



## Determination 2015/059

# Regarding the building importance level of two proposed buildings at Grey Base Hospital at 146 High Street, Greymouth

### Summary

This determination discusses the application of importance levels in the seismic loading standard AS/NZS 1170 for two new hospital buildings as a means of compliance with B1/VM1 in relation to Clause B1 of the Building Code.

#### 1. The matter to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004<sup>1</sup> (“the Act”) made under due authorisation by me, John Gardiner, Manager Determinations and Assurance, Ministry of Business, Innovation and Employment (“the Ministry”), for and on behalf of the Chief Executive of the Ministry.

1.2 The parties to the determination are:

- the building owner, West Coast District Health Board (“the applicant”)
- Grey District Council (“the authority”), carrying out its duties as a territorial authority or building consent authority.

1.3 I consider the Ministry of Health to be persons with an interest in this matter. I note that the Ministry of Health acknowledged but declined to comment on the application for determination.

1.4 This determination arises from the applicant’s proposed design for two new buildings at the Grey Base Hospital campus in the Grey District. The parties seek clarification regarding the designation of the appropriate importance levels of the proposed buildings in particular in relation to their use after a major seismic event.

1.5 The matter to be determined<sup>2</sup> is therefore whether the proposed buildings will comply with Clause B1 of the Building Code in relation to importance levels established under AS/NZS 1170<sup>3</sup> as a means of compliance with the Verification Method B1/VM1.

1.6 I note that the applicant and the authority have referred to the importance levels contained under Clause A3 of the Building Code which relate to the C-Clauses for the purposes of fire safety in the context of Clause B1. I recognise some confusion exists having importance levels contained in two separate places; however, I consider the establishment of importance levels under AS/NZS 1170 as a cited Standard to B1/VM1 to be distinct from establishing importance levels under Clause A3 of the

<sup>1</sup> The Building Act, Building Code, Acceptable Solutions and Verification Methods, past determinations and guidance documents issued by the Ministry are all available at [www.building.govt.nz](http://www.building.govt.nz) or by contacting the Ministry on 0800 242 243.

<sup>2</sup> Under section 177(1)(a) of the Act.

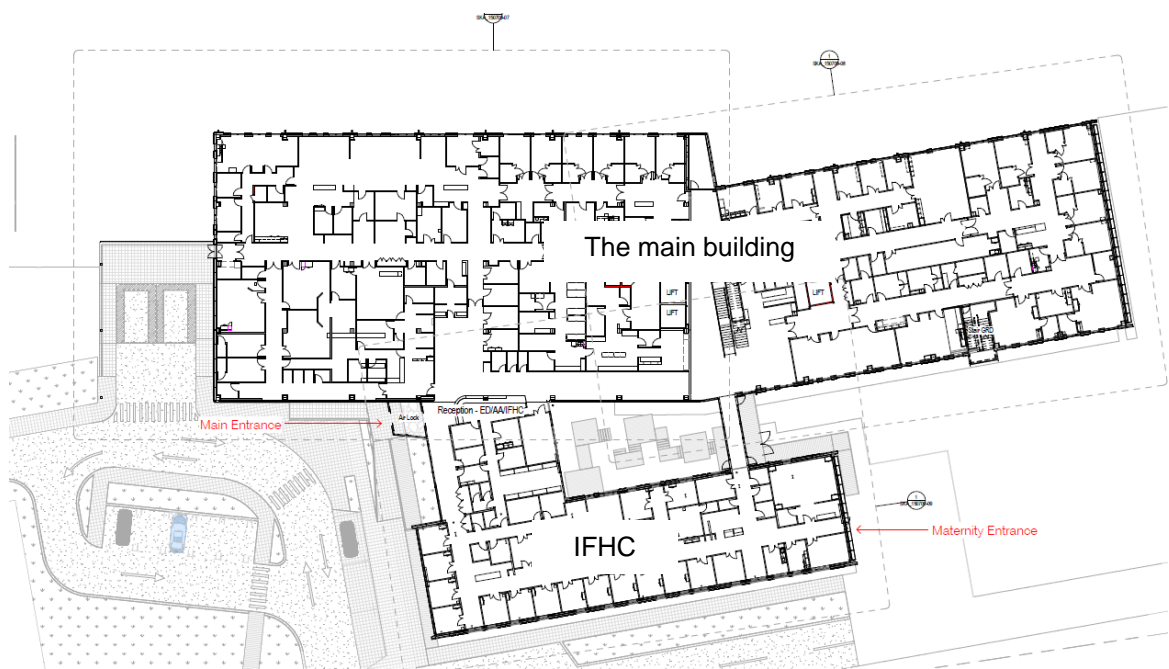
<sup>3</sup> Australia/New Zealand Standard AS/NZS 1170.0 2002 Structural design actions Part 0: General principles

Building Code. Therefore matters relating to importance levels for fire safety are outside the scope of this determination.

