



codewords

Take care with underfloor foil insulation

The Department is concerned that three people have been electrocuted this year while installing underfloor foil insulation. The deaths highlight the need for extreme care when installing underfloor foil insulation and when working in the underfloor space near a potentially unsafe foil installation.

All three accidents happened when a staple was driven through an electrical cable. Loose cables in the underfloor space can also make the foil live, either during the installation or later, creating a serious hazard to anyone working in the space.

If you are a homeowner:

- hire a professional installer if you are not confident about safety requirements
- take the greatest possible care to avoid contact with any cabling if you decide to do the job yourself
- when installing, refer to a New Zealand Standard, NZS 4246: 2006, which has comprehensive safety information
- get any loose wires or potentially unsafe foil installations checked by an electrician
- turn off the power to the property before working (but remember some cables could still be live if they have not yet come into the switchboard).

If you are a tradesperson or a building official, or anyone else accessing the underfloor space after an installation:

- remember the foil could be live
- get out and call an electrician if you have any doubts about safety.

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Taranaki tornadoes



[Photo courtesy of Taranaki Daily News]

Several small but intense tornadoes struck Taranaki in early July, including New Plymouth and Oakura. These remarkable natural phenomena, known for occurring in the southern United States, happen in New Zealand too. NIWA says there have been 52 tornadoes in Taranaki since 1956, or about one a year. New Zealand tornadoes are generally weaker than American ones and last for a few minutes, track across land for 2 to 5 kilometres and are 20 to 100 metres wide. Wind speeds are typically between 115 and 180 km/h. NIWA reports that 10 percent of New Zealand tornadoes have wind speeds higher than 180km/h.

David Hopkins and Graeme Lawrance from the Department's Building Standards Group briefly visited Taranaki to survey the damage and to see what lessons could be learnt from how buildings withstood the tornadoes.

There was major damage to some properties. Roofs were ripped off, windows were broken or sucked out, trees were shredded and power poles were blown over. One tornado hit New Plymouth ripping 500 m² of roof from the local PlaceMakers store. The Oakura tornado caused an entire storey to be torn from a beachfront house, and a local kindergarten (fortunately unoccupied because of school holidays) had roof and extensive impact damage. Several homes were damaged by flying debris and force of the wind.

Newer buildings generally withstood the force of the tornado reasonably well. Given that the basic design wind speed for Taranaki is 170km/h and the small areas involved, there seemed to be no cause to introduce specific design requirements for tornadoes. However, the Department's team found it would be worth considering debris impact when revising the glazing standard, NZS 4223, especially for schools and pre-school facilities.

Three more

Three more territorial authorities have been accredited as building consent authorities since the first accreditation – of Palmerston North City Council – in late July.

South Taranaki District Council, Hurunui District Council and New Plymouth District Council were accredited by International Accreditation New Zealand (IANZ) in September.

IANZ had, in its on-site assessment of the councils, identified only relatively minor corrective actions for the councils to undertake before they could be accredited. The most common corrective action requests have related to processes for assessing the competency of staff in their specific area of building controls work.

All but two of the 85 territorial and regional authorities have either applied for accreditation or indicated to the Department that they intend transferring their building control functions to another accredited and registered building consent authority by 30 June 2008. The two yet to apply are regional authorities.

As at late-September, 68 territorial authorities were being assessed by IANZ.

One regional authority is being assessed with, at this stage, nine regional authorities and one territorial authority (Chatham Islands Council) planning to transfer their building control functions.

councils accredited

Regulations prescribing building consent authority registration criteria and standards have been approved by Cabinet. The regulations also set the form and content of registration application forms and the registration fees payable by private organisations.

Registration of accredited councils will commence immediately once the regulations come into force – most likely during November 2007.

Registration of councils that submit evidence of accreditation should be a simple and straightforward process. This reflects the fact that councils are already operating as building consent authorities and already meet the registration requirements due to other statutory requirements, such as their obligations under the Local Government Act to ensure council staff act with integrity and in accordance with public interest. No registration fees will be required from councils.

Private organisations seeking registration as a building consent authority will need to pay an application fee of \$6,250 (GST inclusive). This fee reflects the cost to the Department of checking that they are 'fit and proper' to be registered and have 'adequate means' to meet potential civil liabilities arising from their building control work.

Consultation closed on 21 September 2007 on 'adequate means' and proposed minimum terms and conditions for civil liability insurance policies for private building consent authorities. The Department is analysing submissions on the consultation paper, *Private Building Consent Authority 'Adequate Means' and Civil Liability Insurance Proposals*, and will develop recommendations for the Government on the content of regulations for private building consent authorities.

Private organisations wanting to perform building control work will only have to be accredited and registered if they want to operate as stand-alone, registered building consent authorities. A council that has been accredited and registered may, however, use an unregistered private organisation (on a contract basis) to undertake particular aspects of the building control process, such as checking specific engineering designs. In these cases liability for the private organisation's building control work would rest with the council accredited and registered as a building consent authority.

Technical review summaries published

The Department in recent weeks published the summary of findings of three technical reviews of territorial authorities, with a fourth expected to be published in October.

Copies of the reports of reviews of Waitakere City Council, Franklin District Council and Wellington City Council are available at <http://www.dbh.govt.nz/technical-reviews> The fourth review is of Porirua City Council.



Licensing update electronic newsletter

The fourth issue of the Department's *Licensing Update* electronic newsletter was published in August and is available from the Department's website.

More than 2600 people from the industry now have this newsletter emailed directly to them, keeping them in touch with the latest developments in the Licensed Building Practitioner (LBP) Scheme in the lead-up to 1 November.

Topics in the most recent issue included a preview of the LBP licence identification card, and answers to questions sent in by practitioners interested in the licensing process, ranging from queries about Site licence classes to which licence classes self-employed builders should apply for.

You can read the latest *Licensing Update* at www.dbh.govt.nz/occupational-licensing and, if you're not already on our database, sign up for future issues.

Diversity a challenge in Engineering Associates

The 'sheer diversity' of disciplines covered by the Engineering Associates Act demonstrates the significance of the review currently under way, says Department of Building and Housing Deputy Chief Executive Dr Andrew Hearn.

