

## Determination 2008/81

### Safety barrier to a deck located adjacent to a retaining wall at Oraka Beach Road, Mahia

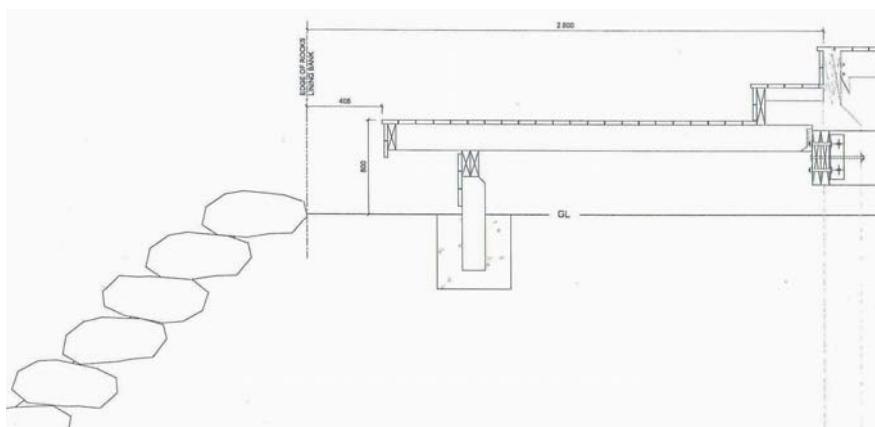


Figure 1: Section showing deck and top of the bank

#### 1 The matters to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004<sup>1</sup> (“the Act”) made under due authorisation by me, John Gardiner, Manager Determinations, Department of Building and Housing (“the Department”), for and on behalf of the Chief Executive of the Department. The applicants are the owners, Mr and Mrs Ross, acting through the designer of the building work (“the designer”). The other party is the Wairoa District Council (the authority) carrying out its duties and functions as a territorial authority or building consent authority.

1.2 I take the view that the matters for determination are whether a deck attached to a house requires:

1. a safety barrier in order to comply with the requirements of the Building Code<sup>2</sup> (Schedule 1, Building Regulations 1992), and
2. a building consent.

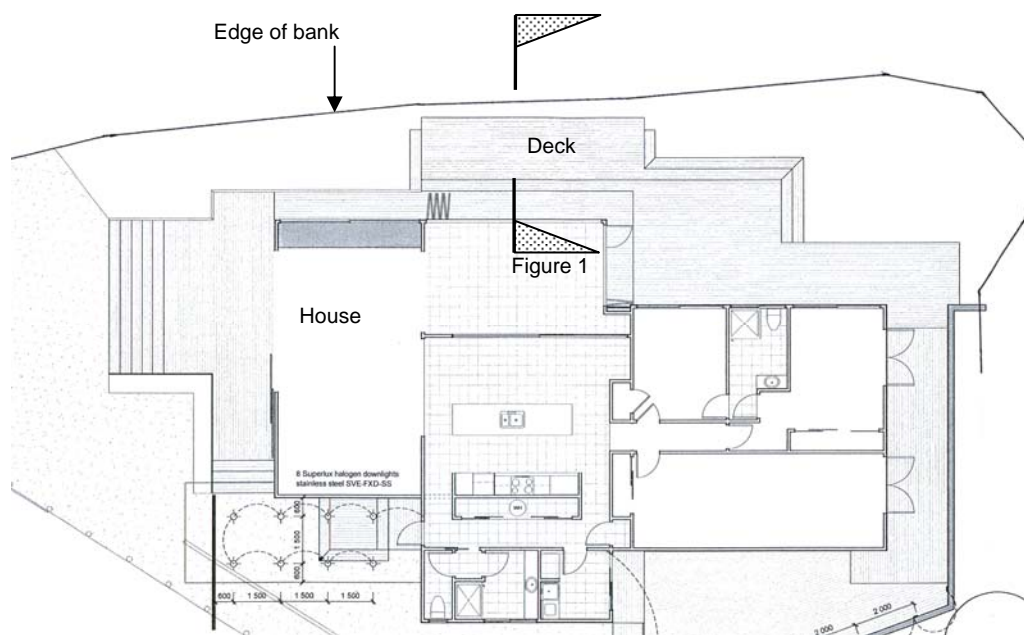
<sup>1</sup> The Building Act 2004 is available from the Department’s website at [www.dbh.govt.nz](http://www.dbh.govt.nz).

