,C,D,E B,C,D,E B,C,D B,C,D,E B,C B,C,D	B,C,D B,C,D,E
Pressed metal tiles aluminium-zinc coated AZ150 to AS/NZS 2728 with post-form factory painting	Exposed Sheltered	Type 6 Type 6	B,C,D,E B,C,D	B,C,D
<b>Non-factory painted</b>				
Aluminium-zinc coated steel AZ150 to AS 1397	Hidden(9) Exposed(8) Sheltered		B,C,D,E B,C B	B,C,D
Galvanised steel Z450 to AS 1397	Hidden(9) Exposed(8) Sheltered		B,C,D B,C B	B,C
<b>Non-metallic</b>				
Bituminous material, or uPVC	Hidden Exposed (uPVC only) Sheltered (uPVC only)		B,C,D,E B,C,D,E B,C,D,E	B,C,D,E
Butyl rubber	Hidden Exposed Sheltered		B,C,D,E B,C,D,E B,C,D,E	B,C,D,E
<b>FIXINGS(7)</b>				

Figure 1: Working through E2/AS1 Table 20 to find materials that can be used for roofs and walls in zone D. E2/AS1 is available from the Department of Building and Housing website.

## Type 4 and type 6

Prepainted and prefinished metal products are divided into types defined in AS/NZS 2728 Table 1.1 related to corrosion rates and the severity of application. Table 20 includes two of these types:

- Type 4 for high corrosive or tropical environments.
- Type 6 for very high geothermal and marine environments.

The types may also have different scratch resistance and blistering requirements.

## Example in zone D

Follow these examples to find suitable materials for a structure in zone D.

### ROOF

Roofing materials are considered exposed (see note 8) and require a durability of not less than 15 years.

Suitable materials in Table 20 for the roof in zone D (see Figure 1) include:

- aluminium, zinc, copper, lead, stainless steel
- factory-painted aluminium-zinc coated or galvanised steel to AS/NZS 2728 (includes prepainted tiles) (type 4 or 6)
- pressed metal tiles, aluminium-zinc coated AZ 150 to AS/NZS 2728, with post-form factory painting (type 6 only)
- non-factory coated option – not permitted
- non-metallic option – butyl rubber.

The base metal thickness (BMT), profiles and roof pitches for metal roofing and other permitted roofing materials are found in E2/AS1, Section 8.

### WALLS

Table 20 considers all walls as sheltered for steel-based claddings (see note 8) and requires a durability of not less than 15 years.

Suitable materials in Table 20 for walls in zone D (see Figure 1) include:

- aluminium, zinc, copper, stainless steel
- factory-painted aluminium-zinc coated or galvanised steel to AS/NZS 2728 (type 6 only)
- non-factory coated option – not permitted.

The BMT, profiles and application requirements (direct-fixed or on a cavity) for profiled metal claddings are covered in E2/AS1 Section 9.6.

Where roofs and walls are different materials, check E2/AS1 Tables 21 and 22 for compatibility in contact and run-off.

### FLASHINGS

In zone D, the materials for flashings that are not hidden must have a durability of not less than 15 years and are considered sheltered. Options include:

- aluminium, zinc, copper, lead, stainless steel
- factory-painted aluminium-zinc coated or galvanized steel to AS/NZS 2728 (type 6 only)
- non-metallic flashings – uPVC, bituminous material and butyl rubber.

Hidden flashings require a durability of not less than 50 years (see note 2).

See E2/AS1 Section 4 for flashing material types and minimum thicknesses, and always check compatibility of flashing materials with materials in contact and run-off (see E2/AS1 Tables 21 and 22).

*E2/AS1 can be downloaded for free from the Department of Building and Housing website, see [www.dbh.govt.nz/building-code-compliance-documents-downloads](http://www.dbh.govt.nz/building-code-compliance-documents-downloads).* ■