'This is an Act that covers middle-tier engineers and technicians – largely polytechnic-qualified workers or older workers with time-served experience – across some 47 disciplines – everything from acoustics to aircraft, building services to medical equipment, civil engineering to soil mechanics, and design and draughting,' Dr Hearn said.

'The Act itself has been around since 1961, but huge changes in the engineering industry over the past five decades, both in terms of the work itself, and training, education and career structures, make it timely to review what this legislation achieves, the role it plays and what its future role might be,' he said.

'The reality is that the Act belongs to the sector and individuals, and engineering employers need to come forward to help shape the future direction of this part of the engineering industry.

'Engineering in all its forms is one of those backbone industries that is critical to any country's development. This is an important review,' he said.

Dr Hearn said it would be very much a 'baseline' review.

'If this Act is going to remain on the books then it needs to be relevant and contributing strongly to the future direction of engineering in this country. That is why we want as broad a cross-section of sector thinking as possible brought into the consultation process.'

Registered engineering associates come under the Engineering Associates Registration Board (EARB), but there has been declining membership for a number of years, down from 2650 in 1997 to 1880 this year.

The Department of Building and Housing is heading the review and wants to hear from registered engineering associates and people who may be eligible for registration but are not registered. Further information on the review can be found at <http://www.dbh.govt.nz/ea-review> or by emailing natasha.wells@dbh.govt.nz

The full list of disciplines covered by the Engineering Associates Act is as follows.

- Acoustics
- Aeronautical
- Aircraft
- Automotive
- Avionics
- Building Services
- Chemical
- Civil –
 - Asset Management
 - Design
 - Design and Draughting
 - Geotechnics
 - Hydrology
 - Materials Testing
 - Surveying
 - Wastewater
 - Water Treatment

Act review

- Concrete Production
- Electrical Distribution
- Electrical
- Electronics
- Fire Protection
- Gas
- Heating
 - Ventilating
 - Refrigeration
 - Air Conditioning
- Hydrology
- Instrumentation
- Lift
- Marine
- Mechanical
- Medical
- Mine and Mining
- Naval Architecture
- Naval Mechanical
- Naval Ordnance
- Plastics
- Production
- Radio
- Rigging
- Sanitary
- Soil Mechanics
- Steel Fabrication
- Structural
- Telecommunications
- Television
- Traffic
- Welding

Dam safety scheme submissions summary



The Department has issued a summary of submissions on the dam safety scheme being introduced as part of the reforms of the Building Act 2004.

Regulations for the scheme are currently being developed. In response to concerns raised in submissions, they will include a 2-year gap between the regulations being made and taking effect. Dam owners will then have 3 months to classify and register their dam in terms of its failure having low, medium or high potential downstream impact.

The original proposal was for dam owners to be given 3 months from the date of enactment to classify and register their dams with the regional authority for their area. Submitters considered this period not long enough to do so.

The scheme will only affect the estimated 1150 large dams around the country. 'Large' is regarded as having a capacity of 20,000 cubic metres, which is equal to eight Olympic-sized swimming pools or a rugby field with water up to the crossbars. Councils own about 700 of these dams; about 50 are owned by power generation companies; and the remaining 400 or so are on rural properties.

The scheme is to ensure large dams have a formal system of dam monitoring, inspection and maintenance.

Medium and high potential impact dams will require a dam safety assurance programme and an annual certificate of compliance as part of that programme.

The 58 submissions received were in response to public consultation on *Regulations for the Dam Safety Scheme: Discussion Document*, issued in May 2006.

Common themes in submissions included:

- concern over a possible lack of engineers with the skills to classify dams
- strong support for a national register of recognised dam engineers
- the need for a simpler process for classifying dams, in order to restrict compliance costs
- the use of professional discretion in the development of dam safety assurance programmes
- the need for a review of the definition of a 'dangerous dam' and further analysis of risk and probability factors for earthquakes and flooding
- support for the proposed accreditation of dam owners to review their dam safety assurance programmes
- the need for more incentives to become accredited.

The summary of submissions is available on the Department's website www.dbh.govt.nz or by phoning 0800 242 243.

Sound footings for new and relocated

It is important to ensure there is an adequate level of construction monitoring to cover footing construction for piled foundations associated with both new and relocated buildings.

While the 1999 and 2005 BRANZ house condition studies identified inadequate subfloor bracing as the main subfloor non-moisture-related defect, there were also a significant number of instances of insufficient footing depth, structural cracks and subsidence recorded in the subfloor area.

Poor construction practice can result in undersize footings and site manufactured concrete not having the required strength.

DESIGN ISSUES

Foundations are either subject to a specific engineering design or to a non-specific design such as NZS 3604.

For typical domestic pile footings, the minimum design details cover the strength of the concrete and its dimensions. Dimensions include the base area and the depth of the footing. The details will depend on what type of pile it is. Footings which conform to NZS 3604 can be for an ordinary pile, an anchor pile or a braced pile.

The commonly used building standard for piled foundations of residential buildings is NZS 3604. This sets out details and rules relating to the size of piles, dimensions of concrete footings, thickness of the concrete surround, required ground-bearing capacity, and connection between piles and the subfloor system and bracing.

CONSTRUCTION ISSUES

It is essential that foundations are constructed in accordance with the requirements of specific or non-specific engineering designs (for example, NZS 3604). In particular, the size and shape of prepared holes for pile footings must conform to the design details and site manufactured concrete must be subject to adequate quality control and meet design requirements.

Footings that do not conform to the minimum design requirements can break apart, settle (which may result in sloping floors), fail to provide adequate bracing or, in extreme cases, cause soil foundation failure.

The quality of concrete mixed on the site can be verified by on-site slump testing and off-site compression testing. Footings designed and constructed to NZS 3604 require a minimum strength of 17.5 MPa, and the concrete must not have a slump exceeding 60 mm. It is important that the concrete is thoroughly mixed to ensure uniform, dense concrete with the same physical properties throughout. The requirements for the production of 17.5 MPa concrete are given in NZS 3104: 2003 Specification for Concrete Production. If concrete manufactured on site cannot be supported by adequate quality control, it should be supplied from a graded plant to ensure the design properties are met.

