



Determination 2006/50

Disposal of free water overflow in 27 Hill Street, Onehunga, Auckland

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, Determinations Manager, Department of Building and Housing, for and on behalf of the Chief Executive of that Department.
- 1.2 The applicant is Housing New Zealand Corporation (“the owner”) acting through a firm of hydraulics consultants (“the consultant”). The only other party is the Auckland City Council (“the territorial authority”).
- 1.3 The application arises from a dispute about the means of disposing of free water overflow from kitchen sinks in an apartment complex. I take the view that the matter to be determined is whether the proposed means comply with clauses E3.3.2, G12.3.7, and G13.3.2 of the Building Code² (the First Schedule to the Building Regulations 1992).
- 1.4 In making my decision I have not considered any other aspects of the Act or of the building code.
- 1.5 Unless otherwise stated, references in the determination to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

2 The complex and the sinks

- 2.1 The complex consists of five apartment buildings each having four storeys with two or more apartments on each storey.

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

² The Building Code is available from the Department’s website at www.dbh.govt.nz



2.2 The owner proposes not to install floor wastes and associated pipework in the apartment kitchens but instead to provide kitchen sinks which incorporate an internal overflow designed to deliver any high level water back into the outlet pipe and so prevent the water from overtopping the rim of the sink.

2.3 To that end, the relevant plans were annotated:

All kitchen sinks shall have integral overflows built into the inserts.

3 The Building Code and the acceptable solution

3.1 The relevant provisions of the Building Code are:

Sanitary fixture Any fixture which is intended to be used for sanitation.

E3.1 The objective of this provision is to—

- (b) protect household units and other property from damage caused by free water from another household unit in the same building.

E3.2 Buildings must be constructed to avoid the likelihood of—

- (b) free water overflow penetrating to an adjoining household unit; and

E3.3.2 Free water from accidental overflow from sanitary fixtures or sanitary appliances must be disposed of in a way that avoids loss of amenity or damage to household units or other property.

G12.3.7 Water supply systems must be installed in a manner that—

- (a) pipes water to sanitary fixtures and sanitary appliances at flow rates that are adequate for the correct functioning of those fixtures and appliances under normal conditions.

G13.3.2 The drainage system shall:

- (a) Convey foul water to an appropriate outfall,
- (b) Be constructed to avoid the likelihood of blockage,

3.2 The relevant provisions of the compliance document E3/AS1 are:

2.0 Overflow

2.0.1 If a *sanitary fixture* is located where accidental overflow could damage an adjoining *household unit*, containment and a *floor waste* shall be provided

2.2 Floor wastes

2.2.1 *Floor wastes* shall comply with G13/AS1 Paragraph 3.4.3 c), but a graded floor is not essential in this situation.

3.3 The relevant provisions of the compliance document G12/AS1 are:

Table 3: Acceptable Flow Rates to Sanitary Fixtures Paragraph 5.3.1		
Sanitary fixture	Flow rate and temperature l/s and °C	How measured
Sink	0.2 at 60°C* (hot) and 0.2 (cold)	Flow rates required at both hot and cold taps but not simultaneously
* The temperatures in this table relate to the temperature of the water used by people in the daily use of the fixture. Note: The flow rates required by Table 3 shall be capable of being delivered simultaneously to the kitchen sink and one other fixture.		

3.4 The relevant provisions of the compliance document G13/AS1 are:

3.4.2 The floor waste, and the water trap if used, shall have a minimum diameter of 40 mm.

4 The submissions and the draft determination

4.1 The owner, through the consultant, submitted previous correspondence between the parties. In particular, the territorial authority had said:

“The issue is solely code compliance. Until I have documentation to support an alternate (*sic*) solution I can only approve the acceptable solution.

“... any solutions offered by designers that fall out[side] documented acceptable solutions are deemed to be alternative solutions. Alternative solutions will only be accepted after a positive peer review of supporting documentation/tests or a positive determination issued by the DBH.”

