



Determination 2009/83

The code compliance of proposed barriers for the walkways at a stock yard at 114 Waharoa Road, East Matamata

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, John Gardiner, Manager Determinations, Department of Building and Housing (“the Department”), for and on behalf of the Chief Executive of that Department. The applicants are the owners, Ejay Holdings Limited (“the applicants”), represented by an agent, who is also representing Elders Limited (“the builders), who I consider to be persons with an interest to the determination. The other party is the Matamata Piako District Council (“the authority”), carrying out its duties as a territorial authority or building consent authority.

1.2 I take the view that the matters for determination, in terms of section 177(a)² and 188 of the Act are:

Matter 1: the code compliance of the proposal for barriers to one side only of the race walkways

Whether the proposal to have barriers to only one side of the race walkways beside the races (“the race walkways”) complies with Building Code Clause F4 Safety from falling.

Matter 2a: the code compliance of the proposal for wire barriers to the walkways with respect to F4

Whether the proposal to have wire barriers to the race and pen walkways complies with Building Code Clause F4 Safety from falling.

Matter 2b: the code compliance of the proposal for wire barriers to the walkways with respect to B1

Whether the proposal to have wire barriers to the race and pen walkways complies with Building Code Clause B1 Structure.

1.3 In making my decision, I have considered the submissions of the parties, the report of the expert commissioned by the Department (“the expert”), and other evidence in this matter.

¹ The Building Act 2004 is available from the Department’s website at www.dbh.govt.nz.

² 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 site of the stock yard is a rural, relatively flat site. A stock yard has existed on this site since 1926, and the original stock yard was recently dismantled so the new stock yard could be built.
- 2.2 The stock yard is made up of fences and gates, which form the pens and races. The stock yard has raised walkways above the fences and gates, which run between and beside the pens. These walkways provide places for both staff and clients to walk around to view the stock. The walkways are approximately 1.6 metres high.
- 2.3 The race walkways are proposed to have barriers to only one side of the walkways (refer to Figure 1). The race walkways are 300mm wide.



Figure 1: Walkways beside the races

- 2.4 The walkways that run between the pens (“the pen walkways”) are proposed to have barriers to both sides of the walkways (refer to Figure 2). The pen walkways are 600mm wide (2×300mm).



Figure 2: Walkway between the pens

- 2.5 The timber balusters are 150×50mm at 2.5 metre centres. The barriers to the walkways are proposed to be constructed of tightly drawn plastic covered 5mm rope wire, which is proposed to be held up by the already constructed timber balusters. The barriers would each have two wires, one at mid-height, and the other at the top of the baluster post. Figure 3 shows the cross section, showing the race walkway, and the proposed balustrade detail

