



Determination 2010/014

Safety barriers surrounding a swimming pool area at 60A Goldflats Lane, Coatesville, Rodney

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.
- 1.2 The parties to this determination are:
- the owner, Mr J Craft (“the applicant”) acting through a landscape architect (the “landscape architect”)
 - the Rodney District Council carrying out its duties and functions as a territorial authority and a building consent authority (“the authority”).
- 1.3 The original swimming pool and pool barrier design included ‘traditional’ fences and ‘approved’ fencing types. The landscape architect has revised the design for the pool barriers ‘to achieve an open and flowing visual effect’. This determination relates to the code compliance of certain details of the revised design for the pool barriers.
- 1.4 I therefore take the view that the matter for determination² is whether certain details of the revised pool barriers, defined in this determination as Areas 1, 2, and 3³, will comply with Clause F4 of the Building Code (Schedule 1 of the Building Regulations 1992).
- 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 any other aspects of the Act or of the Building Code.

¹ The Building Act 2004 and the Building Regulations 1992 are available from the Department’s website at www.dbh.govt.nz.

² In terms of section 177(a) of the Act

³ As shown in Figures 1 to 4, refer to paragraph 3

1.6 For the purposes of discussing the legislation, solutions, and standards relevant to this determination, I will refer to the following:

- The Act, with its sections referred to as sections of the Act.
- The Fencing of Swimming Pools Act 1987 (“the FOSP Act”), with its sections referred to as sections of the FOSP Act.
- The Schedule to the FOSP Act (“the Schedule”), with its clauses referred to as clauses of the Schedule.
- Clause F4 ‘Safety from Falling’ of the Building Code, referred to as Clause F4.

The relevant clauses of the Building Code, sections of the FOSP Act and clauses of the Schedule are set out in Appendix A.

2. The background

2.1 A building consent application was lodged with the authority for a swimming pool, which, according to the landscape architect, had barriers in the ‘traditional position with standard fencing heights and approved fencing types’.

2.2 The landscape architect has revised the design ‘to achieve an open and flowing visual effect, while still incorporating all necessary pool safety requirements.’

2.3 The application for a determination was received by the Department on 30 November 2009.

3. The pool barrier details submitted

3.1 The relevant details of the revised pool barriers, designated Area 1, Area 2, and Area 3 are shown in Figures 1 to 4.

3.2 Area 1 uses the balancing tank for the overflowing weir as a pool safety barrier to the full length of the southeast end of the pool. The tank has an internal width of 1500mm and has a maximum water depth of 400mm above a grate situated above the base of the tank. The wall between the tank and the swimming pool is 200mm thick, and has a top 1200mm above the steel grate of the tank that is splayed towards the pool. The diagonal distance between the front edge of the tank and the wet edge of the pool is 1543mm.

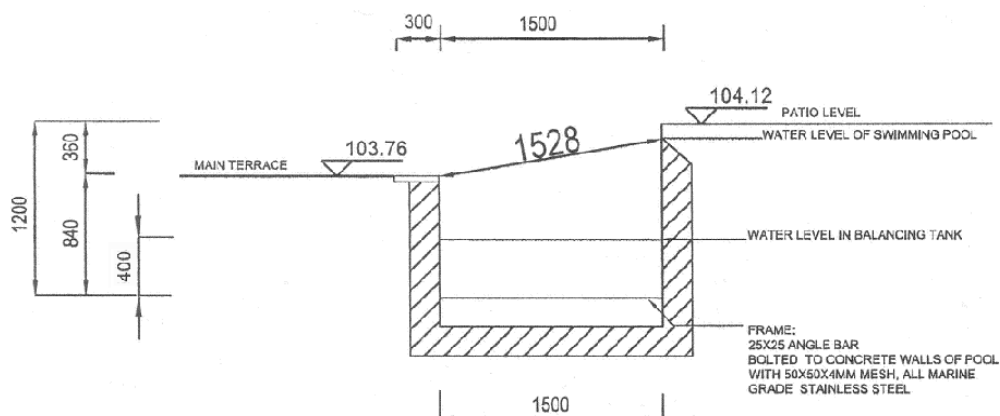


Figure 1: Area 1

- 3.3 Area 2 comprises a raised terrace 8000mm long x 7500mm wide that adjoins one edge of the pool or the pool surround. The perimeter of the slab is 999mm high above the finished ground level and the slab has a 500mm wide cantilever overhanging the perimeter walls. As described by the landscape architect, this configuration gives a combined clear distance of 1499mm. No barrier protection is provided to the perimeter of the terrace.

