

1200 BUILDINGS MELBOURNE RETROFIT SURVEY

2015



CITY OF MELBOURNE



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Disclaimer

This report is provided for information and it does not purport to be complete. While care has been taken to ensure the content in the report is accurate, we cannot guarantee it is without flaw of any kind. There may be errors and omissions or it may not be wholly appropriate for your particular purposes. In addition, the publication is a snapshot in time based on historic information which is liable to change. The City of Melbourne accepts no responsibility and disclaims all liability for any error, loss or other consequence which may arise from you relying on any information contained in this report.

A MESSAGE FROM THE CITY OF MELBOURNE

Melbourne is one of the most innovative and progressive cities in the world when it comes to the sustainability of our buildings.

We have the largest concentration of Green Star rated buildings in Australia and improving the energy and water consumption of our existing, older buildings remains an aspiration for us.

This is why the City of Melbourne initiated its 1200 Buildings Program in 2010: to provide commercial building owners with information and links to incentives and grants to help them to upgrade the energy and water efficiency of their assets.

In 2008, Deloitte's research showed us that if we could reach our goal of retrofitting 1200 buildings to 4.5 Star NABERS by 2020, then we would get an economic uplift of \$2 billion and create 8000 'green' jobs.

This 2015 Melbourne Retrofit Survey, our third (other surveys conducted in 2011 and 2013), shows that we are almost three quarters of the way in achieving our target number of buildings.

So far, 541 buildings have undertaken retrofit work and 315 are planning a retrofit. That's 856 of our target in just five years and means that around 20 per cent of Melbourne's commercial office stock has been retrofitted.

The level of retrofit activity has increased significantly since the 2013 survey, accelerating from 25 per cent to 37 per cent in just two years. Much of the retrofit activity to date has improved the efficiency of lighting in these buildings. We are confident this experience of retrofitting will continue to drive building owners to undertake even more action to deliver our ultimate target of 4.5 Star NABERS across 1200 buildings by 2020.

A better performing building will attract and retain tenants, which improves asset value and rental return. Higher performing buildings often provide better air quality, more stable temperatures and an improved indoor environment for tenants, which has been shown to drive positive productivity outcomes.

This document provides a snapshot of the great work that many building owners are undertaking to improve their buildings. The insightful research will help building owners, policy makers and industry to increase the uptake of retrofits and develop new solutions for energy and water savings.

The 1200 Buildings Program has been a major success for our environment, businesses and the people who work in these buildings. The City of Melbourne remains committed to continuing this work with building owners, managers, tenants and the broader property sector to ensure Melbourne continues to be a bold, inspirational and sustainable city in 2020 and beyond.



A handwritten signature in black ink that reads "Robert Doyle". The signature is written in a cursive, slightly slanted style.

Robert Doyle
Lord Mayor



A handwritten signature in black ink that reads "Arron Wood". The signature is written in a cursive, slightly slanted style.

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Chair Environmental
portfolio



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VLT

KEY FINDINGS

Level of retrofit activity 2010-2015 (inclusive)

- Since 2010, 37 per cent, or 541 of the buildings surveyed had retrofitted. Comparing the level of retrofit activity between 2008 and 2013 (25 per cent) and 2010 and 2015 (37 per cent) there has been some acceleration in retrofit activity.
- The incidence of retrofitting in the past five years was significantly higher amongst buildings that were owned by corporate entities, where 55 per cent had undertaken a retrofit since 2010.

Level of retrofit activity – current (2015)

- Eleven per cent of buildings were currently being retrofitted. If this percentage is extrapolated to include the entire sample of buildings (1,465), 166 buildings were undertaking a retrofit at the time of the survey. As only five per cent of buildings sampled were undertaking a retrofit during the 2013 survey, this suggests a significant increase in retrofitting over the last couple of years.
- The incidence of retrofitting in 2015 was significantly higher in buildings owned by corporate entities with 23 per cent currently undertaking a retrofit. If extended to the entire sample, this number extrapolates to 25 buildings.

Level of retrofit activity – future

- Twenty-one per cent or 315 of the buildings surveyed claimed they are intending to undertake a retrofit within the next five years. This is a significant increase on the 2013 result where 16 per cent of buildings flagged an intention to undertake a retrofit within that timeframe.
- Future intention to retrofit was higher among 'Corporate Owners' (29 per cent) compared with 'Private Owners' (15 per cent). However, because there are more privately owned buildings, 87 are predicted to retrofit compared with 32 corporately owned buildings.

Type of retrofit activity

- Lighting upgrades and chiller upgrades/replacement of air conditioning equipment were the most common current, past and planned retrofit activities. Lighting upgrade was also the most common of retrofit activity in 2013.
- Five per cent of the buildings surveyed claimed they were intending to undertake a minor retrofit (one retrofit action) within the next five years, significantly less than recorded the 2013 survey (9 per cent). Consequently, while there is evidence that retrofit activity has increased since 2013, minor retrofit activity appears to have declined.

Level of tune-up activity

- Since the 2013 Retrofit Survey the level of tune-up activity has increased from 4 to 14 per cent for currently tuning and from 21 to 26 per cent for past tune-ups.

Drivers and barriers to retrofitting

- 'Replacing a broken asset' was the most common motivation retrofit (37 per cent), followed by 'to minimise energy consumption' (33 per cent). These two motivations were also the commonly cited reasons to retrofit in the 2013 survey.
- The majority of respondents (68 per cent) believed access to finance was no/minor barrier while a quarter (25 per cent) considered access to finance to be a major/considerable barrier.
- The main issues cited that prevent improvement in energy efficiency are the cost (16 per cent), a requirement by building owner representatives to obtain the owners' approval (13 per cent) and the buildings age/heritage status (7 per cent).

