



Determination 2019/009

Regarding the compliance of proposed carpet flooring to a laundry in an attached garage at 243 Napier Road, Palmerston North

Summary

This determination considers the compliance of proposed carpet flooring to a laundry space within an attached garage. The authority refused to issue the building consent for the proposal because of concerns the use of carpet in a laundry does not prevent water from penetrating behind linings, and does not avoid the likelihood of fungal growth or the accumulation of contaminants.

1. The matter to be determined

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004¹ (“the Act”) made under due authorisation by me, Katie Gordon, Manager Determinations, Ministry of Business, Innovation and Employment (“the Ministry”), for and on behalf of the Chief Executive of the Ministry.
- 1.2 The parties to this determination are:
 - the owner of the property at 243 Napier Road who applied for the determination, Bupa Villages & Aged Care NZ (“the owner”), acting through an agent who is a licensed building practitioner (“the designer”)
 - Palmerston North City Council (“the authority”), carrying out its duties as a territorial authority or building consent authority.
- 1.3 The determination arises from a difference in views between the authority and the designer about whether the proposed carpet flooring to a laundry space within an attached garage complies with the Building Code (First Schedule, Building Regulations 1992).
- 1.4 The matter for determination² is therefore whether the proposed carpet flooring to a laundry space within a garage, complies with Clause E3 Internal moisture of the Building Code³.
- 1.5 In making my decision, I have considered the submissions of the parties and the other evidence in this matter. I have not considered compliance of the proposed building work with any other aspects of the Act or other clauses of the Building Code.
- 1.6 The relevant sections of the Act and clauses of the Building Code referred to in this determination are set out in Appendix A.

¹ The Building Act, Building Code, compliance documents, past determinations and guidance documents issued by the Ministry are all available at www.building.govt.nz or by contacting the Ministry on 0800 242 243.

² Under section 177(1)(a) of the Act.

³ Unless otherwise stated, references to sections are to sections of the Act and references to Clauses are to Clauses of the Building Code.

2. The proposed building work

2.1 The building consent application is to construct ten buildings:

- six buildings where each building is made up of three attached side-by-side units
- four buildings where each building is made up of two attached side-by-side units.

The buildings are single story, and generally constructed of light timber framing with concrete slab foundations.

2.2 Each unit has an attached garage that incorporates a laundry space, and the proposal is to carpet the whole of the garage and laundry area. The carpet specified in the consent documents (“the carpet”) is a polypropylene fibre with a total height of 7mm, glued with a solvent based adhesive directly onto a conventional concrete slab foundation. The carpet is not impervious and will permit the passage of moisture. The carpet supplier’s cleaning procedures are;

‘Normal cleaning for a laundry installation is via vacuum cleaning with spot cleaning with warm water as required... and any residual soiling can removed with water mixed with a neutral detergent. Commercial hot water extraction systems can be used as and when required.’

‘...once damp [moisture] can easily [be] removed with the use of a wet and dry vacuum cleaner. Following the removal of the moisture normal air flow will dry any residual moisture. This is normal in garages, decks, boats etc.’

2.3 This determination concerns the compliance of the laundry area with the proposed carpet. The laundry space includes a freestanding laundry tub, washing machine and dryer (refer Figure 1).

