



File No. DOIA 1718-1860 and 1819-0047

20 AUG 2018

Mr Jake Preston

fyi-request8298-59b907e2@requests.fyi.org.nz

fyi-request8104-a852de38@requests.fyi.org.nz

Dear Mr Preston

Thank you for your emails dated 25 June 2018 and 10 July 2018 requesting under the Official Information Act 1982 (the Act) the following information:

25 June 2018

Dear Ministry of Business, Innovation & Employment, Can you please confirm the source of and provide copies of all expert advice, including all documents, emails and notes of phone discussions, that was used by MBIE, its advisors and staff, with regard to the development and release of Update 10 of the guidance document, Repair and Rebuilding houses affected by the Canterbury earthquakes ("the Guidelines") in Update 10 found at <https://www.building.govt.nz/building-code-compliance/canterbury-rebuild/updates-clarifications-residential-guidance/issue-10-june-2018/>

10 July 2018

Given that update 10 of the Technical Guidance documents found on your website here: <https://www.building.govt.nz/building-code-compliance/canterbury-rebuild/updates-clarifications-residential-guidance/issue-10-june-2018/> contains reference to 'rubble' foundations, how does MBIE define rubble in reference to a foundation?

Secondly, what technical research has MBIE conducted with regard to the solutions provided in the guidance and their applicability to rubble foundations? Please provide copies of the research undertaken along with any documents where MBIE has examined rubble type foundations, or relied on others research, around the subject of rubble foundations.

In response to your request dated 25 June 2018, I enclose documents that fall within scope of your request. Some information is withheld under the following sections of the Act:

- 9(2)(a) – protect the privacy of natural persons
- 9(2)(g)(i) – maintain the effective conduct of public affairs through the free and frank expression of opinions

Out of scope information has also been redacted.

Your request of 10 July 2018 is refused under section 18(e) of the Act, as the document alleged to contain the information requested does not exist, or cannot be found.

You have the right under section 28(3) of the Act to request a review by the Ombudsman. The relevant details can be found here: www.ombudsman.parliament.nz

Yours sincerely

A handwritten signature in blue ink, appearing to read 'D. Robson', is written above the typed name.

Dave Robson
Manager, Building Performance and Engineering
Building System Performance

From: Saskia Van Ryn
Sent: Monday, 26 March 2018 10:08 a.m.
To: David McGuigan; Iain Feist
Subject: Q&A _March 2018 [UNCLASSIFIED]

Attached the QA with revisions from s 9(2)(a) [REDACTED] Please review. If you're happy with the attached, I talk to Penelope about getting it up on the website.

Cheers
Saskia

RELEASED UNDER THE
OFFICIAL INFORMATION ACT

Q&A issue number	Q&A issue date	Question number	Question	Guidance document reference	Relevant part of guidance
10	Tbc	63	How does the guidance apply to 'rubble foundations'?	Various	Various

The residential guidance aims to assist the Canterbury rebuild by providing technical guidance for engineers, Project Management Offices and construction companies with standardised damage assessment methods and repair or rebuild solutions. Although the guidance is not mandatory, it reflects good engineering and regulatory advice.

As stated in Section 1.4.3 Technical Scope, "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 NZS 3604 requirements for the residential 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.

Rubble foundations are not specifically addressed in the guidance. However, damage assessment and repair solutions are based on the overall performance of existing houses. The guidance provides methods to repair cracks and repair or replace perimeter concrete wall foundations. Some of these methods can apply equally to rubble foundations as to existing foundations that fully comply with NZS 3604.

Note that NZSS 98, a predecessor Standard to NZS 3604, stated in 918(a) that "the brick, stone and concrete foundation walls shall have adequate bearing area to safely support the imposed loads". The reference to brick means that it could be used (in some fashion) as long as it supported the load. Rubble foundations still support the loads.



From: § 9(2)(a)
Sent: Tuesday, 3 April 2018 5:55 p.m.
To: Saskia Van Ryn
Cc: David McGuigan; § 9(2)(a)
Subject: RE: Q&A [UNCLASSIFIED]

Thanks Saskia

We've added in the additional words in red in the attached in order to provide a slightly better context for rubble foundations in terms of the spectrum of residential foundation walls.

Thanks for the opportunity to do this tweak.

Cheers

§ 9(2)(a)

From: Saskia Van Ryn <Saskia.VanRyn2@mbie.govt.nz>
Sent: Tuesday, 27 March 2018 9:56 a.m.
To: § 9(2)(a)
Cc: David McGuigan <Dave.McGuigan@mbie.govt.nz>
Subject: Q&A [UNCLASSIFIED]

Hi § 9(2)

As discussed, I'll wait to get your further input on Thursday/Friday.