- Sixty-nine per cent of respondents had either not made any changes (59 per cent) or were unaware of any changes (10 per cent) to internal policies to improve the management of energy and water consumption. Of those who had made changes (20 per cent), close to half (9 per cent of all respondents) had started a monitoring and reporting regime.
- Those in the corporate segment were significantly more likely to have made changes to internal policies (49 per cent) compared with respondents in general (20 per cent).
- While only 15 per cent of all buildings had received a NABERS Energy Rating, 68 per cent of the corporate segment had received a rating.

Funding

- The majority of most recent retrofits were self-funded (83 per cent). This result was virtually identical to the results of the 2013 survey which cited 81 per cent of respondents self-funding.

1200 Buildings Program Evaluation

- Awareness of the 1200 Buildings Program increased marginally from 40 per cent in 2013 to 42 per cent in 2015. Awareness was significantly higher in the corporate segment (64 per cent).
- Those aware of the 1200 Buildings Program were most likely to have found out about the program via a City of Melbourne newsletter (17 per cent), a brochure/letter in the mail (15 per cent) or an industry association (11 per cent).
- A clear majority of respondents (71 per cent) believed they had access to the support needed to improve energy and water efficiency in their buildings. Those in the corporate segment were significantly more likely to agree (87 per cent).



PROJECT BACKGROUND

Objectives

The commercial sector of Melbourne generates around 53 per cent of the municipality's emissions, mostly in commercial buildings. The 1200 Buildings Program aims to encourage the retrofitting of commercial buildings and offers building owners and their representatives access to educational information and links to incentives and grants when they become available. The program also offers environmental upgrade finance to improve access to finance, when required.

The Melbourne Retrofit Survey 2015 provides City of Melbourne and key partners with valuable data and insights into the existing building sector to inform the ongoing development and delivery of the 1200 Buildings Program. This latest survey builds on a body of research into retrofit potential by commercial buildings including the 2011 and 2013 retrofit surveys.

The primary objective of this and previous surveys is to determine the level of retrofit activity in the municipality of Melbourne by asking building owners and their representatives (building managers, facilities managers) about current and past retrofits, and their plans for future retrofits.

Secondary objectives include seeking to understand:

- drivers and barriers to retrofitting
- the level of interest in decentralised energy (i.e. solar panels)
- the level of awareness of the 1200 Buildings Program.

Additional questions in this year's survey pertain to evaluation of the 1200 Buildings Program.

Methodology

The 2011 and 2013 versions of the 1200 Buildings Retrofit Survey were conducted exclusively by telephone. The 2015 methodology was extended to include hard copy and online self-completion surveys in addition to telephone interview options.

Participants that were contacted by phone were offered the option of completing the survey with the surveyor on the phone or online. For building owners with telephone numbers not obtainable by City of Melbourne a self-completion hard copy questionnaire was sent by post.

City of Melbourne identified 1,465 buildings in scope for the 2015 survey and interviews were conducted for 387 or 26 per cent.

Responses by mode

PHONE	ONLINE	POST	TOTAL
71%	21%	8%	100%

Weighting

Based on the 1,465 buildings in scope, the population characteristics were as follows:

OWNER CATEGORY	
Corporate	7.58% (111 buildings)
Private	38.36% (562 buildings)
Owners' corporation	13.04% (191 buildings)
Other	8.26% (121 buildings)
Unsegmented	32.76% (480 buildings)
TOTAL	1,465 Buildings

BUILDING PROFILE	
Office	84.91% (1244 buildings)
Mixed use	11.47% (168 buildings)
Accommodation sector	3.62% (53 buildings)
TOTAL	1,465 Buildings

Overall, the characteristics of the buildings surveyed were largely representative of the target group in terms of owner characteristics and building profile. However, where a building or owner category is over or under represented, the procedure of weighting ensures representativeness.

For example, 11 per cent of interviews were conducted with corporate owners, which slightly over-represents the 7.5 per cent of corporate owners in the City of Melbourne database. The weighted survey results are adjusted so corporate owners are not over-represented.

The 2015 survey included a new building profile called hotel/motel, representing the accommodation sector. Note, the small sample size of 3.62 per cent represented by 53 buildings.

Description of owner characteristics

Three ownership profiles form the basis of survey reporting. These were chosen because they represent 89 per cent of the net lettable area (NLA) of Melbourne's building stock that contains office space (according to the 2009 segmentation study).

- 42 per cent of NLA consists of corporate owners representing institutional investors,

- 24 per cent of NLA consists of individual, family owned, small business or investor, referred to in this report as private owners (and also referred to by industry as the 'mid-tier'),
- 23 per cent of NLA consists of owners corporation owners representing private owners with strata titles

- 11 per cent of NLA consists of the remaining ownership profiles and are referred to as 'other'. This group includes government, out of government, professional association, not for profit and business.