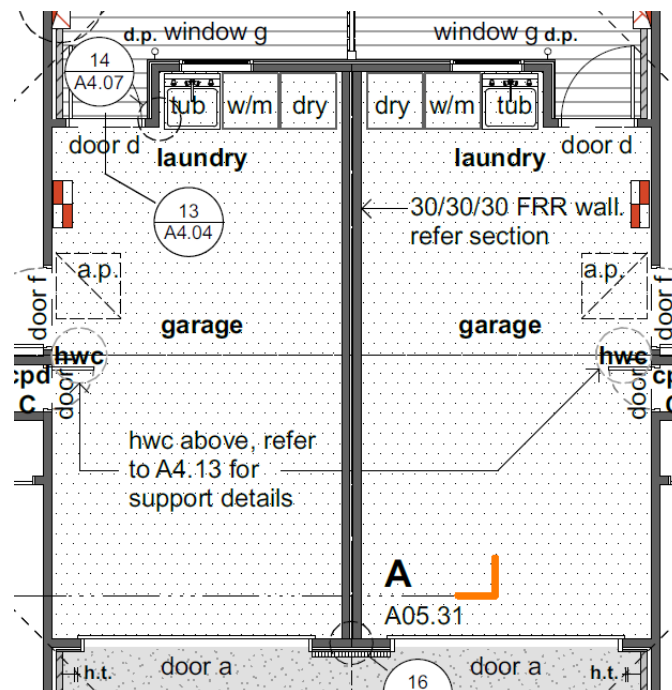


Figure 1: Floor plans (not to scale)

3. The background

3.1 Sometime in 2018 the designer applied for a building consent.

3.2 During the processing of the building consent application, in a letter dated 21 June 2018, the authority, among other things, requested further information regarding the carpet:

'Garage carpet is an unsuitable flooring material for the laundry area, as it is not easily cleaned. Please show an impervious and easily cleanable flooring to the laundry area.'

3.3 Subsequent discussions between the authority and the designer occurred regarding the matter; however no written or formal response to the authority's request for information was received by the authority.

3.4 The building consent application was subsequently amended to remove the carpet from the laundry and garage, and the authority issued the building consent.

3.5 An application for a determination was received by the Ministry on 17 July 2018.

4. The submissions and the draft determination

4.1 The initial submissions

4.1.1 The designer included a submission in support of the application for determination that stated (in summary):

- The same proposal has previously been granted building consent by this authority and other building consent authorities, but is now being refused by the authority and another building consent authority.
- Although there is a high chance of watersplash from the laundry tub, the carpet is 'non-absorbent' and moisture will dry quickly by evaporation into the large combined laundry and garage space. The proposal therefore complies with Clause E3.1.
- The carpet is designed for garages (i.e. subject to vehicle traffic) and the manufacturer also approves for use outdoors and on boats. There is no increased likelihood of fungal growth or the accumulation of contaminants as the carpet is designed to get wet and is easily cleaned. The proposal therefore complies with Clause E3.2(a).
- The garage/laundry space would be compliant with no covering (i.e. exposed concrete) and the addition of a non-absorbent and 'easily removable' floor lining should not reduce compliance.
- There is no additional risk of overflow penetrating adjacent household units, and therefore the proposal complies with Clause E3.2(b).
- The carpet is more likely to become wet from a vehicle than splash from a laundry tub, therefore there is no additional risk of damage to building elements caused by the presence of moisture, and the proposal complies with Clause E3.2(c).
- The Acceptable Solution for Clause E3 (E3/AS1 Internal moisture) allows carpet in bathrooms, which in the designer's view, is 'much less appropriate than garage carpet in a laundry'.

4.1.2 With the application, the designer provided copies of:

- the request for further information from the authority, dated 21 June 2018
- the carpet supplier's technical information

- a specification document for the proposed buildings
- architectural plans of the proposed buildings
- architectural plans stamped as approved and dated 11 November 2017
- photo of a previously completed carpeted garage/laundry.

4.1.3 The authority made a submission in response to the application for determination dated 31 July 2018 that stated (in summary):

- The carpet is a lining, which is not easily cleaned and does not prevent watersplash from penetrating behind the floor lining. The space is used for a laundry and is an area for sanitation and the removal of contaminants is required.
- While the plastic fibre material that the carpet is made of is impervious and will not absorb moisture, the carpet [as a whole] is not impervious nor easily cleaned.
- The use of carpet in a laundry does not avoid the likelihood of fungal growth or the accumulation of contaminants. The presence of carpet will potentially restrict drying and the passage of air over the floor, allowing concealed fungal growth to occur.
- The Acceptable Solution [E3/AS1] is ‘too vague’ with regard to carpet in areas subject to watersplash. Reliance on the commentary within the Acceptable Solution is not a robust method for establishing compliance.
- The comment associated with E3/AS1 paragraph 3.1.1⁴ contradicts the Building Code as water could penetrate behind the floor lining.