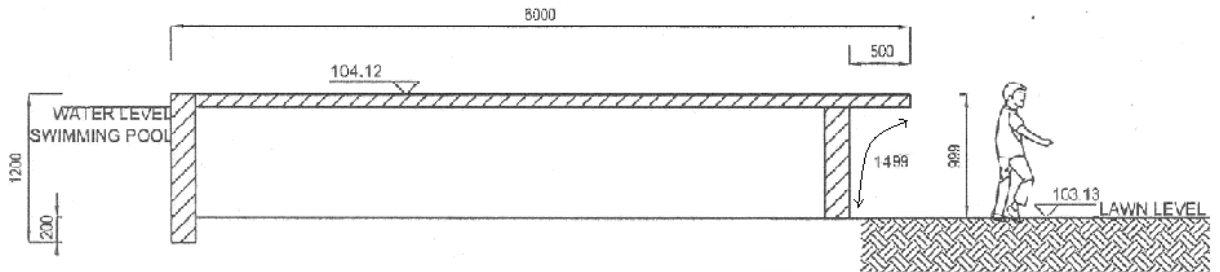
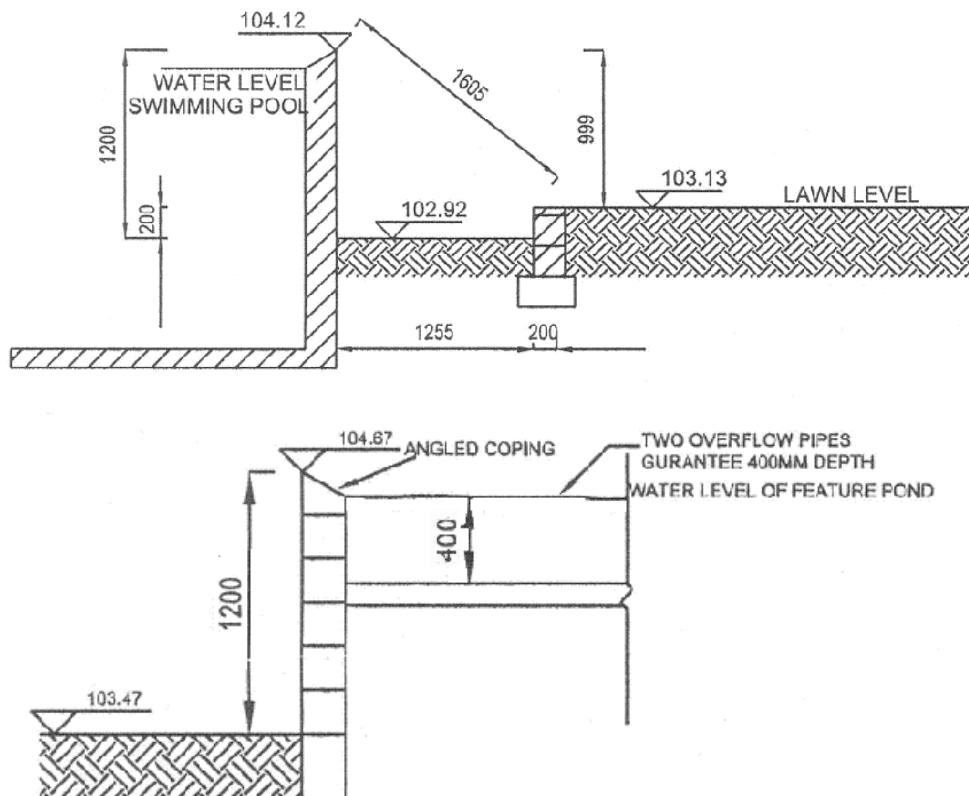


Figure 2: Area 2

- 3.4 Area 3 has a water feature 3800mm long x 8000mm wide (the overall pool width) adjoining the pool surround at the northwest end of the pool. The pond has plastered perimeter surround walls that are 1200mm maximum high above the finished ground level with their tops splayed towards the pond interior. The depth of water in the pond is 400mm deep, and this depth is maintained by two overflow pipes.



