MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HIKINA WHAKATUTUKI

Determination 2017/075

Regarding the code-compliance of decks to a house at 9 Adamson Road, Taipa

Summary

This determination considers the compliance of a deck to wall junction with minimal or no gap. The determination discusses the weathertightness risk and whether the cladding is likely to be subject to solar-driven moisture from the deck, and the variation from the building consent.

1. The matters to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004[1] ("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 the determination are:

- the owner of the building, M Braughton ("the applicant") acting via an agent ("the designer")
- Far North District Council ("the authority"), carrying out its duties as a territorial authority or building consent authority.

1.3 This determination arises from the decision of the authority to require changes to be made to a deck in order to comply with the building consent documents and with certain clauses[2] of the Building Code (First Schedule, Building Regulations 1992). The authority is of the view that the deck-to-wall junctions as constructed do not comply with Clauses B2 and E2 of the Building Code.

[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] In this determination, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

1.4 The matter to be determined[3] is therefore whether the deck to wall junctions as constructed to the upper level of the house ("the deck junctions") comply with Clause E2 External moisture and Clause B2 Durability of the Building Code. The deck junctions include the components of the systems (such as the deck tiles, the substrate, the membrane, and the wall cladding) as well as the way components have been installed and work together.

1.5 The application for this determination was restricted to the compliance of the deck junctions. The authority has noted that it is not concerned about gaps provided against the board and batten cladding; this determination is therefore limited to the junctions of the upper level deck tiles with the adjacent plastered cladding.

1.6 In making my decision, I have considered the submissions of the parties, the report of the expert commissioned by the Ministry to advise on this dispute ("the expert") and the other evidence in this matter. The decisions under section 184 of the Act to make this determination and under section 187 to engage a person to assist were made by the previous Manager Determinations.

2. The building work and background

2.1 The building work consists of extensive alterations to a two-storey detached house on a level coastal site in a very high wind zone[4]. The house is L-shaped in plan and moderately complex in form, with a moderate to high weathertightness risk assessment.

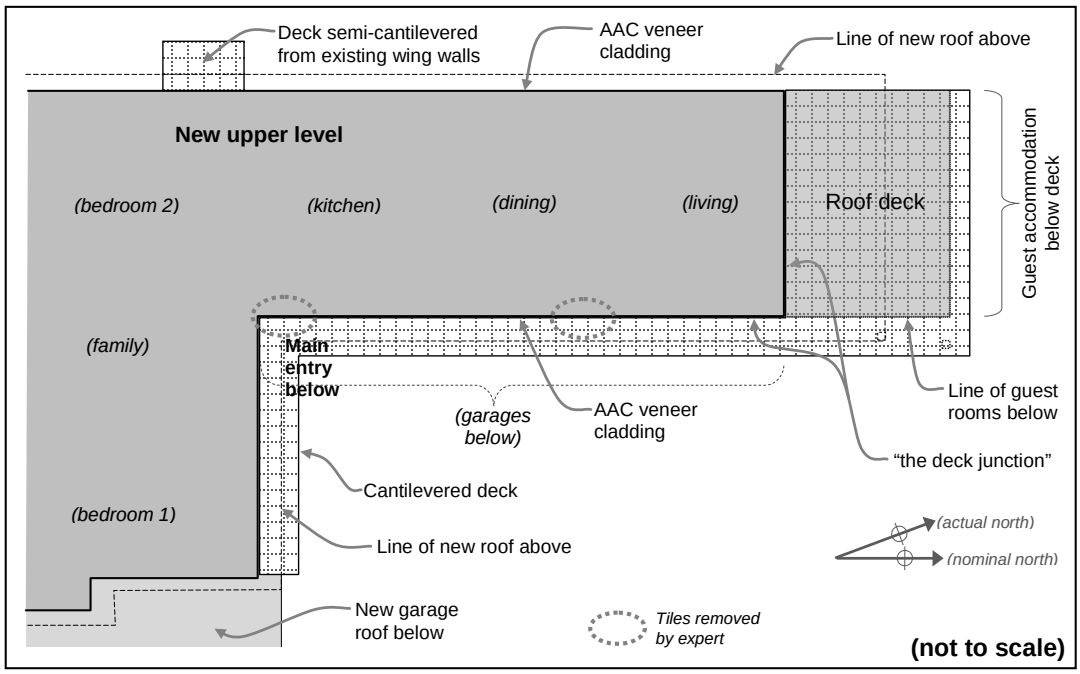
2.2 The original building was constructed as a motel and current owners have recently converted it into a single house. The building work included:

- alterations to the original ground floor level to provide:
  - a garage addition to the end of the east wing
  - the main entry foyer at the NE internal corner, linking via a laundry to a south addition that provides stair access to the upper level
  - a rumpus room in the SW corner and a gym to the east of the foyer
  - existing block walls opened to form a three-car garage in the north wing
  - the end of the north wing altered to provide self-contained guest accommodation
- demolition of the original first floor level and construction of a new upper level to provide:
  - kitchen, dining and living areas in the north wing
  - a roof deck above the guest rooms, with the deck extended along the east and north of the L-shape
  - family room at the northeast internal corner of the L-shape
  - master bedroom, ensuite and walk-in wardrobes to the east
  - bedroom 2 and ensuite in the southwest corner.

[3] Under section 177(1)(a) of the Act
[4] As defined in New Zealand Standard NZS 3604:1999 Timber Framed Buildings

2.3 The subject tiled deck shown in Figure 1:

Figure 1: Approximate deck plan



2.4 Construction is a mix of specifically engineered steel portals and beams, with conventional light timber frame elsewhere. Most original ground floor concrete block walls were retained, and new concrete block and timber framed walls were constructed to provide the altered ground floor plan. The new upper level has timber framed walls, monolithic wall claddings, aluminium windows, monopitched profiled metal roofing and attached tiled decks with glazed balustrades.

2.5 The wall claddings

2.5.1 The primary wall cladding to the upper level is a proprietary monolithic cladding system, with 50mm thick autoclaved aerated concrete ("AAC") panels finished with a proprietary mesh-reinforced plaster system. Panels are fixed through high density polystyrene ("EPS") battens and the building wrap to the timber framing, with the EPS battens providing a 20mm drained cavity behind the AAC panels.

2.5.2 The BRANZ appraisal for the cladding system[5] includes the following (in summary):

- the manufacturer's installation details do not include a deck junction, but do show drainage gaps at the base of the cladding.
- base coats to AAC to be polymer-modified cement-based plaster, with fibreglass mesh reinforcement between the two coats and a top coat of polymer modified cement-based finishing plaster
- the cladding system 'is not a barrier to the passage of water vapour' and 'will not create or increase the risk of damage resulting from condensation'
- the cladding system will allow excess construction moisture on completion to be dissipated without permanent damage to building elements.

[5] BRANZ Appraisal No.649[2009]

2.5.3 In the lower level, original and new concrete block walls are plastered to match the AAC veneer installed to timber framing around garage doors, deck downpipes and timber framed walls to the north guest rooms. Some minor areas of timber framing not adjoining deck junctions are clad in vertical board and batten.