<sup>2</sup> The Building Code is available from the Department’s website at [www.dbh.govt.nz](http://www.dbh.govt.nz).

- 1.3 In making my decision, I have considered the submissions of the parties and the other evidence in this matter.
- 1.4 In this determination, 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 building work

- 2.1 The building work that is the subject of this determination is a deck (“the deck”) 6.9 metres long x 2.4 metres wide that is proposed to be constructed at the north elevation of a house. The deck is timber framed and its top is 500mm above the ground. The deck was originally part of a consent application that involved the construction of a veranda and a roof. The plan of the house and deck is shown in Figure 2. The section through the deck and adjacent bank is shown in Figure 1.
- 2.2 From a minimum of 600mm (and an average of 1 metre) from the northern edge of the deck, the ground level suddenly slopes away from the building platform down the face of a retaining wall composed of uneven layers of rocks and boulders. The retaining wall is approximately 2.5 to 3 metres high below the deck location and is set to an angle of approximately 45 degrees.



**Figure 2: Plan of house showing deck and bank**

## 3. Background

- 3.1 Following a request for a building consent relating to work that was described as being “Enclose existing veranda & roof over rear door”, the authority wrote to the designer on 1 May 2008, suspending the consent application process. The authority listed the additional information that it required, including a requirement for safety barriers to the decks where it was possible for a person “to fall to the adjacent ground and the lower area beyond”. The authority provided a copy of a High Court

judgement, which it considered supported its argument, together with a copy of certain paragraphs from SNZ HB 8630<sup>3</sup>, which described the provision of barriers for outside structures.

- 3.2 The designer responded in a letter dated 5 May 2008, which addressed the authority's concerns. The designer noted that, as none of the new decks shown on the plans were more than 600mm above ground level, they did not require a building consent. This was one reason why safety barriers were not required. A second reason arose because the Act was silent on "falling and rolling", and as the fall from the deck in question was 500mm, this was not considered to be a danger to deck users.
- 3.3 In a letter dated 13 May 2008, the authority wrote to the designer, stating that the only outstanding issue concerned the decks. The authority noted that, as the decks were extremely close to a retaining wall sloping away from the decks, safety barriers were required. The authority required calculations based on paragraph 3.20 of SNZ HB 8630 to determine what would be a reasonable distance in order to negate the need for a barrier.
- 3.4 In a letter to the authority dated 13 May 2008, the designer noted that SNZ HB 8630:2004 related to outside structures and not to houses. Nor was it referred to in the Building Code. The designer referred to Figure 6 shown in paragraph 1.2.4 of the Approved Document F4/AS1, which indicated the fall with a vertical dimension. There was no mention of any horizontal distance in Figure 6 or elsewhere in the Building Code or the Act. Accordingly, the deck did not require a building consent or a safety barrier.
- 3.5 The authority wrote to the designer on 19 May 2008, stating that, as the building work included a deck from which a person could fall more than a metre, the work would not be code compliant. The authority also considered that the deck construction should be subject to a building consent. It was not an option for the deck to be removed from the plans and be constructed later, as this would require the authority to issue a notice to fix.
- 3.6 The authority also wrote to the applicants on 19 May 2008. The authority was of the opinion that due to the very high wind zone and the 500mm proximity to the top of the retaining wall, there was the potential for a person to fall 2.5 to 3 metres. Accordingly, the deck was not code-compliant and as it was outside the scope of Schedule 1 of the Act, it should be subject to a consent.
- 3.7 The application for a determination was received by the Department on 4 June 2008.

## **4. The submissions**

- 4.1 In a covering letter to the Department dated 27 May 2008, the designer stated that the applicants' position was that the deck did not require a safety barrier. As the deck would be less than 1 metre above the ground, it did not require a building consent.

