Determination 2013/071

The compliance of proposed repairs to an earthquake-damaged foundation including partial replacement of a concrete perimeter foundation wall, at 130 St Martins Road, St Martins, Christchurch

1. The matter to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004[1] ("the current Act") made under due authorisation by me, John Gardiner, Manager Determinations and Assurance, Ministry of Business, Innovation and Employment ("the Ministry"), for and on behalf of the Chief Executive of the Ministry.

1.2 The parties to the determination are

- the applicant, Fletcher Construction – Earthquake Recovery (Fletcher EQR), the Project Management Office established by the Earthquake Commission (EQC), ("the PMO"). The PMO is represented by a Chartered Professional Engineer who is a party to the determination because he is deemed to be an LPB under the Act[2].
- the owner of the building, Mr G Wall, acting through the PMO as an agent
- Christchurch City Council ("the authority"), carrying out its duties as a territorial authority or building consent authority.

1.3 The PMO has requested that the determination consider the compliance of the proposed building work, and whether a building consent is required or whether the proposed work meets the test for exempt building work under Schedule 1(a) of the Act.

1.4 The matter to be determined[3] is therefore whether the proposed building work complies with the Building Code to the extent required by the Act. In considering this matter, I have also discussed whether a building consent is required for the proposed work, or whether the work is exempt under Schedule 1 paragraph (a).

1.5 In making my decision, I have considered the submissions of the parties and the other evidence in this matter.

[1] The Building Act, Building Code, Compliance documents, past determinations and guidance documents issued by the Ministry are all available at www.dbh.govt.nz or by contacting the Ministry on 0800 242 243.
[2] Chartered Professional Engineers under the Chartered Professional Engineers of New Zealand Act 2002 are treated as if they were licensed in the building work licensing class Design 3 under the Building (Designation of Building Work Licensing Classes) Order 2010.
[3] Under section 177(1)(a)

2. The building work and the background

2.1 The building is a single storey timber-framed dwelling with weatherboard cladding and a corrugated metal roof located on a flat suburban site. The existing foundation system is a perimeter concrete wall with internal concrete piles (classified as foundation Type B in the Ministry's document 'Repairing and rebuilding houses affected by the Canterbury earthquakes' (December 2012)[4]) ("the Ministry's foundation repair guidance").

2.2 The house was damaged in the 2010 and 2011 Canterbury earthquakes. An inspection of the property was undertaken by a geotechnical engineer ("the geotechnical engineer") on 19 March 2012. Geotechnical testing was carried out on 17 May 2012. A structural engineer also carried out an assessment of the property. The geotechnical and structural engineers made the following observations and conclusions:

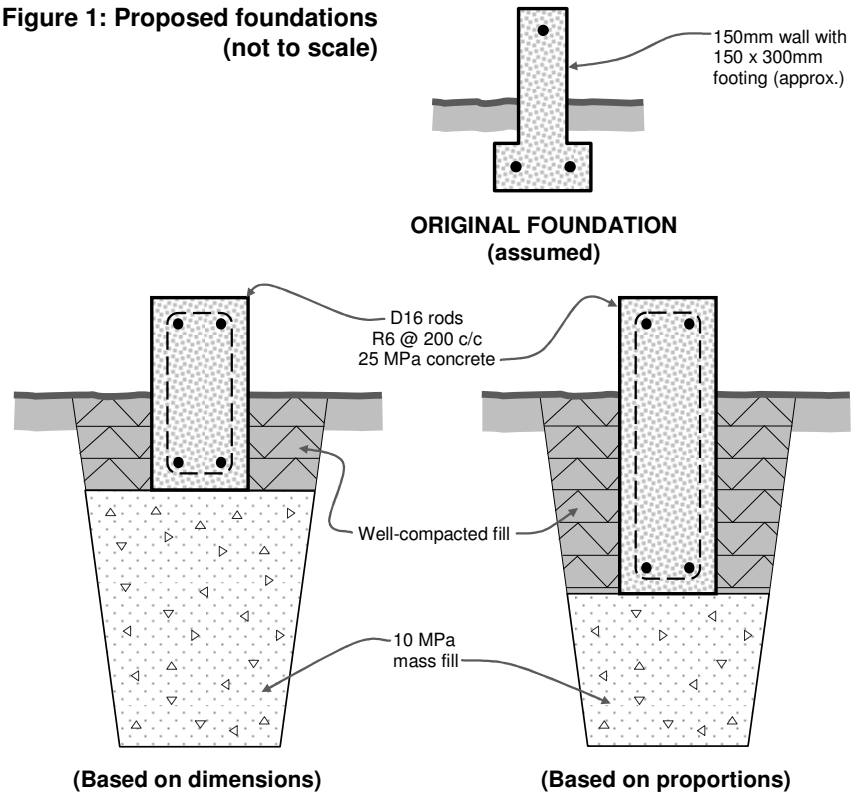
- the site is categorised as Foundation Technical Category TC2[5], confirmed by post-earthquake observations
- the eastern perimeter wall has rolled outwards by approximately 15mm over its height and a significant number of cracks in the order of 1mm to 4mm wide were observed in the eastern and northern perimeter walls; cracks 1mm to 3mm wide were also observed in the western perimeter foundation wall
- the internal concrete piles were confirmed to be vertically aligned with no obvious tilting
- the difference in floor levels throughout the house was likely caused by differential settlement of the perimeter concrete foundation wall and internal piles; the differences in floor level are outside the tolerance levels set out in the Ministry's foundation repair guidance
- the ring beam foundation on the east side of the house is to be replaced and jacking and packing of internal piles is required to bring floor levels back into tolerance
- cracks in the parts of the foundation not scheduled for replacement should be epoxied
- good ground as defined by NZS 3604[6] was identified at depths of 0.8 metres to 1.3 metres below ground level around the perimeter of the house
- the replacement ring beam foundation should be cast over mass concrete fill or compacted granular fill which extends down to 1.3 metres below ground level.