4.2 The owner’s submissions said:

“... the [territorial authority] takes the view that the only way they can comply with the [Building Code] is to adhere strictly to the Acceptable Solution and consider that the installation of a floor waste to be the only way possible to prevent free water overflow from a sanitary fixture penetrating to an adjoining household unit.

“[The consultant is] of the view that an **Alternative Solution** can be applied to better and safely prevent free water overflow from a sanitary fixture penetrating to an adjoining household unit

“Our solution is to match the capacity of the fixture outflow against the faucet inflow. If necessary, we would install, by fixing within the faucet, proprietary water flow regulators that guarantee water delivery from the faucet will not exceed a pre-set flow rate. This rate must obviously be less than the overflow outlet can accommodate.

“[Table 3 of G12/AS1] suggests that an **acceptable** flow rate (not maximum or minimum) for a sink could be 0.2 litres per second, or 12 litres per minute.

“Most territorial authorities and water providers would suggest that in these days of water and energy conservation, this flow rate is too high. Refer to numerous government reports, including [the report “Water Efficiency Labelling for New Zealand: Cost Benefit Analysis” prepared by Covec Ltd for the Ministry for the Environment, June 2004].

“[The consultant] suggest a sink fixture flow rate of 9.0 litres per minute would be more than sufficient to permit the satisfactory operation of any sink and we would specify installation of flow regulating devices that guarantee that level of performance. We would then request that the fixture overflow be capable of accepting that flow rate continuously.”

- 4.3 The territorial authority’s submissions referred to previous correspondence with the consultant and said:

“The [consultant] has provided no data with which to assess the performance of the alternate [*sic*] solution offered. My view is that the [consultant] needs to provide, the amount of free space/orifice size of the overflow protection aperture in the fixture, the size of the overflow discharge pipe and the exact location and size of the connection to the fixture discharge pipe.”

4.4 After considering those submissions, I prepared a draft determination (“the draft”), which I sent to the parties for comment. This determination follows that draft except that I have interpolated the owner’s comments and my responses in 5.4 below, I have inserted 6 below in the light of the parties’ comments, and I have changed the decision, see 7 below.

5 Discussion

5.1 General

- 5.1.1 The term “acceptable solution” is defined in the Act as “a solution that must be accepted as complying with the building code”. I understand the term “alternative solution” to mean:

“A building solution that differs partly or wholly from the solutions offered by the compliance documents, but achieves the performance requirements of the Building Code.”

- 5.1.2 As I read the correspondence, the territorial authority did not require strict adherence to the acceptable solution and did not refuse to accept any alternative solution. On

the contrary, the territorial authority, very properly in my opinion, expressed a willingness to permit the use of an alternative solution provided that it had been demonstrated to comply with the Building Code. However, I consider that the territorial authority went too far when it limited the means of demonstrating compliance to either a determination or “a positive peer review of supporting documentation/tests”, see 4.1 above.

5.2 Accidental overflow

5.2.1 It was not raised by the parties, but I take the view that in clause E3.3.2 the term “accidental overflow” when applied to a kitchen sink means an overflow caused by a plug-hole blockage as distinct from a blockage further downstream such as might be caused by lack of maintenance.

5.3 Minimum faucet flow rate

5.3.1 The owner suggested that “a sink fixture flow rate of 9.0 litres per minute would be more than sufficient to permit the satisfactory operation of any sink” (presumably excluding sinks without integral overflows). That is 33% less than the acceptable flow rate mentioned in G12/AS1.

5.3.2 The report cited by the consultant to justify that flow rate does not mention kitchen sinks and in particular does not consider any loss of amenity that would be associated with such a significant reduction in the flow rate.

5.3.3 In the absence of any justification for a lower rate, I consider that the faucet flow rate should be as specified in G12/AS1.

