Queensland Development Code MP 2.3 – Fire Safety in Existing Residential Care Buildings (pre-1 June 2007)

Inspection program findings

1 September 2011 – 29 February 2012

Building Codes Queensland
Department of Housing and Public Works

Queensland Government

Foreword

The Queensland Government is committed to protecting the safety of the state's most vulnerable citizens, and is leading the way with some of the country's highest fire safety standards for residential care buildings.

In June 2000, a fire at the Childers Palace Backpackers Hostel claimed the lives of 15 people. This tragedy highlighted deficiencies in the existing fire safety standards for high occupancy buildings.

The Queensland Building Fire Safety Taskforce, established as a result of the fire, identified budget accommodation buildings and residential care buildings as posing an unacceptably high risk of multiple fatalities in the event of a fire.

With bipartisan support, the then government embarked on a program of reform to improve fire safety in these buildings.

The program's initial focus was on budget accommodation buildings such as hostels, backpackers and supported accommodation. This work was completed in 2002 with the introduction of Queensland Development Code MP 2.1 − Fire Safety In Budget Accommodation Buildings.

New residential care buildings were then addressed with the introduction of Queensland Development Code 2.2 – Fire Safety In Residential Care Buildings on 1 June 2007.

The final stage of the reform program commenced on 1 September 2011 with the introduction of Queensland Development Code MP 2.3 – Fire Safety in Existing Residential Care Buildings (pre-1 June 2007).

The first step in implementing QDC 2.3 involved assessing all existing residential care buildings to determine what work, if any, was required to bring these buildings up to the required standard.

I would like to thank the industry for their willingness to work with Building Codes Queensland during the assessment process. This cooperation allowed 926 buildings to be assessed within six months and demonstrates the joint commitment of government and industry to improve fire safety standards.

The result of this cooperation is a report which provides a valuable summary of fire safety standards in pre-2007 residential care buildings and identifies areas requiring improvement.

In some cases these measures are minor, and building owners are to be commended for the actions they have already taken to improve fire safety for their residents.

For others the work required will be more extensive and costly. Against this cost, the recent tragic Quakers Hill fire brings home the terrible risk that fire poses to residents of care facilities who are unable to care for themselves.

I look forward to working with industry to improve the fire safety in residential care buildings and, in doing so, protecting some of the most vulnerable members of our community.

The Honourable Dr Bruce Flegg MP
Minister for Housing and Public Works

Executive summary

This report presents the findings of the Residential Care Building (RCB) fire safety assessment program carried out from 1 September 2011 to 29 February 2012.

Queensland Development Code MP 2.3 – Fire Safety in Existing Residential Care Buildings (pre-June 2007) (QDC 2.3) came into effect on 1 September 2011.

Under amendments to the *Building Act 1975* that also took effect from 1 September 2011, RCB owners were required to undertake a fire safety assessment of their RCB to determine their current level of compliance with QDC 2.3, and provide an assessment report by 1 March 2012.

Building Codes Queensland (BCQ) provided a free inspection service to help RCB owners fulfil this obligation.

The inspections identified 926 buildings as pre-June 2007 RCBs that have to comply with QDC 2.3. Approximately 43 per cent of these are located in the Brisbane, Gold Coast and Sunshine Coast local government areas. The remaining 57 per cent are spread across 49 other local government areas. These 926 buildings house a total of 31 096 residents.

The assessment program results show:

- 18 per cent of RCBs are Category 1 and are required to achieve compliance by 1 September 2014. These are multi-storey buildings of type B or type C construction under the National Construction Code (NCC), and are the least fire resistant RCBs.
- 82 per cent of RCBs are Category 2 and are required to achieve compliance by 1 September 2016. Category 2 RCBs are of type A construction or single storey type B or type C construction that pose a lower fire safety risk to occupants when compared with Category 1 RCBs.
- The current rate of compliance with QDC 2.3 is 15 per cent for both Category 1 and Category 2 RCBs (i.e. 784 buildings are currently non-compliant – 140 in Category 1 and 644 in Category 2).
- 25 604 residents live in non-compliant RCBs (28% in Category 1 and 72% in Category 2).
- Approximately 40 per cent of all RCBs currently have full life safety sprinkler systems installed.

The greatest level of non-compliance is associated with performance criteria P1 – fire suppression, smoke compartmentation and evacuation support.

91 per cent of non-compliant Category 1 RCBs fail on P1 (127 buildings), while 85 per cent of non-compliant Category 2 RCBs fail on P1 (547 buildings).

In many instances, the non-compliance is due to a lack of supporting documentation (i.e. a complete fire evacuation and management plan was not provided, or the integrity of smoke wall/s or the certification of the sprinkler system could not be verified at the time of inspection). For most, compliance with P1 will be achieved when the relevant documentation is provided.

Of the Category 1 buildings, 81 will require a full sprinkler system to be installed by 1 September 2014 to meet the acceptable solutions of QDC 2.3.

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Glossary

For the purpose of this report, the following terms are applied as follows:

RCB – refers to an existing Residential Care Building built prior to 1 June 2007 which is subject to the requirements of the Queensland Development Code Mandatory Part 2.3.

QDC 2.3 – refers to the Queensland Development Code Mandatory Part 2.3 – Fire safety in existing residential care buildings (pre-1 June 2007).

ABBREVIATIONS

BCQ – Building Codes Queensland. During the inspection phase BCQ was part of the former Department of Local Government and Planning. It is now part of the Department of Housing and Public Works

BCA – Building Code of Australia (pre 2011)

NCC – National Construction Code (replaced the BCA in 2011)

QDC – Queensland Development Code

The Act – *Building Act 1975*

DEFINITIONS

Type A Construction – as specified in the NCC

Type B Construction – as specified in the NCC

Type C Construction – as specified in the NCC, or any building that does not meet the requirements for Type A or Type B construction

Category 1 Building – an RCB with two or more storeys, built of combustible material (type B or type C construction)

Category 2 Building – an RCB with only one storey or built of fire retardant materials (type A construction)

Minimum Support Ratio – the lowest number of on-site responsible persons compared to the number of persons with an evacuation impairment

Purpose of this report

This report presents the findings of the Residential Care Building (RCB) fire safety assessment program carried out from 1 September 2011 to 29 February 2012.

