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Introduction

[1] Mr and Mrs Fitzgerald through their family trust (the plaintiffs) own a house on ground classified as TC3 that was damaged in the 2010/2011 Canterbury Earthquake Sequence. They and their insurers, the defendant IAG New Zealand Limited (IAG), cannot agree on what should be done to remedy the damage to the foundations of the house and garage. Those foundations have settled and cracked. The issue is whether, as the plaintiffs contend, the whole foundation system needs to be replaced/rebuilt or whether, as IAG maintains, it can be repaired. They have come to court for the issue to be determined.

Factual background

[2] Since 2001, the plaintiffs as trustees of a Fitzgerald Family Trust have owned the house at 111 Innes Road, St Albans, Christchurch (the house). The house, built in the 1920s, has two-storeys and is constructed of timber framing with weatherboard cladding and a metal roof. The foundation of the main part of the dwelling consists of an unreinforced perimeter foundation, also known as a “rubble” foundation, with internal piles. The perimeter “rubble” foundation here is entirely unreinforced and is made up largely of loosely cemented stones, rock and broken bricks. In 1998, a sunroom and garage were added to the property. The sunroom was founded on a reinforced concrete slab-on-grade and the garage on an unreinforced concrete slab-on-grade.

[3] At the time of the damage to the house caused by the 2010/2011 Canterbury earthquake sequence, it was insured under a State Landlord policy for the period ending 11 September 2010 and then a State House Comprehensive policy for the following period ending 11 September 2011. There is no material difference between the two. Hereafter, I will refer to both as “the Policy”. In the event of physical damage, the Policy requires IAG to pay for the cost of repairing the house to a “condition as similar as possible to when it was new, using current materials and methods”. This is commonly known as a “when new” repair policy as opposed to an “as new” repair policy.

[4] The plaintiffs have made a claim under the Policy. The parties agree on the scope of the work that needs to be done to the superstructure of the building. The only area of contention is the foundations.

[5] A joint conferral involving the parties' structural and geotechnical experts was convened and a Joint Expert Report issued on 24 August 2018 (the JER). In summary, the experts agree:

- (a) The earthquakes caused settlement of the house and garage foundation;
and
- (b) The settlement and cracking of the house foundations requires remediation.

[6] The total maximum floor level differentiation within the house is agreed to be 58 millimetres and the differential around the perimeter foundation is at least 30 millimetres.¹ In the sunroom, there is a maximum differential of 20 millimetres, and one of 22 millimetres in the garage. The experts agreed that the differential in floor levels was caused by various historical reasons in addition to the earthquakes, such as long term static settlement, original construction tolerances and the additional loads imposed by upper storey additions.

[7] The earthquakes also caused some cracks in the perimeter foundation and garage foundation, and exacerbated pre-existing cracks. The experts agreed that the majority of the cracks to the perimeter foundation beam and the garage floor are historical. There do not appear to be any cracks in the sunroom foundations.

[8] Finally, the experts, under the "Structural Conditions" section in their JER noted as an agreed area:

General agreement that structurally this house has performed well given its age, history and the effects of the Canterbury earthquake sequence.

¹ During the trial, the plaintiffs' structural engineer, Mr Clark, suggested the figure should be 62 millimetres. However, I do not consider the small difference material here.

Plaintiffs' pleaded claim against IAG

[9] The plaintiffs' final pleaded claim against IAG is contained in their amended statement of claim dated 2 October 2018. By this, the plaintiffs allege that IAG has breached the terms of the Policy in that:

13. IAG refuses to provide cover for the replacement of the foundations as alleged by the plaintiffs.
14. IAG have failed to indemnify the plaintiffs under the Policy.

[10] The remedies the plaintiffs seek against IAG are pleaded as follows:

- A. A declaration that a new foundation for the house, as specified by all experts in the Joint Expert Report dated 24 August 2018, is necessary to remediate the damage caused by the Canterbury Earthquake Sequence.
- B. A declaration that a new foundation for the sunroom and garage foundation, as specified by Mr Greg Clark in the Joint Expert Report dated 24 August 2018, is necessary to remediate the damage caused by the Canterbury Earthquake Sequence.
- C. A direction that the parties instruct their experts to settle the scope to undertake the repairs to foundation, house and garage.
- D. An order reserving leave to both parties to apply further in respect of the above directions and their implementation.
- E. Costs.

Issues

[11] The key issue remaining between the structural experts is whether the existing perimeter rubble foundation cracks may be repaired with epoxy and the house relevelled with jacking and packing (IAG's position) or whether the entire foundation needs to be replaced (the plaintiffs' position). An ancillary issue involves what (if any) foundation repairs are required for the sunroom of the house and the garage, both added in 1998.

[12] The appropriate repair strategy is influenced by a number of sub-issues:

- (a) Does the nature of the material used to build the perimeter foundation of the original house mean that no code compliant repair work can be done on, or on top of that foundation?