Figures 3 and 4: Area 3

4. The submissions

4.1 In a covering letter addressed to the Department, the landscape architect set out the background to the barrier revisions with some of the plans showing details of the revised pool barriers. In regard to the revised pool barriers in the three areas (refer to Figures 1-4), the landscape architect noted:

Area 1

As the balancing tank has a maximum water depth of 400mm and is not defined as being used for swimming, wading, paddling, or bathing it is not required to be fenced. The top of the tiled wall of the swimming pool is 1200mm above the grate of the tank, and the diagonal distance of more than 1200mm between the front edge of the balancing tank and the wet edge of the pool comply. Accordingly, the tank meets with the requirements of Clause F4 and the FOSP Act.

Area 2

A child younger than 6 years of age would not be able to stand on the lower lawn, hold onto the slab overhang and swing up onto the terrace because there are no toeholds anywhere. The addition of the overhang and the 999mm of relevant wall height make up a total safety distance of 1499mm. As the terrace itself is 999mm above the natural ground level, it does not require a barrier to prevent falling.

Area 3

As the water feature has a maximum water depth of 400mm and is not defined as being used for swimming, wading, paddling, or bathing, it is not required to be fenced. As the non-climbable wall of the water feature has a height of 1200mm above the finished ground level, it complies with the FOSP Act. The lack of horizontal toeholds also ensures that the wall complies with clause 3 of the Schedule. As the water feature was not classified as an outdoor living/entertainment patio, it did not have to comply with the rules to prevent falling.

4.2 Copies of the submissions and other evidence were provided to the parties.

4.3 A draft determination was issued to the parties on 5 February 2010.

4.4 The applicant accepted the draft determination without comment on 12 February 2010.

4.5 The authority accepted the draft determination, subject to the determination taking account of their comments in respect of:

- there has not been an application for an amendment to the approved building consent and the applicant has applied for a determination without the authority having made a decision on the proposed barriers
- the authority was never in dispute of the details shown in figures 1, 3, and 4 (refer to paragraph 3.2 and 3.4) and having reviewed the detail, the authority now accepts that the details shown in figure 2 (refer to paragraph 3.3) complies with Clause F4
- at the opposite side of the terrace and feature pond to Area 2, the level of the terrace is 104.12, and the adjacent ground is 103.47, representing a difference in height of 650mm, hence the glass barrier should be extended to the feature pool.

5. The FOSP Act considerations

5.1 The relationship between the FOSP Act and the Building Code

- 5.1.1 I have no jurisdiction under the FOSP Act, but I note that it does not specifically require that fencing must comply with the Schedule. What is required under section 8(1) of the FOSP Act is that fencing must comply with the Building Code subject to any exemption granted under section 6 of the FOSP Act. The FOSP Act also provides in effect that fencing complying with the Schedule is deemed to comply with the Building Code. Exemptions granted under section 6 of the FOSP Act are exemptions 'from some or all of the requirements' of the FOSP Act.
- 5.1.2 Sections 22 and 23 of the Building Act provide, in effect, that building work complying with a compliance document must be accepted as complying with the relevant provision of the Building Code. However, that is not the only means of establishing compliance. Accordingly, if pool fencing complies with the Building Code, then it complies with the requirements of the FOSP Act, even if it does not comply with the Schedule. In that case there would be no need for an exemption under section 6 of the FOSP Act.

6. Discussion

- 6.1 The revised pool barriers are new building work that must comply with Clause F4 of the Building Code.