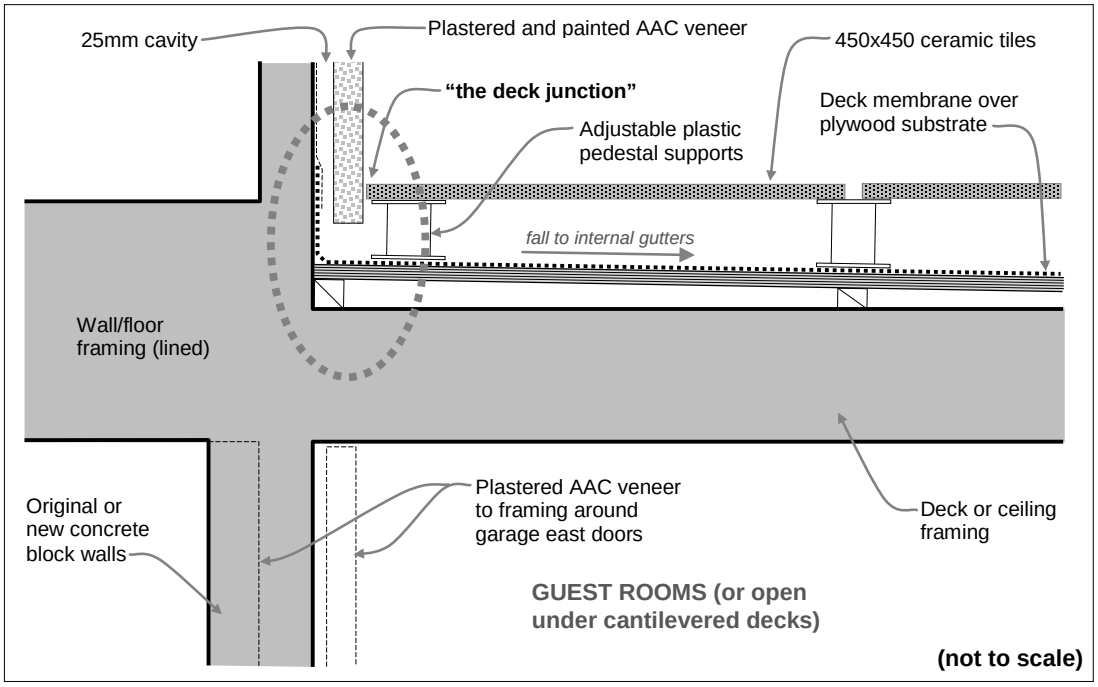
2.6 The upper level deck

2.6.1 The upper level deck consists of a north roof deck which extends as a cantilever above the garage doors and along the north face of the east wing as shown in Figure 1.

2.6.2 The deck framing is overlaid with a 19mm thick plywood substrate set at 110mm minimum below the interior floor level. A double-layer torch-on waterproof deck membrane system is applied to the plywood substrate and drains into internal gutters, with AAC-clad framing around the deck downpipes. The deck tiles have been installed over adjustable pedestal deck supports. The expert identified the 450 x 450mm deck tiles as non-absorbent porcelain[6] tiles.

2.6.3 The deck to wall cladding junction as constructed is shown in Figure 2. Although the designer maintained that spacers provide a 5 to 7mm gap at the junction, the expert observed no gap on the east elevation and a small gap on the north elevation. At the glazed doors a 50 x 20mm aluminium angle is installed at the threshold, with the 20mm leg overlapping the edge of the deck tile.

Figure 2: As-built deck to cladding junction



[6] The manufacturer identifies the absorption as less than or equal to 0.5%.

2.7 The authority issued building consent no. ABA 2015-969 for the alterations to the applicant in 2015. I have seen no records of inspections carried out during construction, but the work appears to have been carried out in 2016 and 2017.

2.8 Following a final inspection on 12 May 2017, the authority emailed the designer on 12 July 2017 stating:

> Further to a peer review of the above Building Consent, [the authority] requires a minimum 12mm gap between all deck tiles to wall cladding/door sills to the top and ground floors.
>
> Please refer to details on the approved plans, also to NZBC E2/AS1, pages 54 & 55 for further guidance. (these are the minimum requirements under the Building Code)

2.9 The Ministry received an application for a determination on 21 July 2017 and sought additional information from the authority in regard to the specific deck areas in dispute – which was received on 28 July 2017.

3. The submissions

3.1 The initial submissions

3.1.1 The designer provided a brief outline of the background to the current situation and described the upper deck tile installation, noting that each tile has a 3mm gap around it and an aluminium angle is installed at each door sill, which:

> ...is drilled with 12mm diameter holes and has a 2mm gap at the bottom. It has been tested with a high pressure hose and doesn't fill up with water.

3.1.2 The designer provided copies of:

- the authority's email dated 12 July 2017
- expanded details of the deck junctions
- the consent plans and elevations
- photographs of various deck junctions.

3.1.3 In a letter to the Ministry dated 28 July 2017 the authority noted that its recent inspection had revealed that deck tiles to the upper level of the house had been installed 'against the exterior wall cladding'. The authority stated that it 'is not concerned with the ground floor deck tiles' next to the exterior board and batten cladding. The authority noted that E2/AS1 and the consent drawings show a 12mm minimum gap at deck tiles/wall cladding junctions and the authority had therefore:

> ...asked for the deck tiles next to the building exterior cladding to be cut to provide a 12mm gap as per the building consent plans. To provide a 12mm space between deck tile and exterior building wall.

3.2 The draft determination and further submissions

3.2.1 A draft determination was issued to the parties for comment on 15 September 2017. The applicant accepted the draft without comment on 25 September 2017.