Under the *Building Act 1975* (the Act), RCB owners were required to obtain an assessment report for their RCB by 1 March 2012 to identify:

- a fire safety risk category for each RCB (i.e. Category 1 or Category 2)
- the extent to which the RCB complies with the performance criteria set out in the Queensland Development Code Mandatory Part 2.3 (QDC 2.3).

The assessment reports have been collated and summarised in this document to provide an overview of the current fire safety measures in place in Queensland RCBs, and matters that need to be addressed to achieve compliance with QDC 2.3.

Category 1 RCBs are required to achieve compliance with QDC 2.3 by 1 September 2014 and Category 2 RCBs by 1 September 2016.

Background

Following the death of 15 people in the Childers backpacker fire in June 2000, the Queensland Government implemented a staged fire safety improvement program for a range of high-occupancy buildings including: budget accommodation buildings (BABs) such as boarding houses, hostels, backpackers and supported accommodation; and RCBs.

The first phase of the improvement program targeted fire safety in BABs. In 2002 the Act was amended to require these buildings to comply with QDC 2.1 − Fire Safety In Budget Accommodation Buildings.

The second phase of the improvement program took effect in June 2007, when QDC 2.2 – Fire Safety In Residential Care Buildings was introduced to address fire safety in RCBs built or approved after 1 June 2007. This required the installation of fire sprinklers, building-wide alarms and maintenance of a 24-hour minimum support ratio of 1:10.

Residential care buildings constructed prior to 1 June 2007

The final phase of the fire safety improvement program began on 1 September 2011 when QDC 2.3 came into effect.

Under the Act, a RCB is defined as a building:

- that is operated as a place of residence for six or more persons
- where at least 10 per cent of the residents:
  - need physical assistance in conducting their daily activities
  - would need physical assistance to evacuate the building during an emergency.

During consultation on the draft QDC, many RCB operators raised concerns that the cost of complying with QDC 2.3 would add to the significant financial pressures already experienced by operators.

To help address these concerns the Queensland Government:

- implemented a staged compliance period 1 September 2014 for Category 1 and 1 September 2016 for Category 2
- offered a free inspection service to assist RCB owners to obtain an assessment report.

The importance of fire safety in RCBs was highlighted by the Quakers Hill Nursing Home fire in Sydney on 18 November 2011, which claimed the lives of 11 elderly residents. This tragedy has prompted the Australian Building Codes Board (ABCB) to urgently review national fire safety standards under the NCC. The New South Wales Government is also reviewing fire safety for RCBs. The Queensland Government continues to support this important work.

Inspections

A total of 988 buildings were inspected between 1 September 2011 and 29 February 2012. BCQ conducted 82 per cent (810) of these inspections, while private certifiers completed the remaining 18 per cent (178).

Of the total buildings inspected, 926 were determined to be subject to QDC 2.3 and a Fire Safety Assessment Report (Form 25) was issued for each building. Owners of the remaining 62 buildings inspected were notified that their buildings were not subject to QDC 2.3 and that no further action was required.

Table 1 – Assessment inspections completed

	Inspections conducted	Buildings identified as RCBs and issued a Form 25
BCQ officers	810 (82%)	750
Private certifiers	178 (18%)	176
Total	**988**	**926**

Local government area breakdown

The 926 RCBs are spread across 52 local government areas. Approximately 22 per cent are located in Brisbane, while the Sunshine and Gold Coasts have 12 per cent and nine per cent respectively. Twenty-five local government areas have five or fewer RCBs and 12 of these have just one.

Table 2 – Local government areas with ≥ 2% of total RCBs

Local Government Area	No. of existing RCBs	% of total (926)
Brisbane City	202	22%
Sunshine Coast Regional	107	12%
Gold Coast City	83	9%
Moreton Bay Regional	62	7%
Rockhampton Regional	42	5%
Logan City	37	4%
Toowoomba Regional	37	4%
Redland City	36	4%
Bundaberg Regional	31	3%
Townsville City	30	3%
Fraser Coast Regional	25	3%
Cairns Regional	20	2%
Mackay Regional	19	2%
TOTAL	**731**	**80%**

Table 3 – Local government areas with <2% of total RCBs

Local Government Area	No. of existing RCBs
South Burnett Regional	16
Burdekin Shire	13
Charters Towers Regional	13
Gympie Regional	13
Ipswich City	13
Tablelands Regional	10
Cassowary Coast Regional	9
Scenic Rim Regional	9
Whitsunday Regional	9
Southern Downs Regional	8
Somerset Regional	8
Hinchinbrook Shire	6
North Burnett Regional	6
Western Downs Regional	6
Gladstone Regional	5
Lockyer Valley Regional	5
Maranoa Regional	5
Banana Shire	4
Cherbourg Aboriginal Shire	4
Goondiwindi Regional	4
Central Highlands Regional	3
Mount Isa City	3
Palm Island Aboriginal Shire	3
Balonne Shire	2
Isaac Regional	2
Longreach Regional	2
Torres Shire	2
Barcaldine Regional	1
Blackall Tambo Regional	1
Carpentaria Shire	1
Cook Shire Council	1
Doomadgee Aboriginal Shire	1
Hopevale Aboriginal Shire	1
Moree Plains	1
Mornington Shire	1
Murweh Shire Council	1
Paroo Shire	1
Weipa Town	1
Yarrabah Aboriginal Shire	1
TOTAL	**195**

Results

Assessment category

Category 1 RCBs are multi-storey (two or more storey) buildings of type B or type C construction under the NCC. These are the least fire resistant RCBs. 18 per cent of RCBs are Category 1.

Category 2 RCBs are of type A construction of any height, or single storey with type B or C construction. These buildings pose a reduced fire safety risk compared to Category 1 buildings. 82 per cent of RCBs are Category 2.

Table 4 – Assessment category breakdown

	Number	% of existing RCBs inspected (926)
Category 1	165	18%
Category 2	761	82%
Total	**926**	

Resident numbers

The 926 RCBs usually house a total of 31096 residents – an overall average of 34 residents per building. The majority of residents (72 per cent) live in Category 2 RCBs, which house an average of 29 residents per building. The remaining 28 per cent of residents live in Category 1 RCBs, which house an average of 54 residents per building.