Area 1

- 6.2 The balancing tank that protects the southeast end of the pool has a maximum water depth of 400mm and therefore under section 5(b) of the FOSP Act, the tank is exempt from the requirements of the FOSP Act. The limits on application of Clause F4 mean that Clause F4.3.3 of the Building Code does not apply to the tank as it is a 'pool exempted under section 5' of the FOSP Act.
- 6.3 The exterior face of the swimming pool wall adjoining the tank has a smooth tiled face that is 1200mm above the grate of the tank. Clause 1(1)(a) of the Schedule requires 'the fence shall extend at least 1.2 metres above the ground on the outside of the fence'. This pool wall provides a 1200mm barrier to the swimming pool in accordance with clause 1(1)(a) of the Schedule.
- 6.4 The tank is 1500mm wide and has a diagonal distance of 1543mm from the front of the edge of the tank to the wet edge of the pool. Clause 1(1)(b) of the Schedule requires 'the fence shall extend at least 1.2 metres above any permanent projection from or object placed on the ground outside and within 1.2 metres of the fence.' The width of the tank and the terrace edge of the tank is greater than the 1200mm minimum set out in clause 1(1)(b) of the Schedule.
- 6.5 It is my view that there are risk locations at the edge of, and adjacent to, the balancing tank. The risk locations, both of which are beside the 1200mm glass pool barrier are shown in Figure 5.
- 6.6 Both locations must be designed and constructed so that there are no projections or ledges that provide footholds, where children under the age of six may be able to straddle the end of the fence and shuffle along, gripping on the top of the barrier.

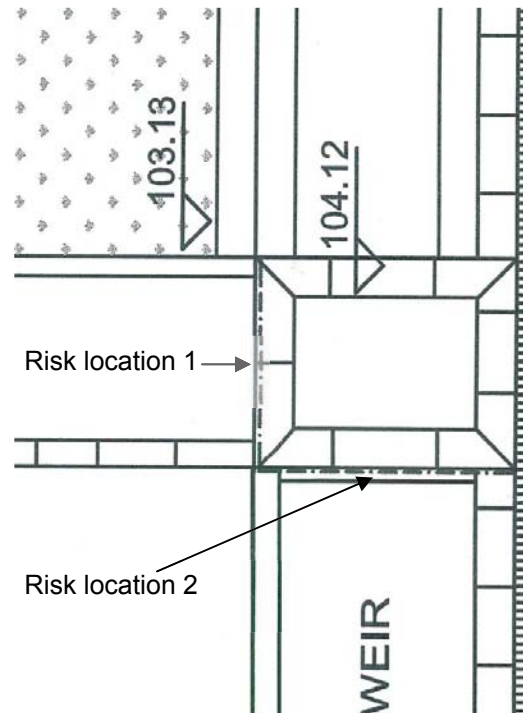


Figure 5: the detail to the edge of the balancing tank

- 6.7 As the Schedule is a means of establishing compliance with the Clause F4, I therefore consider the pool wall and tank in Area 1 complies with the requirements of Clause F4 as a pool barrier. However, I note the risk locations shown in Figure 5 must be designed and constructed so that there are no projections or ledges in these areas.

Area 2

- 6.8 The terrace that protects part of the pool has walls that, including the thickness of the terrace slab, are 999mm high above the finished ground level. The slab itself overhangs the wall for a distance of 500mm as shown in Figure 2.
- 6.9 As part of the background work leading to the 2007 version of F4/AS1, the Department undertook tests of several designs of 1000mm high barriers at a childcare centre. The object of the tests was to find out how small children climb barriers and which designs were difficult to climb so that several options could be given in F4/AS1.
- 6.10 Children climb over barriers that have a horizontal rail under the top rail (such as Figure 1 of F4/AS1), by wedging their knee on this rail and rolling over the top on their stomachs. With solid barriers (such as a plywood sheet) they hold onto the top and gain a friction grip with one shoe on the vertical surface by arching their body outwards. Children older than four years of age usually have enough arm strength to climb almost any 1000mm barrier simply by pulling themselves up and rolling over the top.
- 6.11 A solid 1000mm high barrier would probably be somewhat easier for children to climb than the 'standard' swimming pool barrier 1200mm high given in the Schedule. This type of fence can have a horizontal rail providing a foot hold near the bottom. The horizontal extension provided by the terrace overhang is therefore needed to provide additional climbing difficulty. The question to be answered is