4.1.4 On 18 September 2018 I requested further information about; whether the carpet is impervious, what cleaning procedures are required, the finish of the concrete slab, and the installation/construction details of the carpet.

4.1.5 The designer responded on 21 September 2018, with the following statements (in summary) and information;

- The carpet is not impervious. While the carpet allows the passage of moisture, the carpet [fibres] do not absorb water and can be easily cleaned and dried in the ‘unlikely/infrequent event of watersplash’.
- The concrete slab foundation is ‘conventional concrete’, which ‘complies with E3/AS1 without the need for additives or coatings’.
- ‘Laundry fixtures are not strictly sanitary fixtures’ and that watersplash from them does not pose a greater risk of infection than a car driving on the carpet. There is no greater risk of water penetrating behind linings or into concealed spaces than a compliant concrete floor.
- The carpet supplier’s normal cleaning procedures for a laundry are: vacuum cleaning, with stains and soiling to be spot cleaned with warm water and neutral detergent. Moisture can be removed with the use of a wet and dry vacuum cleaner (air flow will dry any residual moisture).

⁴ See Appendix 3 for comment to E3/AS1 paragraph 3.1.1

- The carpet can be installed as a single piece of carpet with no joins. The carpet is glued to the concrete slab with an adhesive that is suitable for an outdoor use, and which is resistant to moisture.

4.2 Draft determination

- 4.2.1 A draft determination was sent to the parties for comment on 31 January 2019.
- 4.2.2 The designer responded on 1 February 2019 accepting the draft determination without comment.
- 4.2.3 The authority responded on 5 February 2019 accepting the draft determination without comment.

5. Discussion

- 5.1 The matter is limited to the proposed carpet flooring to a laundry space within a garage. I have not considered any other linings or areas, including wall linings, as part of this determination.
- 5.2 I note compliance with E3.3.2 is not disputed by the parties and therefore is not discussed in this determination. However, I note the proposed architectural plans do not show a means of preventing free water from accidental overflow penetrating adjoining household units. I leave this to the parties to address.

5.3 Legislation

- 5.3.1 As the matter is limited to the compliance of carpet in a laundry space the relevant clause of the Building Code is Clause E3 Internal moisture.
- 5.3.2 The relevant Functional requirements of Clause E3 are provided in Clauses E3.2(a) and E3.2(c):
- Buildings* must be constructed to avoid the likelihood of–
- (a) Fungal growth or the accumulation of *contaminants* on linings and other *building elements*; and
- ...
- (c) Damage to *building elements* being caused by the presence of moisture.
- 5.3.3 The relevant Performance requirements of Clause E3 are provided in Clauses E3.3.3, E3.3.5 and E3.3.6:
- E3.3.3** Floor surfaces of any space containing *sanitary fixtures* or *sanitary appliances* must be *impervious* and easily cleaned.
- E3.3.5** Surfaces of *building elements* likely to be splashed or become contaminated in the course of the *intended use* of the building, must be *impervious* and easily cleaned.
- E3.3.6** Surfaces of *building elements* likely to be splashed must be constructed in a way that prevents water splash from penetrating behind linings or into *concealed spaces*.
- 5.3.4 I consider E3.3.3, E3.3.5 and E3.3.6 to be relevant clauses in this case despite Clause E3.3.3 specifically providing for the performance of floor surfaces. The requirements of Clauses E3.3.3 and E3.3.5, share the performance requirements of ‘impervious and easily cleaned’, and cover the location of surfaces in proximity to sanitary fixtures and appliances, as well as giving consideration to the likelihood of splash or contamination in the course of the intended use of the building. The intended use of

the space is a laundry, where I consider it likely dirty or soiled laundry and splash from dirty or soiled laundry water will provide sources of contaminants and support fungal growth. Clause E3.3.6 requires the consideration of the construction of surfaces and linings together as an assembly to prevent the penetration of moisture behind linings or into concealed spaces.

