APPENDICES

References and resources for managing buildings in emergencies

Appendix 1: Relevant legislation

This Appendix provides more details of the main Acts and Regulations relevant to managing buildings in an emergency, as described in Part A section 3 of this guide.

Check the New Zealand Legislation website www.legislation.govt.nz for the latest versions of these.

A1.1 Civil Defence Emergency Management Act 2002

Table A1.1 outlines some of the relevant sections in the CDEM Act.

For more information on this Act refer to www.civildefence.govt.nz

Table A1.1: *Some of the CDEM Act sections relating to building assessment*

Section	Relevance to building assessment
14	Requires territorial authorities to become a member of a CDEM Group, and work with emergency services and lifeline utilities to manage emergencies in their area. "A territorial authority whose district is completely within the area of a regional council must be a member of the Civil Defence Emergency Management Group of which the regional council is a member."
18(2)(c)	Authorises a territorial authority, as a member of a CDEM Group, to issue and control the use of signs. "Issue and control the use of signs, badges, insignia, and identification passes authorised under this Act, regulations made under this Act, or any civil defence emergency management plan."
59	"Departments and others to undertake civil defence emergency management functions and responsibilities Every department, Civil Defence Emergency Management Group, local authority, emergency service, and lifeline utility, and any other person required by this Act or any regulations made under this Act, or any civil defence emergency management plan, to undertake civil defence emergency management or to perform any functions or duties, must take all necessary steps to undertake civil defence emergency management or to perform those functions and duties."
64	"Duties of local authorities (1) A local authority must plan and provide for civil defence emergency management within its district. (2) A local authority must ensure that it is able to function to the fullest possible extent, even though this may be at a reduced level, during and after an emergency."

Section	Relevance to building assessment
85 and 94H	Section 85 (1) (a) authorises a territorial authority, as a member of a CDEM Group, to carry out works, clear roads and other public places, and remove, dispose of, secure or otherwise make safe dangerous structures and materials. "While a state of emergency is in force in its area, a Civil Defence Emergency Management Group may— (a) carry out or require to be carried out all or any of the following: (i) works: (ii) clearing roads and other public places: (iii) removing or disposing of, or securing or otherwise making safe, dangerous structures and materials wherever they may be." Section 94H gives similar powers to a Recovery Manager during a transition period.
86 and 94K	Section 86 authorises a territorial authority, in a state of emergency under the authority of a Controller, to require the evacuation of any premises or place (including public places). "If a state of emergency is in force and, in the opinion of a Controller or any constable, the action authorised by this section is necessary for the preservation of human life, that person or a person authorised by him or her may direct, within the area or district in which the emergency is in force,— (a) the evacuation of any premises or place, including any public place; or (b) the exclusion of persons or vehicles from any premises or place, including any public place." Section 94K gives similar powers to a Recovery Manager or constable during a transition period.
88 and 94M	Section 88 authorises a territorial authority, in a state of emergency under the authority of a Controller, to prohibit or restrict public access to roads and public places. "If a state of emergency is in force, a Controller or a constable, or any person acting under the authority of a Controller or constable, or any person so authorised in a relevant civil defence emergency management plan, may, in order to prevent or limit the extent of the emergency, totally or partially prohibit or restrict public access, with or without vehicles, to any road or public place within the area or district in respect of which the state of emergency is in force." Section 94M gives similar powers to a Recovery Manager or constable during a transition period.
92 and 94H	Section 92 authorises a territorial authority, in a state of emergency under the authority of a Controller, to examine, mark, seize, sample, secure, disinfect, or destroy any property in order to prevent or limit the extent of the emergency. "While a state of emergency is in force, a Controller or a constable, or any person acting under the authority of a Controller or constable, may examine, mark, seize, sample, secure, disinfect, or destroy any property, animal, or any other thing in order to prevent or limit the extent of the emergency." Section 94H includes powers for a Recovery Manager for "examining and marking any property, animal, or any other thing".

Section	Relevance to building assessment
110	Provides protection during a state of emergency or transition period from liability for any direct or indirect act or omission of the Crown, CDEM Groups (including officers, employees, or members of those groups and those acting under the direction of the Controller), or other persons, except in cases of bad faith or gross negligence. "Protection from liability (1) Except as provided in sections 107 to 109, there is no cause of action against the Crown, or a Civil Defence Emergency Management Group, or an officer or employee or member of any of them, or against any other person, to recover damages for any loss or damage that is due directly or indirectly to a state of emergency or a transition period. (2) Subsection (1) applies whether the loss or damage is caused by any person taking any action or failing to take any action, so long as the act or omission occurred in the exercise or performance of his or her functions, duties, or powers under this Act. (3) No person is exempted from liability under subsection (1) for any act or omission to act that constitutes bad faith or gross negligence on the part of that person."

A1.2 Building Act 2004

The Building Act has general provisions for entering buildings to undertake inspections (section 222). Subsection 222(1) authorises officers of a territorial authority to enter premises for the purpose of inspecting the building or determining whether a building is dangerous, earthquake prone or insanitary. A building can be entered at all times during normal working hours, or while building work is being carried out.

Despite section 222, an officer cannot enter a household unit without the occupier's permission (section 226 of the Act). If an occupier refuses to allow access, an application must be made for a Court Order to authorise entry. At least 10 days' notice must be given to the occupier before seeking a Court Order (sections 227 and 228 of the Act).

The Building Act provides for particular notices if a territorial authority assesses a building to be dangerous, earthquake prone, or insanitary. These are not the same as the placards placed on buildings under the authority of the CDEM Act (sections 92 and 94H) during rapid assessments. However, these placards may fulfil the purpose of warning notices under s124(1)(b) of the Building Act.

Table A1.2 describes some Building Act sections relevant to managing buildings in emergencies.

MBIE's website at www.building.govt.nz has more information.