- 1.7 In making my decision, I have considered the submissions of the parties and the other evidence in this matter.
- 1.8 The relevant legislation and New Zealand Standards can be found at Appendix A of this determination.

## 2. The building work

- 2.1 The building work consists of the construction of two new buildings at the Grey Base Hospital in the Grey district. The project at the time of this determination was still in the design development stage therefore detailed specifics relating to the proposed buildings have not yet been developed.
- 2.2 The proposed new hospital and Integrated Family Health Centre (“IFHC”) will be situated at the northern end of the existing hospital campus, which will be demolished in stages. The new hospital will straddle a small slope with the upper level of the site accessed by a rail bridge and the lower level accessed from the road. The new hospital component is a three storey main building housing medical and emergency facilities (“the main building”) designated with an Importance Level of 3 (“IL3”) under AS/NZS 1170, and a smaller single storey IFHC designated with an Importance Level of 4 (“IL4”). The two buildings are attached but seismically separated from each other. The main building and the IFHC are linked at either end by a central courtyard (refer Figure 1).



**Figure 1: Preliminary ground floor plan of the proposed buildings (not to scale)**

### *The main building*

- 2.3 The main building is to be a piled concrete slab with a two way steel frame super-structure. The main building includes an emergency department, radiology department, paediatrics, maternity facilities and education facilities for example.

- 2.4 The emergency department has the equipment and clinical expertise to manage all emergencies, including stabilisation and assisted ventilation. The emergency department can provide advice and treatment for selected cases referred from sub-acute hospitals, rural services and smaller secondary hospitals. It will have capacity for 'invasive monitoring' and 24 hour availability of pathology, radiology, pharmacy and operating theatres.
- 2.5 In relation to operating theatres contained in the main building, the following information was provided by the applicant (in summary):
- theatres are staffed for planned [elective] surgery Monday to Friday 8am - 4pm
  - anaesthetic services are provided on a planned basis during weekday hours and an on-call anaesthetist is available for emergencies
  - surgical services are provided on a planned basis during weekday hours and after hours and on the weekend a team is available on call for emergencies
  - there is no additional team for acute (urgent/unplanned) surgery.

### ***The IFHC***

- 2.6 The IFHC is proposed to be an engineered timber structure with tensioned shear walls and ceiling diaphragm.
- 2.7 The IFHC has consulting and treatment rooms for a range of services including planned general practice, outpatient services, specialist clinics and infusion services. The main entrance and reception are located here (refer figure 1).
- 2.8 The applicant has provided the following information about the design features of the IFHC that will enable it to remain serviceable following a major seismic event, including:
- seismic joints to separate the two buildings
  - resilient joints for any services crossing over the seismic gaps
  - fire engineering design for sprinkler detection in the IFHC
  - mechanical, electrical and communications to maintain the functionality of the IFHC
  - detailing and seismic constraint of secondary elements, plant and equipment to support the ongoing functionality of the IFHC
  - provision of storage of water and diesel will be provided onsite.

## **2.9 The buildings' use post-disaster**

- 2.9.1 The applicant provided an emergency response brief that identified how the proposed facilities are intended to be used following a major seismic event. This requires the IFHC to be available for specific post-disaster functions and it is therefore classified as IL4; the main building will not have any special post disaster function and therefore will be IL3.
- 2.9.2 The emergency response brief explains why emergency and theatre facilities in the main building will not serve the needs of the applicant post disaster, and more flexible triage facilities within the IFHC will be more appropriate.
- 2.9.3 In relation to a wider response to a major seismic event, the IFHC will be utilised for post disaster and triage functionality, with the potential to provide food, water and

shelter. This will work in conjunction with wider local and regional disaster support frameworks including utilisation of other IL4 facilities (St John, the Recreation Centre, and Council Chambers.) The IFHC will have two treatment rooms that can be used as theatres in the event of a major disaster for minor operations.