- 5.3.5 In order to satisfy the functional requirement to ‘avoid the likelihood of fungal growth, the accumulation of contaminants and damage to building elements’ Clauses E3.3.3, E3.3.5 and E3.3.6 require that surfaces shall be impervious, easily cleaned, and constructed in a way that prevents water splash penetrating behind linings or into concealed spaces.
- 5.3.6 Clause E3.3.3 concerns sanitary fixtures or sanitary appliances. In this case of the laundering facilities provided in these buildings (see paragraph 2.3), I consider the laundry tub is a sanitary fixture and the washing machine is a sanitary appliance.
- 5.3.7 The relevant performance requirements concern floor ‘surfaces’, and surfaces to be constructed to prevent water splash penetrating behind ‘linings’. The Building Code does not define ‘surface’ or ‘lining’. I take the natural and ordinary meaning of ‘surface’ as the outermost part of any material object, and I take ‘lining’ in relation to building elements to mean a covering to a building element.
- 5.3.8 For the purposes of this determination, I take the view the provisions of Clause E3 which relate to ‘surfaces’ and ‘linings’ as follows:
- ‘linings’ cover a building element
 - ‘surfaces’ are a finish to a lining or building element.
- 5.3.9 In this case I consider the carpet to be both a lining and a surface; there is no finish to the carpet, and there is also no intrinsic property of the carpet that is different from the rest of the carpet to delineate a surface or the ‘outermost part’ from the rest of the carpet.
- 5.3.10 In my opinion, the aspects of the proposed design that need to be considered in order to assess compliance with Clauses E3.3.3, E3.3.5 and E3.3.6, and avoid the likelihood of fungal growth, the accumulation of contaminants and damage to building elements, is whether the carpet is:
- impervious
 - easily cleaned
 - constructed in a way that prevents water splash penetrating behind the carpet as a lining or into concealed spaces.

5.4 Impervious

- 5.4.1 Clauses E3.3.3 and E3.3.5 require surfaces to be impervious. The term ‘impervious’ is defined by Clause A2 Interpretation as ‘that which does not allow the passage of moisture’.
- 5.4.2 The designer has confirmed (see paragraph 4.1.5) that the carpet is not impervious, and will allow the passage of moisture through the carpet.
- 5.4.3 Despite the designer’s confirmation that the carpet is not impervious, the designer and the authority agree the polypropylene fibre [my emphasis] of the carpet will not ‘accumulate’ or ‘absorb’ moisture. I consider that the accumulation or absorption of moisture within a material is a different performance measure to the passage of

moisture, and a material which does not accumulate moisture within its fibre may still permit the passage of moisture through the lining. Therefore I do not consider this on its own to be a mitigating factor in considering whether the carpet complies with the ‘impervious’ performance requirement of Clauses E3.3.3 and E3.3.5.

- 5.4.4 As the designer has confirmed (see paragraph 4.1.5) that the carpet is not impervious, and will allow the passage of moisture through the carpet, I am satisfied the proposed carpet flooring to a laundry space within a garage does not comply with the ‘impervious’ performance requirement of Clauses E3.3.3 and E3.3.5.