- (b) Does the fact that the perimeter foundation is on topsoil mean that no code compliant repair work can be done to, or on top of, that foundation?
- (c) What are the structural implications of the cracks in the perimeter foundation and the garage floor slab?
- (d) Will the proposed filling of the cracks with epoxy resin be code compliant and restore the perimeter foundation and garage floor slab to the policy standard?
- (e) After filling the cracks with epoxy resin, will the aesthetic quality of the perimeter foundation and garage floor slab be able to be restored to the policy standard?
- (f) Are the differential levels of the garage floor sufficiently material as to impact amenity so as to require remediation?

[13] A solution to these issues is also tied to the proper interpretation of the Policy. Two aspects arise under this: first, consideration of what the term “when it was new” means, and, secondly, whether the proposed repairs trigger the obligation to cover the cost to bring them up to compliance with the Building Code. I will begin by addressing the Policy terms.

The Policy

[14] The Policy relevantly provides:

If you [the insured] have a loss that is covered by this policy and you repair or rebuild the home, we'll [the insurer] pay:

- (i) The cost of repairing or rebuilding the home to a condition as similar as possible to when it was new, using current materials and methods, and
- (ii) Any cost of compliance with Government or local authority by laws or regulations, as long as:

- a. We pay the cost of compliance only for that part of the home that has suffered loss covered by this policy, and
- b. The home complied with all requirements that existed at the time it was originally built and at the time of any alterations.

The Policy standard

[15] The Policy defines “loss” as “physical loss or physical damage”.

[16] The key phrase which defines the scope of IAG’s obligation here requires it to meet the cost of repairing or rebuilding the house to a condition “as similar as possible to when it was new”, but in the process “using current materials and methods”.

[17] IAG submits that the policy is temporal, requiring equivalence with the original house largely built in the 1920s. While this does not require exact equivalence, a structural element’s original structural function must be reinstated and any aesthetic qualities restored.

The authorities

[18] A number of cases springing out of the Canterbury earthquake sequence have considered the proper interpretation of the different insurance policy phrases “as new” and “when new”, and the differences between the two. IAG suggests that these phrases are not equivalent. In *East v Medical Assurance Society*, the Court accepted that the different phrase “as new” is a quality standard rather than a temporal standard.²

[19] The plaintiffs submit that IAG’s argument relies on a literal interpretation which is contrary to the modern purposive approach of incorporating business common sense. They argue that the Policy could not sensibly have intended that the insurer could ignore a damaged foundation. The plaintiffs argue that the reference to “new” is intended as a quality standard rather than a temporal standard.

² *East v Medical Assurance Society* [2014] NZHC 3399; see also *Medical Assurance Society v East* [2015] NZCA 250 at [38].

[20] In *East v Medical Assurance Society*, Whata J dealt with an obligation on the insurer to rebuild or restore a house:

...to a condition substantially the same *as new*, so far as modern materials allow, and including any territorial costs which may be necessary to comply with any statutory requirements or territorial authority bylaws...

(emphasis added)

[21] Whata J found that the policy standard of rebuilding or restoring the dwelling to a condition substantially the same “as new” means that this must be done in accordance with building requirements as they exist at the time of the rebuild or restoration. This was in contrast to the interpretation of the phrase “when new”. He held:

[103] Contrary to Mr Horne’s opening submission, the standard is not “when as new in 2007”. It may be that Mr Horne was relying on the 2006 version of the policy which used the words “when new”. But that policy wording changed to “as new” in the now 2008 version. The clear implication of the change is that the policy contemplates the restoration to a condition as new at the time of the rebuild or restoration, not “when new” in 2007. Moreover, “as new” naturally implies rebuild or restoration of the home in accordance with contemporary standards. This is reinforced by the obligation to meet current statutory requirements.

[104] I accept that “a condition substantially the same as new” does not mean completely new. It is an approximate standard. Nevertheless, the policy plainly envisages, and the parties could reasonably expect, that contemporary standards for building work supplying modern materials and meeting minimum building requirements will be adopted.

[22] Whata J’s decision was then appealed to the Court of Appeal.³ The insurer submitted that Whata J’s interpretation wrongly imports the words “as if it were new”, which do not reflect the ordinary use of the language most obviously in the replacement context. The insurer also submitted that the qualifying words “so far as modern materials allow” and “including any additional cost necessary to comply with any statutory requirements or Territorial Authority bylaws” are only consistent with his construction of the insurer’s obligations to restore the house “as it was when it was new”.

[23] The Court of Appeal rejected these arguments. It held:⁴

³ *Medical Assurance Society v East* [2015] NZCA 250.

⁴ At [38].

...in ordinary language the phrase “as new” where used to require the rebuilt or restored condition of the house is a quality standard, not a temporal standard. The practical problems inherent in [the insurer’s] approach are obvious. There must always be an appreciable risk that the Council will refuse to grant a consent if an application to approve restoration work is based upon a Building Code that is no longer current. In that event it would be impossible for [the insurer] to perform its obligation “to comply with any statutory requirements or Territorial Authority by laws”. Accordingly, the insured party is entitled to new for old rather than old for old.

[24] Similarly, in *Turvey Trustee Limited v Southern Response*, Dobson J recognised that the phrase “as new” provides a different standard from a “when new” standard.⁵

There has been consideration of phrases in policies such as an obligation to reinstate or repair to a condition ‘equal to but not better or more extensive than the condition when new’. Although Mr Johnstone acknowledged that the *Lion Nathan* decision appeared to use the phrases ‘as new’ and ‘when new’ as synonymous, I accept his submission that ‘when new’ suggests a narrower basis for comparison between the insured item and its replacement than ‘as new’, which conveys a sense of comparison between old and new, rather than direct replacement.