- 2.9.4 The main building does not have sufficient capability to provide large scale emergency medical services following a major disaster as it lacks the ‘business-as-usual’ workforce to provide these services. The complex or planned surgeries and clinical care will be transferred to Canterbury and other larger centres in accordance with local, regional and national disaster response frameworks in place.
- 2.9.5 Further information on the operation of the IFHC as a triage centre and the equipment and level of care in the main building is set out in paragraph 4.1.4.

### **3. Background**

- 3.1 On 21 May 2015 following a meeting between the parties the authority provided a written submission to the Ministry (refer paragraph 4.2.1). This resulted in a determination application from the applicant, which was received at the Ministry on 4 June 2015.
- 3.2 On 12 June 2015 the Ministry sought clarification from the parties, seeking any preliminary drawings, what equipment was proposed to be in the emergency department, and information as to how the triage centre would operate, noting the disaster response plan had not been provided with the original submission.
- 3.3 On 8 July 2015 the Ministry sought further clarification from the parties relating to whether the application was sought in relation to Clause A3 of the Building Code or Clause B1 of the Building Code with regard to AS/NZS 1170 (refer paragraph 1.6). Further information relating to the plans and how the operating theatres would function was also sought.

#### **3.4 The meeting**

- 3.4.1 The Ministry sought a meeting with the parties, so the applicant could verbally articulate the logic behind the wider response in a post disaster event. The Ministry noted the language used in the submissions needed to be explained to be understood by building officials and designers.
- 3.4.2 That meeting was held on 24 July 2015 and was attended by representatives of the applicant and the applicant’s design team, an officer of the authority. I was accompanied by an officer of the Ministry. The meeting provided a useful forum for the applicant to discuss how, in practice, the hospital would function in a post disaster event. Further information on the discussion at the meeting can be found at paragraph 4.1.6 and has been incorporated into the description in paragraph 2.9.

### **4. The initial submissions**

#### **4.1 The applicant**

- 4.1.1 The applicant provided a written submission entitled a ‘design statement’ from their architects with the application for determination. In summary:
- The background to the development of the hospital was provided; explaining why altering the existing building was not a viable option

- In relation to the proposed buildings, the building consent will comply with Clause B1 of the Building Code. In relation to Clause B1.3.4(b) the applicant provided an emergency response brief that identified how the hospital is intended to be used following a major seismic event (refer paragraph 2.9)
- Hospitals containing medical emergency and surgery are identified in AS/NZS 1170 as examples of IL4 structures. The emergency department and operating theatres are accommodated within the main building which is designated IL3
- The Canterbury District IFHC Board's *Policy for Built Infrastructure and Design Making [2012]* which provides that 'smaller secondary care inpatient facilities that are not tertiary, complex or a significant part of the national capacity should meet the IL3 code standard'
- A response to a major disaster requires local, regional and national capacity. The applicant has management plans to outline what is expected in such a situation. These plans link to the other national, and regional emergency plans. There are expected linkages between emergency services, primary health, public health and Civil Defence.

4.1.2 The applicant provided the following documentation with their application:

- the design statement for the proposed hospital
- the 'Built Infrastructure Decision Making Process' for the proposed hospital
- a site context page showing the relative location of the proposed hospital in the Grey District.

4.1.3 The applicant later provided copies of:

- the preliminary design departmental floor plans for the hospital including the main building and IFHC
- the 'Health Emergency Plan' Consultation Draft dated 19 June 2015
- further plans for the hospital, including elevations.

4.1.4 On 25 June 2015 and in response to a request from the Ministry for further information (refer paragraph 3.2) the applicant provided a further submission. In summary:

*The operation of the IFHC as a triage centre*

- The management of the triage centre is by the applicant's incident management team, integrated with the Civil Defence Emergency Management lead in 'declared emergencies' and the regional and national health emergency plans for a whole system response.
- The local, regional and national response determines how IL4 structures in the West Coast are used including other District Health Board's ("DHB") in the South Island (in particular Canterbury).
- Transfers by land or air are co-ordinated by the local DHB emergency operations centre and the ambulance national crisis co-ordination centre.
- Locally the response of the IFHC will be determined by the event and ability of primary care clinics to mount a response. The IFHC has control of the reception, triage, stabilisation and documentation of casualties requiring inpatient care, and

the treatment and discharge of minor casualties not able to be managed in primary care.