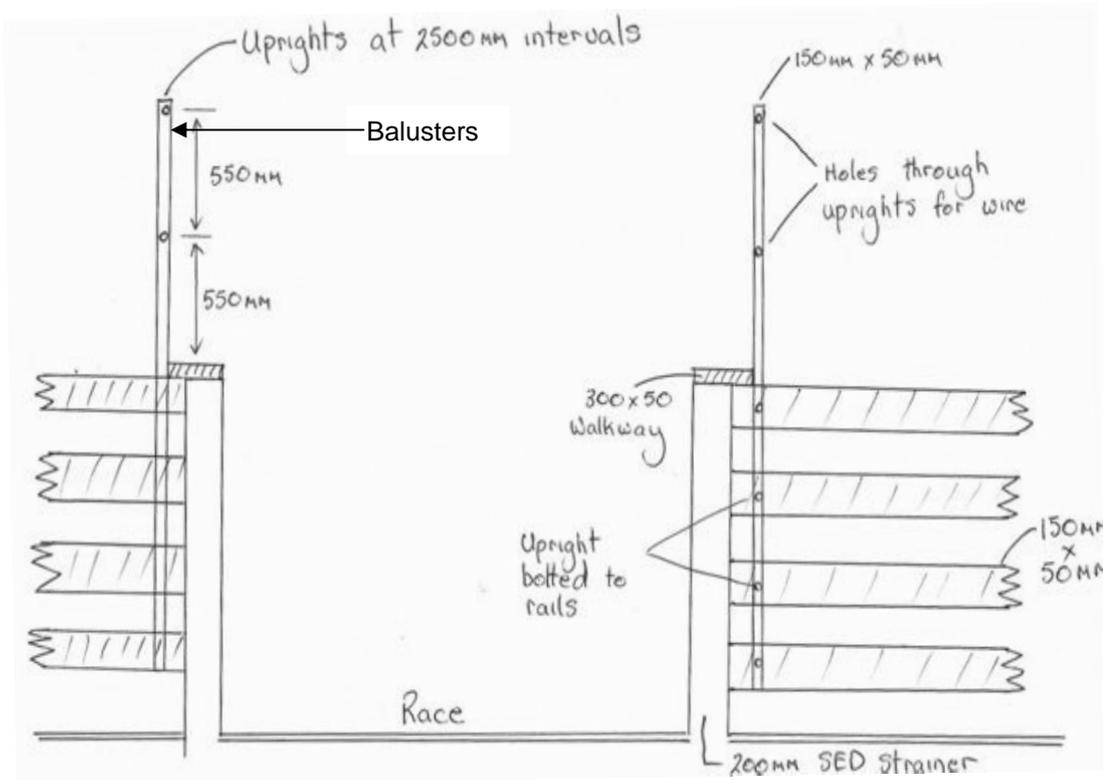


Figure 3: Cross section of a race showing the gates and walkways
(note the configuration of the balusters varies from the sketch with respect to the width of the balusters as sketched – refer figure 1)

3. Background

- 3.1 There are a number of structures on the site that have been built in accordance with a building consent, including a calf shelter, roofed weigh station, and a new shed, all of which are integral to the stock yard itself.
- 3.2 The stock yard itself (the fences, gates, and walkways) was not the subject of a building consent application.
- 3.3 On 3 April 2009, the authority issued a notice to fix to the applicants. The notice detailed the need for a certificate of acceptance:
- Apply for a Certificate of Acceptance for the barriers required on the platforms in accordance with Clause F4 of the Building Code.
- 3.4 An application for a determination was received by the Department on 16 March 2009.

4. The submissions

4.1 In a covering note to the application, the applicant set out the reasons a determination was required:

- there need to be walkways through the stock yard so the clients and auctioneers can inspect the cattle from above
- in order to comply with the Health and Safety in Employment Act 1992, the applicants need to minimize hazards in the stock yard
- the applicants want to have wire barriers on only one side of the race walkways
- the reason for not wanting to have wire barriers on the race side of the race walkways is that people will be in confined spaces in the races with unpredictable cattle and so need to be able to easily climb up onto the fences and walkways out of the way of the cattle.

The applicants forwarded copies of:

- extracts from the Building Act 2004 and Health and Safety in Employment Act 1992
- sketches of the stock yard, including sketches of the layout of the cattle races and pens, and sketches of the walkways and their dimensions and features.

4.2 In response to the application, the authority explained that they had requested that the applicant implement safety barriers on both sides of the walkways. The authority submitted that:

- the stock yard is a building, is not exempt under Schedule 1, and requires a building consent
- if it is determined that the building does not require a building consent, the building work must nonetheless comply with the Building Code
- the race walkways do not comply with Clause F4 because they have barriers only on one side
- the proposal for wire barriers does not meet the requirements of the compliance documents for Clause F4
- the authority has been unable to ascertain the safe capacity of the walkways or compliance with Clauses B1 and B2, as no information has been provided with respect to the construction of the walkways.

4.3 The authority's submission included extracts from the Building Act 2004 and Building Code.

4.4 In further submissions to the Department, the applicants provided:

- an additional sketch of the race walkways and wire barriers and photos of the stock yard
- a copy of the notice to fix issued to the applicant by the authority on 3 April 2009
- the 'Hazard Identification Plan' and the 'Health and Safety Plan' for the stock yard which relates to the owners' obligations under the Health and Safety in Employment Act 1992, sections 7-10.