5.5 Easily cleaned

- 5.5.1 Clauses E3.3.3 and E3.3.5 provide for surfaces to not only be impervious, but also ‘easily cleaned’. The Building Code does not define ‘easily cleaned’. In previous determinations⁵ I have noted functional requirements assist in the interpretation of the performance criteria. In this case the relevant functional requirement Clause E3.2(a) requires buildings to be constructed to avoid the likelihood of fungal growth or the accumulation of contaminants on linings and other building elements. Accordingly I consider ‘easily cleaned’ to be the ability to remove contamination with little exertion and without the need for specialist equipment.
- 5.5.2 The designer is of the view the carpet is easily cleaned, and has outlined (see paragraph 2.2) the carpet supplier’s cleaning procedures as: vacuuming, spot cleaning with warm water and detergent for soiling, and the use of a wet and dry vacuum to remove moisture (noting that air flow will dry any residual moisture).
- 5.5.3 The authority submits the carpet is not easily cleaned and is concerned ‘the presence of carpet will potentially restrict the drying and the passage of airflow over the [concrete slab foundations], allowing concealed fungal growth to occur’.
- 5.5.4 The Ministry’s document, Acceptable Solution E3/AS1 Internal moisture paragraph 3.1.1⁶, provides for some floor linings and finishes that satisfy the performance requirement to be impervious and easily cleaned. Examples of compliant linings include polyvinylchloride sheets with sealed joints, timber based products with waterproof coatings or concrete with a steel trowel or polished finish, but do not include carpet.
- 5.5.5 The linings and finishes listed in E3/AS1, which are ‘deemed-to-comply’ with the Building Code, share common characteristics such as being solid, dense, flush, smooth, uniform and specified with waterproof coatings. I am of the view it would take little exertion or equipment to remove contaminants from such linings and finishes. Conversely, the proposed carpet is soft, textured and uneven which provides a structure for contaminants to become trapped in. I am of the opinion an increased amount of effort is required to remove trapped contaminants from a textured surface such as the carpet. I am also of the view an increased effort correlates with an increased likelihood of that not all contaminants are removed by cleaning, which then increases the likelihood of contaminants accumulating over time in the carpet, which is contrary which is contrary to one of the functional requirements of Clause E3.
- 5.5.6 I note the carpet is designed for outdoor and marine use (i.e. subject to wetting and outdoor contaminants), is a polypropylene material and has a short fibre/pile. I consider these characteristics are likely to contribute to the sturdiness of the carpet

⁵ See, for example, Determination 2012/061 Regarding the compliance of door handles installed in school classrooms (24 September 2012)

⁶ It is important to note an Acceptable Solution is only one way of establishing compliance with the Building Code.

itself to withstand a laundry environment, however, these characteristics do not necessarily contribute to the avoidance of fungal growth or the accumulation of contaminants on linings and other building elements.

- 5.5.7 In this case, I would expect the carpet would retain more contaminants and remain wet for longer periods of time (particularly given the carpet is not impervious, refer paragraph 5.4.2) than those surfaces that are solid, flush, smooth and uniform, which do not trap contaminants and have some form of waterproof coating to prevent retaining moisture. I also consider the reliance on a wet and dry vacuum to be specialist equipment as an average household would not have one.
- 5.5.8 The designer has submitted that the carpet is an “easily removable” lining (see paragraph 4.1.1). I note the carpet is to be glued to the substrate concrete slab (see paragraph 4.1.5), which would make it difficult to remove or replace. This installation method will also reduce the ability to inspect the concrete slab foundation for fungal growth and contaminants beneath the carpet, or inspect building elements for damage.
- 5.5.9 Considering paragraphs 5.5.1 to 5.5.8, I am satisfied the proposed carpet flooring to the laundry space within an attached garage does not comply with the ‘easily cleaned’ performance requirement of Clauses E3.3.3 and E3.3.5.