- Due to the issues with supporting infrastructure, after a major seismic event the hospital would only have the capacity to triage; people would then be transported elsewhere to get the required care and after-care they need.
- For a full scale response the applicant will use standard disaster coded triage categories with the urgent patients at the southern end of the new building closest to the point of arrival and so forth, with a one way flow of patients to the northern end to transfer out of the IFHC.

4.1.5 In response to the Ministry's request for information (refer paragraph 3.3) the applicant provided a further submission on 9 July 2015. In summary:

- The application relates specifically to Clause B1 of the Building Code as it relates to structure and durability.
- An analysis has been provided of the requirements for post-disaster structures which show the subtle but important differences to the examples included in Table 3.2 of AS/NZS 1170 (refer Appendix A).

4.1.6 In relation to the meeting held between the parties (refer paragraph 3.4) I consider the following to be the points put forward by the applicant that were not already articulated in the written submissions provided to the Ministry:

- Following a disaster, it is of more assistance to the community to have large open spaces; small rooms are not the efficient way to deal with people quickly.
- The disaster response requirements depend on the type of disaster. Hospitals have a different role in a natural disaster alongside other facilities as part of a disaster response framework. This differs from the role of a hospital in a trauma situation involving a small number of casualties.
- The phrase 'hospital' can cover a wide variety of structures with different functions. In addition the phrase 'operating theatre' is somewhat archaic and can now have a variety of different meanings.
- In a major seismic event the hospital does not have the supporting infrastructure required (in terms of operating theatres and number of available beds) or the ability for post-operative care or availability of staff for the level of care to be sustained.
- Due to the issues with supporting infrastructure and workforce, the proposed hospital would only have the capacity to triage after a major seismic event; people would then be transported elsewhere to get the required complex care and after-care they need.

## 4.2 The authority

4.2.1 In a submission prior to the application being made, the authority set out the following points (in summary):

- The authority considered the restrictions of the Building Code would make it difficult to approve a building consent application for the hospital.
- The applicant does not intend for the hospital to have a post disaster function in the traditional sense due to practicalities. However, the authority submitted AS/NSZ1170 determines that buildings and facilities designated as essential

facilities and designated as emergency shelters and emergency centres as deemed to be buildings with a post disaster function.

- Specific reference in the AS/NZS 1170 to medical emergency and surgical facilities is important for Clause A3 of the Building Code relating to importance levels, which further confirms that hospitals and other health care facilities having surgery or emergency treatment facilities are important to post-disaster recovery and should be IL4.
- The authority considers the hospital (both the main building and the IFHC) should be constructed as an IL4 structure.
- Clause A3 creates confusion as hospitals without theatres and emergency treatment facilities can be built to IL3 standard. The authority considered only the theatres and emergency response facilities should therefore be built to IL4 and the remainder to IL3 standard.
- Strategic thinking about the operational role of hospitals and post disaster events and local circumstances facing each hospital is causing ‘tension’ with the legislation. A major hospital in Burwood is being built to IL3 standard; guidance is required for authorities to have a better understanding of national/regional response plans and expectations of local hospitals during a post disaster event, specifically a major seismic event.

4.2.2 On 15 June 2015 the authority provided a further submission in response to the Ministry’s request for information (refer paragraph 3.2). In summary the authority noted:

- The building plans have not been seen, a sketch showing a single building on a foundation has been viewed. It is the authority’s understanding the applicant intends to build the proposed IFHC to a single building level to IL4 standard, the rest of the hospital (including the theatres and emergency rooms) of the three storey building to IL3.
- In a post-disaster situation the applicant intends to use the IFHC’s outpatients’ area as emergency area with the procedure and treatment rooms equipped to be used as theatres on a limited basis.
- Clause A3 of the Building Code is confusing as it determines a hospital with a theatre and Emergency Room (“ER”) shall be built to IL4 standard. In this case the applicant does not intend to use the designated theatres and emergency rooms post disaster but use the IL4 structure [the IFHC].
- The relevant Standard AS/NZS1170 requires importance levels of buildings to be determined in accordance with its occupancy. The authority noted structures with multiple uses shall be assigned the highest importance level applicable and if access to a structure is via another structure of a lower importance level, the access structure shall be designated the same importance level as the structure itself.
- The authority is unclear of the potential impact of the Building (Earthquake-prone Buildings) Amendment Bill on the process.