2.3 The PMO subsequently prepared a repair methodology, which is the subject of this determination. The proposed building work set out in the repair methodology includes the replacement of the eastern perimeter foundation wall, requiring excavation of the ground to 1.1 metres. The rebuilt wall will be generally in accordance with Figure 4.2 of the Ministry's foundation repair guidance, and where

[4] Ministry of Business, Innovation and Employment. Guidance: Repairing and Rebuilding Houses affected by the Canterbury Earthquake (Version 3, December 2012)
[5] In terms of the Ministry's foundation repair guidance (Minor to moderate land damage from liquefaction is possible in future large earthquakes)
[6] NZS 3604:2011 Timber framed buildings

excavation depths exceed the foundation wall depth, the ground is to be made up with 10MPa concrete in place of compacted hard fill. The drawings show the proposed foundation work is the replacement of about two thirds of the eastern foundation wall and about 50% of the northern foundation wall. The proposed details for the replacement foundation wall and the existing assumed foundation wall detail are shown in Figure 1.

Figure 1: Proposed foundations (not to scale)



2.4 Floor levelling is also proposed to be carried out. It has been assumed that where piles are low the pile top will be packed and appropriate details are included in the documentation. Where floor levels are high, the methodology notes that the bearers will be notched up to 25mm or pile tops trimmed. Where notching over 25mm is required, the pile is to be replaced with a 125×125 H5 timber pile, installed in accordance with NZS 3604:2011 but placed at a level where no bearer notching is necessary.

2.5 The Ministry received the application for a determination on 12 February 2013.

3. The Submissions

3.1 The initial submissions

3.1.1 The PMO attached copies of the following to the application:

- Geotechnical Engineering Report by OPUS including appendices, dated 6 July 2012.
- Level 2 Scoping Form, Work Methodology, Restricted Building Work Notice by Fletcher EQR, dated 3 December 2012.

- Plans showing the proposed alterations to the building.
- Calculations and construction details for the proposed foundation repairs.
- A copy of the Replacement Decision-Tree from the Ministry's draft *Guide to earthquake repairs of residential houses that do not require a building consent*, dated 5 December 2012[7] ("the Ministry's draft guidance").
- Architectural plans for alterations and additions to the house consented in 2009.

3.1.2 The authority made no submission in response to the application.

3.2 The first draft determination and submissions received

3.2.1 A draft determination was issued to the parties for comment on 14 June 2013. The first draft considered that the replacement of part of the existing foundation is with a comparable component or assembly in the same position, and the replaced section of foundation wall was not a complete or substantial replacement in relation to the structural behaviour of the building as a whole.

3.2.2 The authority responded to the draft in a letter dated 28 June 2013, noting that it considered the cracks in parts of the foundation requiring repair (refer paragraph 2.2) should be addressed in the determination as a separate item of building work and assessment made as to whether the crack repair is being done using comparable materials. The authority also sought clarification when considering future scenarios as to whether an authority could still grant an exemption from consent under Schedule 1(k) if an owner had chosen to make such an application instead of relying on another applicable clause in Schedule 1.