- 4.5 The 'Hazard Identification Plan' states the hazards on the site that have been identified, including hazards relating to the races and walkways of the stock yard. The plan also describes the following approach for ensuring the safety of the public:
- Define public access to and from sale yard complex, with regard to movement of stock trucks and public roads.
 - Define public access in the respective sale yards, a clear indication (signage) of where the public and employees such as the agents can venture.
 - Defining no-go areas for the public, authorised personnel access only in areas of high risk.
- 4.6 In response to the expert's report (refer to paragraph 6), the applicants explained that there were original stock yard built on the site in 1926, which had been dismantled to build the new stock yard. The applicants' submission included photos of the old stock yard.
- 4.7 A draft determination was issued to the parties on 8 June 2009.
- 4.8 The authority accepted the draft determination in a response dated 11 June 2009 and made no comments.
- 4.9 The builder responded on 30 June 2009, and explained that comment would be sought from the applicants. The builders also noted that 'We are getting the walkways and handrails drawn up and then the design approved by an engineer. Once we have done this [the authority] will accept our design and the work can be completed'.
- 4.10 On 10 August 2009, the applicants stated a 'mock up' had been constructed for the authority to inspect. The inspection had been completed, and the applicants were waiting for a response from the authority.
- 4.11 In a letter dated 11 September 2009, the authority requested the Department issue a final determination.
- 4.12 On 18 September 2009, the applicants submitted a report to the authority from a Chartered Professional Engineer. The report provided testing results and results and recommendations for handrail and walkway as an alternative solution. The report noted:
- Stock yards have been built at Matamata, copying and improving the design of saleyards in other centres, but without the input of a qualified structural engineer.
 - By analysis of the strength of the timber and steel materials, using NZ Standards, the catwalks and handrails do not appear to comply with interpretations of the requirements of AS/NZS 1170, which is one avenue for loadings compliance within the [Building Code]. One difficulty with this code, is that it does not actually address the type of occupancy of a rural structure, used for stock, where the farming public has access to elevated catwalks.
 - The Alternative Solution is to establish the strength of walkways and catwalks as they were built, by in-situ testing of apparently non-complying elements to near destruction. Then by a process of back calculation, establish their safe strength and safe maximum applied loadings in service and compare that with the lists of service requirements and strength criteria within AS/NZS 1170.1:2002.
- The engineer recommended remedial work to be undertaken to both the walkways beside the races with 300×50 boards to be bolted with pairs of M12 bolts at 400mm centres to walkways beside races.

- 4.13 In a letter dated 18 September 2009, the authority accepted the engineers report, and noted ‘In order to process the building consent/certificate of acceptance we will need to have information on hazard and safety management showing where access by children and the public is restricted (e.g. auctioneers catwalk) and information on employee safety.’
- 4.14 The applicants accepted the draft determination in a response dated 21 September 2009.

5. The legislation and the compliance documents

5.1 Relevant provisions of the Act are:

8 Building: what it means and includes

- (1) In this Act, unless the context otherwise requires, building -
- (a) means a temporary or permanent movable or immovable structure (including a structure intended for occupation by people, animals, machinery, or chattels);

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.

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;

5.2 Relevant provisions of the Building Regulations are:

Schedule 1 Exempt building work

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

- (d) the construction of any wall (except a retaining wall), fence (except a fence as defined in section 2 of the Fencing of Swimming Pools Act 1987), or hoarding, in each case of a height not exceeding 2 metres above the supporting ground:
- (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:
- (k) any other building work in respect of which the territorial authority (or, as the case requires, the regional authority) considers that a building consent is not necessary for the purposes of this Act because that building work –
- (i) is unlikely to be carried out otherwise than in accordance with the building code; or
- (ii) if carried out otherwise than in accordance with the building code, is unlikely to endanger people or any building, whether on the same land or on other property.

5.3 Relevant provisions of the Building Code are:

Clause F4 – SAFETY FROM FALLING PERFORMANCE		
F4.3.1	Where people could fall 1 metre or more from an opening in the external envelope or floor of a <i>building</i> , or from a sudden change of level within or associated with a <i>building</i> , a barrier shall be provided.	Performance F4.3.1 shall not apply where such a barrier would be incompatible with the intended use of an area, or to temporary barriers on construction sites where the possible fall is less than 3 metres or to buildings providing pedestrian access in remote locations where the route served presents similar natural hazards.
F4.3.4	Barriers shall <ul style="list-style-type: none"> (a) Be continuous and extend the for the full extent of the hazard, (b) Be of appropriate height (c) Be constructed with <i>adequate</i> rigidity (d) Be of <i>adequate</i> 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 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 expert's report