[25] In *Parkin v Vero Insurance New Zealand Ltd*, Mander J considered a policy that used “when new” wording.⁶ The policy in that case specified that the insurer Vero at its option would pay:

1. the cost incurred in rebuilding or repairing the damaged portion of the **home** using currently equivalent building materials and techniques to a standard or specification no more extensive nor better than its condition when new; or
2. the **indemnity value** should **you** not rebuild or repair within 12 months unless **we** agree to extend the time period.

The insurer there submitted that a remedial strategy did not have to achieve a house identical to that on the day it was originally finished, as that would be impossible. Mander J noted that an identical replica was not required. Rather, the standard of repair required was to render the fact of the earthquake damage immaterial.⁷

⁵ *Turvey Trustee Ltd v Southern Response Earthquake Services Ltd* [2012] NZHC 3344 at [17]; referencing *Spina v Mutual Acceptance (Insurance) Ltd* (1984) 3 ANZ Insurance Cases 60-554; *Lion Nathan Ltd v NZI Insurance* (1994) 8 ANZ Insurance Cases 75-398; *Colonial Mutual General Insurance Co Ltd v D'Aloia* (1988) 5 ANZ Insurance Cases 60-846.

⁶ *Parkin v Vero Insurance New Zealand Ltd* [2015] NZHC 1675.

⁷ At [117].

[26] Mander J held that where a component only has a functional purpose, the insurer's obligation is met by restoring that functional purpose to its "when new" condition.⁸ Where a component also has an aesthetic purpose, the remediation strategy must also restore the original aesthetic quality of the component.⁹

[27] Mander J also looked specifically at whether the jack and pack method was a permissible remedial solution. He concluded that method would discharge the insurer's obligation in that particular case because the expert evidence was that the method would restore the structural integrity of the house.¹⁰

[28] The Policy in the present case uses the very phrase that the courts in *East* saw as setting a temporal standard. I find that the meaning of the phrase "when it was new" must be impacted by the state of the house when it was first built. Otherwise there can be no meaningful difference between the phrases "as new" and "when new". The Court of Appeal has clearly found there is a difference. However, as Mander J noted in *Parkin*,¹¹ a temporal standard does not mean the repairs must produce an exact replica of the original house. Modern materials and techniques may be used. Rather, the repairs must put the house in the same position as far as possible as it originally was.

[29] I repeat that in the present case the Policy specifically requires that the plaintiffs' house is to be restored to a condition as similar as possible to when it was new. With regard to the foundations particularly, this means that those foundations must provide the same level of functional support to the building as when they were new. There is no *prima facie* obligation on IAG to ensure that the foundations are at the same level as modern standards, although modern materials and methods are to be used to bring the foundations back up to their original standard. As Mander J noted in *Parkin*, IAG must undertake repairs sufficient to render the fact of the earthquake damage immaterial. In other words, the house must, as far as possible, be put in the same position it would have been in had the earthquakes not occurred. This is the scope of IAG's obligation under the Policy. It is, of course also with respect to those

⁸ At [120].

⁹ At [121].

¹⁰ At [143] – [145].

¹¹ Above n 6.

parts of the house that have suffered loss under the Policy, subject to issues of compliance with Government or local authority by-laws or regulations as far as these may apply, including the Building Act 2004 (the BA) and the Building Code. I will address those issues below.

Extent of IAG's obligation

[30] The Policy, as I have noted above at [14], provides in part that IAG will pay for “any cost of compliance with Government or local authority by laws or regulations, as long as we pay the cost of compliance only for that part of the home that has suffered *loss* covered by this policy” (emphasis added).

[31] The issue therefore becomes whether the rubble perimeter foundation, being a part of the house, has suffered *loss* covered by the Policy. I repeat that “loss” is defined in the Policy as “physical loss or physical damage.”

[32] In order to be covered by the Policy, loss must be more than minimal. As Dunningham J held in *He v EQC and Lloyds Syndicates*:¹²

...for damage to have occurred, there needs to be both a physical change to the building that is more than *de minimis*, and an impairment to its value and usefulness. Pre-existing damage is not, of course, a barrier to a claim for earthquake damage. However, it may be so pronounced or extensive that minor additional damage may make no material difference to the utility or value of the property. Such an assessment is not to be approached in a niggardly fashion. However, equally, an insurer should not be required to repair or reinstate something to its condition when new when, assessed objectively, there has been no discernible change to the value, amenity or utility of the insured property caused by the natural disaster.

[33] Nation J expanded on this principle in *Bligh v Earthquake Commission* stating:¹³

...for there to be cover, the damage must be such that it affects the use or amenity of the building. For elements of the building that have a structural or functional purpose, the damage has to affect that structural or functional purpose. Similarly, for elements of the building that have an aesthetic purpose, for example, wall linings such as wallpaper, the damage must affect that aesthetic purpose.

¹² *He v Earthquake Commission* [2017] NZHC 2136 at [67].