Table A1.2: *Building Act sections relevant to managing buildings in emergencies*

Section	Notification requirement
42	Owner must apply for a certificate of acceptance if building work is carried out urgently.
124	Authorises a territorial authority to erect hoardings, fix warning notices to buildings, and give written notice requiring work to reduce or remove danger or remedy insanitary conditions (section 125 prescribes who the notice must be given to).
128	Prohibits the use of the building if a hoarding is erected under section 124.
129	Authorises a territorial authority to take measures to avoid immediate danger or to fix insanitary conditions.
131	Requires territorial authorities to adopt policies on dangerous and insanitary buildings. These policies need to state the approach the territorial authority will take in performing its functions, its priorities in performing those functions, and how the policy will apply to heritage buildings.
216	Requires territorial authorities to keep information about buildings. This should include keeping records of any building assessments.
222	"Inspections by territorial authority (1) An authorised officer is entitled, at all times during normal working hours or while building work is being carried out,— (a) to inspect— (i) land on which building work is or is proposed to be carried out; and (ii) building work that has been or is being carried out on or off the building site; and (iii) any building; and (iv) any residential pool (or the immediate pool area); and (b) to enter premises for— (i) the purpose of inspecting the building; or (ii) the purpose of determining whether the building is dangerous or insanitary within the meaning of subpart 6 of Part 2; or (iii) the purpose of determining whether the building or a part of the building is earthquake prone or potentially earthquake prone within the meaning of subpart 6A of Part 2; and (c) to enter premises for the purpose of determining whether section 162C is being complied with. . ."
388	Provides a statutory defence against prosecutions for actions taken in relation to a natural disaster as long as: • these actions could not reasonably have been foreseen or provided for, and • their effects were adequately mitigated or remedied after the event.

A1.3 Local Government Act 2002

The Local Government Act may also provide power of entry into buildings if a state of emergency has not been declared or a transition period notified. Section 173 (Power of entry in cases of emergency) provides powers of entry to land and buildings and inspection if there is a sudden emergency causing, or likely to cause:

- loss of life or injury to a person
- damage to property
- damage to the environment
- danger to any works or adjoining property.

A1.4 Heritage New Zealand Pouhere Taonga Act 2014

The Heritage New Zealand Pouhere Taonga Act establishes a framework to protect the historical and cultural heritage of New Zealand. This Act prohibits a protected site from being modified or destroyed unless an authority is obtained from Heritage New Zealand Pouhere Taonga:

- It is an offence to modify or destroy a historic place, historic area, wāhi tūpuna, wāhi tapu, or wāhi tapu area that is protected by a heritage covenant (section 86).
- Likewise, it is an offence to modify or destroy an archaeological site (section 87).

The Act also provides that a decision whether or not to grant this authority must be made promptly during a state of emergency, for 12 months after one is lifted, or for such further time as is reasonably necessary in the circumstances. They provide that any person may make an application to modify or destroy an archaeological site. This application must be determined within three days (five days if the site is of interest to Māori). An emergency authority can be granted without the consent of the owner if the owner cannot be contacted.

If a state of emergency has been declared, section 60(1) of this Act provides an accelerated process for granting an emergency authority to modify or destroy an archaeological site (including demolition of pre-1900 buildings):

"Subpart 3 – Emergency authorities
60 Purpose and application of subpart

(1) This subpart provides a process for obtaining an emergency authority to undertake an activity that will or may modify or destroy an archaeological site or sites located in an area or a district over which a national or local emergency is declared, or a transition period is notified, under the Civil Defence Emergency Management Act 2002."

(2) Unless otherwise expressly provided for, this subpart applies instead of subpart 2 if an emergency authority is sought and granted within 12 months after the state of emergency is terminated under section 72, or the transition period is terminated under section 94E, of the Civil Defence Emergency Management Act 2002, or such further time as is reasonably necessary in the circumstances.

The Act provides that any person may make an application to modify or destroy an archaeological site. This application must be determined within three days, or within five days if the application relates to a site of interest to Māori. An emergency authority can be granted without the consent of the owner if the owner cannot be contacted.

The Act also establishes that one of the functions of Heritage New Zealand Pouhere Taonga is to provide advice on heritage matters in the event of a national or local emergency (section 13(1)(g)). In determining whether to grant an emergency authority, Heritage New Zealand Pouhere Taonga will take account of factors including the:

- need to protect public health and safety
- historical and cultural values of the site
- effect on Māori cultural values, and
- views of the owner, if these can be ascertained.

A1.5 Health and Safety at Work Act 2015

The Health and Safety at Work Act places duties on employers, employees, and others in a position to manage or control hazards. Territorial authorities have a duty to take all practicable steps to ensure the health and safety of rapid building assessors while at work. Assessors also have a responsibility under this Act.

WorkSafe's website http://www.business.govt.nz/worksafe/ has more information about relevant health and safety obligations.

Also refer Appendix 6 of this guide.

A1.6 Fire and Emergency New Zealand Act 2017

The Fire and Emergency New Zealand Act allows for urgent actions in the event of fire or other emergency. It permits the Chief Fire Officer to enter land and premises and, if necessary, shore up or pull down any building or structure (or any part of these) he or she considers has been damaged such that it is, or is likely to be, dangerous to life or property.

The **Fire Safety and Evacuation of Buildings Regulations 2016** provide for specific building evacuation plans to be approved with Fire and Emergency New Zealand.

A1.7 Resource Management Act 1991

Under the RMA the adverse environmental effects of siting, constructing, maintaining and demolishing buildings are controlled on an everyday basis. The RMA also contains provisions allowing for emergency works and powers to take preventive of remedial action (sections 330 and 330A) under the Act, and also Civil Defence Emergency Management Act 2002 (section 330B). These works and powers could be required to undertake urgent actions to manage a building in an emergency when standard consenting requirements cannot be adhered to.