COMPLIANCE ISSUES

A building consent is required to construct a foundation for a new or relocated building. The design details must be submitted to the building control authority as part of the consent application.

Specific construction issues, such as the quality of site manufactured concrete and undersized footings, can be controlled by the project specific inspection/monitoring regime that will involve building control authority inspections or professional engineering inspection/monitoring, or both, and be a condition of the building consent.

It is important that the design engineer be involved in monitoring foundation conditions and their construction where foundations are subject to a specific design. Professional engineering inspection/monitoring could be undertaken as part of an independent construction review, reported to the building control authority by using the IPENZ Producer Statement form PS4.



buildings

Building control officers should encourage owners to employ a suitably qualified design professional to ensure foundations meet the design specifications for foundations that are designed in accordance with NZS 3604.

The Licensed Building Practitioner (LBP) scheme is being phased-in from November this year. A person who is licensed will have been assessed as competent to supervise or undertake the work covered by the scope of their licence. It is important to ask contractors if their staff are licensed before selecting a contractor to do foundation work, including house relocation or repiling. The licence classes relevant to residential foundation work are the Site licences and the Carpentry licence. Site licences are for people who oversee, coordinate and/or manage building projects.

Becoming licensed will be a personal choice for people in the industry. From November 2010, supervising or undertaking work on core elements of a building ('restricted building work') will be limited to licensed building practitioners. The policy to define restricted building work has not yet been developed. Current proposals for restricted building work do not include re-piling/house relocation work, although detailed policy work is still to be done. The Department, however, will encourage house or building relocation contractors to employ licensed builders for this type of work.

Dam PIMs required from regional authorities

Since 31 March 2005, regional authorities have been responsible under the Building Act 2004 for several building control functions associated with dams. These include a requirement to issue project information memoranda (PIMs) for proposed building work relating to a dam.

The roles of building consent authorities, territorial authorities and regional authorities in relation to dams are outlined in section 14 of the Act, with sections 31 to 39 setting out the requirements for PIMs.

If the proposed building work relates to a dam, sections 31 to 39 apply as if every reference to a building consent authority or territorial authority also includes a reference to a regional authority. Section 31 therefore requires that a building consent authority must, on receiving an application for a building consent relating to a dam, apply for a PIM to both the territorial authority and the regional authority. These requirements apply irrespective of whether the building is wholly or partly a dam.

The requirements do not apply if both PIMs have been issued before the application for a building consent is made.

Building work associated with dams includes work on appurtenant structures – ie, structures integral to the proper functioning of the dam.

New Zealand Society of Large Dams guidelines identify that an appurtenant structure includes, but is not limited to, facilities such as intake towers, powerhouse structures, tunnels, canals, penstocks, low-level outlets, surge tanks and towers, gate hoist mechanisms and their supporting structures, and all critical water control and release facilities. Mechanical and electrical control, and stand-by power supply equipment located in the powerhouse or in remote control centres, are also appurtenant structures.

The PIM requirements are in force now and they are not contingent on the transfer of building consent authority functions associated with dams to regional authorities. All building consent authorities processing building consent applications for dams should therefore continue to ensure a PIM is obtained from their local regional authority as well as from their territorial authority.

Further information about regulatory responsibilities relating to dams can be obtained from Hassan el Maaroufi

@ hassan.el.maaroufi@dbh.govt.nz
or Andrew Minturn

@ andrew.minturn@dbh.govt.nz
or by phoning them

📞 0800 242 243.

The Building Code review progresses

The New Zealand Building Code is currently under review. Submissions have just closed on a second round of consultation that will change how we build and what we build.



The review includes a world-first proposal looking at taking into account the embodied energy of building components when buildings are being designed, as well as carbon emissions over a building's lifetime. Such an approach has the potential for significant environmental benefits. It could take into account energy and water efficiency, and construction materials and construction waste, but it needs further development to ensure it would be practical and that the costs and benefits can be balanced with affordability.

This is a major review, the first since the Code was introduced in 1991. Since then, there have been significant advances in construction techniques and in our knowledge of building performance.

Other key points in the discussion document include:

- a new Building Code structure with clearly set-out minimum performance standards that buildings must meet. This will better meet the needs of Code users, especially architects, building designers, builders and building consent authorities, and help improve their decision-making
- updates and clarifications of existing requirements, to ensure the Code is clear and understood by people involved in building work
- a new way to design buildings for people to be safe in the event of a fire

- a new system recognising that buildings need to meet different performance requirements depending on their importance and the risks to the building users and society (this takes account of the impact of flooding and climate change) – for example, a school would have different performance requirements than a garden shed
- consideration of internal space requirements for housing to improve people's wellbeing and to also better meet the needs of people with disabilities.

Copies of the discussion document can be viewed from the Department of Building and Housing website www.dbh.govt.nz

This discussion document and public submissions received will form the basis of a report being prepared for the Minister for Building and Construction by 30 November 2007. Following further consultation with the public and the building sector, the new Code could be in place by the middle of 2009.

ESTIMATED BUILDING COSTS

The Department of Building and Housing provides building costs to help territorial authorities estimate realistic values when they consider the job value provided with a building consent application.

The table opposite shows the latest figures and various building types by region.

BUILDING COSTS PER METRE (\$/M²) INCLUDING GST AS AT JANUARY 2007

	SMALL HOUSE	LARGE HOUSE	INDUSTRIAL BUILDING	BULK RETAIL	RETIREMENT HOME
Region	\$/m ²	\$/m ²	\$/m ²	\$/m ²	\$/m ²
Auckland	\$1,750	\$1,477	\$1,252	\$1,290	\$1,999
Waikato/Bay of Plenty	\$1,675	\$1,425	\$1,187	\$1,229	\$1,932
Wellington	\$1,704	\$1,445	\$1,219	\$1,255	\$1,950
Remainder of North Island	\$1,729	\$1,472	\$1,215	\$1,257	\$1,995
Canterbury	\$1,711	\$1,448	\$1,205	\$1,253	\$1,959
Remainder of South Island	\$1,678	\$1,425	\$1,185	\$1,228	\$1,935

GUIDE TO THE TABLE

Costing information is provided by construction cost consultants Maltby and Partners Ltd. The costs are for one-off speculative houses. These figures do not reflect the economies from building group houses. Group houses are on average 21 percent cheaper and architecturally designed houses 20 percent more expensive.