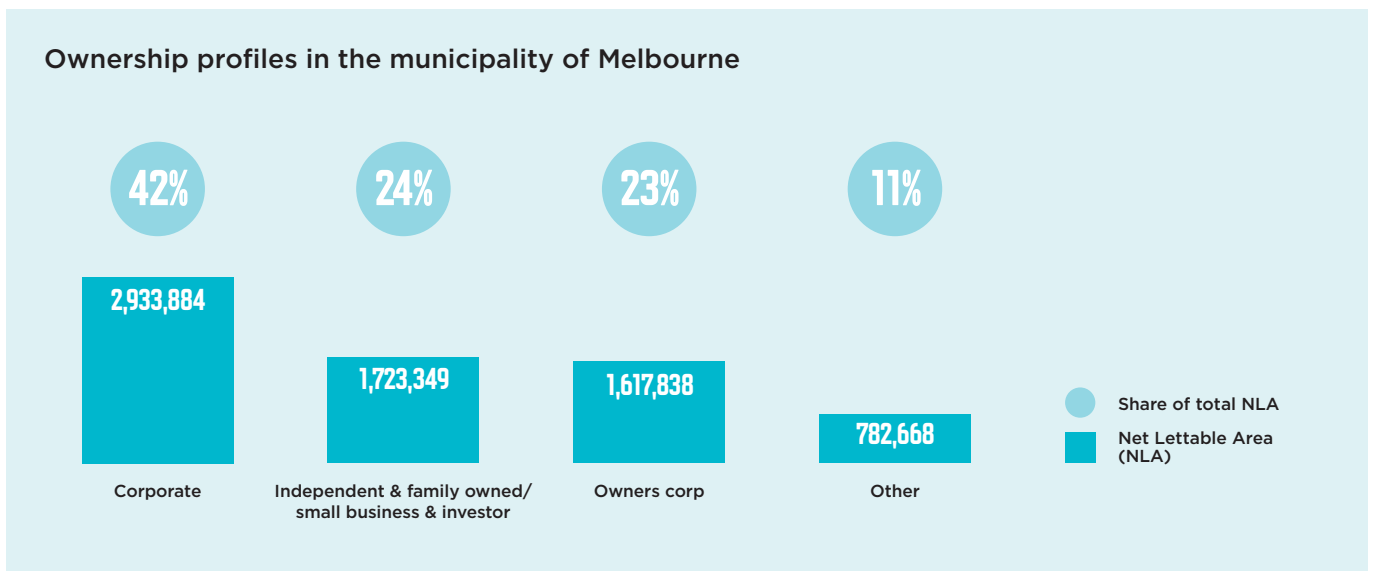


Figure 1 Source: 1200 Buildings Program Segmentation Study 2009

Note that of the 387 buildings which were surveyed 119 (or 31 per cent) did not have an ownership classification and these are referred to as 'unsegmented'.

Of the identifiable profiles, the largest segment by building number in this survey is the private segment although the corporate segment is greater by NLA (see Figure 1).

In addition to aligning survey results to ownership profiles, the survey also matches results to building type. Three groups were identified:

- Office buildings - buildings defined as commercial and containing 70 to 100 per cent office use. This segment comprised over 85 per cent of the sample

- Mixed use buildings - mixed use buildings comprise commercial buildings containing one to 69 per cent office use
- Hotel/motel - reported on for the first time in this survey but note the small sample size.