5.6 Water splash penetration behind linings or into concealed spaces

- 5.6.1 Clause E3.3.6 provides for surfaces of building elements likely to be splashed to be constructed in a way that prevents water splash from penetrating behind ‘linings’ or into ‘concealed spaces’.
- 5.6.2 Clause E3.3.6 recognises some surfaces and linings are not continuous, so the performance requirement provides for the construction of surface and lining joints and junctions. I take the view the performance requirements of Clause E3.3.6 are to be considered in conjunction with Clauses E3.3.3 and E3.3.5. Clauses E3.3.3 and E3.3.5 require surfaces and linings (as separate parts) to be impervious (i.e. not allowing the passage of moisture) and Clause E3.3.6 intends to cover the construction of surfaces and linings together as an assembly of separate parts that are individually impervious, and jointed together to prevent water splash penetrating behind linings or into concealed spaces via the construction joints. For example, polyvinylchloride sheets are individually impervious (satisfying Clauses E3.3.3 and E3.3.5) and when constructed together with sealed joints, prevent water splash penetrating the construction behind linings and into concealed spaces (satisfying Clause E3.3.6). I take the view Clauses E3.3.3, E3.3.5 and E3.3.6 provide for the construction and assembly of impervious surfaces and linings together to prevent the penetration of water splash behind linings and into concealed spaces.
- 5.6.3 In previous determinations⁷ I have noted functional requirements assist in the interpretation of the performance criteria. Clause E3.3.6 provides for the construction and assembly of surfaces and linings together to prevent the penetration of water splash behind linings and into concealed spaces, and the relevant functional requirement Clause E3.2(a) requires buildings to be constructed to avoid the likelihood of fungal growth or the accumulation of contaminants on linings and other building elements. I therefore consider one of the objectives of Clause E3.3.6 is to avoid the likelihood of fungal growth or the accumulation of contaminants on linings

⁷ See, for example, Determination 2012/061 Regarding the compliance of door handles installed in school classrooms (24 September 2012)

and other building elements by requiring the prevention of the penetration of water splash behind linings and into concealed spaces.

- 5.6.4 The designer has stated the carpet is to be installed ‘as a single piece of carpet with no joins’ (see paragraph 4.1.5). However, the carpet is not an impervious surface or lining (see paragraph 4.1.5), so it allows water splash to penetrate behind the lining and into concealed space, which in this case is the area beneath the carpet (or the area between the carpet and the concrete slab). I consider, once moisture has passed through the carpet, the presence of the carpet will prevent any drying of the area beneath the carpet (or the area between the concrete slab and the carpet).
- 5.6.5 Taking account of paragraphs 5.6.2 to 5.6.4 I am satisfied the proposed carpet flooring to a laundry space within a garage does not comply with Clause E3.3.6.

5.7 Comment to Acceptable Solution E3/AS1

- 5.7.1 The designer has submitted the ‘Acceptable Solution E3/AS1 currently allows residential carpet in bathrooms, which [is] much less appropriate than garage carpet in a laundry’.
- 5.7.2 Acceptable Solution E3/AS1 paragraph 3.1.1⁸ provides deemed-to-comply solutions for floor linings in areas exposed to watersplash. Examples of compliant linings include polyvinylchloride sheets with sealed joints, timber-based products with waterproof coatings, or concrete with a steel trowel or polished finish.
- 5.7.3 E3/AS1 paragraph 3.1.1 is followed by the comment;
- In domestic situations where the bathroom is used mainly by adults, carpet may be acceptable provided it is laid over an *impervious* surface. In these circumstances a particleboard floor finished with three coats of polyurethane would be considered *impervious*.
- 5.7.4 The designer has submitted (see paragraph 4.1.5) that the concrete slab foundation satisfies the requirements of Acceptable Solution E3/AS1 paragraph 3.1.1 as a deemed-to-comply solution. I accept that this is the case, and moisture is therefore unlikely to cause damage to the slab, but the carpet installed over the slab will prevent drying and will hold moisture against the slab, creating conditions for fungal growth to occur.
- 5.7.5 The authority submits the comment to E3/AS1 paragraph 3.1.1 ‘contradicts the Building Code’ because ‘water can penetrate behind the lining [carpet]’. I take the authority’s submission to mean that the proposal contradicts the ‘impervious’ performance requirement of Clauses E3.3.3 and E3.3.5.
- 5.7.6 The comment allows for carpet flooring as a lining over the top of a deemed-to-comply solution offered in E3/AS1 paragraph 3.1.1, however, is limited to a particular set of circumstances. The comment does not describe the carpet as the impervious surface or intend that the carpet will prevent the penetration of water splash. Further, the comment describes a different intended use of a bathroom, which I consider to result in a different ‘splash or contamination’ in the course of the intended use. With this in mind, the proposed installation of carpet in the laundry in this case is not equivalent to the situation described in the comment.