Small house – 145 m²

Single-storey house on a flat site with internal double garage, three bedrooms, open-plan kitchen, dining and lounge, bathroom, separate toilet, ensuite, and separate laundry.

Large house 202 m²

Single-storey house on a flat site with internal double garage, four bedrooms, open-plan kitchen and family room, open-plan dining and lounge, bathroom, separate toilet, ensuite, separate dressing room, separate laundry.

Industrial Building – 414 m²

Single-storey warehouse, with mezzanine on a flat site accommodating warehouse, office accommodation, reception and display area, staff lunchroom, kitchen, and toilet facilities.

Bulk retail 896 m²

Single-storey building on a flat site with two retail units: one comprising retail area, two offices, kitchen, and toilet facilities; the other containing retail and toilet facilities.

Retirement home 394 m²

Single-storey building on a flat site, including 12 residential bedrooms with washbasins, separate sanitary facilities, dining and lounge, commercial kitchen and laundry, staff accommodation, and office.

For more details on these profiles visit the Department's website: <http://www.dbh.govt.nz/officials-estimated-building-costs>

Disclaimer: The estimated unit construction costs are based on current commercial prices of materials and labour, plus allowances for contractors' overheads and margins. Pricing is based on a model building for each region.

We provide unit construction costs to help territorial authorities assess building consent fees.

They are not intended as definitive costs for actual buildings and should not be used for this purpose.



Ensure roof anchors are secure

Concerns have been raised over the safety of roof anchors – eye bolts attached to roofs and walls for fixing safety lines for workers. The concerns relate mainly to light steel construction.

Although roof anchors will be adequate in many situations, the Department recommends that a structural engineer be consulted if there are any concerns about their safety.

Concerns over roof anchors relate to:

- weakened structures that could result in roof failure
- connections that are not strong enough to save a falling worker
- roof leaks that could lead to deterioration of both the attachment and the structure of the building
- inadequate inspection and repairs after the emergency use of a roof anchor.

Modern lightweight construction often has very little reserve strength, and drilling holes in some members to attach anchors may weaken them to an unacceptable level. The size and position of the holes are critical. Attaching an anchor may reduce purlin strength by up to 36 percent, depending on the anchor type and the size of the purlin.

A structural engineer may be needed to assess the effect of adding anchors and determine whether other strengthening is needed.

INSTALLATION GUIDELINES ARE VAGUE

Technical literature provided by manufacturers does not adequately address the strength of the member that roof anchors are attached to. Stopping the fall of a worker can result in large forces on the roof structure, which may weaken it against future high winds or carrying maintenance workers.

There are also vague requirements for checking that a building can carry the anchor loads. This is despite AS/NZS 1891.4: 2000, Industrial Fall-Arrest Systems and Devices – Selection, Use and Maintenance, requiring that in each industrial fall-arrest system ‘the building or structure shall be assessed by an engineer’. This Standard represents industry best practice but is not mandatory.

Stone veneer must be fixed

Recent reports of stone veneer claddings falling off buildings have raised concerns about their safety, weathertightness and aesthetics.

Stone veneer claddings can vary from small elemental cladding units to large panels. While the non-specific design and construction of small masonry unit systems is covered by New Zealand Standards such as NZS 4210, there are no non-specific design standards covering the design and construction of stone cladding units (large or small). Stone veneer cladding systems must therefore be subject to specific design.

Stone veneer claddings or panels are normally very heavy and must be designed and installed by experienced building professionals. Unless stone cladding is adequately fixed there is a high risk that it may fall off in an earthquake and cause injuries or death.

Claddings and correct

DESIGN AND COMPLIANCE

The level of detail in trade literature associated with stone veneer cladding panels is variable. This can range from no information at all to highly developed details with technical support and a well-defined scope of application. The manufacturer's trade literature should be sufficiently detailed to show clearly how compliance with the relevant clauses of the Building Code will be achieved and the scope of application. The clauses addressed to gain building consent will be Structure (B1), Durability (B2), Hazardous Building Materials (F2), and External Moisture (E2) if the panels contribute to the weathertightness of the building.

For example for Clause B1 Structure, the stone cladding panels and the fixings must be able to resist the dead load imposed by the panels, the Code seismic loads and the Code wind loads all in the appropriate load combinations.

In addition to assessing against the other relevant code clauses, building consent authorities (BCAs) should pay particular attention to how the panels are to be fixed.

Some panel systems rely only on adhesives to fix them to the substrate. However, panel movements due to earthquake-shaking, wind pressure, shrinkage, expansion or freeze thaw can destroy the bond. Mechanical fixings, or mechanical fixings together with an adhesive, offer a more effective solution to these applied actions.



The location of the panels will be a major factor for BCAs to consider, for example overhead applications should receive special scrutiny because of the safety implications.

CONSTRUCTION/ INSTALLATION

The level of construction monitoring in the form of BCA inspections and building professional monitoring will depend on experience with the contractor and the level of technical support available.

It is unclear at this stage how the installation of stone veneer panels will be treated by the building practitioner licensing regime and whether or not this area will be one of the restricted work areas.

CONCERNS ABOUT EXISTING INSTALLATIONS

Territorial authorities who have concerns, or are alerted to concerns, about specific stone veneer cladding installations need to assess the situation, seek advice if necessary and decide whether there is an issue. If a safety concern is confirmed, they have the option of invoking their powers in relation to dangerous buildings under the Building Act 2004.

New Zealand Fire Service Design Review Unit

This article provides further guidance on the role of the New Zealand Fire Service Design Review Unit (DRU).

Codewords August 2006 discussed the types of building consent applications that should be sent to the DRU. *Codewords* March/April 2007 dealt with alterations to existing buildings (sections 112 and 115 of the Building Act 2004). Fire designs following an alternative approach to meet the performance criteria of the Code may need to be sent to the New Zealand Fire Service DRU. The designs required to be sent to the DRU are described in the Gazette notice 56/2005.