whether the 500mm slab extension is sufficient to prevent children gaining a grip with their shoes on the vertical surface underneath the extension. In my view, it is sufficient because the extension places a child in a position such that they cannot put any force on their foot against the vertical surface to provide any grip in the vertical direction. Additionally, the edge of the extension does not provide an easy grip, compared with, for example, a 30mm diameter rail. A child old enough to have the strength to pull themselves directly up and onto the platform extension would also have no difficulty climbing the standard fence of the Schedule.

- 6.12 Accordingly, I consider that the perimeter wall to the raised terrace together with its associated 500mm overhang projection is an alternative solution to the Clause F4.3.4 (f) requirement to restrict the access of children to swimming pools.
- 6.13 I also accept that as the top surface of the slab is less than 1000mm above the finished ground level, it does not require barriers in terms of Clause 4.3.1 of the Building Code.
- 6.14 Therefore I consider the terrace in Area 2 complies with the requirements of Clause F4 as a pool barrier.

Area 3

- 6.15 The water feature that protects the northwest end of the pool has a maximum water depth of 400mm, like the balancing tank. Therefore, the water feature is exempt under section 5(b) from the requirements of the FOSP Act and therefore Clause F4.3.3 of the Building Code does not apply to the water feature.
- 6.16 The feature has external walls that are plastered and are 1200mm high above the finished ground level. The feature therefore provides a 1200mm barrier to the swimming pool in accordance with clause 1(1)(a) of the Schedule.
- 6.17 I have noted the authority's comments about the area at the opposite side of the terrace and feature pond to Area 2 (refer to paragraph 4.5). There is a difference in levels between the ground and terrace area of only 650mm as shown in Figure 6, which according to the plans is unfenced.

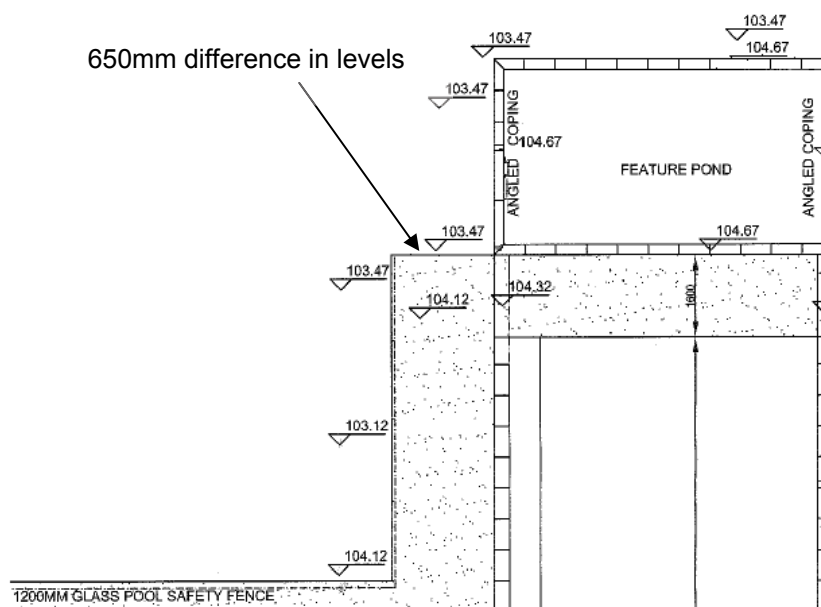


Figure 6: Unfenced area beside the feature pond

6.18 I consider the detail for the water feature in Area 3 complies with Clause F4 as a pool barrier. However, the area adjacent to the feature pond, represented by the unfenced 650mm difference in levels (shown in Figure 6) is not in accordance with Clause F4.