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<sup>3</sup> Standards New Zealand Hand Book SNZ HB 8630:2004 Tracks and outdoor visitor structures

- 4.2 The applicants forwarded copies of:
- the plans
  - the correspondence with the authority.
- 4.3 The authority made a submission in a letter to the Department dated 16 June 2008. The authority set out the history of the matter in question and stated that the deck did not comply with Clause F4 and, as it was outside the scope of Schedule 1 of the Act, the deck should be subject to the consenting process.
- 4.4 The authority forwarded copies of:
- some of the consent application documentation
  - the certificate of title
  - soil profile and testing results for the retaining wall and building platform
  - some of the correspondence with the applicants
  - a set of aerial and site detail photographs.

## 5 The legislation and the compliance documents

- 5.1 Relevant provisions of the Act are:

**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:

(b) compliance with the provisions of a compliance document . . .

**40 Buildings not to be constructed, altered, demolished, or removed without consent**

(1) A person must not carry out any building work except in accordance with a building consent.

**41 Building consent not required in certain cases**

(1) Despite section 40, a building consent is not required in relation to—

(b) any building work described in Schedule 1...

**67 Territorial authority may grant building consent subject to waivers or modifications of building code**

(1) A building consent authority that is a territorial authority may grant an application for a building consent subject to a waiver or modification of the building code.

(2) A waiver or modification of the building code under subsection (1) may be subject to any conditions that the territorial authority considers appropriate.

**Schedule 1**

A building consent is not required for the following building work:

- (g) the construction of any platform, bridge, or the like from which it is not possible for a person to fall more than 1 metre even if it collapses:

5.2 Relevant provisions of the Building Code are:

**CLAUSE F4—SAFETY FROM FALLING****OBJECTIVE**

**F4.1** The objective of this provision is to safeguard people from injury caused by falling.

**FUNCTIONAL REQUIREMENT**

**F4.2** Buildings shall be constructed to reduce the likelihood of accidental fall.

**PERFORMANCE**

**F4.3.1** Where people could fall 1 metre or more from an opening in the external envelope or floor of a building, or from a sudden change in level within or associated with a building, a barrier shall be provided.

**F4.3.4** Barriers shall:

- (a) Be continuous and extend for the full extent of the hazard,
- (b) Be of appropriate height,
- (c) Be constructed with adequate rigidity,
- (d) Be of adequate strength to withstand the foreseeable impact of people and, where appropriate, the static pressure of people pressing against them,
- (e) Be constructed to prevent people from falling through them, and
- (g) Restrict the passage of children under 6 years of age when provided to guard a change of level in areas likely to be frequented by them.

**6. The draft determination**

6.1 Copies of a draft determination were forwarded to the parties on 23 June 2008. The authority accepted the draft, without further comment, on 26 June 2008.

6.2 The designer responded to the draft determination, on behalf of the applicants, in a submission to the Department dated 4 July 2008. The designer did not accept the draft and set out a comprehensive explanation of the applicants' position with references to previously issued determinations and certain court decisions. I summarise the main points of the submission as follows:

- The court decisions and the Act were clear in that there should be no consideration of the "landing surface" when measuring the fall distance, nor should the slope or composition of the landing surface be considered.

- As the landing surface was not a consideration, a fall as defined in the Act is the distance that a person may travel before their fall is broken by the initial impact.
- The circumstances of a fall from a deck were compared with the parallel requirements for stairs and a diagram illustrating this approach was also attached to the submission.
- A fall was not a “running leap”.

6.3 The submission noted that a solution to the matter in question would be to shift the deck back from the edge to provide a 900mm landing or to replace the deck edge with a full length step. It was suggested that the question of a horizontal as well as a vertical dimension could be addressed in future published documentation.

6.4 While I have given due consideration to the applicants’ submission, I am not convinced that the decisions reached in the draft should be amended to any great extent. I have also considered an additional District Court decision that is described in paragraph 7.1.10, and which I consider gives added weight to my decision.

## **7. Discussion**

### **7.1 Does the deck require a safety barrier?**

7.1.1 As stated in Clause F.4.3.1, a safety barrier is required where people could fall 1 metre or more from the floor of a building. In this case, the floor of the building is the top level of the deck, which is 500mm above the finished level of the building platform. I also note also that the minimum width of level ground from the edge of the deck to the top of the retaining wall appears to be in the range of 600mm to 800mm and I consider that this dimension is crucial to my decision.