3.2.2 The authority did not accept the draft determination and provided comment on the expert's report and the draft determination together. Under cover of an email to the Ministry dated 27 September 2017, the authority forwarded an undated submission, and an annotated copy of the draft determination. I have summarised the authority's submission in the following paragraphs.

3.2.3 The authority did not accept the expert's findings and considered the report was 'cursory and does not provide a constructed reason for its opinion' and should not be relied on for the purpose of the determination.

3.2.4 Comment against specific items in the authority's submission is detailed in the following table; along with the expert's response to the authority's comments.

Table 1: Authority's comments on expert's report

Item	The authority's comments	The expert's response
(i)	Quality and porosity of AAC coating has not been considered	Drawings call for AAC veneer to have plaster/ paint finish as per manufacturer's specifications – a cement plaster coating applied over a proprietary resin sealer with an acrylic or latex paint coating. Assuming this was installed as specified, the finished cladding provides robust weatherproofing.
(ii)	The expert has not determined the type of tiles to support his opinion that they are non-absorbent. Tiles unlikely to be non-absorbent, with expected absorption rates of 0.5% to 3%.	Deck tiles were checked and were marked on the underside. According to the manufacturer's website the tiles are porcelain with an absorption of less than or equal to 0.5%. Tiles can therefore reasonably be described as non-absorbent.
(iii)	Tiles in contact with cladding will hold water due to surface tension and set up conditions that would support capillary movement	The report addresses this[7] - the coating system would have to be damaged or deteriorated before a significant volume of water could reach the AAC core material.
(iv)	Water held between tiles has the capacity to permeate into the cladding and in inclement weather water will accumulate with time	The volume of water which can be absorbed by porcelain tiles is insignificant in view of their very low absorbency.
(v)	The deck is exposed to the easterly wind, which is more severe than the prevailing wind, with heavier more persistent rain. "The rainfall intensities are in excess of 140mm as detailed in [Appendix A to E1/AS1]"	The probability of rainfall in excess of 140mm for a 10-minute duration is relevant for the collection of rainwater. The risk for the deck is from long-term exposure, not a 10-minute downpour.
(vi)	The junction is susceptible to solar driven moisture and the cladding is not resistant to water vapour. Solar driven moisture vapour will accumulate over time and condense on the back of internal linings – saturating insulation over time.	Solar driven moisture occurs in absorbent claddings such as bricks, which can hold rainwater which can be transferred inward by solar effects before it dries out. However, the AAC cladding is plastered, painted white, and is separated from the framing by non-absorbent cavity battens and building wrap.
(vii)	The report does not recognise that the eastern wall is exposed and has little protection.	The report notes that the east elevation is sheltered from the prevailing southwest winds.
(viii)	The report has not considered the code requirement to make due allowance for the consequence of failure in regard to risks associated with the variation from the approved plans and the tiles in contact with the cladding.	The absence of a 12mm gap does not result in any change to the consequences of failure.
(ix)	The tiles may displace due to mechanical and thermal movements, so relying on the open joints for drainage is not a substitute for the application of sound weathertightness principles.	The omission of the 12mm gap is not good practice and is not condoned. However, in this case that omission is not expected to result in failure to comply with the Building Code.

[7] Paragraphs 6.2.7 and 6.2.8 of the expert's report

3.2.5 The authority made the following comments in respect of the draft determination (in summary):

- The authority had requested 'remedial action' to bring the building work into compliance with the building consent. No formal refusal of the code compliance certificate has been made.
- The BRANZ Appraisal confirms the system is not resistant to water vapour and states that the cladding must be installed in accordance with the manufacturer's instructions; those instructions 'show a clear unobstructed surface to the discharge point at the base of the wall'.
- The details in E2/AS1 are minimum requirements and what was consented; no application to amend the tile/deck detail this has been received. The applicant was in breach of the Act.
- 'The provisions of the Acceptable Solution [E2/AS1] figure 17A should be confirmed by the Ministry, as appropriate, and the decision of the [authority] to insist on its formation … confirmed.' The determination's decision will set a precedent and would necessitate a change to Figure 17A in E2/AS1.
- Debris observed at the junction is a warning sign that water is being held between the tile and the cladding.
- The northeast quadrant provides the most severe exposure in the Northland region and the eave will only protect the upper wall. The wall will shed significant water over the tile/wall junction.