¹³ *Bligh v Earthquake Commission* [2018] NZHC 2102 at [24].

[34] In the present case, the plaintiffs argue that the earthquake sequence materially affected the foundation's ability to support the house, as it caused the perimeter foundation to settle down into the ground and exacerbated cracking. In response, IAG submits that there has been no material damage to the ability of the perimeter foundation to support the house as it was designed. Rather, the damage is aesthetic as it has simply caused differentiation in the floor levels of the house and cracking. Its experts consider that all that needs to be done is to repair those issues.

[35] Either way, it is clear that there has been damage to the foundation system supporting this house, including the perimeter foundations, that is more than minimal. The utility of those perimeter foundations has been affected, perhaps structurally but also it seems aesthetically, with cracking on the outside surfaces. Physical loss or physical damage (at least) to these perimeter foundations has occurred. Therefore, IAG must pay for the cost of ensuring the foundations are repaired in accordance with such Government or local authority by laws or regulations as may apply. This includes the BA and the Building Code.

Options for Remediation

IAG's proposal

[36] IAG submits that repairs to the house foundations require only the following:

- (a) To address the cracking damage to the perimeter beam and garage floor, injection of epoxy resin into the cracks and then plaster coating over the top of the cracks; and
- (b) To address the floor dislevelment damage:
 - (i) Jacking and packing of internal piles, or replacing piles if they are excessively tilting, packing tolerances are exceeded or it is considered expedient and desirable to do so;
 - (ii) Jacking and packing as required off the top of the perimeter beam;

- (iii) Using mortar and replacing the lower weatherboards to restore the straight level line between the foundation and the superstructure; and
- (iv) Mechanically releveling the sunroom.

[37] IAG says the works required to relevel the floors are only needed to restore the amenity of the house as, even in their current post-earthquake state, the perimeter foundations continue to perform their structural function.

[38] Mr Bruggers, IAG's geotechnical engineer, in his evidence considered releveling the existing timber framing off the existing foundation elements and repairing the cracks with epoxy to be a geotechnically suitable solution. He assumed that up to 60 per cent of the internal piles will need to be replaced, but the existing perimeter foundation can remain.

[39] In his evidence, Mr Lewis, IAG's structural engineer, confirmed too that, in his opinion the perimeter foundation, although a rubble foundation, will still perform to its original function. He says that function is to support vertical loads only, as at the time of construction there was no obligation for foundations to support lateral or horizontal loads.

The plaintiffs' proposal

[40] Mr Clark, the plaintiffs' structural engineer, takes issue with IAG's repair proposal. He noted that the perimeter foundation is currently founded in topsoil at around 250-300 millimetres below the existing ground level. The topsoil, however, all parties accept, goes down to a depth of 500-600 millimetres below ground level. Mr Clark considered the entire foundation needed to be replaced and supported at a depth of 600 millimetres on load-bearing ground.

[41] Mr Clark maintained also that founding the foundation in topsoil is not code compliant. In his supplementary brief of evidence, Mr Clark stated:

Current New Zealand standards and the MBIE guidance document do not allow top soil, which is an unsuitable material, to be encountered below the

depth of a foundation element. Packing on top of the perimeter foundations or internal piles that are founded in top soil does not comply with NZS3604 or the New Zealand Building Code.

Re-levelling carried out by locally levelling existing timber framing on top of the existing house foundation elements (perimeter, internal pads and internal pile foundations) re-levels the floor only. However, this does not address the damage sustained during the Canterbury Earthquake Sequence which is settlement of the foundation elements.

[42] So far as the sunroom foundations are concerned, Mr Clark recommends that the existing reinforced concrete pad on grade is replaced with a modified timber pile type one solution. This will ensure there are no differential performance issues with the house due to different foundation types in the future. This replacement would involve demolishing the sunroom and the balcony above it in order to rebuild the foundation.

[43] And, with regard to the garage, Mr Clark recommended that a new garage foundation be installed and that this consist of a TC2 stiffened concrete slab structure. The garage and the large lined attic area above it would need to be demolished and rebuilt once the foundation is completed. He suggested that the east wall of the garage be rebuilt as a fire wall.

[44] Mr Borren, an epoxy specialist, was called by the plaintiffs. He gave evidence that he would not recommend injecting epoxy into the perimeter foundation cracks in this case. This was his view, because, he said, it would not be possible to properly contain/seal the epoxy in this foundation, it would disappear into voids, and any cracks filled with epoxy would also crack at the edges if there was any further movement. Mr Borren also indicated that epoxy injections would not reinstate the foundation so that it was compliant with the current Building Code. Mr Clark agreed with this assessment.

[45] In summary, the initial and main areas of disagreement relating to the house foundations are:

- (a) The composition of the original perimeter foundations and whether they can bear sufficient loads;

- (b) The use of epoxy resin; and
- (c) Whether the foundations need to be founded below the topsoil, issues over the suitability of the “jack and pack” solution proposed by IAG, and general questions of compliance with the Building Code.

[46] All experts went on to agree however that, if the Court decided that it was necessary here for the perimeter foundations to be redone, Mr Clark’s solution requiring a full foundation rebuild for the house was an appropriate one.