The DRU's role is to provide advice on the means of escape and the needs of persons who are authorised by law to enter the building to undertake firefighting. This is outlined in section 47 of the Building Act 2004.

The DRU cannot set out advice, that exceeds the requirements of the Building Code. Additionally, it is not the role of the DRU to peer review designs or to say whether the design complies with the Building Code.

The DRU's view is only advice, and the building consent authority (BCA) does not have to act on that advice.

BCAs are the regulatory authorities who must decide to grant or reject a building consent application. If they are satisfied 'on reasonable grounds' that the proposed design meets the relevant Building Code requirements, then they must grant a building consent.

In processing performance-based fire-engineered designs, the BCA will almost certainly need to rely on external expert peer review other than the DRU.

Is it appropriate for the DRU to suggest to BCAs that a building undergoing alteration should be installed with a fire hydrant system (type 18)?

Some correspondents have suggested that a fire hydrant system is not related to the means of escape and therefore is not within the DRU's scope to comment.

Building Code Clause C2 (Means of Escape) states:

C2.1 The objective of this provision is to:

- (a) Safeguard people from injury or illness from a fire while escaping to a safe place, and
- (b) Facilitate fire rescue operations.

Therefore, a fire hydrant system would both safeguard people while escaping a fire and facilitate the rescue operation. It is therefore within scope and relevant for the DRU to comment on the need for hydrant installations.

Building Sta work in prog

THE PUBLICATION PROCESS FOR:

BUILDING CODE CLAUSES

1. Identify need for Clause change

2. Departmental analysis of options for change

3. Prepare proposal for public consultation

4. Public consultation

5. Consider comments received from consultation

6. Prepare Cabinet paper seeking approval of proposed change including consultation with other relevant government departments

7. Prepare drafting instructions for Parliamentary Counsel to draft regulations to make the change

8. Submit draft regulations to Cabinet for approval

9. Regulations made by Governor-General

COMPLIANCE DOCUMENTS

1. Identify need for change to Compliance Document

2. Appoint project manager and/or establish working group

3. Prepare information for public consultation

4. Public consultation

5. Consider comments received from consultation

6. Prepare draft for Chief Executive's approval

7. Publication

Standards Group

Press

B1 Structure – Concrete Standards	Proposed citation of revised concrete Standard NZS 3101: 2006 in Compliance Document B1.	Stage: Preparing information for public comment.
B1 Structure – Loading Standards	Proposed citation of new loading Standards (AS/NZS 1170 Parts 0, 1, 2 and 3, and NZS 1170 Part 5) in Compliance Document B1.	Stage: Public consultation closed on 16 March 2007. Analysing public comment.
B1 Structure – Masonry Standards	Proposed amendment to Compliance Document B1 by updating the masonry design Standard to NZS 4230: 2004.	Stage: Public consultation closed on 3 April 2007. Analysing public comment.
C Fire Safety – Type 4 and 5 alarms	Proposed amendments to Compliance Document C, concerning the design requirements for alarm systems in certain buildings.	Stage: Public consultation closed on 13 April 2007. Analysing public comment.
C Fire Safety – Sprinkler systems	Joint public consultation with Standards New Zealand over proposal to reference NZS 4541: 2006 Automatic Fire Sprinkler Systems in C/AS1.	Stage: Analysing public comment.
E2 External moisture	Amendments to Code Clause E2.	Stage: Changes to Code Clause E2 came into effect on 21 June 2007.
F4 Safety from falling	Amendments to Code Clause F4. Amendments to Acceptable Solution F4/AS1, concerning barrier heights.	Stage: Changes to Code Clause F4 came into effect on 21 June 2007. Stage: Published on 22 March 2007.
F6 Lighting for emergency	Amendments to Code Clause F6 and Compliance Document F6. Amendments to Compliance Document for Code Clause F6.	Stage: Changes to Code Clause F6 came into effect on 21 June 2007. Stage: Transitional Compliance Document came into effect on 21 June 2007. New Compliance Document comes into effect on 18 October 2007.
F7 Warning systems	Proposed amendments to Compliance Document F7, concerning the design requirements for alarm systems in certain buildings.	Stage: Public consultation closed on 13 April 2007. Analysing public comment.
G4 Ventilation – Apartment ventilation	Amendment to G4/AS1, relating to the ventilation of apartments with one external wall.	Stage: Public consultation closed on 13 April 2007. Analysing public comment.
G6 Airborne and impact sound	A complete review of Code Clause G6 and Compliance Document G6. Proposals include new methods for measuring sound and new criteria for protection from environmental sound.	Stage: Preparing cost-benefit study.
G14 Industrial liquid waste	Amendments to Code Clause G14 and Compliance Document G14.	Stage: Changes to Code Clause G14 came into effect on 21 June 2007.
H1 Energy efficiency	Proposed amendments to Code Clause H1 and Compliance Document H1, relating to insulation, solar hot water systems, and commercial lighting. Proposed amendments to Code Clause H1, Compliance Document H1 and G12, relating to domestic hot water and commercial HVAC systems.	Stage: First round of amendments to Code Clause H1 comes into effect on 31 October 2007. New H1 Compliance Document was published on 16 August 2007 and comes into effect on 31 October 2007. Stage: Consultation closed on 29 June 2007. Analysing public comment.

What is a determination?

A determination is a binding decision made by the Department of Building and Housing. It provides a way of resolving disputes, questions, or interpretations about the rules that apply to buildings, how buildings are used, building accessibility, and health and safety. In broad terms, the rules arise from the requirements of the Building Act or the Building Code.



Most determinations are requested because the person applying for the determination disagrees with the council about decisions the council has made about a building. However, a determination can be applied for by the council itself, a neighbour who is affected by building work, or a building user if the matter is about access and facilities for people with disabilities.

A determination can be about building work that is planned, partly done or completed. You may have already asked for advice from the Department on the same question. A determination is different in that the Department takes a detailed look at the matter and makes a legally binding decision.

WHAT CAN A DETERMINATION BE ABOUT?