Cheers

Saskia van Ryn
Senior Advisor – Information and Education
Building System Performance
Building, Resources and Markets
Ministry of Business, Innovation & Employment
Telephone DDI: +64 (4) 901 6174
Level 5, 15 Stout Street, Wellington, New Zealand 6001

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

It is also important to note that the composition of perimeter foundations reflects a continuum, which ranges from large elements of loosely cemented stone or rock, through concrete with nominal reinforcement and in some case large included elements, through to concrete foundation walls that comply with NZS3604 and predecessor standards. Repair solutions to reinstate the original function of the foundation can in many cases be developed for even poorer quality foundation walls, utilising principles within the guidance document. The application of any repair solution (from within or outside of MBIE's residential guidance document) requires case specific consideration and use of engineering judgement from appropriately qualified and experienced professionals.

From: Saskia Van Ryn
Sent: Wednesday, 4 April 2018 12:42 p.m.
To: Dave Robson
Cc: David McGuigan; Seth Campbell; Kirsty Wallace; Penelope Whitson
Subject: Canterbury technical guidance QA [UNCLASSIFIED]

Hi Dave

We've been advised by our technical consultants that it would be helpful for MBIE to issue a clarification on how the MBIE technical guidance for repairing and rebuilding houses affected by the Canterbury earthquakes applies to rubble foundations. There has been long-standing confusion on the subject and it is now being referenced in homeowner court cases.

On the advice of legal and MBIE's subject matter experts, it was suggested we issue a clarification in the form of a QA to address the uncertainties associated with rubble concrete foundations.

Attached is the clarification we would like to publish over the coming few days, subject to any feedback from you. If you have concerns, or would like to discuss for more context, please talk to Dave McG. Otherwise, if you're comfortable with us proceeding to publication, please let me know.

Many thanks

Saskia van Ryn
Senior Advisor – Information and Education
Building System Performance
Building, Resources and Markets
Ministry of Business, Innovation & Employment
Telephone (DDI): +64 (4) 901 6174
Level 5, 15 Stout Street, Wellington, New Zealand 6001

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As stated in Section 1.4.3 Technical Scope, "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 NZS 3604 requirements for the residential 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.

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From: s 9(2)(a)
Sent: Tuesday, 5 June 2018 10:22 a.m.
To: David McGuigan
Subject: RE: Unreinforced concrete foundations - clarification to Canterbury Guidance [IN-CONFIDENCE:RELEASE EXTERNAL]

Thanks Dave – quick comments after only a moment's reflect:

How will we define 'unreinforced'? I've seen some cores that have random rods or wires...

Related point is your editing out of the para that mentioned NZS95. We felt that it usefully highlighted that there were relevant standards prior to 3604/1900, in contrast to stones with mortar from the earlier 1900s – plus a reminder that the purpose of those foundations was only to carry vertical load

Thoughts?

Will share with s 9(2)(a) and go through in more detail

s 9(2)(a)

From: David McGuigan <Dave.McGuigan@mbie.govt.nz>
Sent: Tuesday, 5 June 2018 9:29 a.m.
To: s 9(2)(a)
Cc: Saskia Van Ryn <Saskia.VanRyn2@mbie.govt.nz>; Dave Robson <Dave.Robson@mbie.govt.nz>
Subject: Unreinforced concrete foundations - clarification to Canterbury Guidance [IN-CONFIDENCE:RELEASE EXTERNAL]

Hi s 9(2)

Thanks for catch up today - please find attached proposed clarification on the topic of unreinforced concrete foundations aka 'rubble foundations'.

It is intended to issue this as Clarification No. 63 in the next couple of weeks – maybe even this week!

I look forward to any comment/feedback.

Kind regards

Dave McGuigan

s 9(2)(a)

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From: Hugh Cowan [mailto:HACowan@eqc.govt.nz]
Sent: Wednesday, 6 June 2018 8:13 a.m.
To: David McGuigan
Subject: Q and A for 'Rubble Foundations'

Hi Dave,

Thanks for your email and the opportunity to provide comment on the proposed supplementary Q and A on "rubble foundations". In short, EQC has no additional comments to make in respect of the Q and A and would welcome these being published by MBIE.

However, I believe there would be value in expanding on the Q and A to provide technical examples of situations where the MBIE guidelines include relevant recommendations for repairs to earthquake damaged unreinforced concrete perimeter ring foundations. I note your earlier comment that MBIE feels it has a limited perspective on the issues being experienced in the Canterbury residential repair process with respect to rubble foundations.