Table 5 – Usual number of residents per RCB

	Number of RCBs	Total no. of residents	Average no. of residents per RCB
Category 1	165	8844	54
Category 2	761	22 252	29
Total	**926**	**31 096**	**34**

Sprinkler systems

For buildings accommodating residents who need assistance to safely evacuate the building installing a compliant sprinkler system is the single most effective measure that can be taken to improve the fire safety of a RCB. For this reason QDC 2.3:

- makes installation of sprinkler systems an acceptable solution for performance requirement P1 – Fire suppression, smoke compartmentation and evacuation support

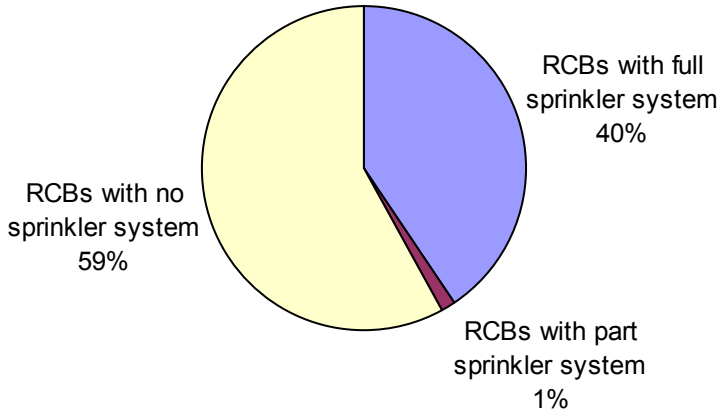
- reduces or eliminates the acceptable solution requirements of other performance criteria where the RCB has a sprinkler system.

Table 6 and *Figure 1* show the current level of sprinkler system installation in RCBs.

Table 6 – Sprinkler systems in existing RCBs

	Cat 1 number	Cat 2 number	Total number	% of total (926)
RCBs with full sprinkler system	84	291	375	40%
RCBs with part sprinkler system	3	9	12	1%
RCBs with no sprinkler system	78	461	539	59%
Total	**165**	**761**	**926**	

Figure 1 - Sprinkler systems in existing RCBs



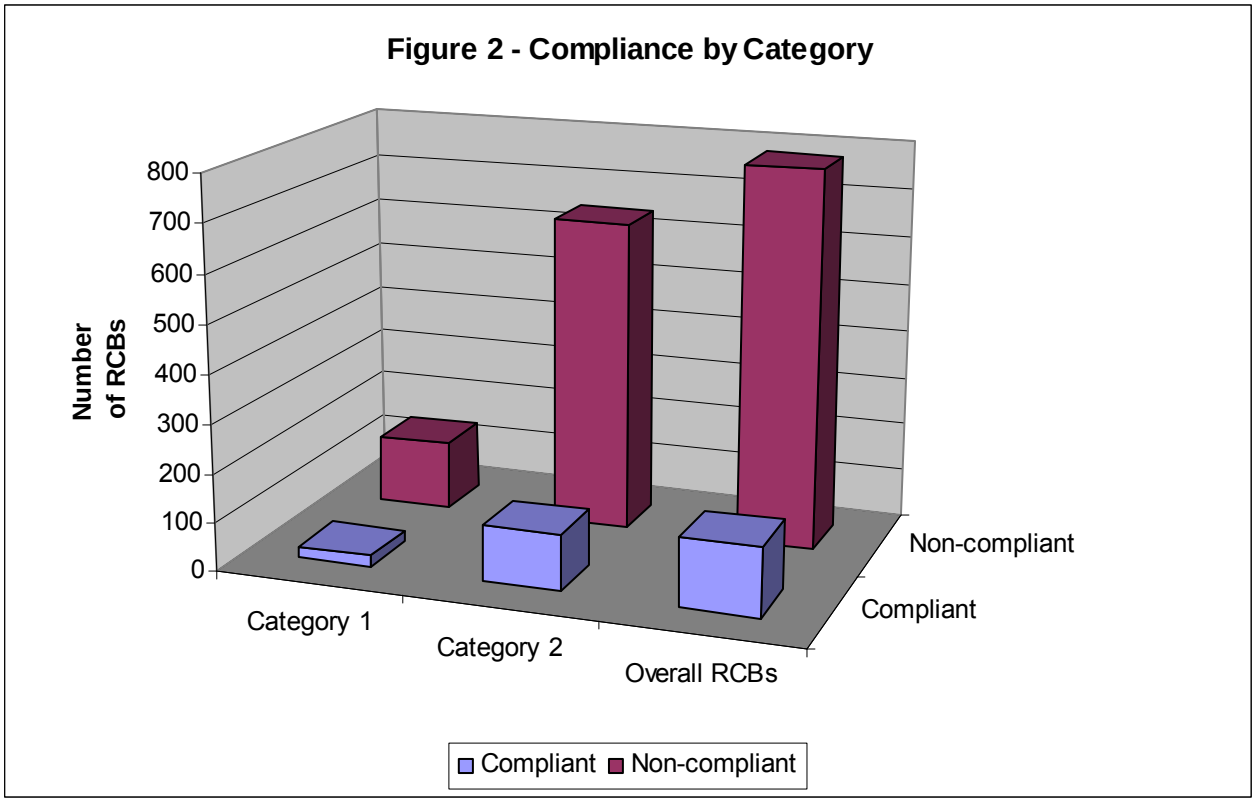
Current levels of compliance

Non-compliance with one or more performance criteria in QDC 2.3 means that the RCB is non-compliant.

The assessment program results show that the current compliance rate is 15 per cent for both Category 1 and Category 2 RCBs.

Table 7 – Current levels of compliance

	Cat 1 number	% of Cat 1	Cat 2 number	% of Cat 2	Total number	% of total
Compliant with QDC 2.3	25	15%	117	15%	142	15%
Non-compliant with QDC 2.3	140	85%	644	85%	784	85%
Total	**165**		**761**		**926**	



Category 1 RCBs must be brought into compliance by 1 September 2014 and Category 2 RCBs must comply by 1 September 2016.

The 142 compliant RCBs collectively house a total of 5492 residents (18 per cent), while the 784 non-compliant RCBs house 25 604 residents (82 per cent).