3.2.3 The PMO accepted the draft without comment in a response received on 9 July 2013.

3.3 The second draft determination and submissions received

3.3.1 A second draft determination was issued to the parties for comment on 20 September 2013. The second draft concluded that

- the proposed building work will comply with the Building Code
- the repair of the foundations uses comparable materials but is not considered to be a replacement of a comparable component or assembly in the same position by virtue of the increase in size and complexity of the replacement; accordingly it is not exempt work under Schedule 1(a)
- the greater size and complexity of the replacement foundations indicates the replacement foundation is contributing significantly to the building's structural behaviour; accordingly it is not exempt under Schedule 1(a)
- the proposed solution for floor levelling can be considered repair and uses comparable materials; accordingly it is exempt under Schedule1(a)
- the repair material to the cracks is comparable and can be considered repairs and maintenance for the purpose of Schedule 1(a)
- an exemption under Schedule 1(k) would have been appropriate had this been sought by the PMO.

[7] Draft version. Guide to earthquake repairs of residential houses that do not require a building consent. (Draft dated 5 December 2012)

3.3.2 The authority responded to the second draft determination by email on 24 October 2013, noting that the determination had been useful in refining policies and procedures on exemptions, and that its guidance information (refer paragraph 4.10.1) has since been updated. The authority also referred to the clarification it sought around the application of Schedule 1(k) and noted that by its interpretation of the determination is that the authority could issue an exemption under Schedule 1(k) 'even if it was very clear that an owner could decide it was already exempt' under Schedule 1(a).

3.3.3 The PMO responded to the second draft determination on 12 November 2013. The PMO did not accept the second draft and submitted that (in summary):

With respect to comparable components

- The site concrete 'is in essence fill [that is] easily compacted'. Previous advice from the Ministry was that site concrete could be considered 'falsework'[8].
- The replacement foundation is comparable as 'the bearing area is the same or better than the proposed footing, it is better reinforced, it is constructed from identical materials, it is in accordance with [Ministry] guidelines … it is in the same position and serves the same function'
- '… comparable should surely mean a component that serves the same function as the original in generally the same manner and has the same (or better) durability and compatibility as that which it is to replace.'
- 'If [the replacement foundation] is not a comparable component then such changes as a masonry foundation for a concrete foundation could not be done, likewise changing roof cladding.'
- The Ministry's guidance information on exempt building work says that replacement of a chimney is exempt building work; the guidelines 'further encourage that such replacement should be with lightweight materials'. The replacement of a 'brick chimney' with a 'lightweight chimney' is considered exempt building work

With respect to a schedule 1(k) exemption

- A repair carried out under a schedule 1(k) exemption 'provides no benefit to the applicant or home-owner except that records will be on [the authority's] file'.
- Exemption under Schedule 1(k) is 'purely at the discretion of the [authority] and unless there is consistency with the application of this discretion there is no certainty … that the exemption will be granted'
- For 'previous applications for 1(k) exemptions the [authority] has required the application to include all documentation as if it were for a full building consent.'

[8] Falsework is a temporary structure that supports part or the whole of a permanent structure until it is self-supporting.

3.3.4 The authority responded to the PMO's submission on 12 November 2013 saying that (in summary):

- The definition for 'building work' under section 7 includes site work. The building included the 'artificial modification' of the ground under the replacement foundation.
- The authority disputed what it believed to be the PMO's position that the replacement of a brick chimney with a lightweight chimney was exempt building work saying that a timber-framed chimney with a metal flue inside was not 'comparable'.
- The approvals of Schedule 1(k) applications had reduced 'both the work for the applicant and the amount of time needed to make and record the … decision. … at the current time exemption assessments and decisions are being made in a small fraction of the time in comparison to a building consent… . The authority had a 'responsibility to ensure that it has good grounds to make a decision and the risk of the work not complying is carefully considered'.

3.3.5 The PMO responded to the authority (also on 12 November) questioning the authority's position that the site concrete was building work and not falsework. The PMO referred to another foundation job involving excavations filled with concrete. The PMO's understanding of discussions with the Ministry was that

> … the concrete was considered falsework even though it remained in place. Section 9 of the Act states that a building does not include falsework:

3.4 My response to the submissions

3.4.1 I have considered the submissions and amended the determination as I consider appropriate.

3.4.2 In respect of building work that is exempt under Schedule 1(a): the authority's interpretation is that it could issue a Schedule 1(k) exemption even if it was 'very clear' to the authority that it was work that was exempt under Schedule 1(a).

3.4.3 This matter was considered in Determinations 2010/107 and 2011/041. In these Determinations I said, respectively:

> 5..2.5 In my view if an authority considers building work exempt it is incumbent on the authority to advise an owner accordingly.
>
> and,
>
> 5.3.5 I accept the 2010 guidance[9] places responsibility on an owner to determine the status of any proposed work. However, it does not absolve an authority from the responsibility of advising an owner that work they are proposing may not require a building consent.

In my view the position taken in Determinations 2010/107 and 2011/041 also apply to situations where a Schedule 1(k) exemption is being sought: if the authority believes the proposed the work falls with the scope of schedule 1(a) then it should advise the owner accordingly.