EQC's technical experts (both internal and external) have extensive experience of the practical application of the MBIE guidelines to "rubble foundations", and I would be happy to facilitate a discussion with EQC's external structural engineers on the strengths and weaknesses of how the MBIE guidelines are being applied in practice in Canterbury. This discussion could assist your consideration of the merit of incorporating a series of technical case studies to the proposed Q and A. The key outcome/benefit would be to ensure that MBIE has a strong body of national technical guidance based on lessons learned from the Canterbury earthquake recovery. The practice of constructing perimeter ring foundations utilising site mixed concrete and variable fill material is not unique to Canterbury, so these issues could arise in future elsewhere in New Zealand.

Thank you again for contacting me.

Regards
Hugh

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From: s 9(2)(a)
Sent: Wednesday, 6 June 2018 2:05 p.m.
To: David McGuigan
Subject: RE: Q and A for 'Rubble Foundations' [UNCLASSIFIED]

Just an update, as s 9(2)(a) and I continue working on this definitional point

We are all of the view that rubble foundations are a subset of unreinforced concrete, hence not comfortable with the implied equivalence of the current first para.

Working on possible alternatives (sorry!) but won't be able to get a proposed alternative until tomorrow

Thanks

s 9(2)(a)

From: s 9(2)(a)
Sent: Wednesday, 6 June 2018 9:07 a.m.
To: 'David McGuigan' <Dave.McGuigan@mbie.govt.nz>
Subject: RE: Q and A for 'Rubble Foundations' [UNCLASSIFIED]

Thanks Dave

Yes, I wouldn't have seen this going into the Q&A. But as I begin to think about what the Chch engineering session might look like (putting on my Eng NZ hat, I think), having some examples would definitely assist.

s 9(2)(g)(i)

How about if I was to meet with them next week (somehow) to get some good examples that a neutral party might present?

I'll ask s 9(2)(a) for an alternative suggestion

Cheers

s 9(2)(a)

From: David McGuigan <Dave.McGuigan@mbie.govt.nz>
Sent: Wednesday, 6 June 2018 8:21 a.m.
To: s 9(2)(a)
Subject: FW: Q and A for 'Rubble Foundations' [UNCLASSIFIED]

FYI – in confidence below – I will contact Hugh to see if EQC's technical experts can be at a Christchurch presentation – there will not be a lot of will from MBIE to provide explicit examples.

Also picking up on the desire of Graeme Beattie of an alternative/supplementary name for unreinforced concrete foundations – does he have a suggestion.

Cheers

Dave M

From: Hugh Cowan [mailto:HACowan@eqc.govt.nz]
Sent: Wednesday, 6 June 2018 8:13 a.m.
To: David McGuigan
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Hi Dave,

Thanks for your email and the opportunity to provide comment on the proposed supplementary Q and A on “rubble foundations”. In short, EQC has no additional comments to make in respect of the Q and A and would welcome these being published by MBIE.

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Thank you again for contacting me.

Regards
Hugh

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From: Dave Robson
Sent: Thursday, 7 June 2018 11:49 a.m.
To: David McGuigan
Cc: Sophia Tocker
Subject: RE: Unreinforced concrete foundations - clarification to Canterbury Guidance [IN-CONFIDENCE:RELEASE EXTERNAL]

David. I'm happy for you to take the reins on the next steps? Are you ok with this?

In terms of the Q&A, can we refine/add a line or two, that really spell out the message we pushed in the recent briefing (they are a bit hidden at the moment)

- Nothing changed in the BC
- The BC applied to all repairs
- This guidelines compliments normal practices (or something to that effect?)

Cheers

Dave Robson
MANAGER BUILDING PERFORMANCE AND ENGINEERING

dave.robson@mbie.govt.nz | s.9(2)(a)

From: David McGuigan
Sent: Tuesday, 5 June 2018 9:58 p.m.
To: Dave Robson <Dave.Robson@mbie.govt.nz>
Cc: Sophia Tocker <Sophia.Tocker@mbie.govt.nz>
Subject: Fwd: Unreinforced concrete foundations - clarification to Canterbury Guidance [IN-CONFIDENCE:RELEASE EXTERNAL]

Hi Dave

I will propose that we have an internal Mbie meeting on this on Friday afternoon or early next week so we can firm up on the process of releasing clarification 63.

Meeting invitees:

You

Me

Annie Coughlan

Saskia and or Penelope from AEI to be ready for web release process

Maybe Mbie legal (Iain Feist) but based on previous interaction they have no objection to release of clarification.