## 5. The draft determination and further submissions

5.1 On 10 August 2015 I issued a draft determination to the parties and the persons with an interest. The draft determination considered that the proposed hospital complies with Clause B1 of the Building Code by virtue of compliance of AS/NZS 1170.0 2002.

5.2 On 24 August 2015 the authority accepted the draft determination with non-contentious comments, and provided further comments on and 2 September 2015, in summary:

- The St John Ambulance Base will be occupied by both St John and the Police in the event the current Police premises, (strengthened to IL2)<sup>4</sup>, is compromised. Vehicle parking bays will remain available ‘to house people in need including the injured’. The building has an emergency power supply, emergency water and sewer discharge will be addressed as part of the authority’s joint emergency planning.
- The Council Chamber is currently the designated centre of operations for Civil Defence.
- In a major event it is considered ‘highly likely’ the reticulated water services will not function for some time. The authority asked where the potable water supply would be sourced from noting the Westland Recreation Centre (under construction) and Council Chambers do not have standalone water supplies and St John and the Grey District Council have diesel generators.
- The authority did note the proposed Westland Recreation Centre will be used in post disaster situations, and will address emergency electricity, water supply and sewage supply in the next Annual Plan.
- The authority noted in a major seismic event the road passes could be unusable for some months, with no viable port facilities, air transport would be the only option for transporting patients and supplies (however, there are no major airfields and the Greymouth airport is on land subject to liquefaction).
- The authority asked whether New Zealand has helicopters for transferring patients to other major centres and how to refuel them, noting the West Coast carries reserve fuel for days not weeks.

5.3 On 23 August 2015 the applicant accepted the draft determination with minor clarifications and comments that I have taken account of and amended the draft accordingly.

5.4 On 4 September 2015 the applicant responded to the authority’s submission (refer paragraph 5.2), in summary:

- The applicant accepts the authority’s plan to address the requirements for post disaster functionality of the Westland Recreation Centre to enable the hospital facilities to work in conjunction with the wider West Coast disaster support frameworks.
- The applicant’s provision of ‘infrastructure redundancy’ including 72 hours of water supply for the IFHC will enable post disaster functions from the IFHC.

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<sup>4</sup> The authority provided the Greymouth Police ‘Business Continuity Plan, Business Continuity and Disaster Preparedness Plan’ (undated) and a letter relating to the acceptance of IL2 status from an officer of the authority dated 10 July 2013.



- In a major event, a coordinated response is ‘imperative’ and needs to be part of a broader regional and national disaster response framework. The Ministry of Civil Defence and Emergency Management will direct the response to a seismic event with the New Zealand Defence Force if they are deployed. The requirements for transport, supplies and fuel will be established in collaboration with them and St John as the air transport provide.
- It is noted in the Canterbury Earthquake of 22 February 2011 12 helicopters capable of patient transport were made available to Christchurch Public Hospital.

## 6. Discussion

### 6.1 The general framework

- 6.1.1 In relation to importance levels, it is significant to recognise these are found in two different places in the Building regulatory regime. The first is Clause A3 of the Building Code which is for the purposes of the C-Clauses of the Building Code relating to fire. The second is in its use in the Standard cited in Verification Method B1/VM1.<sup>5</sup>
- 6.1.2 In relation to Clause B1 (Structure) in respect of the buildings’ performance during and functionality after a major seismic event, the relevant performance requirements for B1 states:

B1.3.1 Buildings, building elements and sitework shall have a low probability of rupturing, becoming unstable, losing equilibrium, or collapsing during construction or alteration and throughout their lives.

...

B1.3.4 Due allowance shall be made for:

- (a) the consequences of failure
- (b) the intended use of the building

...

In relation to importance levels, it is the consequence of a building being designed to a specified importance level (IL3 or IL4 in this case) and the relationship with the function of the building following a major seismic event that needs to be analysed.