5.4 The proposed alternative solution

5.4.1 As mentioned above, the plans and specifications submitted for building consent merely said: “All kitchen sinks shall have integral overflows built into the inserts.” The owner’s submissions to me went further and said that “proprietary water flow regulators” would be fixed within a sink’s faucet to restrict flow to 9.0 l/min, and that the owner “would then request that the fixture overflow be capable of accepting that flow rate continuously”.

5.4.2 In my view, that is still not sufficient for building consent purposes. Both the builder and the territorial authority are entitled to know exactly what is required, and in particular:

- (a) Which proprietary sink is to be installed in each kitchen.
- (b) Which proprietary water flow regulator (if any) is to be attached to each of the sink’s faucets.

- (c) If the regulator is adjustable, it is to be adjusted so that the maximum flow rate of each faucet when the other is closed shall be not less than 12 l/min.

In the light of the owner’s comments, see 6 below, I accept that it is not necessary to specify a proprietary sink so long as a proprietary overflow is specified.

- 5.4.3 It is not for me to say how the consultant must justify its claimed alternative solution. That is a matter for the owner to propose and for the territorial authority to decide, with each party entitled to submit any disputes to me for a further determination. However, in this case I would expect the consultant to submit hydraulic calculations that establish, for each kitchen, that the maximum flow delivered when both faucets (with regulators if necessary) are fully open is less than the maximum rate of overflow that the sink can accommodate.

6 Comments on the draft and my responses

- 6.1 The territorial authority accepted the draft.
- 6.2 The owner queried certain passages in the draft, and supplied the following to replace the general requirement for integral overflows (see 2.3 above) in the plans and specifications submitted for building consent:

- (a) Specific requirements for the installation of either of two proprietary integral overflows supported by manufacturers’ data as to the capacity of those overflows.

I accept that data as establishing that the proprietary overflows concerned have a capacity of 14 l/min.

- (b) A manufacturer’s guarantee that the inflow rate to the sinks would be 12 l/min subject to variations of up to 1 l/min for variations in system pressure of ± 200 kPa.

- 6.3 The territorial authority responded by querying:

- (a) Whether the 16% margin between the 14 l/min overflow capacity and the nominal 12 l/min inflow rate was sufficient.

Given that clause E3.3.2 of the Building Code requires the overflows to dispose of “accidental overflow . . . in a way that avoids loss of amenity or damage . . .”, I consider that it is sufficient for the overflow to have no less capacity than the maximum likely inflow.

- (b) Whether the range of inflow rate was acceptable.

6.4 As to the inflow rate, the owner in turn responded by saying:

“On [the] consent drawings . . . we have nominated a Pressure Limiting Valve (PLV) at the hot water cylinder entry, which we can specify as having a set point as being 350 kPa. This is the set pressure with no water flow through the valve. As flow increases through the valve, the cold water pressure decreases [reference made to a flow chart provided by the PLV manufacturer]. The cold water branch to the apartment is downstream of this PLV and therefore is under the control of this valve. The point is that the maximum pressure that will be delivered within the apartment is 350 kPa. There will be no upward fluctuation in pressure thanks to this valve, so there will be no upward fluctuation in flow rate. Guaranteeing that the [flow limiter] set flow rate of 12 litres per minute is what will be delivered at the tap outlet.”

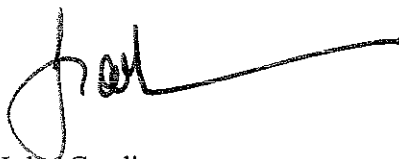
I consider that adequately answers the territorial authority’s query.

7 Decision

7.1 In accordance with section 188(1) of the Act:

- (a) I hereby determine that the owners proposals for disposing of free water overflow as shown in the plans and specifications originally submitted for building consent but amended as indicated in 6 above, comply with clauses E3.3.2, G12.3.7, and G13.3.2 of the Building Code.
- (b) Subject to those amendments being made to the plans and specifications, I hereby reverse the territorial authority’s decision to refuse to grant a building consent in respect of the sinks.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing
on 26 May 2006



John Gardiner
Determinations Manager