Anyone else you think relevant.

If ok with this Sophia can set something up.

With respect to s 9(2)(a) email below the date of a Christchurch meeting i understand is 20 June. The aspiration of externals is therefore the clarification to be out there before then.

Cheers
Dave M

Sent from my iPhone

Begin forwarded message:

From: s 9(2)(a)
Date: 5 June 2018 at 4:50:39 PM NZST
To: David McGuigan <Dave.McGuigan@mbie.govt.nz>, s 9(2)(a)
Cc: Dave Robson <Dave.Robson@mbie.govt.nz>
Subject: RE: Unreinforced concrete foundations - clarification to Canterbury Guidance [IN-CONFIDENCE:RELEASE EXTERNAL]

Hi Dave,
Thank you for consulting us. We are happy with what you have produced.
As discussed, we propose to hold a "Clearing House" Meeting in Christchurch to discuss this, and other current issues, so would appreciate being kept informed of when it will be issued so we can set this meeting up as soon as possible.
I am happy to discuss further if you wish.
Kind Regards, s 9(2)(a)

s 9(2)(a)

From: David McGuigan <Dave.McGuigan@mbie.govt.nz>
Sent: Tuesday, 5 June 2018 9:36 AM
To: s 9(2)(a)
Cc: Dave Robson <Dave.Robson@mbie.govt.nz>
Subject: Unreinforced concrete foundations - clarification to Canterbury Guidance [IN-CONFIDENCE:RELEASE EXTERNAL]

Hi s 9(2)(a)
Further to conversations on this matter last week please find attached proposed MBIE clarification on the topic of unreinforced concrete foundations aka 'rubble foundations'.
It is intended to issue this as Clarification No. 63 to the Canterbury Guidance on the building.govt.nz website in the next couple of weeks.
I look forward to any comment/feedback.
Please don't hesitate to contact Dave Robson or me if you have any queries.
Kind regards
Dave McGuigan
s 9(2)(a)

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Out of Scope

From: David McGuigan

Sent: Friday, 8 June 2018 3:45 p.m.

To: s 9(2)(a)

Subject: Canterbury Guidance Clarification 63 [IN-CONFIDENCE:RELEASE EXTERNAL]

Hi Dave

Updated version attached acknowledging your feedback – are you available for a call in the next half or so.

DM

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How does the Guidance apply to “rubble” concrete foundation walls?

This clarification indicates how the Guidance can be applied to concrete perimeter foundation walls of poorer quality that are sometimes referred to as “rubble foundations”

The Canterbury rebuild has shown that there a wide variety of perimeter foundation walls to houses in Canterbury. This reflects a continuum ranging from reinforced concrete perimeter foundations that are fully compliant with the current version of NZS 3604, through concrete walls with nominal reinforcement, to walls with large elements of loosely cemented stone or rock.

The guidance states in Section 1.4.3 Technical Scope *“The document focuses principally on one- and two-storey timber framed dwellings (i.e. 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 the current NZS 3604 requirements for the residential 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, i.e. one and two-storey timber-framed dwellings.

It is worth noting that NZSS 95, a predecessor Standard to NZS 3604, stated that “the 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 its is not mandatory for developing a repair solution. However, repair solutions to reinstate the original function of poorer quality concrete foundation walls can in many cases be developed by utilising principles within the guidance document. When the Guidance is applied it provides good engineering advice and solutions that meet the requirements of the Building Code and Building Act, including methods to repair cracks and repair or replace perimeter concrete foundations. Some of these methods are applicable across the range of existing foundations, whether they be considered as “rubble foundations”, or they fully comply with NZS 3604, provided that specific consideration is given to the nature and condition of the foundation.

The application of the damage assessment methods and repair solutions provided in the Guidance require a good understanding the overall performance of affected houses. The development of any repair solution requires case specific consideration and the use of engineering judgement from appropriately qualified and experienced professionals. Irrespective of whether the Guidance is used or not for developing a repair solution all repair work must comply with the Building Code.

From: David McGuigan
Sent: Monday, 11 June 2018 12:27 p.m.
To: s 9(2)(a)
Subject: Canterbury Guidance Clarification 63 [IN-CONFIDENCE:RELEASE EXTERNAL]

Hi s 9(2) – updated version

I will now work on internal MBIE e-mail to reflect internal meeting discussions.

Cheers

Dave M

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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 fully compliant with the current version of NZS 3604, through concrete walls with nominal reinforcement, to 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 (i.e. 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 "the 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.