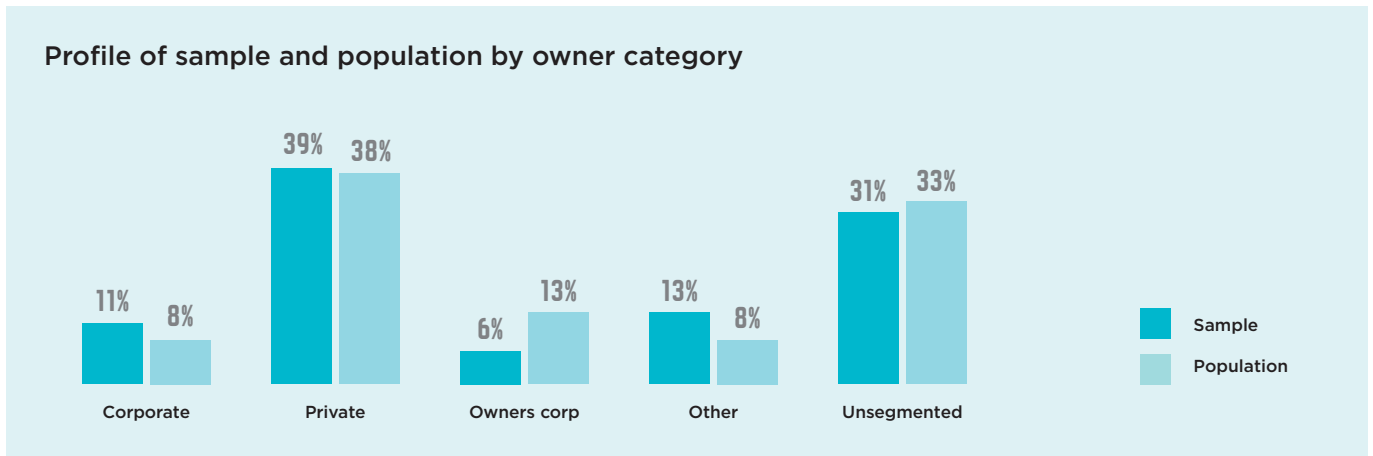


Figure 2 Total unweighted sample = 387 of 1,465 buildings

Description of building profile

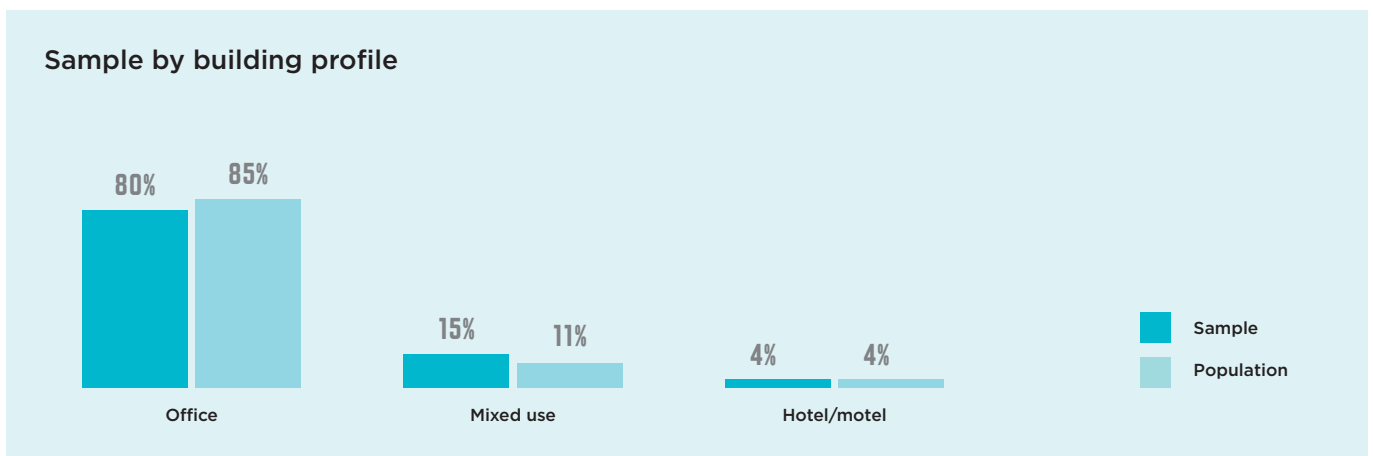


Figure 3 Total unweighted sample = 387 of 1,465 buildings

Interpretation of owners corporation and hotel/motel segments

As only 24 owners corporation buildings and 17 hotels/motels were sampled, results for these two segments should be treated as indicative only.

Interpretation of statistical difference

When reference is made in this report to a 'significant' difference, a 90 per cent confidence level has been applied. This means that there is a 90 per cent chance that there is a real difference and is not statistical variation.

When conducting tests for statistical significance for ownership or building categories in this report, the individual categories are compared against the entire sample.

The table below lists margin of error by various sample sizes. For example, the true value of a survey estimate of 20 per cent based on a sample of 333 (the office segment) will be within the range of 15.7 per cent to 24.3 per cent.

Definition of retrofit and tune-up

A retrofit is defined as the implementation or upgrade of two or more individual retrofit items/actions. Retrofit actions include lighting, boiler and chiller upgrades and require capital expenditure.

By contrast, minor retrofits are defined as a single retrofit item/action only (and require capital expenditure).

Tune-up refers to non-capital works that improve the function of existing equipment/plant rather than replacement or upgrade of that equipment/plant.

There were occasions where a retrofit activity was cited even though the respondent believed they were describing a tune-up. When this occurred, the response was counted in the retrofit rather than tune-up section of the report.

Precision of proportions in this report

	SEGMENT	SAMPLE SIZE	+/- ASSUMING RESULT OF 20%	+/- ASSUMING RESULT OF 50%
Within the report, small subgroups result in small sample sizes for some questions. Interpreting sample sizes under 30 should be undertaken with caution and should be taken as directional in nature only.	Corporate	44	12.2	15.3
	Private	149	6.4	8.0
	Owners corp	24	15.8	20.0
	Other	51	11.0	13.8
	Unsegmented	119	7.3	9.1
	Office	333	4.3	5.5
	Mixed use	37	10.7	13.4
	Hotel/motel	17	18.1	28.0
	TOTAL	387	4.0	5.0

Sample characteristics

Q What is your role?

The majority of those participating in this research were either building owners or building/property managers. Compared with the 2013 survey, the 2015 sample comprised a greater proportion of building/property managers and less respondents from the 'other' category.

Q How long have you owned the building/s?

The large majority of buildings reported on in this survey had been owned for at least six years. Building owners were more likely than building managers to be aware of how long the building had been owned (12 per cent versus less than one per cent).

Q For how much longer do you plan to own the building/s?

About half of those surveyed believed the building was likely to still be owned by the current owner in 10 years, although there was substantial uncertainty, especially amongst owner's representatives (41 per cent).