- 6.1 As discussed in paragraph 1.3, I engaged an independent expert to provide an assessment of the matters subject to the determination, which included an investigation into the management and use of the stock yard, and an inspection of the building elements to the stock yard. The expert has a national diploma in construction management, is a technical expert for International Accreditation New Zealand, and is experienced in the field of building controls and the local government regulatory environment.
- 6.2 The expert commented that the stock yard had a very narrow target market. The public in this case is a relatively small group of individuals, although the general public are not excluded. The stock yard's clients would generally be familiar with the arrangements and running of a stock yard. In addition to having a narrow target market, the auctions run for four hours, once a week, which contributes to a lesser level of risk than would be associated with other public places or events.

- 6.3 The expert noted the agent's explanation that:
- an overly restrictive or conservative application of Building Code Clause F4 may impede the ability of the stock yard to efficiently manage an auction
 - staff need to be able to get into the pens and races to mark stock, and control the flow of stock around the yard. Barriers on both sides of the walkways besides the races would restrict the staff from carrying out their duties safely, as the staff must be in the races to control the stock, but need to be able to climb out of the races onto the walkways beside the races if stock become aggressive
 - there have been examples of stock yard staff being killed when they have been caught in races by aggressive animals.
 - there is a management plan for the stock yard, which includes a register of identified hazards and a plan to manage these hazards (refer to paragraph 4.5).
- 6.4 The expert viewed the partially constructed barriers and observed that the barriers must be effective to stop people from falling, taking into account the objectives and functional requirements of Clause F4, but must also be constructed in a way that they do not impede other functions.
- 6.5 The expert noted the 'Hazard Identification Plan' identifies hazards associated with access ways, walkways, and public access and includes explanations about the installation of signage to educate and direct staff and the public about which areas they can and cannot go.
- 6.6 The expert noted the 'Hazard Register' within the 'Health and Safety Plan' ("the Hazard Register") identifies the hazards associated with the walkways as tripping and falling. The hazard controls in the 'Hazard Register' include checking of walkways and barriers, keeping children under the age of six off walkways, and ensuring that children between the ages of six and sixteen are accompanied by adults.
- 6.7 The expert noted that there are other instances where management plans are used, in part, to satisfy Building Code requirements.

7. Discussion

Evaluation criteria

- 7.1 In evaluating the design of a building and its construction, it is useful to make some comparisons with the relevant Acceptable Solutions³, which will assist in determining whether the features of the building 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 one or more other provisions to compensate for that in order to comply with the Building Code.

³ An Acceptable Solution is a prescriptive design solution approved by the Department that provides one way (but not the only way) of complying with the Building Code. The Acceptable Solutions are available from The Department's Website at www.dbh.govt.nz.

The nature of the building work

- 7.2 I am of the view that the building work is not exempt under Schedule 1. The building work was undertaken without a building consent, and the authority was correct to issue a notice to fix.
- 7.3 I also note that the Act requires that all building work must comply with the Building Code, to the extent required by the Act, whether or not a building consent is required.
- 7.4 As stated in Clause F4.3.1, a safety barrier is required where people could fall one metre or more from a sudden change of level associated with a building. In this case, the walkways are 1.6 metres high, so people could fall over a metre, off either side of the walkways to the ground.

Interface with the Health and Safety requirements

- 7.5 The Building Act 2004 places a strong emphasis on the safety of the public. In this case I accept that an appropriate management plan, developed as a requirement of the Health and Safety in Employment Act 1992 that clearly defines the role of the yard manager and details the location and types of signage (to comply with Clause F8 Signs), in addition to the details already noted in the Hazard Register, would support a proposed alternative solution. In this case, because it is a requirement of the Health and Safety in Employment Act 1992, it is legally enforceable, and I consider that a management plan can be relied upon in this case. I may not take the same view had this been a management requirement that was not legally enforceable.