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The guidance includes methods to repair cracks and repair or replace perimeter concrete foundations. Some of these methods are applicable across the range of existing foundations, (whether they are considered to be 'rubble foundations', or they fully comply with NZS 3604) provided that specific consideration is given to the nature and condition of the foundation.

Applying the damage assessment methods and repair solutions provided in the guidance require a good understanding of the overall performance of affected houses. In addition, the development of any repair solution requires case-specific consideration and obtaining 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.

From: David McGuigan
Sent: Monday, 11 June 2018 12:45 p.m.
To: Annie Coughlan; Penelope Whitson; Kirsty Wallace; Dave Robson; Iain Feist
Cc: Leah Chamberlin-Gunn; Sophia Tocker
Subject: Canterbury Guidance Clarification 63 [IN-CONFIDENCE]

Hi all

Annie, Penelope and I met this morning to review the content of the proposed clarification No. 63 to the Canterbury Residential Guidance. A latest version of the clarification acknowledging feedback from Penelope and Annie is attached

Next steps from here:

- All to review and come back with any comments/edits – the updated clarification has not had a recent Legal review so I am hoping you can cover that please Iain
- Add as 'Hot-Topic' to weekly minister status update (to go out on Friday) – this content will largely draw on the briefing that was issued on
- Annie will work on how to inform Ministers' offices (Twyford + Woods, acknowledging that Twyford is covering for Min. Salesa while she is on leave – this will focus on key (reactive messages) that they may need

The game plan will be to issue the clarification before the end of this week, respecting promises made in briefing to Ministers – I am also aware that a Canterbury Structural Group meeting scheduled for 20 June will want to focus on this issue within their environment and Engineering NZ are looking at playing some facilitation role in this.

Annie – let me know if anything else is left out from a comms perspective

Cheers
Dave M

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It is worth noting that NZSS 95, a predecessor Standard to NZS 3604, stated that "the 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 it is not mandatory for developing a repair solution. However, repair solutions to reinstate the original function of poorer quality concrete foundation walls can in many cases be developed by using principles in the guidance. When the Residential Guidance is applied it provides good engineering advice and solutions that meet the requirements of the Building Act and Building Code. There have been no changes to the performance requirements in the Building Code as a result of the Canterbury earthquakes.

The guidance includes methods to repair cracks and repair or replace perimeter concrete foundations. Some of these methods are applicable across the range of existing foundations, (whether they are considered to be 'rubble foundations', or they fully comply with NZS 3604) provided that specific consideration is given to the nature and condition of the foundation.

Applying the damage assessment methods and repair solutions provided in the guidance require a good understanding of the overall performance of affected houses. In addition, the development of any repair solution requires case-specific consideration and obtaining 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.

From: David McGuigan
Sent: Wednesday, 13 June 2018 10:26 a.m.
To: Dave Robson; Penelope Whitson; Leah Chamberlin-Gunn; Annie Coughlan; Kirsty Wallace; Iain Feist
Subject: FW: Canterbury Guidance Clarification 63 [UNCLASSIFIED]

Hi all

Please find mako link below to proposed clarification – this mater version addresses comments received from a number of you.

Let me know if any further feedback.

Cheers

DM

<http://mako.wd.govt.nz/otcs/llisapi.dll?func=ll&objaction=overview&objid=79690327>

RELEASED UNDER THE
OFFICIAL INFORMATION ACT

Q&A issue number	Q&A issue date	Question number	Question	Guidance document reference	Relevant part of guidance
10	Tbc	63	How does the Residential Guidance apply to 'rubble' concrete foundation walls?	Various	Various

This clarification indicates how the Residential Guidance can be applied to poorer quality concrete perimeter foundation walls that are sometimes referred to as 'rubble' foundations.

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 "the 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.



From: David McGuigan
Sent: Thursday, 14 June 2018 8:17 a.m.
To: s 9(2)(a)
Cc: Dave Robson; Leah Chamberlin-Gunn
Subject: Canterbury Guidance Clarification 63 [UNCLASSIFIED]

Hi s 9(2)(a)

Please find attached updated clarification that MBIE are hoping to issue in the next couple of work days in advance of the scheduled 20 June 2018 Canterbury Structural Group meeting.

We are meeting at 1pm to 3pm today on the subject of seismic assessment guidelines and we may have a chance afterwards to touch base on this.

I understand our comms person Leah has also been in touch with s 9(2)(a) so they are connecting.

Kind regards

Dave McGuigan

s 9(2)(a)

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It is worth noting that NZSS 95, a predecessor Standard to NZS 3604, stated that "the 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.