[9] Department of Building and Housing. A guide to building work that does not require a building consent (2nd Edition December 2010)

3.4.4 In response to the PMO's comments about the replacement foundation being comparable with the original: I consider a masonry foundation and a concrete foundation could be considered comparable using the rationale set out in paragraph 4.6.3. In this case I consider the difference in size and complexity means the foundation are not comparable as discussed in paragraph 4.6.6.

3.4.5 With respect to the replacement of a brick chimney with a lightweight chimney: the Ministry's guidance considers a reinforced pumice concrete chimney comparable with a brick chimney. I do not consider the replacement of a brick chimney with a timber-framed structure with a metal flue is replacement with a comparable material.

3.4.6 With respect to the party's submissions on whether or not the site concrete can be considered site work or falsework I note the following:

- Falsework provides temporary support to building elements. In this case the site concrete provides permanent support to the replacement foundation.
- The authority's decision to issue a Schedule 1(k) exemption would not be determined by whether the site concrete is considered site work or falsework.

4. Discussion

4.1 General

4.1.1 The matter for determination is whether the proposed building work complies with the Building Code to the extent required by the Act.

4.1.2 In considering this matter, I have also discussed whether a building consent is required for the proposed work, or whether the work is exempt under Schedule 1(a).

4.2 The relevant legislation and guidance information

4.2.1 Section 17 of the Act states that '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'. Section 41 sets out those cases in which a consent is not required and includes 'any building work described in Schedule 1'. Schedule 1 to the Act, 'Exempt Building Work', lists work for which a building consent is not required. The relevant legislation is contained in Appendix A.

4.2.2 The Ministry has published a guidance document[10] on exempt building work ("the Schedule 1 guide"), which states:

> The primary purpose of Schedule 1 is to exempt building work that is minor and low risk in nature and where the benefits of requiring a building consent do not exceed associated compliance costs.

4.2.3 Section 19(2)(b) of the Act says 'In considering whether something complies with the building code, [an authority] may have regard to any guidance information published by [the Ministry] under section 175.'

[10] Department of Building and Housing. A guide to building work that does not require a building consent (2nd Edition December 2010)

4.3 Compliance of proposed replacement foundation wall

4.3.1 I note that in accordance with section 17 of the Act the building work must comply with the Building Code regardless of whether a building consent is required. The clauses of the Building Code that apply to foundations are B1 Structure and B2 Durability.

4.3.2 Due to the fact that the proposed repair solution (as described in paragraph 2.3) is based on one of the solutions outlined in the Ministry's foundation repair guidance, published under section 175, I am of the view that the proposed replacement foundation wall complies with Clause B1 and Clause B2 of the Building Code.

4.3.3 I consider the proposed solution is over and above what is required to ensure that the repaired foundation wall complies with the Building Code. Both the Ministry's draft guidance referred to in paragraph 3.1 and the guidance information on the repair of foundations in TC2[11] ground both say that the proposed foundation solution 'has sufficient strength and stiffness to span a 4 m loss of support for a single-storey dwelling with heavy wall cladding (eg, brick veneer), or a two-storey dwelling with a light- or medium-weight cladding' (my emphasis).

4.3.4 A simpler replacement solution to that proposed here would have met the requirements of the Building Code. I also note that propping the perimeter wall may also have satisfied the requirements of the Building Code.

4.4 Exemption under Schedule 1(a)

4.4.1 The PMO has asked whether the proposed building work is eligible for an exemption from the need for a building consent under Schedule 1(a). Eligibility for exemption under Schedule 1(a) is not a determinable matter under section 177(1)(a) or 177(1)(b), however, I can provide some guidance on whether this type of exemption is appropriate in this case.

4.4.2 Sections 14B, 14D and 14E of the Act respectively outline the responsibilities of the owner, the designer and the builder. The PMO is effectively acting in all of these roles as it is acting as the agent for the owner.

4.4.3 The PMO is responsible for

- obtaining any necessary consents, approvals, and certificates
- ensuring that the plans and specifications or the advice are sufficient to result in the building work complying with the Building Code
- ensuring that the building work complies with the building consent and the plans and specifications to which the building consent relates
- ensuring that building work not covered by a building consent complies with the Building Code.

4.4.4 The PMO is therefore responsible for making a decision as to whether a building consent is required for the building work, or whether it is exempt under Schedule 1(a) (refer also paragraph 4.9).

[11] Ministry of Business, Innovation, and Employment, Guidance: Repairing and rebuilding houses affected by the Canterbury earthquakes, Part A : Technical Guidance (TC1 and TC2) (Revision 3, December 2012)

4.4.5 I have confirmed the compliance of the proposed building work (see paragraph 4.3). In the following paragraphs I consider how Schedule 1(a) applies to the building work as described in paragraphs 2.3 and 2.4 of this determination.