Matter 1: The code compliance of the proposal for barriers to one side only of the walkways beside the races

8. Discussion

- 8.1 The wire barriers are proposed to be on both sides of the pen walkways, but on only one side of the race walkways. The authority contends that by having barriers only on one side of the race walkways, the walkways do not meet the requirements for Clause F4 of the Building Code.
- 8.2 Clause F4.3.1 shall not apply where 'such a barrier would be incompatible with the intended use of an area'. I consider that these 'limits on application' apply to the race walkways because providing barriers to both sides of these walkways would be incompatible with the intended use of the area, in that they would prevent the staff from effectively carrying out their duties in a safe manner. The race walkways are considered service areas, and are only intended for use by staff, for the purposes of carrying out their duties. Furthermore, as staff must be in the races to control the flow of the stock, barriers to both sides of the race walkways would prevent staff from being able to climb out of the races onto the walkways if stock becomes aggressive.
- 8.3 The objective of Building Code Clause F4 is to 'safeguard people from injury from falling'. I consider that the arrangement of the barrier to only one side of the race walkways is a solution that addresses this objective adequately, as long as an appropriate management plan is in place.
- 8.4 In considering the arrangement of the barrier to only one side of the race walkway, I have only considered whether the principle of a one sided barrier can comply with

Clause F4, in the general sense. I have not considered this matter with respect to the how the barrier is configured.

Matter 2a: The code compliance of the proposal for wire barriers to the walkways with respect to F4

9. Discussion

- 9.1 The wire barrier is required to comply with Clause F4.3.4. I consider that the proposal for wire barriers will have to be assessed as an alternative solution to Clause F4.
- 9.2 Clause F4.3.4(g) requires a barrier to restrict the passage of children under six years of age, when provided, to guard a change of level in areas likely to be frequented by them. While I do not believe the wire barriers would restrict the passage of children under the age of six, I accept that the site is not an area likely to be frequented by them, due to the business of the stock yard and the purpose of the walkways. In addition, the 'Hazard Register' requires that children under the age of six be kept off the walkways.
- 9.3 Clause F4.3.4 also requires barriers to:
- (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 falling through them.
- 9.4 I accept that the wire barriers will be continuous, be of appropriate height, and will provide a grabable wire for people falling away from the wire and a physical barrier for people falling into the wires.
- 9.5 I consider that the adequate rigidity and adequate strength provisions of Clause F4 mean that the wires and their support posts must be sufficiently strong to support the likely load of a person(s) falling against them or pulling on them in order to comply with Clause F4.3.4 (c) and (d).

Matter 2b: The code compliance of the proposal for wire barriers to the walkways with respect to B1

10. Discussion

- 10.1 As discussed in 9.5, I consider that the adequate rigidity and adequate strength provisions of Clause F4 are required to be met. I am of the view that it is useful to compare the proposal for wire barriers to the walkways with the Acceptable Solution for Clause B1, although I note the Acceptable Solution relates to timber barriers with rigid top and bottom rails.
- 10.2 The baluster spacing for the wire barriers is greater than the maximum baluster spacing in the Acceptable Solution. Furthermore, it appears that the baluster posts

will provide less rigidity in the direction along the line of the barrier than the baluster posts for the maximum baluster spacing for the Acceptable Solution.

10.3 The net effect of these suggests that it may not comply with the structural requirements. I also note that apart from the timber balusters, there is no other rigidity in the proposed system. Based on this information, I conclude that the proposal does not have sufficient strength and rigidity.

10.4 I am of the view that a detailed analysis of the strength and rigidity of the barrier system is required to be undertaken, if it is to be demonstrated that the wire barriers comply with the strength and rigidity requirements of Clause F4.3.4 (c) and (d).

11. What is to be done now?

11.1 I note that some of the work to the barriers is still to be completed, so the applicants should apply for a building consent for the outstanding work and a certificate of acceptance for the completed building work. Taking this into account, the authority should re-issue the notice to fix.

11.2 The proposal should be considered as a proposed alternative solution, and therefore the applications will need to include an assessment of the strength and rigidity of the wire barriers and details of the management plan.

12. The decision

12.1 In accordance with section 188 I hereby determine that

- the proposal to have barriers to only one side only of the race walkways complies with Clause F4
- the proposal to have wire barriers to the race and pen walkways complies Clause F4, other than the requirements for strength and rigidity of Clause F4.3.4(b) and (c).
- the proposal to have wire barriers to the race and pen walkways does not comply with Clause B1.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 2 October 2009.

John Gardiner
Manager Determinations