Appendix 2: Readiness checklist

(Refer to Section 4)

Readiness step one: understand the legal context

- ☐ Establish and record legal basis for the proposed activities
- ☐ Develop policy statements for the likely scenarios, for example historic building demolition

Readiness step two: develop an operating structure

- ☐ Prepare the operating structure and how teams will report
- ☐ Identify key roles
- ☐ Define specific roles and responsibilities
- ☐ Identify people for key roles
- ☐ Specify the composition of teams
- ☐ Identify support staff
- ☐ Decide how to contact key people in an emergency

Readiness step three: identify an operational base and other facilities

- ☐ Identify and arrange for a building to serve as the assessment coordination centre
- ☐ Arrange for office equipment
- ☐ Identify a second building as an alternative coordination centre
- ☐ Establish a responder assembly point
- ☐ Identify the public contact centre(s)

Readiness step four: gather information about buildings, critical infrastructure and the environment

- ☐ Identify and locate all key facilities, and premises storing or using hazardous substances
- ☐ Ensure earthquake-prone building and critical structural weakness building records and files are up to date
- ☐ Prepare a default priority list of buildings and sites to check as part of the initial building assessment response
- ☐ Annually cross-check the priority list of buildings against a list of key facilities and infrastructure with priority response agreements in place
- ☐ Have an understanding of how the bigger building owners intend to cover their assessment needs and identify overlaps
- ☐ Establish realistic risk damage scenarios

Readiness step five: develop a building assessment plan

- ☐ Clearly define authority and scope (for example, linkage back to the territorial authority emergency procedures)
- ☐ Develop links with other parties, such as Operations, Welfare and Logistics Managers, and other agencies, such as Heritage New Zealand Pouhere Taonga
- ☐ Maintain mutual aid agreements for additional building control and other resources
- ☐ Maintain a list of locally available trained building assessors (building control officials, engineers, others)

- [ ] Maintain contracts for emergency work (shoring, demolition, hoardings, containers, cordons, secure storage, and debris dump sites)
- [ ] Arrange for ongoing training for local building assessors
- [ ] Arrange ongoing training for administrative staff
- [ ] Establish information management systems to capture data and provide rapid building assessment data management reports and maps for the Controller and Building Response Manager. Ideally, use business-as-usual systems. Ensure the standard rapid building assessment database workbook is stored on an accessible data stick or geographically separated alternative system.
- [ ] Establish a plan for requesting and coordinating volunteer assessors, and for funding contracted services once outside the three-day volunteer period
- [ ] Establish a method for tracking assessors, eg as a sign-in and sign-out register including assigned area of operation
- [ ] Have a plan for control at cordon access to enable assessment within cordons
- [ ] Compile critical pre-event data so that post-event data can be easily compared
- [ ] Establish who will manage and fund the collection of critical post event data such as aerial photography and LiDAR

Readiness step six: gather resources

- [ ] Assemble background information for inspections (maps and building-specific information)
- [ ] Prepare and stockpile forms and placards
- [ ] Prepare induction packages
- [ ] Provide for resourcing all assessors
- [ ] Arrange adequate communications (temporary telephones, radios)
- [ ] Plan for transportation requirements
- [ ] Prepare information for building owners, occupiers and the public (coordinate with welfare services agencies)

Readiness step seven: identify people with specialist skills

- [ ] Train local building control staff (Tier 2 and Tier 3) to match local requirements
- [ ] Identify local trained building assessors
- [ ] Identify local consulting engineer contractors
- [ ] Identify specialist building knowledge requirements
- [ ] Identify any gaps in available local knowledge and maintain a contact list of external specialists
- [ ] Identify local facilities that could be used to accommodate people from outside the district
- [ ] Identify emergency response service providers
- [ ] Consider supporting functions including procurement, legal, financial and communications; arrange for external assistance as required
- [ ] Plan for and trial likely scenarios

Appendix 3: Equipment and resource checklists

A3.1 Resource checklist: Emergency Operations Centre

Note: If the building assessment operation is not part of the Emergency Operations Centre, use this checklist for office requirements.

- ☐ Food
- ☐ Water
- ☐ Tables and chairs
- ☐ Communications equipment
- ☐ Whiteboards and markers
- ☐ Mounting putty and butcher's paper
- ☐ Office supplies
- ☐ Placards and assessment forms
- ☐ Photocopier (coloured weather-resistant paper for printing placards)
- ☐ Printers and computers (including, as appropriate, capability for assessment app download)
- ☐ Generator
- ☐ Means of amplification to brief hundreds of assessors (induction pack)
- ☐ ID card reader (and ID card printing machine, if required)
- ☐ Toilets, toilet paper, and other sanitary supplies
- ☐ Spare assessor personal equipment (for example, hard hats, safety footwear, high-visibility vests, torches, safety glasses, safety gloves, face masks)
- ☐ First aid kits
- ☐ Batteries

A3.2 Resource checklist: territorial authority to supply to each assessment team

- [ ] Vests for leadership staff
- [ ] Location of the EOC on a map and by coordinates, and details of the EOC layout
- [ ] Meeting and debrief facilities
- [ ] Contact information for the known managers and a structure for the response team
- [ ] Briefing sheets with an outline of the rapid assessment procedure, reporting requirements, contact points, communications arrangements, first aid, health and safety
- [ ] Official photo identification/authorisation (secure clip-on badges, lanyard or similar)
- [ ] Communication radios
- [ ] Relevant field guide to rapid assessment
- [ ] Information about the area, including an overall map on which assessors can circle the affected area during briefings, large-scale street maps or photo maps of assigned areas, aerial photographs, hazard register, and building-specific information
- [ ] Security cordoning or barrier tape and spray paint
- [ ] Placards and means to secure (such as thumb tacks, plastic sleeves, duct tape)
- [ ] Indelible marker pens (fine: 4 black, 4 red) for marking the placards (note that ballpoint pens are not reliable in rain and fade under sunlight)
- [ ] Forms for Level 1 rapid assessments (assess number of forms required for each team)
- [ ] Forms for Level 2 rapid assessments (assess number of forms required for each team)
- [ ] Clip boards x2 (inside a plastic bag big enough to write inside when raining); paper pad, pencils
- [ ] Information handouts for occupants (including support agency referral information)
- [ ] Tablets or software (optional)/USB sticks
- [ ] Spare batteries and chargers for electronic equipment supplied by the territorial authority
- [ ] First aid kit, disposable face masks
- [ ] A one day ration of emergency food and water
- [ ] Food and accommodation (unless told otherwise)

Note: The forms, database, and area information may be provided on a digital data recording device (iPad, tablet, as available) preloaded with street maps, geotechnical hazard maps, photos, and building data. Alternatively, you can provide a USB stick with the data that can be loaded on to an assessor's laptop or tablet. It is best if the team is familiar with the device, the data, and also with the applications for recording, communication, and downloading. Hard copies of assessment forms will not be required if data entry is via a rapid building assessment app.