We can make a determination about:

- whether a building or building work complies with the Building Code
- a council's decision on a building consent, a notice to fix from the council, a code compliance certificate or a compliance schedule (including time extensions to building consents and code compliance certificates)
- a council's decision to grant or refuse a waiver or modifications to the Building Code
- a council's decision on a certificate of acceptance, a compliance schedule, a notice to fix, or a certificate for public use
- a council's decision on building alterations, a change of building use, subdivision of buildings, and dangerous, earthquake-prone and insanitary buildings
- a council's decision on dams.

WHO CAN ASK FOR, OR BE PARTY TO, A DETERMINATION?

You can ask for, or be involved as a party to a determination, if you are:

- the building owner or the owner's agent
- the council that issued the building consent
- the owner of other property when the determination is about the protection of that property (for example, the potential spread of fire from one property to another, surface water run-off or land stability)
- a government department or Crown agency or other person or organisation that has a statutory duty under the Act, such as the New Zealand Fire Service or Occupational Safety and Health
- anyone with a direct interest in the matter where it relates to access and facilities for people with disabilities.

The Department can initiate a determination where it believes it is necessary to achieve the aims of the Building Act.

The council will almost always be a party to the determination. We may ask other people or organisations to become involved if necessary.

APPLYING FOR A DETERMINATION

Information on applying for a determination, forms, and fees can be found on the Department's website: www.dbh.govt.nz

THE STEPS IN THE DETERMINATION PROCESS

Receive and accept the application

When we receive the application, we will decide whether the dispute or question is one that the Building Act applies to. If it is, we will tell the person who applied and the other parties that a determination has been applied for. We must do this within 10 working days.

Look in detail at the application

We will look at all application information and will ask for clarification or any information that may still be required. We may also need to clarify the matter being disputed.

Appoint an independent expert

Determinations often concern technical matters and we will sometimes engage an independent expert at our expense to investigate and report on the matter. The expert will provide a written report that is copied to all the parties for their comment. For complex determinations, more than one expert may be appointed.

In some instances an expert will not be necessary and the matter may be referred to the Department's own technical advisors.

Provide a draft determination

We will produce a draft determination after we have received the expert's report and the parties have commented on it. We will then send the draft determination to the parties for comment.

Hold a hearing if one is requested

You may request a hearing, which would normally be held following the release of the draft determination. Legal representation is not necessary, although you can have a lawyer attend and speak on your behalf if you wish.

You can request a hearing at the time of application or at any time during the determination process.

Issue the final determination

We will issue the final determination after the parties have commented on the draft and after any hearing is held. The final determination will respond to matters you may have raised in response to the draft determination or at the hearing, if one was held.

HOW LONG IT TAKES TO GET THE DETERMINATION?

We are required to issue the final determination within 60 working days of receiving the application, or longer if agreed to by the parties.

The 60-day period does not include time when we may be waiting for documents or information the Department has required from parties. If you can't give us the information by the date given, you can ask for an extension. We have the power to make the determination if the information requested is not provided in reasonable time.

THE AVAILABILITY OF EARLIER DETERMINATIONS AND HOW THEY ARE USED

Determinations provide decisions that can be used by councils and others as a guide when faced with a similar set of facts.

Once issued, determinations are available free from our website: www.dbh.govt.nz You can search for a determination by Building Code clause, subject or keyword, or you can browse them all.

We also include a summary of interesting determinations in this newsletter.

MORE INFORMATION

A guide to Building Act determinations is available on the Department's website: www.dbh.govt.nz

Determinations issued

DETERMINATION 2007/81

Fire safety in a building consent for a building converted into four new apartments.

The matter for determination

The application arose from a dispute about the territorial authority's decision to issue a building consent with certain conditions.

The territorial authority was not satisfied the following elements complied with the Building Code.

- Keeping the existing south wall windows that are within a metre of the site boundary
- The horizontal safe path at the entry of a lower apartment

The owner applied for the determination.

The building work

The building work comprises converting a lodge/hall building into four new apartments. Eight existing timber, double-hung, sash windows on one brick-faced boundary wall have a separation distance from the external faces of the glass to the site boundary of between 925 mm and 975 mm. The owner proposed to keep the existing windows in these walls in their locations.

The territorial authority asked for the windows to be provided with fire-resistant glazing and automatic closing and latching devices. While the windows had to be re-glazed, the frames could be kept.

The proposed means of escape from fire consists of independent access to the outside from one ground floor apartment and a shared main entry for the remaining three apartments, which doubles as the vertical safe path access to the upper apartments.

The submissions

The owner stated that, while the windows in question were about 890 mm from the boundary, the neighbours' house was 2040 mm from the conversion. The owner considered the question of escape from fire had been covered in a previous report sent to the territorial authority.

A firm of fire engineers employed by the owner provided a further submission, noting there was only a small margin by which the windows did not comply with the required separation distance. The neighbouring property was located 1150 mm and 3650 mm from the common boundary at the lower floor level and the upper floor of the conversion was clear of the neighbours' house. The only practical option to meet the escape from fire concerns was to provide a horizontal safe path, which would need two fire doors close to each other. A short horizontal safe path would be 'abused' by the occupants and the resulting lobby seemed to be superfluous.

The territorial authority did not make a submission.

The draft determinations

The Department sent a draft determination to the parties and both accepted the draft without comment.

The final determination

The final determination discussed the following major issues.

Compliance 'as nearly as is reasonably practicable'

A decision on whether any upgrade will make the building comply as 'nearly as is reasonably practicable' with the Building Code rests on weighing the cost and other sacrifices involved in the upgrade against the benefits achieved.

The High Court described the process in *Auckland City Council vs New Zealand Fire Service*.

The Department decided the conversion had only to comply, as nearly as reasonably practicable, with Building Code provisions on the means of escape from fire and fire-rating performance.

The existing windows

The resource consent required the existing windows not to be changed in appearance and noted that a new resource consent was required for any alteration to them. Although this matter could be considered part of the 'benefit and sacrifice' equation, it was one within the ambit of the Resource Management Act 1991 and not the Building Act 2004, so did not form part of the determination.

The applicant noted the window-to-boundary separation dimensions were less than the Code-stipulated 1-metre separation. However, the Department noted that Building Code Clause C3 did not mention any such dimensions. The dimensions described by the fire engineers are set out in C/AS1, which is not part of the Building Code. While it describes methods for achieving Code compliance, it does not prevent the consideration of other alternatives.