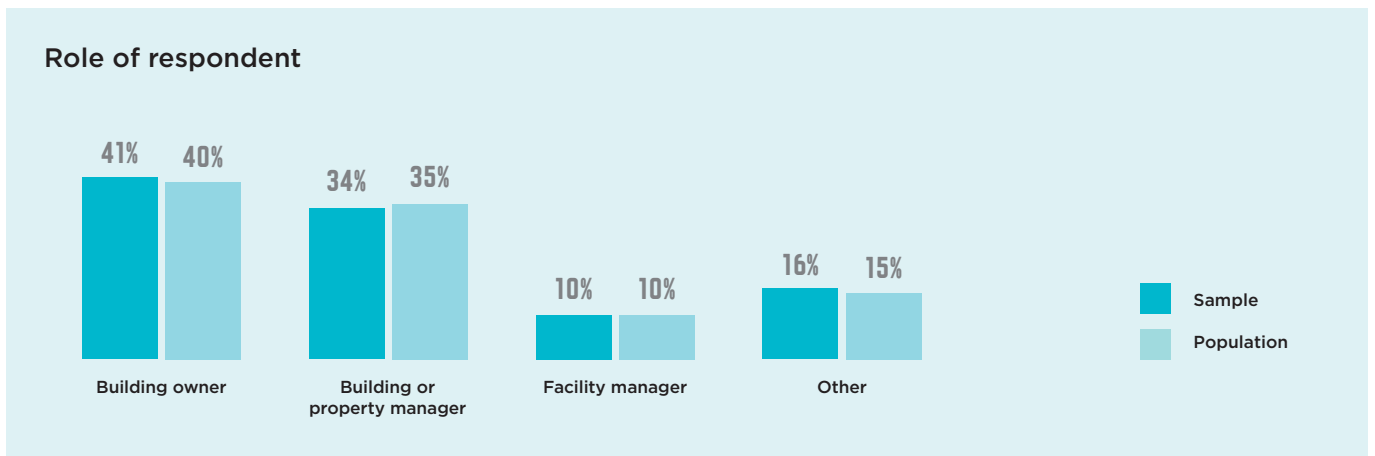


Figure 4 Total unweighted sample in 2015 = 333

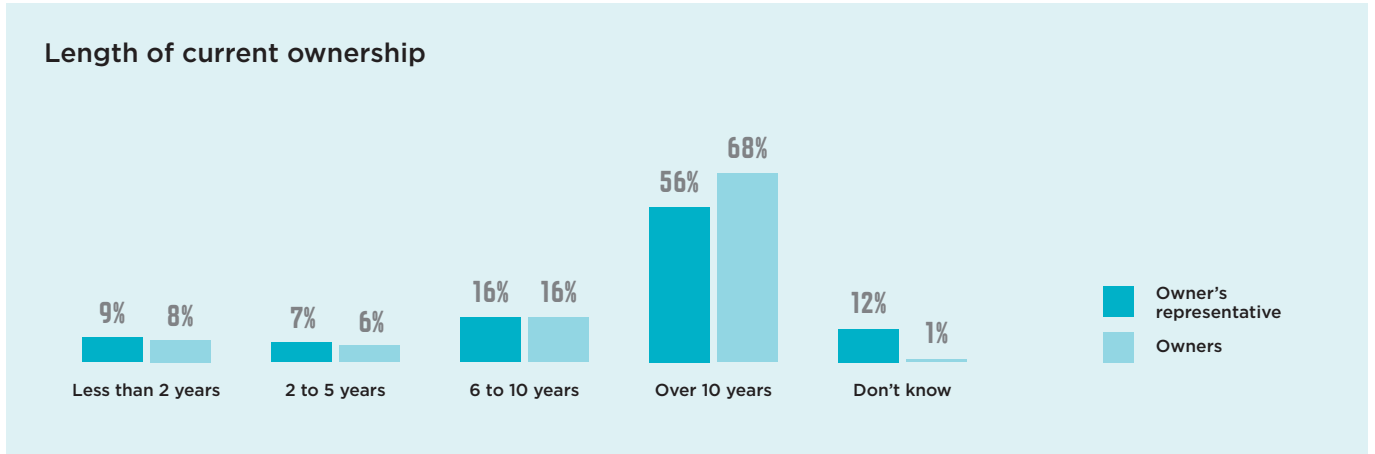


Figure 5 Owners representatives = 250, Owners = 137

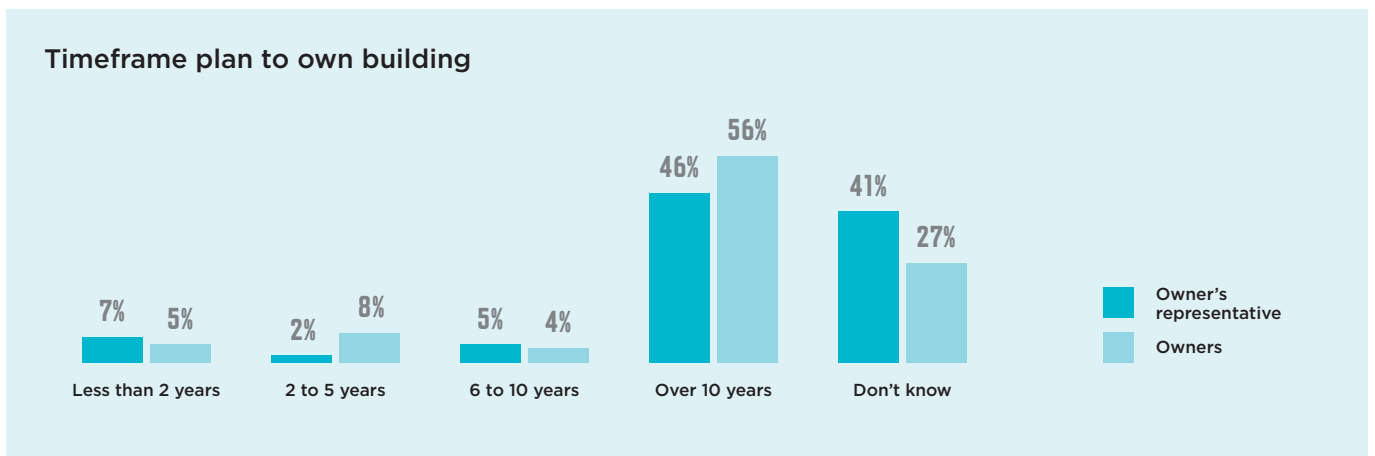


Figure 6 Owners representatives = 250, Owners = 137

RETROFIT ACTIVITY

Retrofit activity – current

Q Are you currently retrofitting the building/s?

Eleven per cent or 52 buildings surveyed were currently retrofitting. If extrapolated over the entire sample, 166 buildings were currently retrofitting. At the time of the 2013 survey only five per cent of buildings sampled were undertaking a retrofit. This doubling is a significant increase in retrofit activity.

The incidence of retrofitting in 2015 was significantly higher in buildings that were owned by corporate entities, where 23 per cent were undertaking a retrofit. If extended to the entire sample, the number extrapolates to 25 buildings.