A3.3 Resource checklist: building assessors to supply

This checklist is for items the building assessors responding to an event should supply (as also outlined in the field guide). Include this list in the email confirmation you send to them.

- [ ] Proof of identity (organisational ID card or driver's licence, Tier 2 Rapid Assessor ID)
- [ ] Hard hat, high-visibility vest, steel-capped boots or shoes
- [ ] Wet weather gear
- [ ] Other personal protective gear where considered necessary (for example, gloves, dust mask, eye protection)
- [ ] Backpack for equipment and supplies
- [ ] Clipboard
- [ ] Laptop or tablet (if needed)
- [ ] Mobile phone and charger
- [ ] Digital camera and charger (a mobile phone camera with high resolution may be effective and can enable immediate sharing of a photo, if the mobile network and internet is operating and you can connect)
- [ ] Torch and batteries
- [ ] Tape measure and claw hammer
- [ ] First aid kit
- [ ] Travel kit, including medication, sleeping bag, warm clothes, rain jacket, tooth brush, and so on
- [ ] Binoculars

Appendix 4: Response checklist – activating a building assessment operation (Refer to Section 5)

Response step one: Building Response Manager activates the assessment plan

- [ ] Activate the territorial authority's building assessment plan, changing this as needed given the nature of the particular emergency and the Controller's/Recovery Manager's requirements
- [ ] Set up an operations log for recording all key decisions and briefing/debriefing times

Response step two: mobilise key people to manage the assessments

- [ ] Consider the nature and extent of the emergency, including key facilities affected and any geotechnical concerns
- [ ] Decide suitable operating structure and key roles (eg for recruiting and inducting building assessors; for briefing and coordinating assessment teams; data capture and IT support; wellbeing support; separate critical building team if severe damage)
- [ ] Liaise, through the Controller, with MBIE for support as necessary

Response step three: plan the rapid building assessment operation

- [ ] Decide the approach – set overall assessment priorities with guidance from the Controller and community leaders
- [ ] Seek advice on likely ongoing nature of hazards and geotechnical risks (eg from GNS Science, NIWA, MBIE)
- [ ] Establish specialist geotechnical group if required
- [ ] Decide which buildings to assess first (eg from list of prioritised buildings and information gathered by first responders)
- [ ] Make a preliminary estimate of the number of assessors required – base this on the number of buildings within the initial area identified for the rapid building assessment operation
- [ ] Determine the extent of assessments likely to be required (eg Level 2 assessments for prioritised buildings, Level 1 for other buildings)

Response step four: establish supporting services

- [ ] Provide a data collection system for assessment results (liaise with the territorial authority IT Manager if system not established in advance)
- [ ] Gather material for assessors (eg food and drink as appropriate, field guides, personal protective equipment, maps, placards etc) and establish field support
- [ ] Consider health and safety responsibilities; make sure system in place for recording who is assigned to which area and ensuring assessors log in and out each day
- [ ] Establish access to legal advice; liaise with communications staff for key messages
- [ ] Prepare for liaison with stakeholders including: the CDEM Operations Manager about cordons and barricades; those affected regarding any urgent stabilising or demolition; Heritage New Zealand Pouhere Taonga; commercial building owners (who may commission their own engineering assessments); and the professional engineering community

Response step five: mobilise rapid building assessors

- ☐ Locate and engage the required number of trained assessors (primarily from MBIE's Tier 2 list), using the memorandum of understanding in Appendix 7
- ☐ Ask MBIE if help needed to identify more assessors, or for more support for the management of the operation

Response step six: get the building assessments underway

- ☐ Establish assessment teams (ideally three-person teams including two technical staff and led by a Tier 1/Tier 2 trained assessor); include geotechnical expertise as required
- ☐ Check and provide suitable identification for assessors (Tier 1 and Tier 2 should already have MBIE-issued identity cards); provide them with other necessary equipment
- ☐ Deploy assessment teams and mark their allocated areas on an overall map
- ☐ Organise daily briefings and debriefings; check that assessors log in and out daily
- ☐ Record and collate the assessment results; organise quality check before uploading data to ensure a consistent approach across assessment teams

Response step seven: manage the ongoing operation

- ☐ Manage cordons and barricades for public safety – the Building Response Manager should support the Controller by providing advice and information collected from assessments
- ☐ Manage building placards: change or remove these as necessary; issue Building Act notices as required
- ☐ If further damage is likely, identify and use indicator buildings to provide systematic monitoring
- ☐ Monitor the assessment operation using feedback from completed assessments and any indicator buildings; revise nature and scope of the operation where needed; seek more detailed building evaluations as required
- ☐ Consider stabilising or demolition of any severely damaged buildings on advice from specialist critical building team

Response step eight: manage communications

- ☐ Communicate progress throughout, including keeping the Controller updated on the status of the building assessment operation and assessment results
- ☐ Connect with the Welfare Management and Public Information Management functions to enable relevant support for people affected by an emergency and consistent information resources
- ☐ Provide information for assessors to give to building owners, contact details for other queries (eg to a call centre), and where to direct media enquiries.

Appendix 5: Cordons and barricades

A5.1 Cordoning – example checklist

- ☐ In conjunction with emergency services, recommend to the Local Controller to establish any cordon(s), detailing cordon plan and boundaries
- ☐ Hold a planning session with appropriate agencies, the Building Response Manager, Operations Manager, USAR, New Zealand Police, and Fire and Emergency New Zealand (including USAR) to determine whether occupants within the cordon need to be evacuated
- ☐ Determine with Logistics/Operations and New Zealand Police how any cordons will be put into place on the ground while fencing and barrier needs are arranged
- ☐ Work with Logistics to supply and place fencing, barricades, and secure storage for valuable property, and access to appropriate storage for debris from demolition and secure storage for debris that requires forensic review
- ☐ If size and/or the number of personnel required to control the cordon exceeds operational resources, consider where to get additional cordon control staff (consider Parking Enforcement, Park Rangers, general enforcement staff, New Zealand Police, and New Zealand Defence Force)
- ☐ Place fences and cordon access points
- ☐ Arrange a cordon access pass process

A5.2 Barricading for public safety – guidelines

A5.2.1 Set up barricades at an appropriate distance

Decide how far from the building to set up the barricade.