Compliance with the Building Code

The Building Act 2004 provisions

[47] Section 17 of the BA requires that all building *work* must comply with the Building Code to the extent required by the BA. Sections 112 and 42A of the BA specify that, after repair, the building as a whole must continue to comply with the Building Code to the extent that it did before the repair or alteration. The BA does not require the repaired building to comply as if it were a new building.

[48] The requirements of s 17 have been summarised as:¹⁴

- Any new work must comply completely with the Building Code subject to any waiver or modification granted by the territorial authority (for example, if a shower compartment made of ordinary glass is being replaced, then the replacement must be made of safety glass as required to comply with the Building Code); and
- After the alteration, the whole building must comply with the Building Code to the extent specified by s 112.

[49] Section 112 of the BA relevantly provides:

112 Alterations to existing buildings

- (1) A building consent authority must not grant a building consent for the alteration of an existing building, or part of an existing building, unless the building consent authority is satisfied that, after the alteration,—

¹⁴ Judith Cheyne et al, *Building Law in New Zealand* (online looseleaf ed, Thomson Reuters) at [BL112.02]; adopted by *Wheeldon v Body Corporate 342525* [2015] NZHC 884 at [160].

- (a) the building will comply, as nearly as is reasonably practicable, with the provisions of the building code that relate to—
 - (i) means of escape from fire; and
 - (ii) access and facilities for persons with disabilities (if this is a requirement in terms of section 118); and
 - (b) the building will,—
 - (i) if it complied with the other provisions of the building code immediately before the building work began, continue to comply with those provisions; or
 - (ii) if it did not comply with the other provisions of the building code immediately before the building work began, continue to comply at least to the same extent as it did then comply.
- (2) Despite subsection (1), a territorial authority may, by written notice to the owner of a building, allow the alteration of an existing building, or part of an existing building, without the building complying with provisions of the building code specified by the territorial authority if the territorial authority is satisfied that,—
- (a) if the building were required to comply with the relevant provisions of the building code, the alteration would not take place; and
 - (b) the alteration will result in improvements to attributes of the building that relate to—
 - (i) means of escape from fire; or
 - (ii) access and facilities for persons with disabilities; and
 - (c) the improvements referred to in paragraph (b) outweigh any detriment that is likely to arise as a result of the building not complying with the relevant provisions of the building code.

...

[50] This means that the BA only requires the aspects of the house that are being repaired to be brought up to current compliance levels. Elements that are not repaired may be left at the same level of compliance as they were originally.

[51] IAG submits that the damage to the house here does not require the foundations to be repaired. The packing to achieve floor levels, IAG says, is simply added on top of the original functioning foundations. Therefore, the foundations (other than the approximately 60 internal piles the parties accept need to be replaced) do not need to be brought up to current standards. IAG says its remediation strategy will ensure all those foundations will operate at the same level as they did when new.

[52] The plaintiffs dispute this. They contend that the damage to the whole foundation system, including the perimeter foundations, requires the perimeter foundations also to be repaired, triggering the obligation under the BA to bring them up to current compliance levels. They point to what they say is the experts' agreement that the foundations have settled and need to be remediated. This is especially the case, they say, because these foundations are founded only in top soil. The plaintiffs argue, too, that it is artificial to describe the building work as the packing. As noted by the Court of Appeal in *East*, foundations are part of an integrated whole.¹⁵ It is clear, the plaintiffs say, that the work needed to remediate the foundations meets the definition of building work under the BA. Therefore, the remediated foundations must comply with the Building Code.

[53] The plaintiffs also argue that the fact that consent may be given for a repair strategy does not detract from the Court's ability to declare that a solution does not meet the Policy standard or the BA.¹⁶

[54] In response to this, IAG places reliance on recent guidance issued by the Ministry of Business, Innovation and Employment (MBIE) to support its submission that its repair proposal will comply with the Building Code. This is Update 10 released by MBIE in June 2018. It clarifies how MBIE's Residential Guidance can be applied to poorer quality concrete perimeter foundation walls, known as 'rubble' foundations, such as the plaintiffs' perimeter foundation here. Update 10 states:

¹⁵ At [39].

¹⁶ See *Wheeldon v Body Corporate 342525*, above n 14, at [162]-[166].

63. How does the Residential Guidance apply to 'rubble' concrete foundation walls?

The Canterbury rebuild has shown that houses in Canterbury have a wide variety of perimeter foundation walls. These range from reinforced concrete perimeter foundations that are compliant with the standard for building timber-framed buildings (NZS 3604), through concrete walls with nominal reinforcement, to unreinforced walls with large elements of loosely cemented stone or rock.

Section 1.4.3 Technical Scope of the Residential Guidance states, "The document focuses principally on one- and two-storey timber framed dwellings (ie houses built to NZS 3604 or its predecessor Standards)." This does not mean that every component or element of the house has to comply with current NZS 3604 requirements for the guidance to apply. Rather, it is intended that the scope of buildings covered by the guidance is similar to the scope of those covered by NZS 3604, ie one- and two-storey timber-framed dwellings.

It is worth noting that NZSS 95, a predecessor Standard to NZS 3604, stated that "brick, stone and concrete foundation walls shall have adequate bearing area to safely support the imposed loads." The reference to brick and stone means that masonry could be used as long as it supported the vertical loads, which was the principal function of earlier foundation construction.