3.2.6 I have considered these responses and have amended the determination as I consider appropriate.

4. The expert's report

4.1 General

4.1.1 As mentioned in paragraph 1.6, I engaged an independent expert to assist me. The expert is a member of the New Zealand Institute of Architects and carried out a site visit on 1 September 2017. The expert's report was completed on 11 September 2017 and was forwarded to the parties on 12 September 2017.

4.1.2 The scope of the expert's assessment was the upper level deck junctions as installed for compliance with the relevant parts of Clauses E2 and B2 of the Building Code. The expert noted that his assessment was based on visual observation of features of the upper deck and wall cladding adjacent to the junctions and a review of submitted documents.

4.1.3 The expert noted that the AAC veneer cladding system is not covered by E2/AS1 and is therefore an alternative solution supported by the BRANZ Appraisal. The AAC manufacturer's details do not include a deck-to-cladding junction.

4.2 The deck junctions

4.2.1 The expert observed the 'construction, materials and finishes were generally of high standard'. The expert visually inspected the internal linings to the exterior walls adjacent to the deck, noting that these were 'free from mould, stains, swelling or other clear signs of moisture ingress', with non-invasive moisture readings 'uniform and low'.

4.2.2 The expert observed no gap at the east elevation deck junction and a small gap on the north elevation. The expert removed two deck tiles from the northeast internal corner of the deck (see Figure 1) to view the underlying construction, and noted:

- construction was as described in the drawings, with adjustable plastic pedestals supporting the ceramic tiles
- the underside of the tiles embossed with the proprietary name, and the product is specified by the tile manufacturer as porcelain with absorption of 0.5% or below
- the AAC panels are installed over a cavity, with:
  - drainage slots in the cavity base extrusion
  - the coating system applied to the base of the panels below the tile level
- a silicone spacer adhered to the tile edge at the junction of the north elevation, with a small accumulation of sand blown through the small gap
- a small accumulation of debris at the tile edges to the east elevation where tiles were butted against the cladding.

4.2.3 The expert also removed a tile at the threshold to the dining area sliding door, noting:

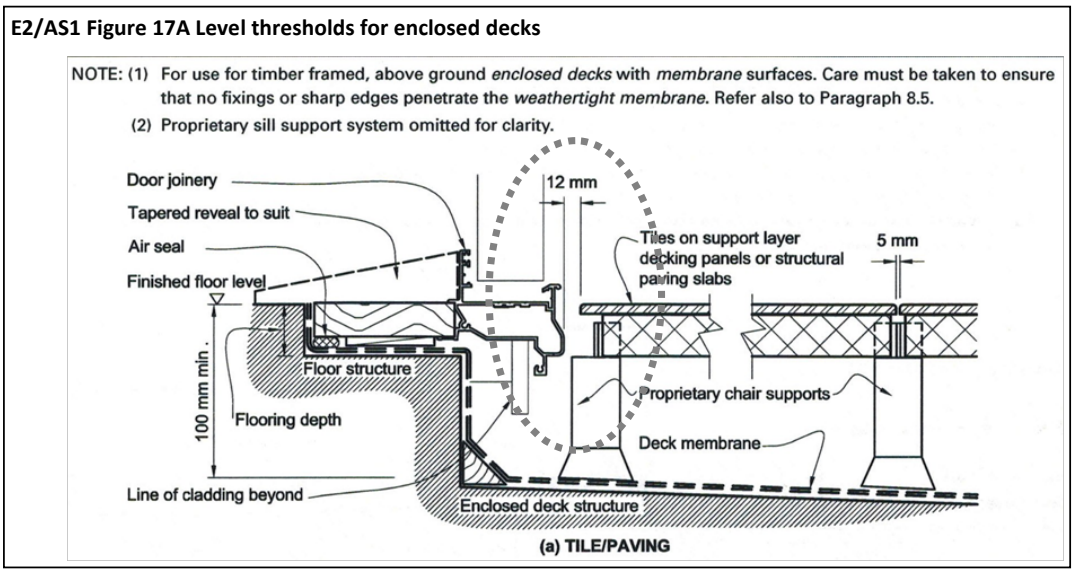
- an aluminium angle is fixed over the deck membrane upstand
- a 20mm leg of the angle overlaps the deck tile edge at the threshold.