The distance between the barricade and the building will depend on the type of potential failure. As a general guideline:

- If the total building may fail, base the distance on the total height of the building.
- If the top storey only may fail, base the distance on the height of the top storey.
- If the parapet only may fail, consider allowing a distance of two metres from the veranda fascia, or three metres from the building.
- If the building is an unreinforced masonry construction, consider multiplying the above distances by 1.5 (bricks tend to splay outwards upon hitting the ground).

Also consider the mass of material in any potential failures. Add the base width of the potential material pile to the distances given above.

If geotechnical hazards have been identified, an impact assessment will be required that addresses the scale of the geotechnical hazards.

A5.2.2 Set up barricades to minimise disruption

Consider how barricades will interact with traffic and pedestrians. The further the barricades are from the building, the greater the potential for conflict. The key driver is public life safety, which means barriers are often required in locations that disrupt other activities. It is important to make information about the barrier impact available to the Controller.

Factors to take into account include:

- the volume of traffic and pedestrians at peak periods
- the complexity of the route that passes the building: road alignment, cross roads, traffic lights etc
- whether different levels of protection are needed for pedestrians, people with disabilities, cyclists, and motorists. For example, you may need to direct pedestrians to the other side of the road, provide more pedestrian crossing points, or have a barricade system that alerts visually-impaired pedestrians.

Also consider the potential for conflict with remedial work on roads, services and buildings. Find out whether traffic management plans (TMPs) will be provided and approved for such activities. A TMP can give information that will help decide where to put the barricade, and what kind of barricade to use.

A5.2.3 Set up barricades inside buildings where necessary

If a building has a yellow (access restricted) placard, put up barricades or hazard tape to mark off any areas that are considered unstable. When placing barricades inside buildings do not place them too close to a hazard. For example, consider that glass and brick walls can shatter in aftershocks.

A5.2.4 Use the appropriate kind of barricade

Use the appropriate barricade for the circumstances. Options include:

- shipping containers – if stacked the bottom layer(s) may need to be filled with sand/water/concrete for ballast and the containers may need to be braced together
- concrete ballast blocks
- temporary road barriers
- wire fences
- cones
- tape.

The simpler the barricades, the more easily they can be moved, including by people who are not authorised to move them. Structural engineers are best placed to decide on what should be barricaded and the appropriate method.

It is suggested to be conservative in selecting and placing barriers, recognising that both the hazard and the barrier could deteriorate between inspections.

A5.2.5 Review barricades regularly

Barriers should be reviewed daily by vehicle and a couple of times a week on foot.

To do this review, check the database to see which buildings needed barricading. Do not depend on the existence of a placard to confirm that a barricade should be there. If someone unauthorised has moved the barricade, the placard may also have been removed.

Appendix 6: Health and safety

A6.1 For territorial authorities and rapid building assessment team leaders

A6.1.1 Health and safety in the workplace

The Health and Safety at Work Act 2015 (HSW Act) aims to promote the health and safety of everyone at work and of other people in or around workplaces. It requires people who are responsible for workers and those who do the work to protect their own health and safety and that of others.

In a rapid building assessment operation before an event, it's difficult to pre-determine hazards that may be encountered in the field. Although the actual event will provide a better level of knowledge of the hazard, it remains difficult to be comprehensive. It is important to consider the risks at the daily briefing meetings before deploying building assessors into the field.

All practicable steps

The phrase 'all practicable steps' is a key concept in the HSW Act. This Act places a duty on employers, employees and volunteers at work to take all reasonably practicable steps, in circumstances they know or reasonably ought to know about, to ensure their own safety and that of others. 'All practicable steps' describes the standard a person must meet when carrying out duties under the Act.

In relation to those things you know about or reasonably ought to know about, 'all practicable steps' means those steps that it is reasonably practicable to take:

- A step is practicable if it is possible or capable of being done.
- 'Reasonably' means that you do not have to do everything humanly possible; you only have to do what a reasonable and prudent person would do in the same circumstances.
- Whether a step is reasonably practicable takes into account:
  - the nature and severity of any injury or harm that may occur
  - the degree of risk or probability of injury or harm occurring
  - how much is known about the hazard and the ways of eliminating, isolating, or minimising the hazard
  - the availability and cost of safeguards.

When leading a rapid building assessment operation:

- only use trained assessors who will have had basic health and safety training
- ensure that the induction covers the known risks that have been identified
- do not deploy staff or volunteers without personal protective equipment
- do not deploy staff or volunteers on their own – always deploy them in teams
- encourage active reporting of new risks

- ensure that the whereabouts of assessors is known by having them login when assigned an assessment area and logout once complete. This should occur each day with each reassignment
- encourage people not to take risks going into buildings with uncertain status
- ensure that teams are reminded to look up, as hazards can come from above as well as on the ground
- ensure that assessors are reminded to look for hazardous chemicals signs
- provide teams with contact details for people who can get the power or gas turned off
- record details of assessor deployment and ensure all are accounted for each day.

Health and safety precautions for assessors

Assessing buildings to determine whether they pose a risk to public safety is inherently dangerous. Assessors are expected to use personal protective equipment, attend deployment briefings, and work in teams.

Deployment briefings need to cover health and safety. Do not deploy assessors unless they have their personal protective equipment.

A6.1.2 Resolving conflict and managing stress

Suggested approaches to solving conflict

Team leaders are responsible for monitoring conflict that arises between staff.

The **avoidance** approach is simply to ignore the conflict, or at least not put any attention into trying to do anything about it. In certain situations where the conflict is trivial, this might be appropriate. The avoidance approach carries the risk of the conflict not being resolved successfully within the desired timeframe, or becoming larger so that it will take more skill and time to resolve.

Giving it back to those involved differs from avoidance in that the parties involved are charged with determining the solution within a certain timeframe. However, team leaders need to monitor the situation and not assume it has been successfully resolved. Team leaders should try and mediate a resolution or forward the issue to the Building Response Manager to handle.