- 6.1.3 In relation to the phrase ‘post disaster’ I consider ‘disaster’ can have a variety of different meanings as discussed in the meeting with the parties (refer paragraph 4.1.6) from a natural disaster to a one off major trauma event. In addition the Civil Defence Emergency Management Act 2002 defines ‘emergency’ very broadly :

**emergency** means a situation that—

- (a) is the result of any happening, whether natural or otherwise, including, without limitation, any explosion, earthquake, eruption, tsunami, land movement, flood, storm, tornado, cyclone, serious fire, leakage or spillage of any dangerous gas or substance, technological failure, infestation, plague, epidemic, failure of or disruption to an emergency service or a lifeline utility, or actual or imminent attack or warlike act; and
- (b) causes or may cause loss of life or injury or illness or distress or in any way endangers the safety of the public or property in New Zealand or any part of New Zealand; and

<sup>5</sup> Under section 19 of the Act, compliance with the Verification Method must be accepted as establishing compliance with the Building Code

(c) cannot be dealt with by emergency services, or otherwise requires a significant and co-ordinated response under this Act

I consider the consideration of Clause B1 in the context of the Building Act is in respect of the operation of the main building and IFHC post-major seismic event which is a subset of natural disaster events.

6.1.4 At paragraph 3.3 of the relevant Standard AS/NZS 1170:

The importance level of the structure shall be determined in accordance with its occupancy and use, as given in Tables 3.1 and 3.2. The Table describes, in general terms, five categories of structure and gives some examples of each. For those buildings not specifically mentioned, the designer will need to exercise judgement in assigning the appropriate level.

Structures that have multiple uses shall be assigned the highest importance level applicable for any of those uses. Where access to a structure is via another structure of a lower importance level, then the importance level of the access structure shall be designated the same as the structure itself.

6.1.5 In Table 3.1 of AS/NZS 1170 (refer Appendix A) the description of the two importance levels IL3 and IL4 are the same, being a 'high consequence for loss of human life, or very great economic, social or environmental consequences'. The column labelled 'comment' states IL3 as major structures (affecting crowds) and IL4 as post disaster structures (post disaster functions or dangerous activities). I consider the 'comment' to be of some assistance in the context of determining which importance level the proposed buildings will fall within. However, as noted in paragraph 6.1.4 above, not all examples are included and a designer needs to exercise judgement in assigning the appropriate importance level.

6.1.6 Table 3.2 of AS/NZS 1170 (refer Appendix A) is expanded to include an 'example' column. These examples include prescriptive statements as to what types of buildings would fall within each importance level. I do not consider the examples should be used in a strict and rigid manner without taking into account the intent and principles of the various importance levels; these principles are unfortunately not well articulated in AS/NZS 1170.

## **6.2 The application of AS/NZS 1170 to the hospital**

6.2.1 The applicant has described the hospital as consisting of two seismically separate buildings. The proposal is for the main building, which would serve no function post a major seismic event to be an IL3 building, whereas the IFHC is to be an IL4 building and used as the triage centre in such an event.

6.2.2 In the context of AS/NZS 1170 for an IL3 building, being a 'structure that as a whole may contain people in crowds or contents of high value to the community or pose risks to people in crowds' the example includes 'emergency medical and other emergency facilities not designated as post-disaster'.

6.2.3 The applicant has concluded that for the civil defence disasters in the West Coast the main building will lack the availability of staff and infrastructure to be able to serve a post-disaster function despite containing emergency medical facilities in its normal use. Under the New Zealand Public Health and Disability Act 2000 the applicant, as a District Health Board, has broader responsibilities to the society it serves and to its objectives under the governing Act. Its governance, accountability and funding arrangements link it to local, regional and national considerations when making service delivery decisions. I consider weight needs to be given to the outcome of

these processes in deciding the role of the new Grey District hospital in post disaster functions and in the applicant's justification for the main building of the hospital to be an IL3 building.

- 6.2.4 It is clear from the information provided the hospital facility (including both the main building and the IFHC) will not be able to support a high level of medical emergencies. On a business as usual basis, complex [tertiary] care is transferred, the majority to the Canterbury region. This is because West Coast Health facilities, on a business as usual basis let alone a disaster, do not possess the facilities and workforce capacity to provide these complex services. I accept the applicant's arguments and documentation provided in relation to this.
- 6.2.5 The example column of Table 3.2 in AS/NZS 1170 refers to IL3 buildings that have 'emergency medical and other emergency facilities not designated as post-disaster'. I consider the phrase 'not designated' allows for sufficient flexibility depending on the circumstances. In this case the applicant has not designated post-disaster functions to the main building, as an IL3 structure.
- 6.2.6 The IFHC is to be designated as an IL4 structure. It is a building with a designated 'special post-disaster function' as it will act as a triage centre with patients transported out of the Grey district to other regions such as Canterbury or treated for minor injuries. The IFHC is utilised in combination with the other three IL4 buildings in Grey district (St Johns, Council chambers, and the Recreation Centre) which are acting as community centres for providing food, shelter, and water where people can be directed to in the first instance for non-medical care. I accept that a wider response is required in the event of a post-disaster (local, regional, and nationwide) that best suits the community, in this case the West Coast.
- 6.2.7 I recognise if the applicant's emergency health plan is changed at a local, regional or national level, the building regulatory regime would not recognise these changes because constructs like the change of use mechanisms<sup>6</sup> will not be triggered. However, I consider that as such changes would be significant and likely on a national policy level; the changes would be subject to robust review and scrutiny.

