1. **Purpose**

The purpose of this practice note is to provide guidance in respect to pools involving safety from falling.

2. **Legislation**

When considering fencing around swimming pools, Council must consider both the New Zealand Building Act 2004 (the Act) and the Building Code (the Code).

**New Zealand Building Code**

There are two code clauses that apply to residential pools; F4 Safety from Falling and F9 Means of Restricting Access to Residential Pools.

**F4 Safety from Falling**

F4 requires that any structure from which a person can fall 1.0m or more must have a barrier affixed to it to prevent people from falling and injuring themselves.

If the requirements of clause F4 Safety from Falling and F9 Means of Restricting Access to Residential Pools (i.e. the provision of a barrier) were applied to infinity pools it could destroy the ascetic design characteristic of the pool.

F4 is primarily focused on people standing on a deck or platform and does not consider someone falling from the inside of a pool. E.g. pulling themselves up and sitting on a wall.

**F9 Means of Restricting Access to Residential Pools**

F9 states that residential pools must have a means of restricting access that prevents unsupervised access by a child under 5 years of age. In other words, F9 is about restricting a young child’s access into the immediate pool area rather than a fall.

F9/AS1 states that the outer wall of the pool is an acceptable barrier if it is no less than 1.2m high and has

- no climbable features or objects outside the pool barrier within 1.2m that would assist a child climbing; or
- any projections or indentations on the outside face of the wall that would assist a child in climbing

3. **Safety concerns**

There is a danger, especially to children, playing at the edge of a swimming pool on an air pillow that they could slip over the lip or edge of an infinity pool\(^1\). There is also a concern that children might sit or run along the infinity edge or the pool wall and fall with a potential consequential injury. There are a number of pools where the possible fall outside the pool wall is several metres and there are others where the fall is only marginally over 1.0m. Clause F4 is only concerned with fall

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\(^1\) An infinity pool is a swimming pool with a ‘disappearing edge’, over which water is designed to cascade into a receptor at the base of the drop before being pumped into the recirculating system and back up into the swimming pool. This gives the illusion that there is no edge to the swimming pool, allowing it to blend into the background landscape.
heights of 1.0m or more and does not differentiate between different fall heights in terms of the hazard or injuries someone could sustain. Clause F4 states that where the fall height is 1.0m or more a barrier is required unless it is incompatible with its use.

4. Compliance path

When considering the compliance path to F4 with regards to infinity edge pools or those with a lip that can be readily walked along, the key questions are:

- Is the fall height >1.2m?
- What is the width of the pool wall?
- Can a person pull themselves up out of the water and sit on the pool wall?
- Can a person on a floatation device be washed over the edge of the pool?
- Can a person within the immediate pool area (IPA) get access to and walk along the edge of the pool wall?
- Is a barrier meeting the requirements of F4 incompatible with its use?

In the case of an infinity edge pool or a pool with a lip that cannot be readily walked along and where the fall height is 1.2m in order to comply with F9 to prevent children under 5 years of age accessing the pool, Council will consider a modification on the grounds that a barrier would be incompatible with the use of the pool.

However, a barrier or some other means of arresting the fall is required where the:

- pool wall and subsequent fall height is >1.2m
- width of the pool wall is >200mm; or
- access via the IPA onto the wall is unrestricted

The following are scenarios and practical solutions that can be applied in order to reduce the risk of accidental fall or breaking the fall to safeguard against injury:

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Fall height</th>
<th>Protection measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pool wall has a lip or edge &lt;200mm and <strong>can not</strong> be accessed from within the IPA</td>
<td>1.2m</td>
<td>apply for modification to clause F4.3.1</td>
</tr>
<tr>
<td>Pool wall has a lip or edge &lt;200mm</td>
<td>&gt;1.2m</td>
<td>Install a barrier to meet requirements of F4 or provide other means to break the fall “apply for a modification to clause F4.3.1”</td>
</tr>
<tr>
<td>Pool wall has a lip or edge &gt;200mm</td>
<td>1.2m</td>
<td>Form minimum <strong>30-degree slope</strong> on pool edge (to inside face) and “apply for a modification to clause F4.3.1” or install a barrier to meet requirements of F4</td>
</tr>
<tr>
<td>Pool wall has a lip or edge &gt;200mm</td>
<td>&gt;1.2m</td>
<td>Install a barrier to meet requirements of F4 or provide other means to break the fall and “apply for a modification to clause F4.3.1”</td>
</tr>
</tbody>
</table>

Under F9, there must be no climbable features or objects within 1.2m of the barrier or net and no projections or indentations that would assist a child in climbing into the pool area.
As an alternative to installing a vertical barrier as required by F4, designers can apply for a modification of the Building Code and install a horizontal net or a horizontal barrier to break the fall and safeguard against serious injury.

The net or barrier must be located no more than 1.0m below the pool edge and extend out no less than 1.0m horizontally.

In order to exercise any of the above options, an applicant must apply for a modification to clause F4.3.1 under s.67 of the Building Act 2004 and provide justification to show that the objective and functional requirements can still be met. The Council may apply conditions to a modification; each application will be considered on a case-by-case basis.

5. References

- New Zealand Building Act 2004 (section 67)
- New Zealand Building Code clause F4 Safety from Falling and F4/AS1
- New Zealand Building Code clause F9 restricting access to residential pools and F9/AS1

Determination 2001/002 the Ministry agreed that where there is a fall of several metres installing a horizontal safety net, positioned to catch the person if they fell, would meet the intent of F4. In this instance the safety net must be incorporated into the design; located no more than 1.0m below the pool edge and extend out no less than 1.0m horizontally.

Determination 2010/085 the Ministry accepted that a horizontal rail set below and on the outer edge of the pool would act as a horizontal barrier and meet the objectives of F4.