Imposing a solution (authoritative) is when the Building Response Manager listens to both parties and unilaterally decides a solution, announces it to those involved, and makes sure they understand which solution has been chosen. This alternative may have to be used in a disaster situation when the time is short and the Controller clearly knows what solution he or she wants.

With **compromise**, all parties think about their side of the issue and their critical needs, and then identify and accept the minimum they can live with to resolve the conflict. The goal is to stop the conflict, rather than thoroughly work through the issues to keep something similar from happening again.

Collaboration has each side working hard at stating their concerns, their goals, and their needs in the conflict situation, and then listening to the other party do the same. The goal is to work through the conflict to a genuinely satisfactory outcome.

Managing staff under stress

The Building Response Manager must be constantly aware of the working conditions and stressful events that could affect people's ability to function. Be familiar with ways to help employees cope with stress.

Table A6.1 describes different debriefing types.

Table A6.1: *Four debriefing types*

Type	Description
Hot debriefing	A debriefing can help emergency personnel cope with an incident. It is commonly held at the end of a shift to review operational procedures and identify immediate areas requiring attention or changes.
Defusing	A defusing is a much shorter, less formal, and less structured version of a critical incident stress debriefing (described below). A defusing is held within a day or two of the event, and usually lasts about 30 to 45 minutes. Qualified personnel manage it. The defusing only involves the most seriously affected members who experienced the emotional event. Its purpose is to allow the affected personnel to express their feelings and to prepare them to go back to work. A defusing is a short-term fix for an immediate reaction to a troubling event.
Critical incident stress debriefing (CISD)	A CISD is a group meeting conducted in a confidential environment that provides a forum for individuals to vent their emotions and express their reactions to the event. Two major goals of a CISD are to reduce the impact of a critical event and to accelerate the recovery of people who have experienced a traumatic event.
Post-operation debriefing	Soon after the end of the EOC mobilisation and response operation, the agencies involved will be invited to attend a formal debriefing with a view to improving response capabilities within the jurisdiction and capture key learnings. To facilitate that meeting, which may not be attended by all building assessment personnel, it is important to make sure that significant operational information has been evaluated by those actively involved, and that an accurate written record of the operation has been kept.

A6.2 For rapid building assessment teams

Although field safety is detailed in the field guides, territorial authorities and rapid building assessment team leaders should ensure that their teams are familiar with the health and safety information in this section and emphasise health and safety in the daily briefings.

A6.2.1 Entering and exiting buildings safely

Before entering a building, the building must be assessed for risks:

- ☐ Is the building stable or unstable?
- ☐ Have all points of entry and exit been identified?
- ☐ Are there specific hazard risks to entry and (particularly) to exit?
- ☐ What are the options for mitigating such risks?

Assess the building before entering

Assess the building from the exterior:

- ☐ Look for signs of damage, instability, and fall hazards such as loose parapets, awnings, or signage.
- ☐ Identify the architecture and structural form.
- ☐ Identify building materials and standards.
- ☐ Compare the building with similar buildings and how they performed in the event or similar events.
- ☐ Identify any damage or degrees of collapse.
- ☐ Look for geotechnical hazards such as boulders, cliff debris, land cracking, water seepage, leaning trees, and so on.
- ☐ If damage has been caused by an earthquake, consider the risk of an aftershock causing further damage.

Decide whether or not to enter

Given this assessment, should the building be entered (GO) or should additional appropriate resources be called for, such as Fire and Emergency New Zealand or Urban Search and Rescue (USAR) technicians, to mitigate the risks or to assess the building?

The three building assessment statuses are:

- a stable building that does not need shoring (GO)
- an unstable building that needs to be stabilised by shoring or other measures – report the need to your Building Response Manager or nominee, as stabilising needs resources beyond those of the building assessment team (NO GO)
- an extremely unstable building that is in a state beyond stabilisation with available resources (NO GO).

Continue to assess risk while you are inside

The damage and hazard risk assessment process continues constantly during entry and interior inspections. Discuss appropriate mitigation actions collectively with other team members who are inside with you. If you decide to change actions, such as planning to use a newly discovered exit, communicate these changes to the external 'team watcher'. The team watcher will do an external check for hazard risks at the proposed exit.

A6.2.2 Hazard management

This section contains information to help assessors understand the types of dangers to watch for and how to clearly mark hazards and record hazard information.

Watching for dangers

- ☐ Smell gas, shut off the gas (if it is possible to identify the correct gas valve) and cordon the area.
- ☐ Avoid downed power lines and any buildings in contact with downed power lines.
- ☐ In case of fire, evacuate the area.
- ☐ Be constantly alert to falling debris or other hazards outside of or within buildings; constantly monitor potential escape routes.
- ☐ On sloping ground and particularly for steep terrain, be constantly alert for any slope instabilities (or signs of impending instability) or falling objects, including rocks; constantly monitor potential escape routes.
- ☐ Take care following earthquakes and aftershocks; any instability may have been worsened. Note that the time and character of aftershocks can't be predicted with any accuracy.
- ☐ Following flooding or other sources of inundation, be alert to rising waters and escape routes.

Advising immediate danger

If the person on watch outside the building sees a danger, they should signal evacuation with three short audio signals of one second each. Repeat these signals until the site is cleared. The site is cleared when the entire team is accounted for, along with any others known to be in the building or area at risk.

If they believe someone may be trapped, they should advise the Building Response Manager immediately.

Watching for hazardous substances

Hazardous substances may have been released during the event. To see whether hazardous substances were present, look for relevant labelling and signs, such as those described in the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). Signs should be on the building at points of entry if the building contains, or has contained, hazardous substances. If you suspect that hazardous substances are present, avoid the area and report this promptly.

Reporting hazards

The event will cause new, localised, unknown hazards.

As you come across hazards, report them. This will allow the territorial authority to build up information about where, what and how serious such hazards are. This information will become more detailed and more accurate as reports arrive from rapid impact assessment surveys, sector surveys and rapid building assessments. Before being deployed in any response task, the team of building assessors needs to be briefed on known and possible risks in the area.

Dealing with emergencies

If there are immediate serious dangers to health and life of the public and no other suitable help is available (such as Fire and Emergency New Zealand including USAR, or the New Zealand Police), address the danger situation. Give first aid if needed.