One hundred and twenty four of the 166 buildings being retrofitted, were classed as office buildings. There was not a significant difference in the proportions of office or mixed use buildings being retrofitted however a greater proportion of the hotel/motel segment were being retrofitted (35 per cent) but note the small sample size.

Ninety-two per cent of the retrofit actions cited by owners and their representatives were lighting upgrades followed by chiller upgrade/replacement of a/c unit (49 per cent), installation/upgrade to building management system (BMS 20 per cent) and boiler upgrade (17 per cent).

Lighting upgrades were also the most common action in the 2013 survey and increased from 83 per cent in 2013 to 92 per cent in 2015.

Chiller upgrades remain largely unchanged in 2015 (49 per cent compared with 54 per cent in 2013). However, the frequency of other retrofit actions have fallen since 2013:

- BMS upgrades – 59 per cent in 2013, 20 per cent in 2015
- boiler upgrades – 27 per cent in 2013, 17 per cent in 2015
- metering/sub-metering – 59 per cent in 2013, 13 per cent in 2015

Although five per cent of current retrofits involved solar PV panels, this represents just three respondents. Of those three buildings, two had 60kW systems, and the third did not know the size of their building's system.

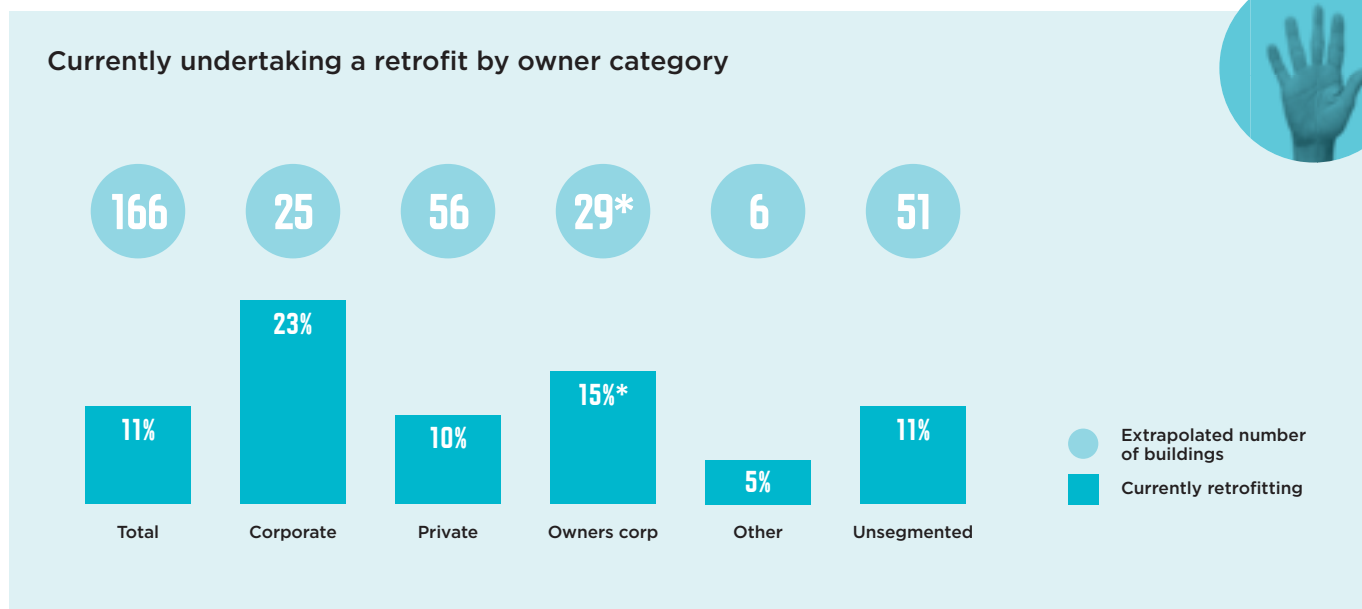


Figure 7 Total = 387; Corporate = 44, Private = 149, OC = 24, Other = 51, Unsegmented = 119
 * Small sample



Currently undertaking a retrofit by building profile

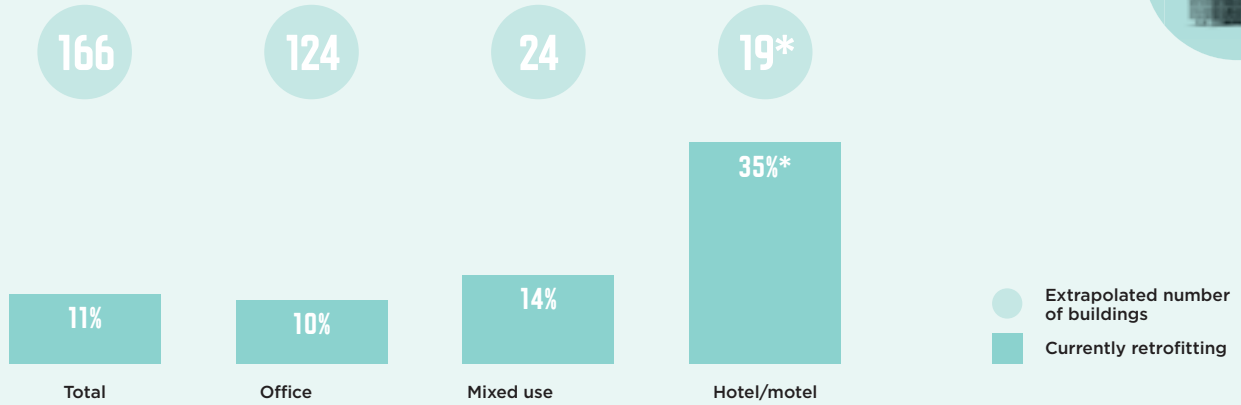


Figure 8 Total = 387; Office = 333, Mixed use = 37, Hotel/motel = 17
* Small sample