Conclusion

6.19 I conclude that the three revised pool barriers as detailed in Areas 1, 2, and 3 will comply with the Building Code.

6.20 I note the comments of the authority that the applicant has not applied for an amendment to the consent for the revised pool barriers.

6.21 I note that the applicant must apply for an amendment to the building consent for the revised pool barriers, and the application must show:

- how the areas adjacent to the balancing tank will be designed and constructed with no projections or ledges that could provide toeholds that could allow children under the age of six to enter the pool area unsupervised
- how the area adjacent to the feature pond where there is only a 650mm difference in levels will be detailed to prevent children under the age of six from entering the pool area unsupervised.

7. The decision

7.1 In accordance with section 188 of the Act, I hereby determine that the revised pool barriers, detailed as Areas 1, 2, and 3, will comply with Clause F4 of the Building Code.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 25 February 2010.

John Gardiner
Manager Determinations

Appendix A

The legislation and the acceptable solution

7.2 The Building Code:

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.

Provisions	Limits on application
<p>F4.3.3 Swimming pools having a depth of water exceeding 400 mm, shall have barriers provided.</p>	<p>Performance F4.3.3 shall not apply to any pool exempted under section 5 of the Fencing of Swimming Pools Act 1987.</p>
<p>F4.3.4 Barriers shall:</p> <ul style="list-style-type: none"> (a) Be continuous and extend for the full height 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 (f) In the case of a swimming pool, restrict the access of children under 6 years of age to the pool or the immediate pool area, (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. 	<p>Performance F4.3.4 (f) shall not apply to any pool exempted under section 5 of the Fencing of Swimming Pools Act 1987.</p>

7.3 The Acceptable Solution, F4/AS1 (second edition):

- 3.1.1** Fencing for swimming pools shall be constructed to no lesser standard than is required by the Schedule to the Fencing of Swimming Pools Act 1987, to restrict the access of children.

7.4 The FOOSP Act:

2 Interpretation

In this Act, unless the context otherwise requires,—

Fence—

- (a) means a fence that complies with the requirements of the building code in force under the Building Act 2004 in respect of swimming pools subject to this Act; and
- (b) includes any part of a building and any gates or doors that form part of the fence

Swimming pool and pool mean an excavation, structure, or product that is used or is capable of being used for the purpose of swimming, wading, paddling, or bathing; and includes any such excavation, structure, or product, that is a spa pool

5 Exempted pools

Nothing in this Act shall apply in respect of—

- (a) Any pool that has no part of the top of its side walls less than 1.2 metres above the adjacent ground level or any permanent projection from or object standing on the ground outside and within 1.2 metres of the walls, where the outside surface of the side walls is constructed so as to inhibit climbing and any ladder or other means of access to the interior of the swimming pool can be readily removed or rendered inoperable and is removed or rendered inoperable whenever it is intended that the pool not be used:
- (b) Any excavation, structure, or product, in which the maximum depth of water does not exceed 400 mm:

13B Fencing in accordance with Schedule must be treated as means of compliance

Any provision that is made for the fencing of swimming pools that is in accordance with the Schedule must, in respect of –

- (a) matters subject to the Building Act 2004, be treated as a compliance document establishing compliance with the building code for the purposes of section 19 of that Act, and the requirements of this Act

7.5 The Schedule to the FOOSP Act:

1

(1) The fence shall extend—

- (a) At least 1.2 metres above the ground on the outside of the fence; and
- (b) At least 1.2 metres above any permanent projection from or object permanently placed on the ground outside and within 1.2 metres of the fence.

(2) Notwithstanding subclause (1) of this clause, where the fence is constructed of perforated material, netting, or mesh and any opening in the material, netting, or mesh has a dimension (other than the circumference or perimeter) greater than 10 mm, the fence shall extend at least 1.8 metres above the ground or the projection or object.

2

Any clearance between the bottom of the fence and ground level shall not exceed 100 mm.

3

All materials and components shall be of a durable nature and shall be erected so as to inhibit any child under the age of 6 years from climbing over or crawling under the fence from the outside.