4.4.6 The PMO noted on its 'Exempt Building Work' file record that:

> the foundation is to be constructed in concrete and in its original position. The amount of replacement is less than 50% therefore it can be considered exempt from the need for a building consent.

4.4.7 Schedule 1(a) states that a building consent is not required in respect of:

> (a) any lawful repair and maintenance using comparable materials, or replacement with a comparable component or assembly in the same position, of any component or assembly incorporated or associated with a building, including all lawful repair and maintenance of that nature that is carried out in accordance with the Plumbers, Gasfitters, and Drainlayers Act 2006, except—
>
> (i) complete or substantial replacement of a specified system; or
>
> (ii) complete or substantial replacement of any component or assembly contributing to the building's structural behaviour or fire-safety properties; or
>
> (iii) repair or replacement (other than maintenance) of any component or assembly that has failed to satisfy the provisions of the building code for durability, for example, through a failure to comply with the external moisture requirements of the building code; or …

4.4.8 In my view the reference to "lawful" in Schedule 1(a) requires a repair and maintenance to comply with all other regulatory requirements such as those under the Resource Management Act 1991, the Electricity Act 1992, and the Health and Safety in Employment Act 1992, and does not prevent building work being exempt under Schedule 1(a). Section 17 already clearly provides that all building work, whether or not it requires a building consent, must comply with the Building Code to the extent required by the Act.

4.4.9 Schedule 1(a) exempts two different types of building work:

- any repair and maintenance using comparable materials; and
- any replacement with a comparable component or assembly in the same position.

The application of either types of work is discussed in detail as below, along with the exception in respect of the complete or substantial replacement of a structural component or assembly.

4.5 Repair and maintenance using comparable materials

4.5.1 The meaning of the term "repair and maintenance" limit the application of this part of the exemption to building work that is a repair or is maintenance of building work previously done. However, repair and maintenance will not necessarily be more limited than a replacement; the two types of building work will often overlap. For example, a repair will often involve the replacement of the component that has failed or deteriorated and nearing the end of its useful life, such as one or more foundation piles, or a section of drainage pipework. If an element requires repair then Schedule 1(a) permits that repair as long as the repair uses comparable materials.

4.5.2 I note that the materials employed in the proposed replacement foundation wall are comparable, being reinforced concrete (refer Table 1 below), but differ significantly in size and complexity. It is the extent of the difference in size and complexity that leads me to the view that, although the work uses comparable materials, the work is not a repair or maintenance of the original foundation wall.

4.5.3 A different position may have been reached had the proposed replacement wall more closely resembled the original wall, or the PMO had elected to repair the original wall in situ by propping, or similar.

4.6 Replacement with a comparable component or assembly

4.6.1 I now consider the replacement of the damaged parts of the foundation as a "comparable component or assembly in the same position". In my view, there are aspects of this limb of the exemption that place effective limits on its scope: a replacement must be a "comparable" component or assembly, and must be located "in the same position".

4.6.2 In considering the comparability of a component or assembly I consider it appropriate to examine a number of aspects of the building work including the similarity in function, the compatibility between the materials, the complexity of the finished assembly (typically a comparison of construction details), and whether the new work employs commonly available products or systems.

4.6.3 For example, I consider that the replacement of one or more native timber piles with concrete piles would be considered exempt work, as would removal of Fibrolite cladding[12] and re-cladding with plywood with spaced timber battens, or the replacement of an earthenware drain with uPVC pipe of the same diameter. In each of these cases the materials are different but in every other respect the replacement component would be considered comparable in that:

- they are located in the same position
- they perform a similar function
- both timber and concrete can be readily joined, as can earthenware pipework to uPVC
- there is a similar level of complexity in the construction methods used
- the replacement component or assembly is commonly used.

4.6.4 In this case, the materials and function for the replacement foundation wall are essentially the same as those of the original foundation wall: it is the size and complexity of the original and the replacement foundation walls that differ.

4.6.5 The table below outlines the construction of both the existing foundation wall and the proposed replacement foundation wall (Figure 1 also refers). I note that the following makes assumptions about existing foundation.

[12] Building work involving the removal of asbestos products is covered under various legislation including: Health and Safety in Employment Act 1992, Health and Safety in Employment (Asbestos) Regulations 1998, Building Act 2004, and the Resource Management Act 2004.