Retrofit actions currently implementing

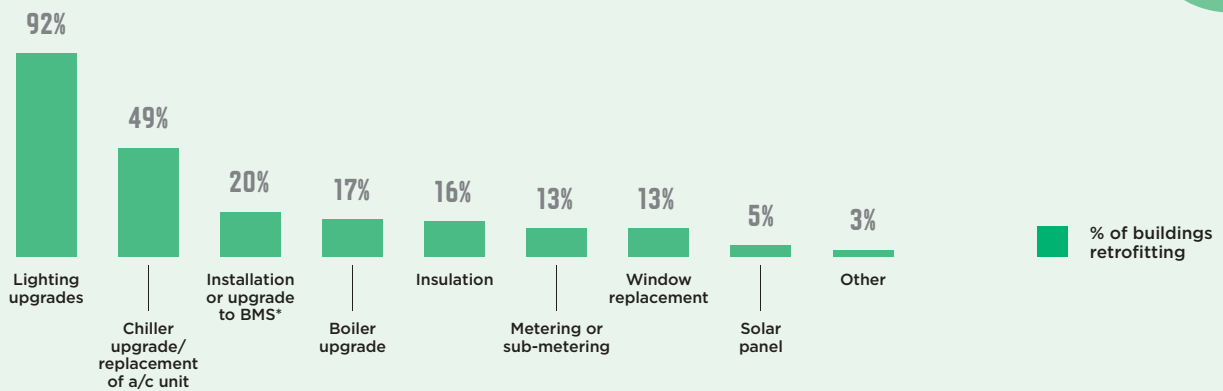


Figure 9 Total = 52
*building management system

Retrofit activity – past to present (2010 – 2015)

Q Are you currently or have you undertaken a retrofit since 2010?

Since 2010, 37 per cent or 156 buildings surveyed were undertaking or had completed a retrofit. If extrapolated over the entire number of buildings, 541 buildings were retrofitting or had completed a retrofit. Comparing the level of retrofit activity between 2008 and 2013 (25 per cent) and between

2010 and 2015 (37 per cent) there has been some acceleration in retrofit activity.

The proportion of buildings retrofitting in 2015 was significantly higher among corporately owned buildings, with 55 per cent having retrofitted since 2010 compared with 36 per cent in privately owned buildings. If extended to the entire sample, the number extrapolates to 61 corporate buildings.

Around a third of both office and mixed use buildings had completed, or were currently undertaking, a retrofit. When extrapolated this represents 444 office and 57 mixed use buildings. In contrast around three quarters of hotel/motels

were retrofitting or had since 2010 (40 buildings when extrapolated), though due to the small sample size this result should be treated as indicative only.

As was the case for the most recent retrofit, lighting upgrades was the action most likely to have been undertaken since 2010 (86 per cent) followed by chiller upgrade/replacement of a/c unit (57 per cent), installation/upgrade to BMS (25 per cent) and boiler upgrade (19 per cent).

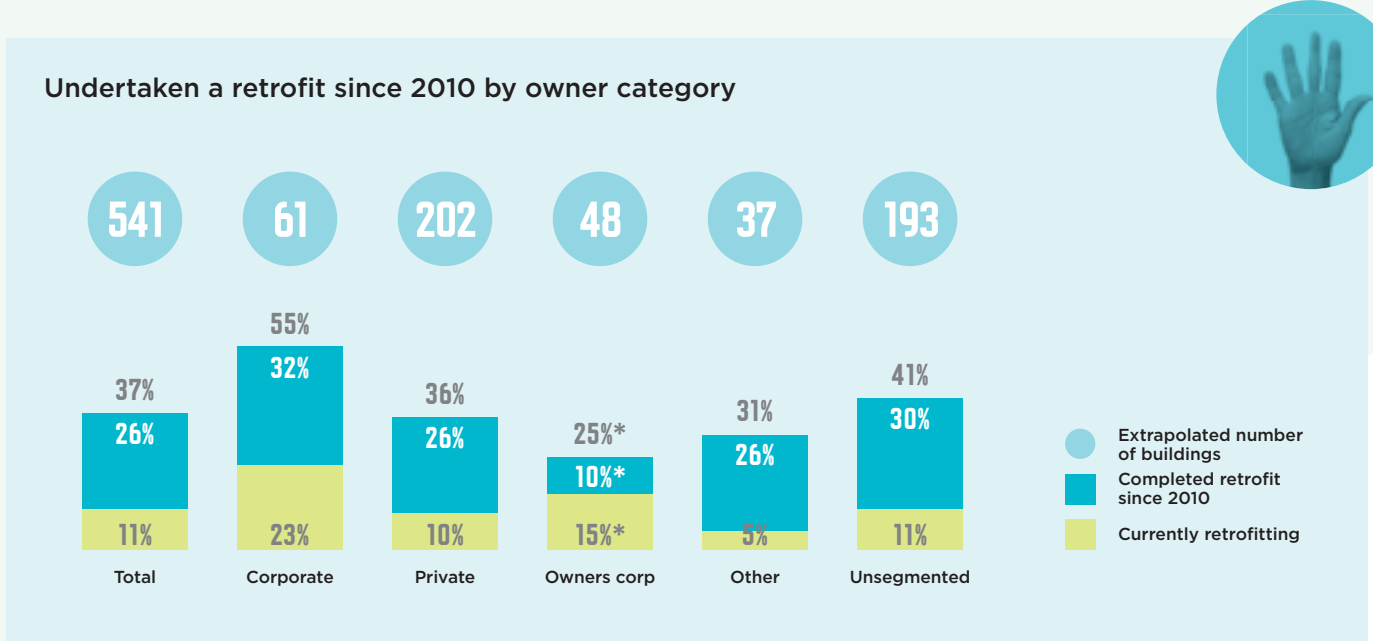


Figure 10 Total = 387 Corporate = 44, Private = 149, OC = 24, Other = 51, Unsegmented = 119
 * Small sample