⁸ Refer to Appendix A3

6. Conclusion

- 6.1.1 Taking into account the evidence and reasoning outlined above, I conclude that the proposal to install carpet flooring to a laundry space which is part of an attached garage does not comply with Clauses E3.3.3, E3.3.5 and E3.3.6.

7. The decision

- 7.1 In accordance with section 188 of the Building Act 2004, I hereby determine the proposed carpet flooring to a laundry space within an attached garage, does not comply with Clause E3 Internal moisture of the Building Code.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 26 March 2019.

Katie Gordon
Manager Determinations

Appendix A

A.1 The relevant sections of the Act:

17 All building work must comply with building code

All building work must comply with the building code to the extent required by this Act, whether or not a building consent is required in respect of that building work.

19 How compliance with building code is established

(1) A building consent authority must accept any or all of the following as establishing compliance with the building code:

....

(a) compliance with an acceptable solution:

A.2 Relevant provisions of the Building Code include:

Clause A2—Interpretation

Building element any structural or non-structural component and assembly incorporated into or associated with a *building*. Included are *fixtures*, *services*, *drains*, permanent mechanical installations for access, glazing, partitions, ceilings and temporary supports

Contaminant has the meaning ascribed to it by the Resource Management Act 1991

Impervious that which does not allow the passage of moisture

Sanitary appliance an appliance which is intended to be used for *sanitation*, but which is not a *sanitary fixture*. Included are machines for washing dishes and clothes

Sanitary fixture any *fixture* which is intended to be used for *sanitation*

Sanitation the term used to describe the activities of washing and/or excretion carried out in a manner or condition such that the effect on health is minimised, with regard to dirt and infection

Clause E3 – Internal moisture

OBJECTIVE

E3.1 The objective of this provision is to—

(a) Safeguard people against illness, injury, or loss of *amenity* that could result from the accumulation of internal moisture; and

....

FUNCTIONAL REQUIREMENT

E3.2 *Buildings* must be constructed to avoid the likelihood of—

(a) Fungal growth or the accumulation of *contaminants* on linings and other *building elements*; and

...

(c) Damage to *building elements* being caused by the presence of moisture.

PERFORMANCE

E3.3.3 Floor surfaces of any space containing *sanitary fixtures* or *sanitary appliances* must be *impervious* and easily cleaned

E3.3.5 Surfaces of *building elements* likely to be splashed or become contaminated in the course of the *intended use* of the building, must be *impervious* and easily cleaned.

E3.3.6 Surfaces of *building elements* likely to be splashed must be constructed in a way that prevents water splash from penetrating behind linings or into *concealed spaces*⁹.

A.3 Relevant paragraphs of Acceptable Solution E3/AS1 include:

3.0 Watersplash

3.1 Lining materials

3.1.1 Floors

The following linings and finishes to floors satisfy the performance for *impervious* and easily cleaned surfaces in areas exposed to watersplash:

- a) Integrally waterproof sheet material (e.g. polyvinylchloride) with sealed joints.
- b) Ceramic or stone tiles having 6% maximum water absorption, waterproof grouted joints, and bedded with an adhesive specified by the tile manufacturer as being suitable for the tiles, substrate material and the environment of use.
- c) Cement based solid plaster or concrete having a steel trowel or polished finish, (semi-gloss or gloss paint must be used if a paint finish is required).
- d) Cork tile or sheet sealed with waterproof applied coatings and with sealed joints.
- e) Monolithic applied coatings having a polished non-absorbent finish (e.g. terrazzo).
- f) A timber or timber based product such as particleboard sealed with waterproof applied coatings.

COMMENT:

In domestic situations where the bathroom is used mainly by adults, carpet may be acceptable provided it is laid over an *impervious* surface. In these circumstances a particleboard floor finished with three coats of polyurethane would be considered *impervious*.

⁹ The definition of 'concealed spaces' was revoked in 2012