4.3 Weathertightness assessment of the junctions

4.3.1 Because of the lack of manufacturer's details for this junction, the expert's assessment of the as-built deck junctions was based on a comparison with solutions shown in E2/AS1 – where the relevant references are:

> **7.3.1.1 Removable surfaces**
>
> Raised removable surfaces of tiles, pavers or timber shall be provided over the underlying weathertight enclosed deck surface for cleaning and maintenance, as shown in Figure 17A. A minimum gap of 12 mm shall be provided [emphasis added] against the wall or balustrade cladding.

Figure 3: The relevant threshold detail from E2/AS1



4.3.2 The expert noted that E2/AS1 provides one solution for deck junctions that incorporate materials ranging from absorbent to non-absorbent deck surfaces and from vulnerable to robust wall claddings.

4.3.3 The most vulnerable combination catered for by the Acceptable Solution would be an absorbent timber deck surface adjacent a vulnerable wall cladding such as fibre-cement sheets[8] fixed directly to the framing, where there may be long periods where decking is saturated and the lack of a gap could allow water to transfer from the wet timber through the absorbent cladding and into the framing.

4.3.4 Comparing the subject deck junctions with a vulnerable junction such as that described above, the expert noted that:

- the as-built tiled deck system includes the following protective features:
  - tiles are non-absorbent ceramic
  - tiles are small and flat enough not to allow water to pond
  - open joints allow water to drain between the tiles
  - the ability to disperse water onto the underlying membrane reduces potential moisture load at the deck-to-wall junctions
  - the junctions are only exposed to water for a short time – reducing the period for any potential wicking through the cladding material
- the AAC cladding system includes the following protective features:
  - a moisture-resistant multi-coat plaster system that extends down to the base of the AAC panels
  - the drained cavity and building wrap separate the timber framing from the ACC panels
  - high-density polystyrene cavity battens which have low absorption qualities
  - while able to absorb water, AAC is resistant to water damage
  - the 50mm AAC thickness can absorb and then disperse any minor amounts of moisture before it can reach the framing (the latter is more than 100mm above the level of the deck membrane)
- although exposed to north and east winds, the decks are sheltered from the prevailing southwest winds
- the tiles are easily removed for normal maintenance, including periodic painting and any repair.

4.3.5 Taking the above into account, the expert considered 'it is reasonable to conclude that there are sufficient barriers to water entry, and sufficient drainage of water away from the junction that the lack of a gap will not result' in a contravention of the performance requirement Clause E2.3.2 to prevent 'undue dampness or damage to building elements'.

4.3.6 The expert concluded that, given normal maintenance:

> The water proofing details of the cladding system itself are sufficiently robust, and the likelihood of ponding or retained water more than a film of water at the joint occurring at the junction of the tiles and the cladding is sufficiently low, that it can [be]

[8] Excluding flush-finished, which would require a drained cavity in order to comply with E2/AS1

reasonably concluded that detail as constructed will perform adequately to the requirements of clauses and E2 and B2 of the NZBC despite the lack of a 12mm gap.

5. Evaluating code compliance

5.1 General

5.1.1 In evaluating the design of a building and its construction, it is useful to make some comparisons with the relevant Acceptable Solutions, which will assist in determining whether these deck junctions are code compliant. However, in making this comparison, the following general observations are valid:

- Some Acceptable Solutions cover the worst case, so that they may be modified in less extreme cases and the resulting alternative solution will still comply with the Building Code.
- Usually, when there is non-compliance with one provision of an Acceptable Solution, it will be necessary to add some other provision to compensate for that in order to comply with the Building Code.

5.1.2 An Acceptable Solution is a prescriptive design solution that provides one way but not the only way of complying with the Building Code. The cladding type is not covered in E2/AS1 and the deck junctions would not comply with E2/AS1 if that was used as the means of establishing compliance. The deck junctions must therefore be considered as an alternative solution, requiring an assessment of the likely performance within the context of this particular deck.

5.2 Evaluation of the deck junctions for E2 and B2 Compliance

5.2.1 The approach in determining whether these deck junctions are weathertight and durable, and likely to remain so, involves an examination of the junctions as installed and design features intended to prevent water penetration into the associated framing.

5.2.2 The consequences of these deck junctions demonstrating a high weathertightness risk is that details that comply with the Building Code will need to be more robust. Conversely, if risks are reduced, solutions may be less robust.