Table 8 – Distribution of residents by RCB compliance and category

	Total no. of residents		Total no. of residents	% of total no. of residents (31,096)
Compliant	5492	Category 1	1664	6%
		Category 2	3828	12%
Non-compliant	25 604	Category 1	7180	23%
		Category 2	18 424	59%
Total	**31 096**			

Performance against QDC 2.3 criteria

The 926 RCBs were inspected and assessed against the performance criteria required under QDC 2.3. The following outlines the findings against each criterion.

P1 – Fire suppression, smoke compartmentation and evacuation support

Performance criteria P1 provides that RCBs must have adequate fire suppression to control the development and spread of fire, or measures to prevent the spread of smoke from fire in order to maintain tenable conditions in evacuation routes during a fire.

The acceptable solutions for P1 are structured to provide greater flexibility to buildings that pose a reduced fire risk to occupants.

For Category 1 RCBs, which pose the highest fire risk, the acceptable solutions for P1 provide only one compliance option−installation of a sprinkler system and a minimum support ratio of 1:10.

The acceptable solution for a Category 2 RCB of type B or C construction with two or more storeys includes two options:

- installation of a sprinkler system and minimum support ratio of 1:10, or
- inclusion of a management procedure in the building's fire and evacuation plan indicating that the minimum support ratio for the building is 1:5.

The acceptable solution for a Category 2 RCB of type A construction includes three options:

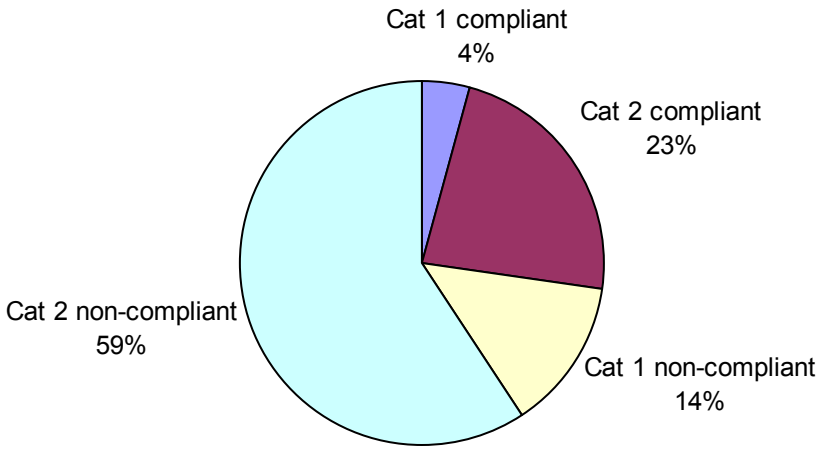
- installation of a sprinkler system and minimum support ratio of 1:10, or
- inclusion of a management procedure in the building's fire and evacuation plan indicating that the minimum support ratio for the building is 1:5, or
- adoption of a management procedure that uses bedrooms as smoke compartments (as per QDC 2.3) and requires bedroom doors to be closed overnight and if the smoke detection system is triggered.

Of the 926 RCBs inspected, only 27 per cent were compliant with P1.

Table 9 – Compliance with P1

	No. of RCBs compliant with P1	% of total in this category	No. of RCBs non-compliant with P1	% of total in this category
Category 1 (165 total)	38	23%	127	77%
Category 2 (761 total)	214	28%	547	72%
TOTAL	**252**		**674**	
As a percentage of the total number of buildings surveyed (926)	27%		73%	

Figure 3 - RCB compliance with P1,
Fire suppression, smoke compartmentation and evacuation support



P2 – Early warning system

Performance criteria P2 provides that RCB occupants must be provided with an appropriate automatic warning on the detection of smoke so that they can be evacuated to a safe place in the event of a fire.

The acceptable solutions for P2 distinguish between RCBs that have a sprinkler system installed and those that do not.

In a sprinklered building the requirement is satisfied if the RCB has a smoke alarm system installed with appropriately located alarms that are interconnected.

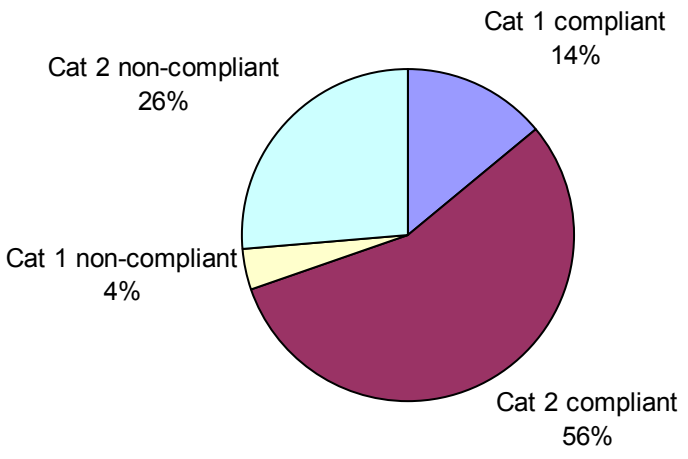
In addition to this requirement, an unsprinklered RCB must also have a system of manual call points installed so that no point in the RCB is more than 30 metres from a manual call point. The system must be monitored so that a fire brigade with a structural fire fighting capacity is available to attend a building fire within 30 minutes of being notified.

Seventy per cent of RCBs are compliant with P2.

Table 10 – Compliance with P2

	No. of RCBs with compliant early warning system	No. of RCBs with non-compliant early warning system
Category 1	129	36
Category 2	516	245
TOTAL	**645**	**281**
As a percentage of the total number of buildings surveyed (926)	70%	30%

Figure 4 - RCB compliance with P2, *Early warning system*



P3 – Emergency escape

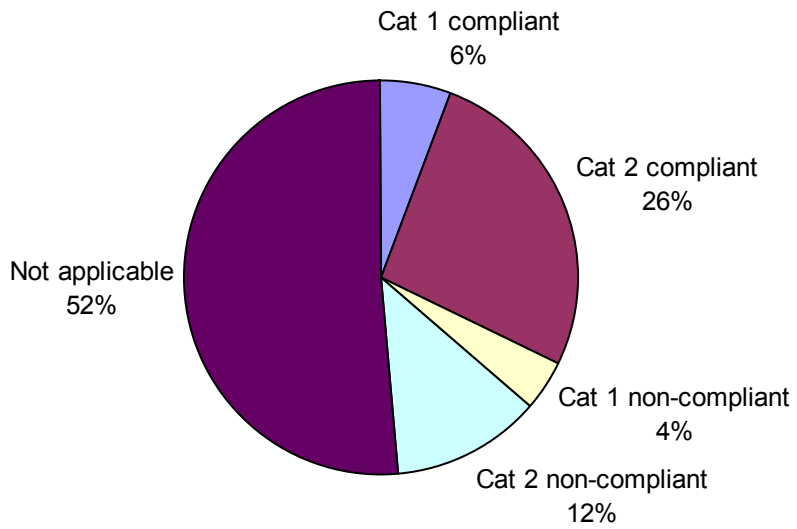
Performance criteria P3 provides that unsprinklered RCBs must have exits which facilitate the safe evacuation of the occupants from the building.