The applicant submitted that, considering the depth of the window reveals from the face of the south wall, the distance from the window glass faces to the boundary varied between 925 mm and 975 mm. However, the Department noted that in C/AS1, step 6 of Method 2 (enclosed rectangles) for deciding the required distance stated the distance was to be taken from 'the external wall to the relevant boundary'. As the Department considered that a separation distance of 750 mm was the correct one to use to calculate the fire resistance rating of the windows, this dimension did not achieve the 1-metre distance as required in C/AS1.

The Department noted the building consent allowed the 'frames' of the windows to remain as they were. If a wide meaning were given to the word 'frame', it could be interpreted to include the sashes. The consent also only required the windows to be 're-glazed' without any mention of the sashes themselves.

The Department believed that merely to re-glaze the windows would not be enough to meet the -/30/- Sm requirement. Further work would be needed to the sashes and perhaps the surround frames. It was likely that one amended window would have to be removed and tested by an approved organisation to ensure its compliance with the territorial authority's requirement.

The Department also accepted that installing automatic closing and latching devices was required for the windows to be Code-compliant.

The Department determined the windows were not Code-compliant in their present state and needed major changes to comply. The applicant had provided an estimated cost of \$10,678 for the work required by the building consent, and referred to extra detrimental issues should the windows be removed or replaced.

The Department accepted that amending or replacing the windows, or adopting acceptable alternatives could be difficult. However, there were clear considerations of human safety in this case, in particular, the safety of the occupants of the neighbour's building should a fire start in the conversion. The Department had to give suitable weight to the human safety benefits achieved by amending or replacing the windows and decided that those safety benefits outweighed the sacrifice involved.

The horizontal safe path

The Department decided the proposed means of escape from fire for the outside access did not meet the requirements of Clause 3.3.3. It considered that adding a further set of fire doors or an approved alternative would not be a heavy burden on the applicant, considering the safety benefit and sacrifice. Nor could it accept that any perceived 'abuse' of the safe path was relevant for safety. Therefore, the proposed means of escape needed to be amended to meet the territorial authority's concerns.

The decision

The Department:

- (a) determined the following did not comply as nearly as is reasonably practicable with the Building Code:
 - keeping the existing south wall timber windows that are within 1 metre of the boundary
 - the horizontal safe path at the entry of the lower apartment at the southern end of the building
- (b) confirmed the territorial authority's decision to issue the building consent that contained an attachment to the consent.

To read all the determinations in summary or in full, go to:

 www.dbh.govt.nz/determinations

Building consents for imported ancillary buildings

It is often difficult for building consent authorities (BCAs) to check that imported kitset ancillary buildings, such as farm buildings and garages, will meet the relevant performance requirements of the New Zealand Building Code for specific building consent applications. This is because there is either limited design information or they have to use the design information in trade literature that is based on another country's requirements.

Design information prepared for another country's use needs to be interpreted for New Zealand. For example, an Australian-developed system which claims a garage was suitable for Wind Zone N2, would be suitable for use in all building wind zones up to and including a NZS 3604 Medium Building Wind Zone.

There are also issues with other Code clauses. For example, there may or may not be any claims made with regard to the durability of components. All components, particularly fixings, need to be assessed against requirements for the specific application, including the site location. In addition to checking structural performance, particular attention should be directed towards the durability of framing members (eg, timber treatments) and fixings.

Proprietors or distributors of these ancillary buildings will make BCAs' jobs much easier if the design information, including trade literature and technical back-up (calculations etc), has been specifically prepared for the New Zealand market, and if it addresses all Code requirements.

BCAs should also be vigilant as, even where design information has been prepared to cover New Zealand applications, that information may be incomplete or require further questions to be asked or investigations to be carried out.

If it is unclear whether the system in a particular application will meet the Building Code, the BCA should obtain a regulatory peer review of the consent application or apply, in the event of a dispute with an applicant, to the Department for a determination.

Learning curve



Upskilling? Looking at moving to another role within the industry? Helping a colleague with their career development? Career Services is the place to go for information and advice on jobs, training and study.

The best way to find out how Career Services can help you and your employees is to go to their website: www.careers.govt.nz Formerly known as Kiwi Careers, this is the most comprehensive careers website in New Zealand, and the only place to go for comprehensive and impartial information.

For example, there are the 670 job profiles on the Career Services website. These are based on interviews with people actually doing the job.

Click on B for 'Building' and you'll find 18 profiles of people working in the industry. Roles covered include Building Approvals Officer, Building Estimator, Building Design Technician – and Builder. The site also profiles Design Engineers, Interior Designers, Carpenters and Construction Site Managers.

Each profile links to advice on personal requirements, working conditions, how to enter the job, related jobs, and relevant courses and training. There is also up-to-date information about the job market. Job market information covers topics such as shortages, registration changing skill requirements and turnover. This information is also broken down by regions across the country.

Career Services also offers a free telephone advice line (0800 222 733) and face-to-face help in 17 offices around New Zealand.



ARE YOU A BUILDING CONTROL EXPERT?

Would you or your organisation like:

- some paid time away to learn about how other building control systems work?
- an opportunity to contribute to improving building controls throughout New Zealand?

The *Building Act 2004* (the Act) established accreditation and registration of building consent authorities as a two stage process for ensuring that such organisations meet appropriate technical standards, are competent to perform certain tasks, are 'fit and proper' and operate their businesses in a way that provides a higher standard of consumer protection. The *Building (Accreditation of Building Consent Authorities) Regulations 2006* prescribe accreditation criteria and standards that must be met by all building consent authorities.

International Accreditation New Zealand (IANZ) has been appointed by the Chief Executive of the Department of Building and Housing as the Building Consent Accreditation Body. IANZ seeks suitably qualified and experienced people to join a pool of 'technical experts' that may be called upon to assist with assessments of one or more territorial and regional authorities and private organisations that apply for accreditation.