Weathertightness risk for the deck junctions

5.2.3 The weathertightness of the deck junctions is dependent on design features that protect the junctions from the weather, features and characteristics of the wall cladding and deck floor systems themselves, the workmanship of the installation and the consequences of failure on the underlying construction.

5.2.4 The deck and adjacent walls have the following environmental and design features, which influence the weathertightness risk profile of the deck junctions:

Increasing risk

- the deck is exposed to coastal winds from the north and east
- part of the deck is situated above the guest accommodation
- the oblique eaves provide limited protection to the deck below

Decreasing risk

- the deck is sheltered from prevailing southwest winds

- the north roof deck is sheltered beneath a deep roof overhang, which limits the quantity of rainwater able to reach the deck junction below
- the AAC wall cladding is fixed over a drained cavity
- the deck tiles allow rainwater to drain through tile joints onto the membrane
- the deck tiles are removable to allow easy maintenance of the deck junctions
- workmanship is generally of a high standard
- ground floor walls below deck junctions are either concrete block or AAC fixed over a drained cavity
- external wall framing is treated to a level that provides resistance to decay if it absorbs and retains moisture.

Solar-driven moisture

5.2.5 Solar driven moisture is a process that can lead to moisture being driven into a wall when rain is followed shortly after by sunshine. Rain can soak into absorbent claddings (such as brickwork), with some moisture vapour driven through the cladding by the pressure differential between the outside and inside faces of the wall.

5.2.6 If the exterior surface is dark in colour its temperature can be very high, which increases vapour pressure and the amount of moisture transported toward the inside. That effect can be increased if rooms are air-conditioned and walls include vapour barriers at internal linings.[9]

5.2.7 The authority is of the view the subject deck junctions have a high risk of solar driven moisture. I do not accept that opinion, and have been unable to find any instances of such problems arising from the use of AAC veneer panels in similar locations and construction[10].

5.2.8 In Table 2 I compare the conditions relevant to the deck junctions in this particular house and location with conditions necessary for significant solar driven moisture.

Table 2:

Element	Construction conditions susceptible to solar driven moisture	Construction of the subject decks
Cladding	• Bricks or similar will absorb moisture during rain • Dark coloured surface will heat up during sunshine	• AAC plastered and painted to minimise moisture absorption • Bottom of AAC coated to minimise moisture absorption • Drained cavity dissipates water vapour • Cladding painted white so should not build up heat within the AAC • Cavity battens not absorbent
Deck junction	• Water ponding against cladding • Absorbent materials abutting cladding	• Non-absorbent deck tiles and open tile joints will limit quantity and duration of water held at junctions

[9] For more information on solar-driven moisture see: *RR-0104: Solar Driven Moisture in Brick Veneer* (Lstiburek, J.) Building Science Corporation, 15 Sept. 2001, buildingscience.com/documents/reports/rr-0104-solar-driven-moisture-in-brick-veneer/view.

[10] Reports of solar driven moisture and resultant interstitial moisture damage are primarily from North American air-conditioned buildings with absorbent claddings such as brick veneer.

Element	Construction conditions susceptible to solar driven moisture	Construction of the subject decks
Interior	• Vapour barrier installed behind internal lining for winter conditions. • Air-conditioned interior creating lower internal temperatures for summer season. • Temperature difference drives moisture from higher outside pressure towards lower inside pressure during sunshine.	• No vapour barrier installed. • Large opening doors provide deck access during good weather - interior temperature unlikely to be significantly lower over long periods. • Temperature differential insufficient to drive significant moisture vapour through wall.

5.2.9 Taking the above circumstances into account and given normal maintenance, I am of the view that the conditions of this particular cladding in this particular building will not result in any significant risk of water vapour migrating into the framed wall to cause interstitial condensation and damage to the framing.

Weathertightness performance of the deck junctions

5.2.10 I accept the expert's comments in paragraph 4.3.4 on characteristics relevant to the weathertightness of these deck junctions. Except for lack of gaps, I also note that:

- decks been installed using good workmanship
- the authority has raised no concerns regarding construction of the deck or cladding other than the junctions
- the construction of ground floor walls below the deck junctions reduces the consequences of any potential weathertightness failure of the junctions
- the conditions relevant to this house construction are not conducive to solar-driven moisture or the risk of interstitial moisture.