Of the 449 RCBs for which P3 is applicable, 67 per cent are compliant and 33 per cent are non-compliant.

Table 11 – Compliance with P3

	No. of RCBs compliant with P3	No. of RCBs non-compliant with P3	No. of RCBs for which P3 not applicable
Category 1	54	37	74
Category 2	245	113	403
TOTAL	**299**	**150**	**477**
As a percentage of the total number of buildings surveyed (926)	32%	16%	52%

Figure 5 - RCB compliance with P3, *Emergency escape*



P4 – High-risk fire areas

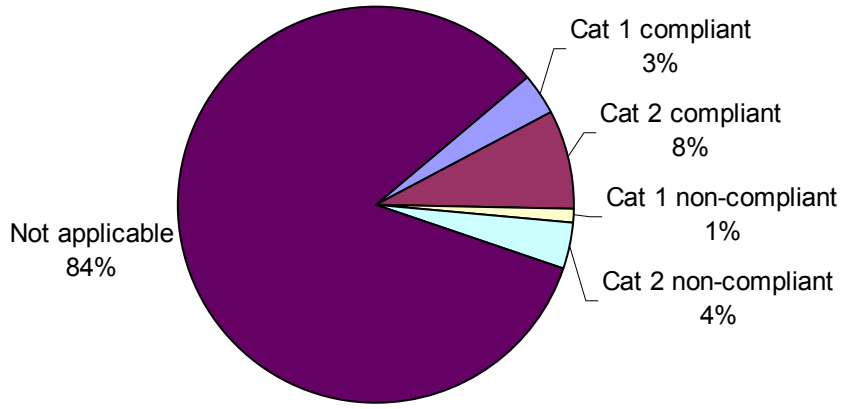
Performance criteria P4 provides that an unsprinklered RCB must have evacuation routes that are adequately protected from high-risk fire areas.

P4 does not apply to the majority (84 per cent) of RCBs because they either have sprinklers installed or do not contain a high-risk fire area that is greater than 30 square metres in floor area. Of the 151 RCBs for which P4 is applicable, 70 per cent are compliant and 30 per cent are non-compliant.

Table 12 – Compliance with P4

	No. of RCBs compliant with P4	No. of RCBs non-compliant with P4	No. of RCBs for which P4 not applicable
Category 1	30	10	125
Category 2	75	36	650
TOTAL	**105**	**46**	**775**
As a percentage of the total number of buildings surveyed (926)	11%	5%	84%

Figure 6 - RCB compliance with P4, *High risk fire areas*



P5 – Smoke hazard management

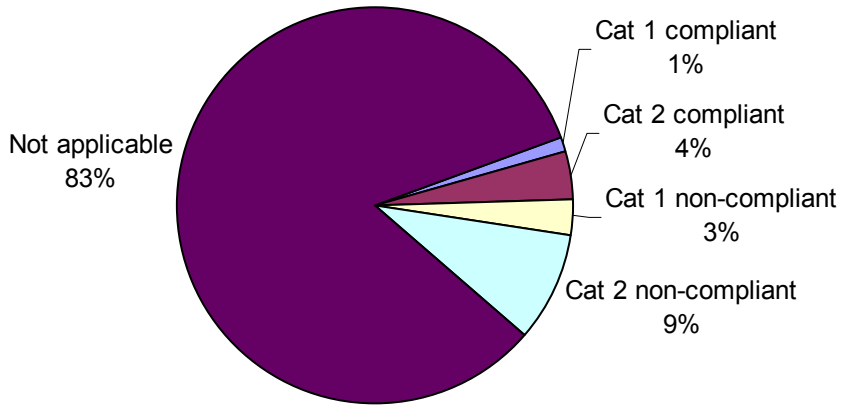
Performance criteria P5 requires RCBs with air-handling systems that provide conditioned air to more than one smoke compartment to have adequate protection against the spread of smoke across smoke compartments and evacuation routes in the event of a fire.

P5 only applies to 17 per cent (154) of RCBs, and of these buildings 76 per cent are non-compliant.

Table 13 – Compliance with P5

	No. of RCBs with compliant smoke hazard management	No. of RCBs with non-compliant smoke hazard management	No. of RCBs for which P5 not applicable
Category 1	11	31	123
Category 2	26	86	649
TOTAL	**37**	**117**	**772**
As a percentage of the total number of buildings surveyed (926)	4%	13%	83%

Figure 7 - RCB compliance with P5, *Smoke hazard management*



P6 – Portable fire extinguishers

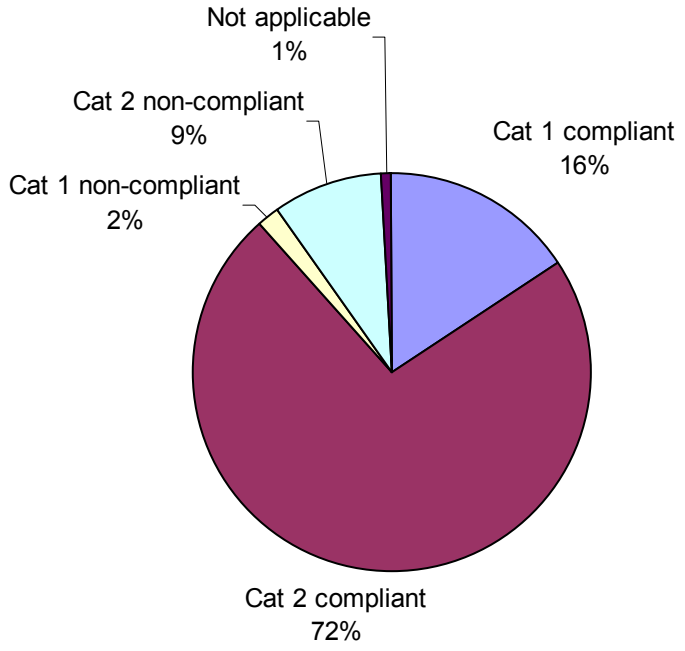
Performance criteria P6 provides that RCBs must have fire extinguishers provided to allow occupants to undertake initial attack on a fire.