The guidance does not contain specific repair solutions for 'rubble' foundations, and is not mandatory for developing a repair solution. However, information in the guidance will be useful for developing repair solutions to reinstate the original function of a damaged foundation. The repair work must meet the performance requirements of the Building Code, which have remained the same since the Canterbury earthquakes. Some of the methods in the guidance to repair cracks and repair or replace perimeter concrete foundations are applicable across the range of existing foundations, (whether they be considered as "rubble foundations", or they comply with NZS 3604) provided that careful consideration is given to the nature and condition of the foundation.

Applying the damage assessment methods and repair solutions provided in the guidance requires a good understanding of the overall performance of affected houses. In addition, the development of any repair solution requires case-specific consideration and professional engineering advice. Regardless of whether the Residential Guidance is used to develop a repair solution, all repair work must comply with the Building Code.

(emphasis added)

[55] The Residential Guidance indicates that where the foundation has been moderately put out of level, the foundation may be repaired by packing piles. It is perhaps difficult to conclude in the present case that the repair recommended here by MBIE would not be in accordance with the Building Code. Even Mr Clark accepted,

it seems, in cross-examination that MBIE's Update 10 suggests that, at least in some situations, jacking and packing will comply with the Building Code.

[56] I find that MBIE's guidance indicates that repairing rubble foundations by jacking and packing is an acceptable solution where an engineer assesses that is suitable and a building consent is issued. This is also in accordance with what must be seen as prior approval of this jack and pack strategy given by the courts.¹⁷

[57] Therefore, I consider that, subject to the suitability of this method in this particular scenario (which I discuss below), jacking and packing is a repair methodology that fulfils the obligation under s 17 of the BA to ensure that the repair work here is code compliant to the extent required under the BA. The query must always remain, however, as to whether any such proposed repair meets the required standard outlined in the insurance policy.

The perimeter foundations

[58] In cross examination, Mr Clark agreed that, even in their current state, the perimeter foundations were able to support the vertical loads of the house materially to the same degree as they did when first built.

[59] Mr Clark's main qualm about IAG's proposal is that he considers it will not meet current code standards, both because the packing would provide insufficient support and because the perimeter foundation would remain founded in top soil. Modern foundations are usually built after the top soil has been cleared, generally, as I understand it, because this is cheaper than testing the bearing capacity of the top soil.

[60] Mr Clark and Mr Duke were concerned that the foundations here sit in top soil. They consider that this top soil has insufficient capacity to bear the weight of the house and will settle over time. Therefore, they think that the foundations need to be replaced with ones founded lower in the ground on soil with better bearing capacity.

¹⁷ For example, *Parkin v Vero Insurance New Zealand Ltd*, above n 6, at [143] – [145].

[61] Mr Bruggers gave evidence that testing at the current level of the foundations and below showed the soil had a bearing capacity in excess of 300 kPa. He considered that this provided adequate bearing capacity for the applied loads. In fact, as Mr Duke accepted in cross-examination, the bearing capacity of the soil on this site it seems has increased from the time the house was built, as the weight of the house will have compacted the ground below it.

[62] Mr Duke primarily was concerned, however, amongst other things, with the colour of the top soil, which he said was dark. Usually this means there is a high content of organic matter in the soil. Organic materials degrade and settle over time, which can cause foundations to settle. But it does seem here that testing which the parties carried out has indicated that the top soil is less than two per cent organic matter. Mr Bruggers gave evidence that this testing suggests that the topsoil directly beneath the foundations has adequate strength and negligible organic content. Additionally, the testing indicates no material difference between the soil directly beneath the foundations and that at 600 millimetres.

[63] As a result, Mr Bruggers considers that the soil as it stands is adequate for founding the foundations. It has adequate strength and low potential for additional static settlement under the existing loads. Therefore, he is of the view there is no need to replace the foundations with ones founded at a lower level.

[64] Mr Bruggers' expert opinion is that the foundations are founded in adequate soil, and I accept this in the sense that they have proper functional equivalence and bearing capacity here, to those that prevailed when the house was new. There is no need to rebuild the foundations at a deeper level as the evidence indicates that would provide no greater bearing capacity. And, I am satisfied too, that, the issue of non-matching foundations here is not of concern. The foundations have not matched since the original times they were installed, and all the experts here agree that their past performance, in all the circumstances, has been good.

[65] I will now turn to consider whether the evidence supports jacking and packing in this situation.

[66] Mr Clark and Mr Lewis disagree on the quality of the perimeter foundation's composition. Mr Clark classifies it as "cemented rubble", whereas Mr Lewis believes the core sample indicates that it is a reasonable quality concrete matrix, albeit with brick and mortar inclusions. Mr Lewis considers it to contain some of the better base concrete from this era and to be more than capable of performing its original and continuing function.

[67] Mr Lewis also gave evidence that the foundations have been effective in resisting lateral loads, as well as vertical. This is shown, he says, by the fact that the house has comfortably resisted several significant wind events throughout its life, as well as several smaller seismic events prior to the Canterbury Earthquake Sequence.