Never compromise your own safety.

Appendix 7: Resources

This Appendix includes:

- a memorandum of understanding for engaging rapid building assessors
- links to other useful resources (field guides, placards and forms, CDEM documents, and guidance for further building evaluations).

A7.1 Memorandum of understanding for assessors

Memorandum of understanding for engineers, geologists and architects volunteering to assist territorial authorities in a state of emergency or transition period.

The purpose of this form is to provide standard agreement conditions for building assessor volunteers to assess the usability of buildings during a state of emergency or transition period.

A The parties **Between** (name of the CDEM Controller or delegate or Building Response Manager) **And** (name of person engaged and their qualifications) **Situation Location**
B Scope and nature of services Rapid building assessments in the interests of public safety per the MBIE guidelines Or specify below
C Duration of services Start date until date; or for the maximum period of three days

D Information or Services to be provided by the TA

(i) The territorial authority will provide the building assessor with the means of identification to authorise them to do this work or they will use the MBIE-issued identification as an authorised rapid building assessor

(ii) The territorial authority will ensure the building assessor is provided with appropriate safety equipment and will be supported by at least one other person in the field

(iii) The territorial authority will ensure that the building assessor is provided with the standard assessment forms and placards as required

(iv) The territorial authority will have procedures in place for tracking deployed engineers or registered architects

(v) The territorial authority will ensure that the building assessor is briefed by the rapid building assessment team before deployment on the procedures in place

(vi) The territorial authority will ensure building owners are advised that Detailed Damage Evaluations are to be subsequently and separately arranged by owners

E Information or actions binding on the building assessor

(i) The building assessor will follow the instructions of the Civil Defence Controller or their delegate such as the Building Response Manager or emergency services personnel or in event of no declared emergency the nominated Building Response Manager

(ii) The building assessor verifies that the qualifications stated in G below and in relation to the prior training are correct

(iii) The building assessor will not operate outside their field of expertise unless under the supervision of another suitably qualified building assessor

(iv) The building assessor will not pass judgement on any facility that is known to be covered by a priority response agreement unless this is specified under B above

(v) The building assessor will not release confidential information received in the execution of these duties to any other party or for any other purpose save for the Rapid Building Assessment for this event

(vi) The building assessor will not talk to the media or make any public statement unless authorised to do so during or after the work

F Special conditions (additional conditions if any to be specified here)

G Prior training

This building assessor confirms they have attended training sessions on Rapid Building Assessment procedures

Yes/No – if Yes specify date of course

H Signed by:	
For the territorial authority on behalf of the Controller or delegate or Building Response Manager	For building assessor
Name	Name
Signature	Signature
Date	Date
	Registration #

Notes to Memorandum of Understanding

1. The territorial authority and the building assessor agree that the services are acquired during a declared state of local or national emergency, or transition period, or there is a situation that requires rapid building assessment. The legislative base for a state of emergency is the Civil Defence Emergency Management Act 2002. This agreement relates only to the special case for procuring rapid assessments of usability of structures in the context of public safety or there is a situation that requires Rapid Building Assessment of usability but a state of emergency is not declared.
2. This agreement is for provision of engineering or architectural services to a territorial authority for the purpose of assisting in assessment of the usability of structures. It does not apply to those personnel working for USAR taskforce, or other rescue team.
3. It is understood by both parties that these services are provided in a voluntary capacity for the duration as specified above, under conditions of a state of emergency or an undeclared event that requires rapid building assessments. There will be no remuneration for this work. Expenses incurred for travel and accommodation will be met by the territorial authority.
4. Should work proceed beyond the duration indicated or for purposes other than emergency response, a commercial contract will be signed.
5. The building assessor shall perform services for assessment of the usability of structures in accordance with rapid building assessment guidelines as produced by MBIE. No other services shall be supplied without express instructions from the territorial authority.
6. In providing the services, the building assessor shall exercise skill, care, and diligence expected of a competent professional. The building assessor should advise the territorial authority of any training or knowledge they have of building usability assessment systems as in (5) above.
7. The territorial authority shall assist in providing to the building assessor the cooperation of other emergency management personnel and equip him/her as appropriate. This includes providing identification and safety equipment, and providing induction in the territorial authority's emergency procedures, as in (D).
8. The territorial authority will ensure that the building assessor is accompanied by another person (not necessarily an engineer or architect) and that communication and tracking procedures are explained and accepted by the building assessor and his/her accompanying person(s).
9. The building assessor completing these tasks is aware of the special safety issues associated with entering or approaching the buildings or other structures.
10. The territorial authority shall provide to the building assessor any information in its power to obtain that may relate to the services.

11. Neither the engineer nor registered architect nor territorial authority will be liable for operating without full information, where it would be impractical to obtain it within the timeframe necessary to complete the assessment.
12. The building assessor is protected from liability under Section 110 of the Civil Defence Emergency Management Act 2002 in respect of his or her services carried out under the direction of the CDEM Controller, including liability for health and safety, or will be indemnified by the territorial authority in the case of a non-declared or notified event.
13. The building assessor shall not be considered liable for any loss or damage resulting from any occurrence during the period where the services are undertaken under the direction of the CDEM Controller or delegate or the Building Response Manager.
14. The building assessor will not assume any obligation as the 'client's agent' or otherwise pursuant to the Health and Safety at Work Act 2015 arising out of this engagement. The territorial authority will be the person who controls the place of work. The building assessor will act in a considered manner regarding his/her own safety in any area that is, by measure of the emergency situation, a hazardous area.
15. The provisions of the Consumer Guarantees Act 1993 do not apply.
16. Either party may suspend all or part of the services by notice to the other party. It is understood that these services are undertaken under emergency conditions and circumstances as to the building assessor's availability, the nature of the situation, or the requirements of the controlling authority, may change.
17. This agreement is governed by New Zealand law; the New Zealand courts have jurisdiction in respect of this agreement.