P6 does not apply to the one per cent of RCBs with a floor area of less than 300 square metres. Of the 918 buildings for which P6 is relevant, 90 per cent are compliant and 10 per cent are non-compliant.

Table 14 – Compliance with P6

	No. of RCBs with compliant portable fire extinguishers	No. of RCBs with non-compliant portable fire extinguishers	No. of RCBs for which P6 not applicable
Category 1	147	17	1
Category 2	671	83	7
TOTAL	**818**	**100**	**8**
As a percentage of the total number of buildings surveyed (926)	88%	11%	1%

Figure 8 - RCB compliance with P6, *Portable fire extinguishers*



P7 – Fire fighting water supply

Performance criteria P7 provides that an unsprinklered RCB is required to have a fire fighting water supply provided to facilitate the needs of the fire brigade in the event of a fire.

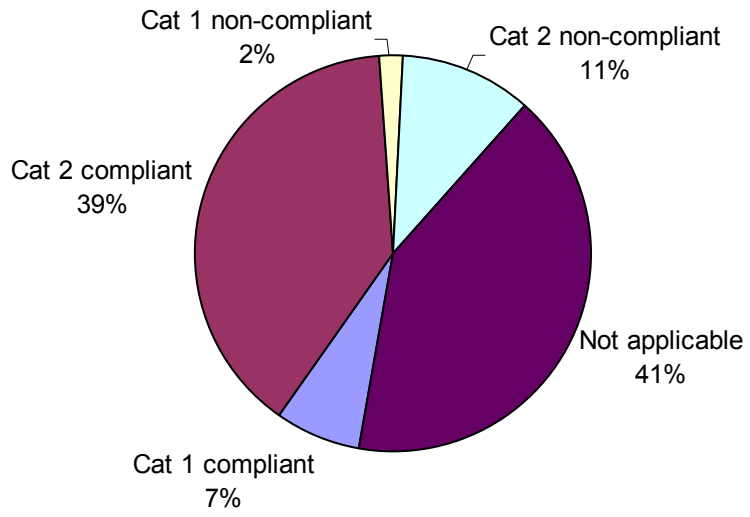
Forty-one per cent of RCBs are not required to comply with P7 because they are either sprinkler protected, or have a floor area of 500 square metres or less, or there is no fire brigade with a structural fire fighting capacity available to attend a building fire within 30 minutes of being notified.

Of the 541 RCBs which are required to satisfy P7, 78 per cent are compliant.

Table 15 – Compliance with P7

	No. of RCBs with compliant fire fighting water supply	No. of RCBs with non-compliant fire fighting water supply	No. of RCBs for which P7 not applicable
Category 1	63	21	81
Category 2	361	96	304
TOTAL	**424**	**117**	**385**
As a percentage of the total number of buildings surveyed (926)	46%	13%	41%

Figure 9 - RCB compliance with P7, *Fire fighting water supply*



P8 – Emergency lighting

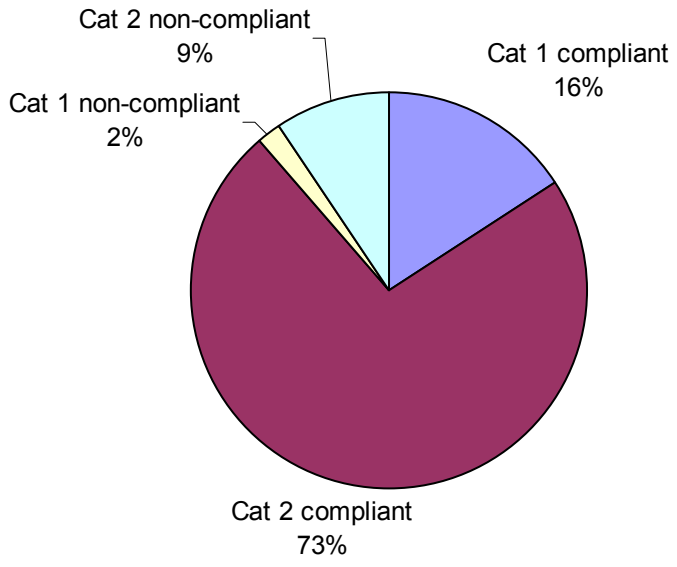
Performance criteria P8 provides that all RCBs are required to have a system of suitable lighting for safe evacuation in the event of fire or emergency.

The majority (89 per cent) of RCBs surveyed were compliant with P8.

Table 16 – Compliance with P8

	No. of RCBs with compliant emergency lighting	No. of RCBs with non-compliant emergencylighting
Category 1	147	18
Category 2	674	87
TOTAL	**821**	**105**
As a percentage of the total number of buildings surveyed (926)	89%	11%

Figure 10 - RCB compliance with P8, *Emergency lighting*



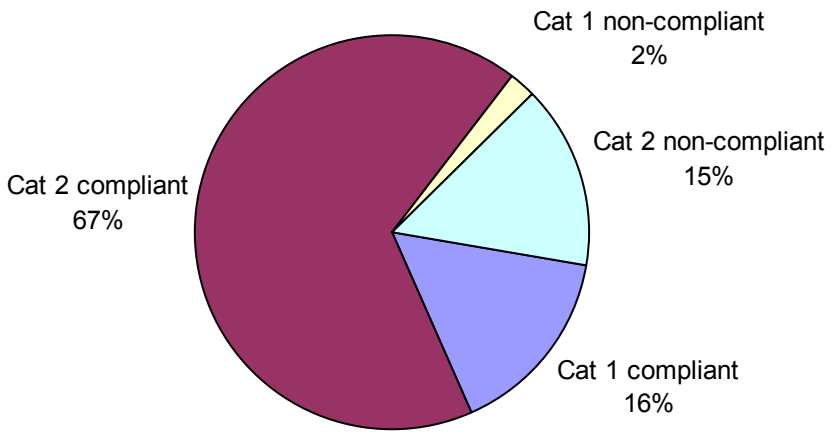
P9 – Exit signage

Performance criteria P9 provides that all RCBs are required to have a system of suitable signs or other means of identification for safe evacuation in the event of fire or emergency. The system must be able to operate for a sufficient period of time to allow the occupants to safely evacuate in the event of a power failure of the main lighting system. Seventeen per cent of RCBs are non-compliant with P9, while the majority (83 per cent) are compliant.