## 7. The decision

- 7.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the proposed hospital complies with Clause B1 of the Building Code by virtue of compliance of AS/NZS 1170.0 2002 the importance level designated as IL4 for the IFHC and IL3 for the main building.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 30 September 2015.

John Gardiner  
**Manager Determinations and Assurance**

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<sup>6</sup> Under sections 114 and 115 of the Act in relation to uses defined in the Building (Specified Systems, Change the Use, and Earthquake-prone Buildings) Regulations 2005

## Appendix A

A1 The relevant paragraphs of AS/NZS1170

**TABLE 3.1**  
**CONSEQUENCES OF FAILURE FOR IMPORTANCE LEVELS**

Consequences of failure	Description	Importance level	Comment
Low	<b>Low</b> consequence for loss of human life, <i>or</i> <b>small or moderate</b> economic, social or environmental consequences	1	Minor structures (failure not likely to endanger human life)
Ordinary	<b>Medium</b> consequence for loss of human life, <i>or</i> <b>considerable</b> economic, social or environmental consequences	2	Normal structures and structures not falling into other levels
High	<b>High</b> consequence for loss of human life, <i>or</i> <b>very great</b> economic, social or environmental consequences	3	Major structures (affecting crowds)
		4	Post-disaster structures (post disaster functions or dangerous activities)
Exceptional	Circumstances where reliability must be set on a case by case basis	5	Exceptional structures

**TABLE 3.2**  
**IMPORTANCE LEVELS FOR BUILDING TYPES—NEW ZEALAND STRUCTURES**

Importance level	Comment	Examples
1	Structures presenting a low degree of hazard to life and other property	Structures with a total floor area of <math><30\text{ m}^2</math> Farm buildings, isolated structures, towers in rural situations Fences, masts, walls, in-ground swimming pools
2	Normal structures and structures not in other importance levels	Buildings not included in Importance Levels 1, 3 or 4 Single family dwellings Car parking buildings
3	Structures that as a whole may contain people in crowds or contents of high value to the community or pose risks to people in crowds	Buildings and facilities as follows: (a) Where more than 300 people can congregate in one area (b) Day care facilities with a capacity greater than 150 (c) Primary school or secondary school facilities with a capacity greater than 250 (d) Colleges or adult education facilities with a capacity greater than 500 (e) Health care facilities with a capacity of 50 or more resident patients but not having surgery or emergency treatment facilities (f) Airport terminals, principal railway stations with a capacity greater than 250 (g) Correctional institutions (h) Multi-occupancy residential, commercial (including shops), industrial, office and retailing buildings designed to accommodate more than 5000 people and with a gross area greater than $10\,000\text{ m}^2$ (i) Public assembly buildings, theatres and cinemas of greater than $1000\text{ m}^2$ Emergency medical and other emergency facilities not designated as post-disaster Power-generating facilities, water treatment and waste water treatment facilities and other public utilities not designated as post-disaster Buildings and facilities not designated as post-disaster containing hazardous materials capable of causing hazardous conditions that do not extend beyond the property boundaries
4	Structures with special post-disaster functions	Buildings and facilities designated as essential facilities Buildings and facilities with special post-disaster function Medical emergency or surgical facilities Emergency service facilities such as fire, police stations and emergency vehicle garages Utilities or emergency supplies or installations required as backup for buildings and facilities of Importance Level 4 Designated emergency shelters, designated emergency centres and ancillary facilities Buildings and facilities containing hazardous materials capable of causing hazardous conditions that extend beyond the property boundaries
5	Special structures (outside the scope of this Standard—acceptable probability of failure to be determined by special study)	Structures that have special functions or whose failure poses catastrophic risk to a large area (e.g. $100\text{ km}^2$ ) or a large number of people (e.g., 100 000) Major dams, extreme hazard facilities