7.1.2 The authority has concerns because the ground level suddenly falls away at a point approximately 1 metre on average from the deck edge. The authority believes there is danger that people who are using the deck and fall off it, would continue to fall down the face of the retaining wall. The authority has referred to SNZ HB 8630, which uses a formula that adjusts the fall height in accordance with an impact surface adjustment value. This formula has the effect of extending the fall height factor some distance away from the face of the structure from which a potential fall could occur.

7.1.3 The applicants, through their designer, consider that the vertical fall from the deck edge is the crucial element and this equates to a fall height of 500mm. The applicants have also noted that SNZ HB 8630 relates only to “tracks and outdoor visitor structures” and is not a reference document in terms of the Building Code.

7.1.4 The applicants have referred to Figure 6 from F4/AS1 (shown below), which illustrates the requirements of paragraph 1.2.4 of F4/AS1. This is the only illustration in the Approved Document that illustrates a fall height. In this instance, the fall height is indicated by a vertical dimension from the top of a deck to a level horizontal ground level immediately below the deck. As I interpret the applicants’ submission, they are contending that the distance from the top of the deck to the

ground level immediately below the deck edge is the dimension to be considered in defining a fall height from a structure. They maintain that the Act is silent on “falling and rolling”.

- 7.1.5 The applicants’ argument is not accepted by the authority as indicated by its reference to SNZ HB 8630, which takes into account horizontal as well as vertical dimensions in its fall height calculations. I accept the applicants’ contention that SNZ HB 8630 is not a referenced document in terms of section 19 and that they are not required to provide evidence based on this document. However, while SNZ HB 8630 is not a document that has direct relevance to the Building Code, it takes account of the likelihood that a person falling from the edge of the deck will continue to fall down adjoining sloping ground.
- 7.1.6 I consider that the applicants’ argument only takes into account circumstances where a person would step off the deck and fall directly onto the ground. It does not take into account any forward momentum of a person falling or a child running off the deck. This contingency is also referred to in respect of barriers where Clause F4.3.4(d) “requires barriers to be of adequate strength to withstand the foreseeable impact of people and, where appropriate, the static pressure of people pressing against them”. Accordingly, I am of the opinion that the fall height cannot be calculated just in terms of the vertical height above the surface immediately below it.
- 7.1.7 As the term “fall” is not defined in either the Act or the Code, it must be given its normal and natural meaning. In *The Concise Oxford Dictionary*, definitions of “fall” include “descend rapidly from a higher to a lower level” and to “collapse forwards and downwards”. In some circumstances, the upper body of a person collapsing forward from the deck edge would extend well beyond the 800mm distance to the top of the retaining wall and could well impact at a level more than 1metre below the deck surface. I note also that Clause F4.3.1 refers to a “sudden change in level”, which in itself does not necessarily mean a vertical fall.
- 7.1.8 The fall described in paragraph 7.1.7, is what could be described as a “passive” fall lacking additional impetus such as would be caused by a trip or a push or wind gust. However, in Determination 2002/6, the Building Industry Authority (“the Authority”), the antecedent to the Department, considered the risks posed by persons who were present on a deck running or jumping off it. In determining the code-compliance of a safety net positioned immediately below a deck, the Authority noted:
- 7.3.9 “...Given that the net is 750 mm below the deck, and the outer edge of the netting is 1800 mm beyond the edge of the deck, a person running or jumping over the edge of the decking might land on the netting with sufficient forward momentum to tumble over the edge, or might even jump over the netting entirely.
- 7.3.11 However, in this case the safety barrier is required to “restrict the passage of children under 6 years of age”. The Authority considers that the design of the barrier must take account of the possibility that such children might run over the edge of the deck. In the absence of any evidence as to how fast children under 6 can run, the Authority concludes that it has no reasonable grounds on which to be satisfied that the safety net extends far enough beyond the edge of the deck to comply with clause F4.3.4(g) of the building code.”