Table 1

	Existing foundation wall (assumed)	Proposed replacement foundation wall
Perimeter wall	Concrete perimeter wall approx 150mm wide	25MPa concrete perimeter wall 300mm wide
Reinforcing	Reinforced	D16 main steel plus R6 ties at 200 centres
Footing	Concrete footing approx 150 x 300mm	300mm wide
Ground	good ground as defined by NZS 3604 was identified at depths of 0.8 metres to 1.3 metres below ground level around the perimeter of the house	10MPa concrete mass fill down to 1.3 metres below ground level. Compacted fill to trench sides. Note: the foundation above is designed to allow for a 4 metre long loss of support

4.6.6 I therefore consider:

- both walls are constructed of reinforced concrete
- the performance of the replacement wall will be at least as good as that of the original wall
- the original and replacement walls support the same load, however, the replacement wall is designed to span a 4 metre long loss of support: its design parameters and function are therefore different to that of the original wall
- while the replacement wall is a relatively straightforward foundation solution, taken together with the mass concrete fill it has an increased size, complexity, and scale when compared with the original.

4.6.7 Taking the above into account I am therefore of the view that the replacement foundation wall is not considered 'comparable' with the original.

4.6.8 In regards to the proposed replacement foundation wall being 'in the same position'. The replacement foundation wall is significantly different size to the original (larger) and it founded on material at a greater depth. I also observe that the replacement foundation is also not located between the same elements: the foundation now rests on mass-fill concrete. Taken together I do not consider that the replacement foundation can be said to be in the same position as the original.

4.7 'Complete or substantial replacement'

4.7.1 As the foundation wall is a component or assembly that contributes to the building's structural behaviour, Schedule 1(a) only applies if the building work is 'not substantial or complete' replacement. In regard to the scope of the term "assembly", I consider this potentially allows the replacement of part of an assembly, such as a number of piles, but not a complete or substantial replacement of the whole of the assembly (in this case the entire foundation).

4.7.2 The proposed replacement foundation comprises around two thirds of the eastern wall and half of the northern wall, which equates to around 40% of the total original perimeter foundation wall.

4.7.3 The Ministry's draft guidance describes 'substantial' as 'of considerable importance, size or worth'. The draft guidance then provides a more quantitative definition:

> A repair of more than 50% will be substantial. A repair of more than half a component, such as a wall or roof or foundations would be substantial replacement.

4.7.4 'Substantial' has a broad interpretation and can be measured quantitatively and/or qualitatively. It must also be noted that the draft guidance is intended for the general case, and account must be taken of the specific circumstances when applying the guidance to an individual building.

4.7.5 When the test is based on a quantitative analysis, there will be a threshold at which point the amount of the component or assembly being replaced is considered substantial. For example, one might decide that a repair of 50% or more could be considered substantial. This is the approach the PMO has used in making their assertion that the work is not substantial replacement.

4.7.6 I consider that a purely quantitative analysis does not take into account the nature of the building and the site, and therefore the context in which the 'substantial' test is to be applied. I therefore believe that some qualitative analysis is also required. When deciding whether a replacement of part of a foundation wall is substantial, the qualitative measures might include the ground conditions, topography, the size and use of the building, and the replacement wall's contribution to the structural integrity of the building.

4.7.7 When considering qualitative measures, there may be situations where a replacement of 50% or more of a foundation wall might not be substantial; for example, the replacement of several isolated sections of the wall, several of which may take little or no load, adding up to 50%. Equally, I consider that there are situations where a replacement significantly less than 50% would be substantial due to the critical nature of the element being replaced.

4.7.8 For example: the down-slope foundation wall for a house on a steep hillside may be small in percentage terms but will be significant to the building's structural behaviour. Like wise; a house that is constructed with heavy cladding and roofing on a site with a TC3 classification, may have a lower threshold for what can be considered substantial.

4.7.9 In this case, the building is located on a TC2 site, and has light weight cladding and roofing. The building has remained in use for the past two years despite the damage to the foundations, and both the design of the original foundation system and the work that is required to repair the foundations are relatively simple.

4.7.10 It is also necessary to consider the structural contribution of the section of foundation wall that is to be replaced. Taking into account the plans of the house that formed part of the PMO's submission, it appears that only the walls of the house which run in the longitudinal direction are load-bearing: the replacement wall consists of only two sections of loadbearing foundation wall, separated by small sections of foundation wall that provide no structural support. The section of foundation wall that is to be replaced is unlikely to be substantial in relation to the structural behaviour of the building as a whole.

4.8 Schedule 1(a) exemption for floor levelling

4.8.1 If the internal piles require jacking and packing, or trimming, in order to re-level the floor throughout the house, I consider this building work to be 'repair and maintenance'. Any repair is exempt under Schedule 1(a) if the repair uses comparable materials.