Table 17 – Compliance with P9

	No. of RCBs with compliant exit signage	No. of RCBs with non-compliant exit signage
Category 1	144	21
Category 2	622	139
TOTAL	**766**	**160**
As a percentage of the total number of buildings surveyed (926)	83%	17%

Figure 11 - RCB compliance with P9, *Exit signage*



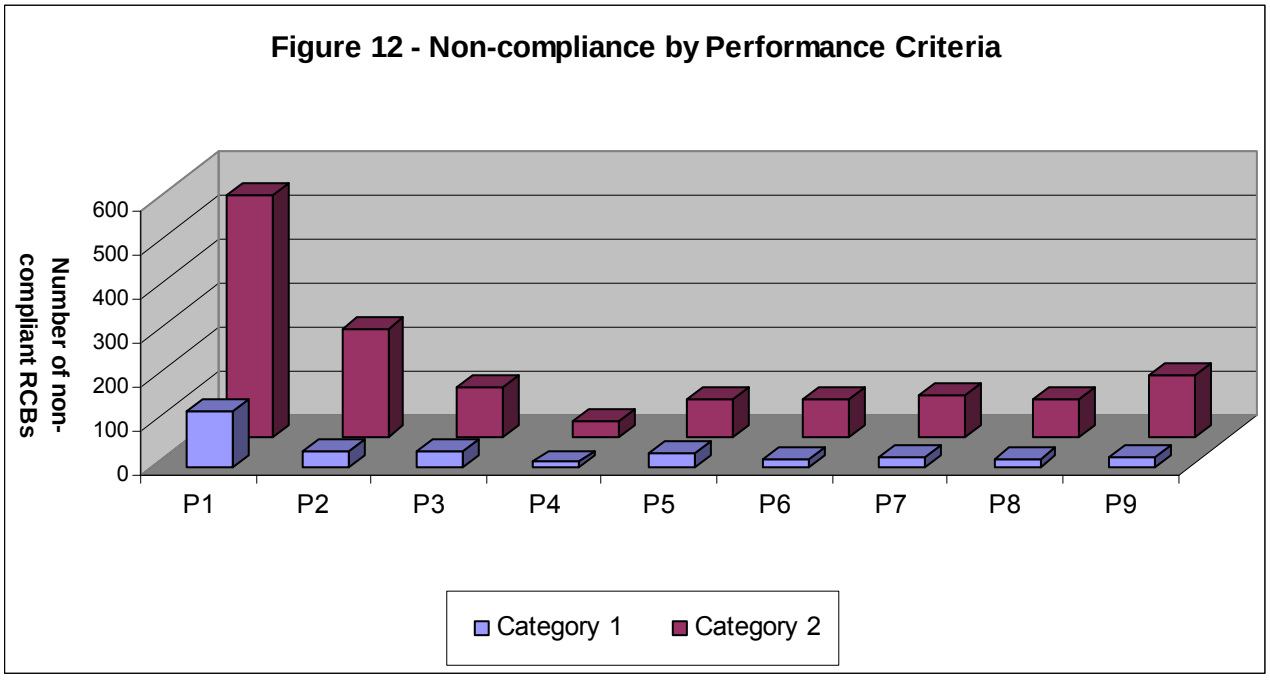
Non-compliant buildings

Of the 784 RCBs that do not comply with the QDC 2.3, 140 are Category 1 buildings and 644 are Category 2 buildings.

Table 18 and *Figure 12* show the level of non-compliance with each performance criteria as a percentage of the total number of non-compliant Category 1 buildings and Category 2 buildings i.e. compliant buildings are not included in these percentages.

Table 18 – Non-compliance by performance criteria

	Category 1		Category 2	
	No.	% (of 140)	No.	% (of 644)
P1 – fire suppression, smoke compartmentation and evacuation support	127	91%	547	85%
P2 – early warning systems	36	26%	245	38%
P3 – emergency escape	37	26%	113	18%
P4 – high risk fire areas	10	7%	36	6%
P5 – smoke hazard management	31	22%	86	13%
P6 – portable fire extinguisher	17	12%	83	13%
P7 – fire fighting water supply	21	15%	96	15%
P8 – emergency lighting	18	13%	87	14%
P9 – exit signage	21	15%	139	22%



P1 non-compliance

The highest level of non-compliance is associated with performance criteria 1.

Of the 140 non-compliant Category 1 RCBs, 127 fail to comply with criteria P1 – fire suppression, smoke compartmentation and evacuation support.

Of these buildings, 46 have sprinkler systems installed but do not comply with other requirements such as the building's management procedure, minimum support ratio and/or smoke compartmentation.

The remaining 81 buildings have either a partial or no sprinkler system installed and will require installation of a full sprinkler system by 1 September 2014 in order to comply with the relevant acceptable solution.

Category 2 RCBs may either install a sprinkler system to achieve compliance or use other acceptable solutions.

Of the 644 non-compliant Category 2 RCBs, 547 fail to comply with criteria P1; 379 buildings have either a partial or no sprinkler system installed.

Although sprinkler installation is not mandatory in Category 2 RCBs, owners may select this as the most cost-effective solution to achieve compliance with P1.

Table 19 – Number of non-compliant RCBs with sprinkler systems installed

	Number with full sprinkler system installed	Number with only part sprinkler system installed	Number without sprinklers installed	Total Number
Category 1 compliant with A1	13	0	0	13
Category 1 non-compliant with A1	46	3*	78*	127
Category 2 compliant with A1	50	1	46	97
Category 2 non-compliant with A1	168	7**	372**	547
Total	**277**	**11**	**496**	**784**
As a percentage of the total number of non-compliant buildings (784)	35%	2%	63%	

*These RCBs require installation of a full automatic sprinkler system in accordance with acceptable solution A1.