- 7.1.9 The Authority therefore concluded that a person could well clear a distance of 1800mm from a deck in certain circumstances. I am in agreement with this conclusion and accept that it is relevant in the context of the deck in question.
- 7.1.10 I also refer to *Gisborne District Council v Neil Weatherhead and Sharon Margaret Dunn*<sup>4</sup>, which concerned a platform that was built adjacent to cliffs that were in the order of 30 metres high and with a slope variously described as either 42 degrees or between 45 and 50 degrees. As described in the judgement:

“Subsequently, [the Defendant] built two further retaining walls in front of the platform and has built up the soil level immediately below the front of the platform to 0.8 metres in the hope that it now complies with the minimum fall requirements”.

The District Court held the view that this did not nor never did comply and went on to say:

“. . . Secondly, it seems to me that the slope of the cliff face is such that if anyone fell from the platform or the handrail level they would be unlikely to fall neatly and directly into the small space of less than 1 metre between the edge of the platform and the outer retaining wall. The more likely scenario is that they would fall down the hillside onto the rocks below”.

- 7.1.11 I note that on appeal, in the High Court<sup>5</sup>, no comment was made on the District Court’s view set out in paragraph 7.1.10.
- 7.1.12 In light of the arguments set out in paragraphs 7.17 to 7.1.9, I cannot accept the applicants’ contention that that the width of the landing area is not a matter that can be considered in terms of the fall height from a structure.
- 7.1.13 In the *Gisborne District Council* case, the landing area was described as “a small space less than 1 metre” that was adjacent to an approximately 45 degree slope, In the case of this deck, where the deck in question lacks a handrail, the minimum width from the edge of the deck is 600mm and the adjacent retaining wall is built to a 45 degree slope, the deck would not comply with the objective of Clause F4.3.1. While I accept that the height of the deck above the adjacent ground is 500mm compared with the 800mm height noted in the judgement, I do not consider that this materially changes the situation.
- 7.1.14 This acceptance, together with my observations set out in paragraphs 7.1.7 to 7.1.9, leads me to believe that the 600 to 800mm dimension from the edge of the deck to the top of the retaining wall is insufficient for the deck to comply with Clause F4.3.1, unless it is provided with an adequate barrier. In addition, I note that the adjoining rock retaining wall bank is of such a steepness that someone could tumble down and injure themselves. Accordingly, the deck needs to be far enough away from the wall to prevent anyone falling off it from tumbling down the wall. I therefore consider my decision to be in accord with the objective of Clause F4, which requires people to be safeguarded from injury caused by falling.

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<sup>4</sup> 29/5/98, Judge Frater DC Gisborne CRN7016006603

<sup>5</sup> *Weatherhead v Gisborne DC* 15/3/99, Elias J, HC Gisborne AP12/98



- 7.1.15 Having reached the decision that the deck requires a safety barrier, I note that it requires one that will comply with clause F4.3.4(g) of the building code.
- 7.1.16 In accordance with the decision that I have made, I do not consider it appropriate that a waiver in terms of section 67 should be granted in this instance.
- 7.1.17 The designer has noted that one solution to this matter would be to shift the deck back from the edge to provide a 900mm landing area between the deck edge and the bank edge. However, I consider that, in order to provide protection against falling down a steep bank, the height of a deck above the ground must be taken into consideration when establishing the required distance from the deck to the top of the bank. As the height in this case is 500mm, I consider that a landing area of 1200mm to the outer face of the stone wall would provide adequate protection.

## **7.2 Should the deck be subject to a consent?**

- 7.2.1 The authority is of the opinion that the deck should be subject to a building consent, an opinion that the applicants do not accept. If the deck was to be constructed as part of the overall building work, as shown on the plans, then it would obviously be included in the overall consented building work.
- 7.2.2 On the other hand, if as suggested by the applicants, the deck is constructed after the other building work, then it can be considered as a separate matter. If the fall height from the deck was less than 1 metre, then the deck would fall within the ambit of paragraph (g) of Schedule 1 and not require a building consent.
- 7.2.3 However, as set out in paragraph 7.1, I have found the deck to have a fall height of more than 1 metre. Accordingly, paragraph (g) of Schedule 1 does not apply, and the deck, even if constructed as a separate entity, would require a building consent.

## **8 The decision**

- 8.1 In accordance with section 188 I hereby determine that the deck:
1. requires a safety barrier in order to comply the requirements of the Building Code, and
  2. requires a building consent.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 28 August 2008.

John Gardiner  
**Manager Determinations**