4.8.2 The proposed repair solution involves the use of the same materials as the existing to effect the repair (timber, DPC and associated fastenings): the materials must be considered comparable with those existing.

4.8.3 If further investigation leads to a decision that replacement of the piles with screw piles or driven piles is more appropriate, this would mean that the work is now replacement of components and would have to meet the tests outlined in paragraph 4.6.1. I consider such piling systems would no longer meet the tests for a Schedule 1(a) exemption, due to the function, performance and complexity of such piles when compared to the existing ordinary piles.

4.9 Some limits on the scope of building work covered by Schedule 1(a), and undertaking building work in reliance on Schedule 1

4.9.1 There are a number of important limitations on the exemptions in Schedule 1(a) and I reiterate those limitations here for the general benefit of building consent authorities and any homeowner who might be considering undertaking building work without a building consent. The limitations on Schedule 1(a) exclude repair or replacement (other than maintenance) of building work that has failed the durability requirements of the Building Code; for example any recladding work of "leaky buildings". The requirement for the repairs and maintenance to use 'comparable materials', or the replacement to be with a 'comparable component or assembly in the same position' would also, for example, exclude recladding where there has been no failure of the original cladding but where the replacement cladding differs (see for example Determination 2013/040)[13].

4.9.2 The Act gives the owner the responsibility for deciding whether the building work is exempt under Schedule 1; the Schedule 1 guide states that it is an owner's obligation to check whether work is exempt before carrying out work without a building consent. The Schedule 1 guide goes on to make it clear that it is up to the owner to seek appropriate advice in making that decision. Sections 14A to 14F 'Outline of responsibilities under this Act' also support this view, in particular section 14B(a) which sets out the responsibility is for the owner to obtain any necessary consents, approvals, and certificates.

4.9.3 This view is also supported by a previous Codewords[14] article which states 'DIYers and builders are advised to read Schedule 1 in full and check with their local council before starting work on projects of this kind.'

4.9.4 Whilst the owner is responsible for deciding whether the building work is exempt under Schedule 1, I am of the opinion that a building consent authority is not bound to accept the owner's position in regard to the interpretation of Schedule 1.

[13] *Regarding the refusal to issue a code compliance certificate for a 13-year-old house with unauthorised recladding to some of the walls* Determination 2013/040, 15 July 2013.
[14] *Codewords* issue 17 January 2007: Schedule 1 – work that doesn't require consent (published by the then Department of Building and Housing)

4.10 Exemption under Schedule 1(k)

4.10.1 The authority has previously published guidance[15] ("the authority's guidance") on its policy for granting exemptions under Schedule 1(k). Section C of this guidance provides some examples of situations where an exemption would likely be granted under Schedule 1(k) for building work that must be carried out or supervised by a Licensed Building Practitioner. One of the examples is:

> Repair or complete or substantial replacement, by LBPs or under the supervision of LBPs …, of up to 20% of piles in a single storey residential building with comparable piles.

4.10.2 Section F of the authority's guidance says that in addition to the specific examples provided, the authority will also consider an application for exemption on a one-off basis for individual projects. One of the listed examples that may be considered is 'dwelling substructure repair or replacement'.

4.10.3 I note that in contrast to the items in Schedule 1 where it is an owner's responsibility to determine whether building work fits the descriptions listed, an item under Schedule 1(k) requires the authority's specific consideration.

4.10.4 I accept the tests in Schedule 1 paragraphs (k)(i) and (k)(ii) are separate tests, and will often apply in quite different circumstances. Paragraph (k)(i) is likely to apply to a potentially wide range of building work from simple, low risk building work, such as poles or aerials, through to complex, higher risk work such as towers, retaining walls, and bridges etc. Paragraph (k)(ii) is likely to apply to a narrower range of building work that because of the extent and use of the building will be unlikely to endanger people if the building work is carried out otherwise than in accordance with the Building Code. Of course, many of the types of building work potentially covered by paragraph (k)(ii) are already expressly set out in other paragraphs in Schedule 1.

4.10.5 The Ministry's Schedule 1 guidance suggests that the following matters be taken into account when considering a Schedule 1(k) exemption:

- any substantial prior demonstration of competence in similar work
- the complexity of the work relative to that competence
- any independent quality assurance systems that will be applied.

4.10.6 A Schedule 1(k)(i) exemption may be considered for a range of building work, from simple to complex, and from minor to major. There may well be occasions where an authority considers its involvement through the consent process will add little value in ensuring compliance because of the experience and competence of the people carrying out the work and the quality assurance processes in place; both at design and construction stage.

4.10.7 In considering any application for a schedule 1(k)(i) I consider an authority needs to consider the circumstances of the particular case as outlined in paragraph 4.10.5.

[15] Christchurch City Council. Information for Homeowners & Building Practitioners: Building work that does not require a building consent (July 2011).