[68] MBIE's Residential Guidance document recommends jacking and packing for houses of this type where the dislevelment is between 50 and 100 millimetres, as here. It indicates that packing is considered unstable only where the dislevelment is greater than 100 millimetres. Here the packing will be on dislevelment less than that. Therefore, the official MBIE guidance does seem to support the appropriateness of Mr Lewis' proposed repair solution.

[69] Mr Lewis gave evidence too that similar repair strategies have been found acceptable for a significant number of other houses he has worked on in Christchurch. He confirmed that on all these occasions he had gained appropriate local authority consents for these strategies to be carried out. Mr Lewis emphasised that the current foundations have performed soundly over their 90-year life span, despite additions to the house. In addition, they have withstood intense shaking over the Canterbury earthquake sequence with what he describes as only relatively minor damage. This gave Mr Lewis confidence he said that the foundations only needed to be remediated rather than totally replaced. This conclusion was reinforced before me by the evidence of Mr Roydon Turner, a licensed building practitioner, who was called to give evidence by IAG. Mr Turner's evidence as a builder was two-fold. The first aspect was to the effect that he had provided expert advice to insurance companies and home owners with respect to over 250 houses that had sustained damage in the Canterbury Earthquake Sequence. He stated in his evidence:

I have reviewed the methodology proposed by Mr Lewis to carry out localised releveling of the timber floor where required, using a combination of jack and pack methodology, and isolated pile replacement. The concrete ring foundation is to be repaired in situ, with epoxy injection, structural mortar and localised areas of replacement to the ring foundation. This is a practical and currently widely adopted strategy in repairing earthquake damaged dwellings throughout the Christchurch region.

And:

The works that I describe above should be completed under a Building Consent, or an Exemption from a Building Consent, as a minimum.

And:

A full 10 year Master or Certified Builder's Guarantee would be provided to the homeowners before repairs began.

And:

Based on my site visit, and the other materials I have reviewed, I conclude that the foundation repair proposed by Mr Lewis is appropriate for the foundation damage on this property, and I do not foresee any difficulty or complexity issues that would prevent these works from being carried out. I would be prepared to implement it.

And, as to the second aspect, Mr Turner in evidence before me, which was not opposed or questioned in any way, said:

I have carried out these types of repairs to over 20 similar dwellings, both under full Building Consent or Exemption from Building Consent.

[70] I find that IAG's proposed jacking and packing (when combined with the epoxy resin injections) will be sufficient to put the perimeter foundations into "a condition as similar as possible to when it was new" being when it was largely built in the 1920s. This will ensure that the foundations provide the same level of support to the house. While this would not meet the current standards for a newly built home, I consider that it does meet the "when new" policy standard required for repairs to houses of this era, as indicated by MBIE's guidance. This conclusion is influenced too by the fact that all the expert evidence before me appeared to accept that the bulk of the current foundations have performed adequately throughout their life and supported the house relatively well through the Canterbury Earthquake Sequence. All this, however, is subject to the caveat I outline at [83] following.

Cracking

[71] Mr Lewis and Mr Clark agreed that the cracks do not materially affect the ability of the perimeter foundation to perform its function. It is also accepted that the use of epoxy would not diminish the ability of the foundation to perform that function.

[72] However, Mr Clark said in his evidence that epoxy would not be sufficient to remedy the aesthetics of the cracks because it would likely crack around the edges of where it was injected. He believed using it to repair the cracks would not be compliant with the Building Code. As noted above, Mr Borren, an epoxy specialist, had concerns too that it would not be possible to properly contain/seal the epoxy and the epoxy would disappear into voids. However, he agreed that using the epoxy would not increase the risk that foundations of this type would face during an earthquake.

[73] IAG's argument here is that the possibility of the epoxy cracking is no different from the fact that the original foundations would have, and did, crack over time. This occurred particularly around vents. The nature of unreinforced concrete is such that it cracks. Mr Clark accepted that there would be cracks present in the foundations even if there had been no earthquake.

[74] IAG submitted that Mr Clark and Mr Borren's main issue with the use of epoxy was purely "philosophical". They considered that since it would not create foundations in line with current building code requirements, they could not recommend it here. IAG accepts that it would not bring the foundations up to code but that it would meet the policy standard of repairing the foundations to the level they were at when new. I agree.

[75] Mr Borren's evidence was clear that the epoxy resin would bind to the substrates here. His evidence indicated that the epoxy, if used properly, would sufficiently fill the cracks. This could then, as IAG proposes, be plastered over. I find that this would sufficiently restore the aesthetics that have been impacted by the cracking. On all the evidence presented here, I accept that the cracks do not cause a structural issue, particularly given that they tend to arise naturally in foundations like this anyway. Therefore, I find that IAG's proposal will repair the cracks to the level required by the Policy.

The sunroom foundations

[76] I find IAG's proposal to mechanically relevel the sunroom foundation will be sufficient to restore the amenity of that room and the balcony above it. There is no indication there has been any damage to the ability of the sunroom foundation to support the structures above it. The plaintiff's proposal to remove the current foundation and replace it with a modified timber pile type one solution (which would also require the rooms above to be destroyed) might have been justified by a concern to ensure there are no differential performance issues due to different foundation types in the future. However, given that I have found that the main house perimeter foundations do not need to be replaced, this is unnecessary. The evidence indicates that, in any event, the different foundations have performed adequately together to date.