A7.2 Field guides

Name	URL
Rapid post disaster building usability assessment – earthquakes	https://www.building.govt.nz/managing-buildings/post-emergency-building-assessment/field-guides-and-tools-for-building-assessment/rapid-post-disaster-building-assessmentearthquake/
Rapid post disaster building usability assessment – flooding	https://www.building.govt.nz/managing-buildings/post-emergency-building-assessment/field-guides-and-tools-for-building-assessment/rapid-post-disaster-building-assessment-flooding/
Rapid post disaster building usability assessment – geotechnical	https://www.building.govt.nz/managing-buildings/post-emergency-building-assessment/field-guides-and-tools-for-building-assessment/rapid-post-disaster-building-usability-assessment-geotechnical/

A7.3 Placards and forms

Name	URL
Earthquake rapid assessment forms	https://www.building.govt.nz/managing-buildings/post-emergency-building-assessment/field-guides-and-tools-for-building-assessment/earthquake-rapid-assessment-forms/
Flooding rapid assessment forms	https://www.building.govt.nz/managing-buildings/post-emergency-building-assessment/field-guides-and-tools-for-building-assessment/flooding-rapid-assessment-forms/
Geotechnical rapid assessment form	https://www.building.govt.nz/managing-buildings/post-emergency-building-assessment/field-guides-and-tools-for-building-assessment/geotechnical-rapid-assessment-form/
Rapid assessment form – sketch sheet, for all rapid assessment types	https://www.building.govt.nz/managing-buildings/post-emergency-building-assessment/field-guides-and-tools-for-building-assessment/rapid-assessment-form-sketch-sheet/
White 'can be used' placard	https://www.building.govt.nz/assets/Uploads/managing-buildings/post-emergency-building-assessment/placards-white.pdf
Yellow 'access restricted' placard	https://www.building.govt.nz/assets/Uploads/managing-buildings/post-emergency-building-assessment/placards-yellow.pdf
Red 'entry prohibited' placard	https://www.building.govt.nz/assets/Uploads/managing-buildings/post-emergency-building-assessment/placards-red.pdf
Optional diagram sheet for placard	https://www.building.govt.nz/assets/Uploads/managing-buildings/post-emergency-building-assessment/placards-diagram.pdf

A7.4 CDEM documents

Name	URL
Ministry of Civil Defence & Emergency Management website	http://www.civildefence.govt.nz/
National Civil Defence Emergency Management Plan 2015	https://www.civildefence.govt.nz/cdem-sector/cdem-framework/national-civil-defence-emergency-management-plan/
Guide to the National Civil Defence Emergency Management Plan 2015	http://www.civildefence.govt.nz/cdem-sector/cdem-framework/guide-to-the-national-civil-defence-emergency-management-plan/
CDEM Group plans	http://www.civildefence.govt.nz/cdem-sector/cdem-framework/cdem-groups/
The 4 Rs	http://www.civildefence.govt.nz/cdem-sector/cdem-framework/the-4rs/
Guidelines	http://www.civildefence.govt.nz/cdem-sector/cdem-framework/guidelines/
Emergency Movement Control (Director's Guideline, DGL 18/15)	https://mcdem2.cwp.govt.nz/cdem-sector/cdem-framework/guidelines/#DGLs
Working from the Same Page: Consistent Messages for CDEM	http://www.civildefence.govt.nz/cdem-sector/consistent-messages-for-cdem/
Response Management: Director's Guideline for CDEM Group and Local Controllers	http://www.civildefence.govt.nz/cdem-sector/cdem-framework/guidelines/response-management/

A7.5 Guidance for further building evaluations

Name	URL
Interim Use Evaluation (IUE)	*Guidance for engineers assessing the seismic performance of non-residential and multi-unit residential buildings in Greater Christchurch* (refer section 5.3) https://www.building.govt.nz/assets/Uploads/building-code-compliance/canterbury-rebuild/seismic-performance-engineers-guidance/seismic-performance-engineers-guidance.pdf
Detailed Damage Evaluation (DDE)	*Guidance on Detailed Engineering Evaluation of Earthquake Affected Non-residential Buildings in Canterbury* Draft guidance prepared by MBIE's Engineering Advisory Group and available at the SESOC website (check for updates) http://sesoc.org.nz/images/Detailed-Engineering-Evaluation-Procedure.pdf **Note:** This guidance refers to 'detailed engineering evaluation', which was a term specific to the evaluations carried out in Canterbury following the 2010/11 earthquakes. This type of evaluation was subsequently renamed a 'Detailed Damage Evaluation'.
Targeted Damage Evaluation (TDE)	*Engineering Guidelines for Targeted Damage Evaluation following the November 2016 Kaikōura Earthquakes* (SESOC and NZSEE document) http://www.sesoc.org.nz/public_resources/Wellington-Targeted-Damage-Evaluation-Guidelines.pdf?285

Appendix 8: Abbreviations and acronyms used in this guide

BOINZ	Building Officials Institute of New Zealand
Building Act	Building Act 2004
CDEM	Civil defence emergency management
CDEM Act	Civil Defence Emergency Management Act 2002
CIMS	Coordinated Incident Management System
CISD	Critical incident stress debriefing
CPEng	Chartered Professional Engineer
DDE	Detailed Damage Evaluation (formerly Detailed Engineering Evaluation, DEE)
ECC	Emergency Coordination Centre
ENZ	Engineering New Zealand (formerly IPENZ)
EOC	Emergency Operations Centre
EQC	Earthquake Commission
FENZ	Fire and Emergency New Zealand
GHS	Globally Harmonized System Of Classification And Labelling Of Chemicals
IUE	Interim Use Evaluation
LiDAR	Light Detection and Ranging
LINZ	Land Information New Zealand
MBIE	Ministry of Business, Innovation and Employment
MCDEM	Ministry of Civil Defence & Emergency Management
MOU	Memorandum of Understanding

National CDEM Plan	National Civil Defence Emergency Management Plan Order 2015
NCMC	National Crisis Management Centre
NZGS	New Zealand Geotechnical Society
NZRT	NZ Response Team
NZSEE	New Zealand Society for Earthquake Engineering
PPE	Personal protective equipment
SESOC	Structural Engineering Society New Zealand
TA, TAs	Territorial authority, all territorial authorities
TDE	Targeted Damage Evaluation
TMP	Traffic management plan
USAR	Urban Search and Rescue
4 Rs	The four phases of emergency management: Risk reduction, Readiness, Response, Recovery