4.10.8 I believe that these conditions would be readily met in this case given the PMO's experience and expertise. I am of the opinion that, should the PMO have decided to apply for an exemption under Schedule 1(k) the authority would be correct to grant it.

4.10.9 In answer to the authority's specific request of the Ministry in paragraph 3.2.2, if an appropriately documented application for a Schedule 1(k) exemption had been made by the PMO, the authority would be within its powers to grant such an exemption.

4.11 The repair of cracks to the foundation

4.11.1 As noted in paragraph 3.2.2, the authority has sought advice on whether the proposed repairs to cracks on the foundation can be considered to be using comparable materials and would therefore fall within Schedule 1(a).

4.11.2 If such repairs are to fall within Schedule 1(a), I need to consider whether the work can be considered "repair and maintenance using comparable materials". There is little doubt that the work constitutes a "repair" of the existing foundations; the remaining question is whether the repair uses a "comparable material".

4.11.3 Crack repairs to concrete are typically fixed by injecting with an epoxy resin or a low-viscosity grout. In comparing the existing concrete with the repair material the following is noted:

- both are strong in compression but relatively weak in tension
- the repair material serves the same function as the element being repaired in that it is specifically designed to resist compressive forces
- the concrete and the repair material have a similar durability and have a similar resistance to the long term effects of moisture.

4.11.4 For the reasons above I consider the repair material is comparable with the existing foundation; accordingly such repairs can be considered "repair and maintenance using comparable materials" and this work would therefore be exempt building work under Schedule 1(a).

4.12 Conclusions

4.12.1 I have found that the proposed building work to the foundation will comply with the Building Code.

4.12.2 The repair of the foundations by replacement of the northern and eastern perimeter foundation wall uses comparable materials but in this case is not considered to be a replacement of a comparable component or assembly in the same position, because of the greater size and complexity of the solution being used. Had the PMO elected to use a solution that more closely resembled the original foundation my view of the matter may well have been different.

4.12.3 The repair of the internal piles could be considered exempt under Schedule 1(a) as the proposed repair work meets the requirement for comparable materials.

4.12.4 I consider that an exemption under Schedule 1(k) would be entirely appropriate had this route been sought by the PMO. Such a decision to grant exemption from consent would rest on the PMO's experience and expertise, and their quality

assurance process. In my view the proposed repair work to the foundations 'is unlikely to be carried out otherwise than in accordance with the Building Code'.

4.12.5 I note that in the normal course of events, decisions on exemptions under Schedule 1(a) are made in the first instance by an owner. I consider it would be better to seek an exemption under Schedule 1(k), or make an application for consent, than to apply Schedule 1(a) incorrectly.

5. The decision

5.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the proposed building work to repair the foundations complies with Clauses B1 and B2 of the Building Code.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 15 November 2013.

John Gardiner
Manager Determinations and Assurance

Appendix A: The relevant legislation

A.1 The relevant provisions of the Act include

14B Responsibilities of owner

An owner is responsible for—

(a) obtaining any necessary consents, approvals, and certificates:

(b) ensuring that building work carried out by the owner complies with the building consent or, if there is no consent, with the building code:

(c) ensuring compliance with any notices to fix.

14D Responsibilities of designer

(1) In subsection (2), designer means a person who prepares plans and specifications for building work or who gives advice on the compliance of building work with the building code.

(2) A designer is responsible for ensuring that the plans and specifications or the advice in question are sufficient to result in the building work complying with the building code, if the building work were properly completed in accordance with those plans and specifications or that advice.

14E Responsibilities of builder

(1) In subsection (2), builder means any person who carries out building work, whether in trade or not.

(2) A builder is responsible for—

(a) ensuring that the building work complies with the building consent and the plans and specifications to which the building consent relates:

(b) ensuring that building work not covered by a building consent complies with the building code.

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

(2) In considering whether something complies with the building code, a building consent authority, or as the case may be, a regional authority—

(b) may have regard to any guidance information published by the chief executive under section 175.

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.

(2) A person commits an offence if the person fails to comply with this section.

41 Building consent not required in certain cases

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

(a) a Crown building or Crown building work to which, under section 6, this Act does not apply; or

(b) any building work described in Schedule 1; or

Schedule 1: Exempt building work

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

(a) any lawful repair and maintenance using comparable materials, or replacement with a comparable component or assembly in the same position, of any component or assembly incorporated or associated with a building, including all lawful repair and maintenance of that nature that is carried out in accordance with the Plumbers, Gasfitters, and Drainlayers Act 1996, except—

(i) complete or substantial replacement of any component or assembly contributing to the building's structural behaviour or fire-safety properties…

(k) any other 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.