Accreditation is a specialised activity. It involves a team of expert assessors who review consent documents and inspection records, make site visits of completed buildings, interview people, accompany staff on inspections and prepare reports. An assessment team will consist of a lead assessor who has accreditation and management systems expertise and technical experts. The technical experts will have detailed knowledge and experience of the Building Act, Building Regulations, Building Code and building control systems. For more details on the building consent authority accreditation scheme refer to

 www.dbh.govt.nz

All technical expert assignments will be for a relatively short period. You will not be required to be away from your other work for more than a few days at a time. You, or your employer, will be paid for the time you spend as a technical expert (plus actual and reasonable expenses).



Technical experts must be able work quickly and efficiently under pressure in a supportive team environment, as well as have the following key attributes:

- appropriate qualifications, skills and experience corresponding to industry good practice.
- knowledge, skills, and practical experience to be able to adequately assess, recognise, and respond appropriately to any technical issue likely to arise in the course of an accreditation assessment.



Please refer to the technical expert specifications below and send IANZ a completed application form and supporting information explaining how you fit the specification.

Please send the application form and supporting information to:

Geoff Hallam
Programme Manager –
Inspection Body Accreditation
International Accreditation New Zealand
Private Bag 28908,
Remuera, Auckland 1136

 ghallam@ianz.govt.nz
 09 525 6655

David Sidwell
Accreditation Officer
International Accreditation New Zealand
Private Bag 28908,
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 dsidwell@ianz.govt.nz
 09 525 6655



Department of
Building and Housing
Te Tari Kaupapa Whare

An **accreditation technical expert** must have sufficient knowledge, skills, and practical experience to be able to adequately assess, recognise, and respond appropriately to any technical issue likely to arise in the course of an accreditation assessment.

Technical Expert Specification

Introduction

An accreditation technical expert must have sufficient knowledge, skills, and practical experience to be able to adequately assess, recognise, and respond appropriately to any technical issue likely to arise in the course of an accreditation assessment. As such, the technical expert's qualifications, skills and experience must correspond to industry good practice and to the needs of IANZ as the Building Consent Accreditation Body.

Responsibilities and key tasks of the technical experts

The responsibilities (and restrictions on such responsibilities) and key tasks of technical experts shall be in accordance with the relevant and current IANZ technical guidance publication for accreditation assessors.

Qualifications and skills

The qualifications and experience required of a technical expert must be directly relevant and appropriate to the work in which they are engaged. A technical expert must be able to meet the following criteria to the satisfaction of the IANZ and the Department of Building and Housing before being appointed as a technical expert.

Relevant experience

A technical expert must have the following experience:

- Relevant and current experience in building controls (at least five years working in this field).
- Previous experience in the building industry (eg, working as a building constructor, architectural designer, quantity surveyor, building surveyor, project manager, foreman, etc.).
- Previous senior responsibility for building control and compliance decisions including day-to-day technical involvement in consent processing, inspection work and review, sign-off and approval of building consents, code compliance certificates, compliance schedules, and/or notices to fix.
- Previous practical ability to effectively perform, process, and approve building consents and undertake credible inspections and to adequately record observations.

Continued on page 20

Learning curve *continued*

Knowledge, skills, and technical competence

A technical expert must have a comprehensive knowledge of the:

- (a) Relevant technical requirements of building consents being processed, inspected, signed off, and approved and the significance of any noted observations.
- (b) Relevant legislation, specifications, and other reference documents (eg, Building Act 2004, Building Regulations, the Building Code, other related legislation such as the Local Government Act 2002, and the Resource Management Act 1991, the Fire Service Act, relevant standards, manufacturer's instructions, technical literature, product appraisals, etc.).
- (c) Quality assurance system principles and the application of these to building consent authority systems.
- (d) Building (Accreditation of Building Consent Authorities) Regulations 2006.
- (e) Duties and responsibilities of a technical leader/manager, building official and trainee building official.

A Technical Expert participating as a member of an accreditation assessment team must also have:

- (f) The ability to identify the types of technical compliance non-conformances able to be found in a building consent authority's systems, policies and procedures.
- (g) The ability to comprehensively document and record findings and decisions.
- (h) Sound judgement in evaluation of findings.
- (i) A demonstrated ability to:
 - i. think and plan strategically;
 - ii. produce high quality work under pressure;
 - iii. effectively manage time and demanding workloads;
 - iv. effectively communicate (by both oral and written means) and work with a range of people from different organisations and cultural backgrounds; and
- v. work effectively, either independently or as a member of a team.

Formal qualifications

It is desirable that a technical expert has appropriate formal qualifications in subjects related to building control (eg, a National Trade Certificate, National Certificate or National Diploma in building-related fields such as carpentry, architectural design, quantity surveying or plumbing and drainage; or relevant Bachelor degree qualifications in Construction Management, Project Management, Engineering, Building Science, Architecture, or Building Surveying etc).

Continued professional development

A technical expert engaged by IANZ on an ongoing basis must maintain an appropriate level of building control and building compliance/science continuing professional development, each year. Technical experts must stay abreast of changes within the regulatory environment, and with any significant changes to building construction practices and building compliance requirements.

SUSTAINABLE BUILDING CONFERENCE (SB07) 2007

New Zealand –
Transforming Our Built Environment
14–16 November 2007, Auckland

Who Should Attend?

This conference will be useful for:

- building owners, specifiers and managers
- designers and engineers
- developers and builders
- suppliers of products and services
- central and local government policy makers, and planners
- researchers and academics.

Registration

Registration is available online now.
Please note the cost below includes GST.

For more information please contact

Shelley Cunningham
Convention Management Services Ltd
@ shelley@cmsl.co.nz
☎ 64 9 835 1533

Adrian Bennett
Building Research
@ a.bennett@bres.org.nz
☎ 64 4 495 7761

Important changes to BIA website

The content previously available on the Building Industry Authority website (www.bia.govt.nz) is now located within the Department of Building and Housing website:

☎ www.dbh.govt.nz

Legality of Department of Building and Housing interpretations

Only the courts can issue binding interpretations of the Building Act 1991 and Building Act 2004 and Regulations. Indications and guidelines issued by the Department of Building and Housing, either in *Codewords* or other communications, are provided with the intention of helping people to understand the legislation. They are, however, offered on a 'no-liability' basis and, in any particular case, those concerned should consult their own legal advisors.

Editorial enquiries

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