The garage foundations

[77] The main issue regarding the garage foundations is whether the differential floor levels sufficiently impact the amenity of the garage so as to require remediation. The evidence is that the garage floor has a dislevelment of 22 millimetres. This is only two millimetres over the modern-day construction tolerance. Mr Lewis considered too that most of this would have been pre-existing.

[78] I find there is no evidence that this will sufficiently impact on the amenity of the garage in order to require it to be remediated by releveling or reconstructing it.

[79] There remain cracks in the garage floor which impact on the aesthetics of the garage. Mr Clark gave evidence about the difficulties in restoring the aesthetics with epoxy resin. He said that the epoxy infills would be obvious and painting over them would not assist as paint tends not to stick to epoxy.

[80] Mr Lewis said, however, that the cracks in the garage floor were exactly where drying or shrinkage cracks would occur in an unreinforced slab of this type. Mr Clark accepted that there is some historic cracking and shrinkage cracking. IAG's argument appears to be that the cracking is not significantly worse than it would have been had the earthquakes not occurred.

[81] I consider that the use of epoxy to repair the cracks, which will then be covered with some form of finishing, will be sufficient to restore the aesthetics of the garage. If paint is unable to sufficiently disguise the epoxied cracks, then IAG will need to find an alternate finishing solution.

Conclusion

[82] Subject to the important caveat I note below, I find that the repair methodology proposed by IAG's experts meets IAG's obligations under the Policy and, from the material before the Court, there is the strong suggestion that it will also comply with the necessary requirements under the BA.

[83] This conclusion is based on the premise that building consents or appropriate exemptions will be issued for IAG's proposed repair works and ultimately any necessary code of compliance certificates will be provided. The bulk of the evidence provided was that in the past similar repair strategies have been consented. However, if the consents (or appropriate exemptions) and code compliance certificates which are required are not given for that foundation repair work, then the plaintiffs' proposed remediation will need to be carried out instead. Otherwise, it could not be said that the work properly meets the policy standard. In that event, IAG is to bear the increased cost of the enhanced work to replace the whole house foundation as part of its obligation under the Policy.

Result

[84] For the reasons I outline above and with the important caveat I have noted, the sub-issue questions specified at para [12] above are answered as follows:

- (a) Subject to any necessary consents and ultimately code compliance certificates that may be required being given for the IAG repairs in question (the caveat), the nature of the material used to build the perimeter foundation of the original house does not necessarily mean that no code compliant repair work can be done on or on top of that foundation.

- (b) Subject to the caveat I outline in (a) above, the fact that the perimeter foundation of the house is on top soil does not necessarily mean that no code compliant repair work can be done to, or on top of, that foundation.
- (c) The presence of the identified cracks in the perimeter foundation and the garage floor slab have no structural implications here. On the evidence before the Court, aesthetic considerations relating to the identified cracks can be properly addressed.
- (d) Subject to the caveat I outline in (a) above, the proposed filling of the cracks with epoxy resin is likely to be code compliant and will restore the perimeter foundation and garage floor to the policy standard.
- (e) After filling the cracks with epoxy resin, the aesthetic quality of the perimeter foundation and garage floor slab will be able to be restored to the policy standard.
- (f) The differential levels of the garage floor are not sufficiently material to impact amenity so as to require remediation.

[85] With regard to the remedies and declarations sought by the plaintiffs against IAG as outlined at [10] above, I make the following declarations:

- (a) If consents and ultimately code compliance certificates are required but are not given for the proposed IAG repairs here (including for the sunroom and garage), then the plaintiffs' proposed remediation will need to be carried out. This will require a new foundation for the house including the sunroom and garage as specified by the experts in the JER as being necessary to remediate the damage caused by the Canterbury Earthquake Sequence.
- (b) If any necessary consents and code compliance certificates are given for the proposed IAG repairs here, or the appropriate authorities

properly confirm that no such consents or certificates are reasonably required, then a new foundation for the house, including the sunroom and garage, as specified by the experts in the JER is not necessary or required here, and the IAG repairs are to be carried out.

- (c) If necessary, the parties are to instruct their experts to settle a final scope for undertaking the repairs to the foundation of the house, sunroom and garage in line with the option in either (a) or (b) above which may apply. (I note that if (b) above applies, the plaintiffs may choose, at their expense, to undertake a complete foundation rebuild instead by having the existing perimeter rubble foundation demolished and replaced with a modern reinforced perimeter foundation when the house is jacked for what was to be the packing. This option would, of course, require discussion between the parties but would represent a betterment remedy that the plaintiffs may choose which might be seen as improving the overall property for re-sale and other purposes.)
- (d) Leave is reserved to either party to apply further with respect to implementation of these directions or any further directions that may be required.

Costs

[86] Costs are reserved. In the event that counsel for the parties are unable to agree between themselves on the issue of costs here, then they may file memoranda (sequentially) on this issue which are to be referred to me. In the absence of either party indicating they wish to be heard on the matter, I will decide the question of costs based on the material then before the Court.

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Gendall J

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