5.2.11 Taking the expert's report and the authority's comments into account, the following table summarises my conclusions on the compliance of these particular deck junctions with the performance requirements of Clause E2 and Clause B2 of the Building Code:

Table 3: Conclusions on code compliance

Clause	Code requirement	The deck junctions
E 2.3.2	Roofs and exterior walls must prevent the penetration of water that could cause undue dampness, damage to building elements, or both	• Non-absorbent flat ceramic tiles and drained joints limit ponding • Limited moisture load at deck junctions • Base of AAC panels coated to reduce risk of moisture absorption • Cavity battens not absorbent • Framing protected by drained cavity, wrap, and deck clearance
E2.3.4	Building elements susceptible to damage must be protected from the adverse effects of moisture entering the space below suspended floors.	• Membrane/tiling system approved by authority during inspections • Adequate membrane falls to gutter and outlets • Lower walls are either concrete masonry or incorporate a cavity

Clause	Code requirement	The deck junctions
E2.3.5	Concealed spaces and cavities in buildings must prevent external moisture accumulating or transferring and causing condensation, fungal growth or degradation of building elements.	• Non-absorbent tiles and open joints will restrict quantity and duration of water held against the tile/wall junction. • AAC is plastered, with bottom painted to minimise moisture absorption • Cavity battens not absorbent • Not susceptible to solar-driven moisture
E 2.3.7 (a)	Building elements must be constructed in a way that makes due allowance for... ...the consequences of failure	• Tiles easily removed for normal maintenance • Lower walls are either concrete masonry or incorporate a cavity
B2.3.1 (b) 15 years if:	moderately difficult to access or replace failure … would go undetected during normal use of the building, but would be easily detected during normal maintenance	• Satisfactory weathertightness characteristics of cladding and underlying deck construction • Tiles easily removed for normal maintenance

5.3 Conclusions

5.3.1 The expert's report provides me with reasonable grounds to conclude the deck junctions are currently complying with Clause E2 of the Building Code.

5.3.2 The durability requirements of Clause B2 include a requirement for the deck junctions to continue to comply for a minimum of 15 years. Due to mitigating factors that compensate for the lack of a drainage gap at the junction, I am able to conclude that moisture is unlikely to be absorbed into the AAC cladding and reach the framing in the future. Consequently, I am satisfied that the deck junctions as constructed comply with Clause B2 of the Building Code.

5.3.3 It is emphasised that each determination is conducted on a case-by-case basis. Accordingly, the fact that the particular deck junctions in this case have been established as being code-compliant does not of itself mean that the same junction will be code-compliant in other situations.

5.3.4 Effective maintenance of claddings is important to ensure ongoing compliance with Clauses B2 and E2 of the Building Code and is the responsibility of the building owner. The Ministry has previously described these maintenance requirements (for example, Determination 2007/60).

5.4 Major or minor amendment to the building consent

5.4.1 The authority maintains that because the deck junctions do not comply with the details in the building consent, the authority has the right to insist on the junctions being changed before a code compliance certificate can be issued.

5.4.2 Section 94(1)(a) of the Act requires an authority to 'issue a code compliance certificate if it is satisfied, on reasonable grounds' that the building work complies with the building consent. However there will often be minor variations from the consent documents and the Act provides for this. The procedure for addressing such changes is addressed in the *Building (Minor Variations) Regulations 2009*, which defines minor variations.

5.4.3 When the changes are minor and the work complies with the Building Code, the changes may be recorded by way of adequately detailed as-built drawings. In this case, I consider that the changes from the consented plans are not of such a significant level that they would warrant a formal amendment of the building consent.

5.4.4 When considering the issue of a code compliance certificate for a building consent where the as-built construction differs from that consented, it is important to consider the effect of the departure and whether the completed work complies with the Building Code. In this case that entails considering whether the deck junctions comply with Clauses E2 and B2, notwithstanding the departure from the consented plans.

5.4.5 Taking account of the expert's report and the other evidence, I am able to conclude that, although the lack of drainage gaps to deck junctions did not comply with the building consent documentation, these particular deck junctions comply with the relevant parts of Clauses E2 and B2 of the Building Code.

6. The decision

6.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the deck junctions as constructed comply with Clause B2 and Clause E2 of the Building Code.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 30 October 2017.

Katie Gordon
Manager Determinations