**Owners of these RCBs have the option to install an automatic sprinkler system in order to comply with acceptable solution A1.

Residents in RCBs requiring sprinklers

Of RCB residents, 9340 residents live in 277 non-compliant buildings that already have a full sprinkler system installed (2915 in Category 1 and 6425 in Category 2). This represents 30 per cent of the total usual number of residents in all RCBs.

Of RCB residents, 732 (two per cent) live in the 11 non-compliant partially sprinklered RCBs (272 in Category 1 and 460 in Category 2).

The remaining 496 non-compliant buildings that do not have a sprinkler system installed (3992 in Category 1 RCBs and 11 539 in Category 2 RCBs) house 15532 residents (50 per cent).

Figure 13 - Distribution of residents in existing RCBs

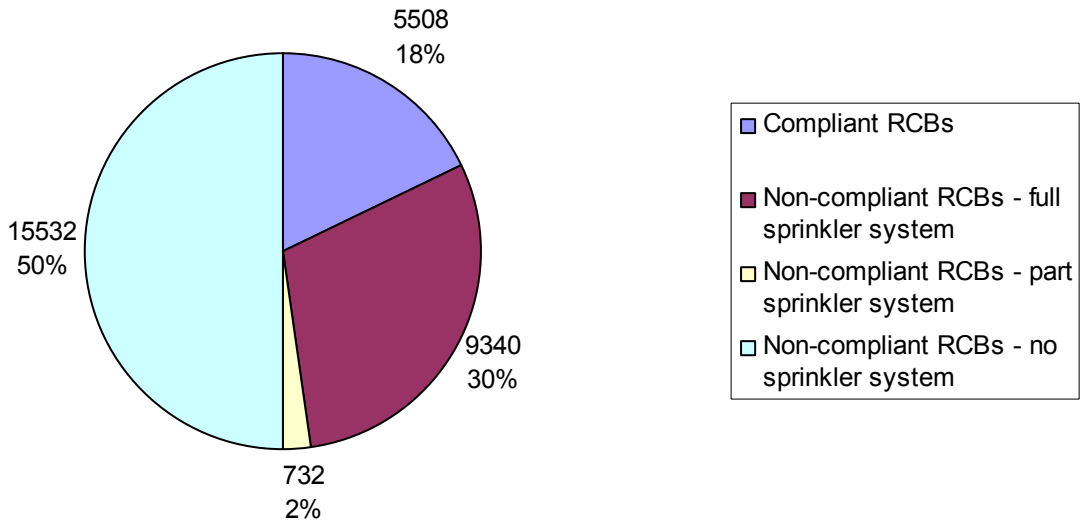
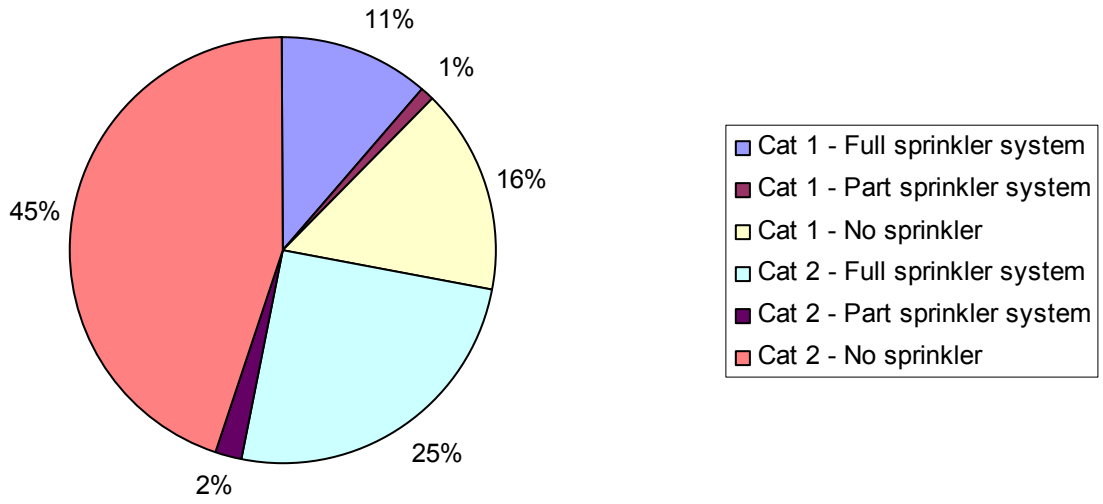


Table 20 – Number of residents in non-compliant RCBs by category and sprinkler type

	Usual no. of residents		Usual no. of residents
Non-compliant Category 1 RCBs	7180	Full sprinkler system	2915
		Part sprinkler system	272
		No sprinkler system	3993
Non-compliant Category 2 RCBs	18 424	Full sprinkler system	6425
		Part sprinkler system	460
		No sprinkler system	11 539
Total	**25 604**		

Figure 14 - Residents in non-compliant RCBs by category and sprinkler type



Distribution of Category 1 RCBs requiring sprinklers

The Category 1 RCBs that require sprinklers to comply with the relevant acceptable solution are distributed across 17 local government areas, with 71 located in the South East Queensland (SEQ) region and the remaining 10 in other regional areas.

Table 21 – Distribution of Category 1 RCBs requiring sprinklers

	Number of Category 1 RCBs requiring sprinklers
South East Queensland	**71**
Brisbane City	36
Gold Coast City	16
Ipswich City	1
Logan City	4
Moreton Bay Regional	2
Toowoomba Regional	3
Redland City	4
Scenic Rim Regional	2
Sunshine Coast Regional	3
Regional areas	**10**
Barcaldine Regional	1
Gladstone Regional	1
Gympie Regional	2
Mackay Regional	1
North Burnett Regional	1
Rockhampton Regional	2
South Burnett Regional	1
Townsville City	1
TOTAL	**81**

The 81 unsprinklered Category 1 RCBs collectively house 4265 residents – an average of 53 residents per RCB. The number of residents in individual unsprinklered Category 1 RCBs ranges between eight and 180.

The 10 unsprinklered Category 1 RCBs located outside SEQ collectively house a total of 444 residents, an average of 45 residents per building. Two of these 10 RCBs are the single concern of the owner.