Undertaken a retrofit since 2010 by Building Profile

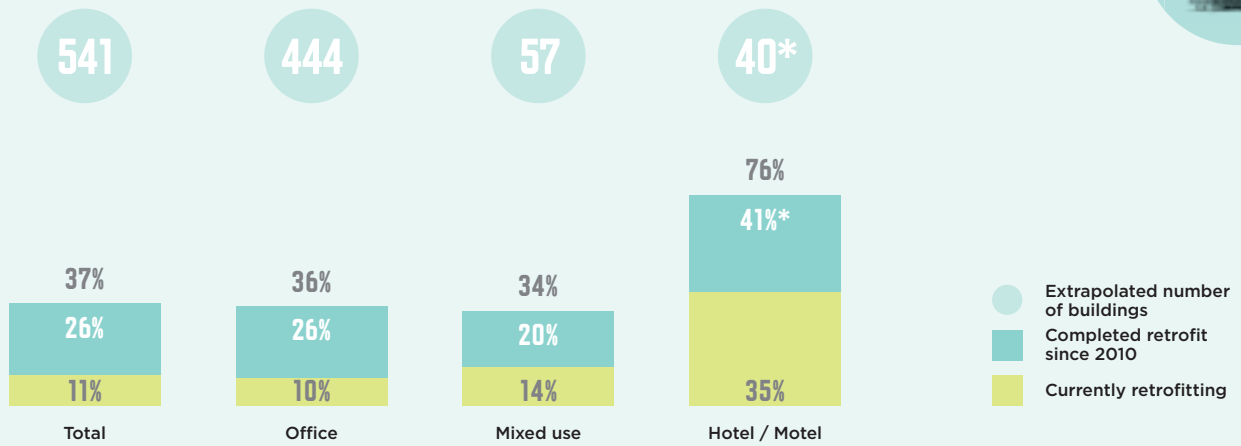


Figure 11 Total = 387, Office = 333, Mixed Use = 37, Hotel/motel = 17

* Small sample



Retrofit actions undertaken since 2010

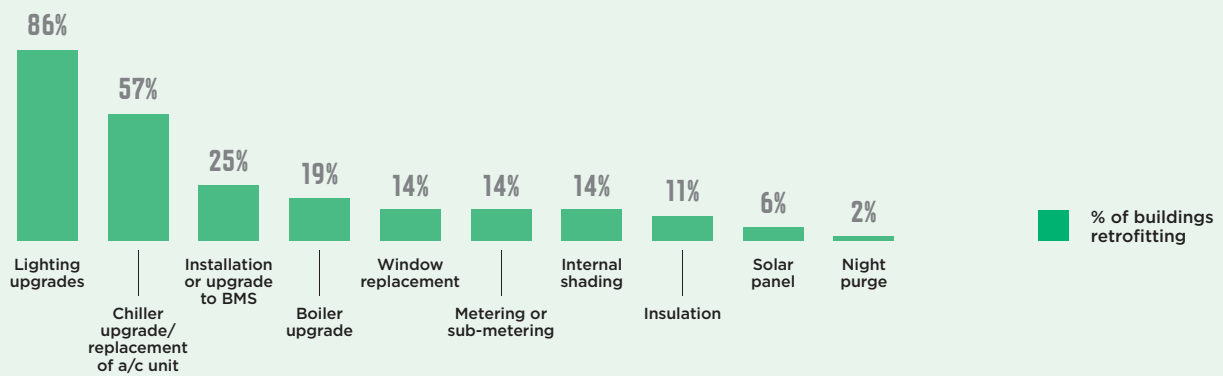


Figure 12

Retrofit activity – future intentions (2015 – 2020)

Q Are you planning to retrofit your building in the next five years?

Twenty-one per cent, equating to 84 of the buildings surveyed (315 extrapolated to the entire sample) indicated they were intending to undertake a retrofit in the next five years. This is a significant increase on the 2013 results where 16 per cent of buildings flagged an intention to undertake a retrofit in that timeframe.

Excluding the 'Other' and 'Unsegmented' groups, intention to retrofit was highest among owners corporations at 30 per cent although this result should be taken as indicative only due to the small sample size. Twenty nine per cent of corporate owners plan to retrofit in the next five years, followed by the private owner segment at 15 per cent. By number of buildings intending to retrofit, the largest segment is the private owners (87), followed by owners corporations (58, note small sample size) and finally the corporate segment (32).

Of the 315 buildings forecast to retrofit in the next five years, 257 are office buildings. Forty seven per cent of hotel/

motel buildings are forecast to retrofit however due to the small sample size, this proportion should be treated as indicative only.

Lighting upgrades are the most common actions planned for the next five years (91 per cent) followed by chiller upgrade/replacement of A/C unit (42 per cent). Interestingly, it is forecast that 21 per cent of retrofits will feature solar panels even though only 6 per cent of retrofits undertaken between 2010 and 2015 featured solar panels, indicating a potential acceleration in the uptake of solar PV over the next five years.

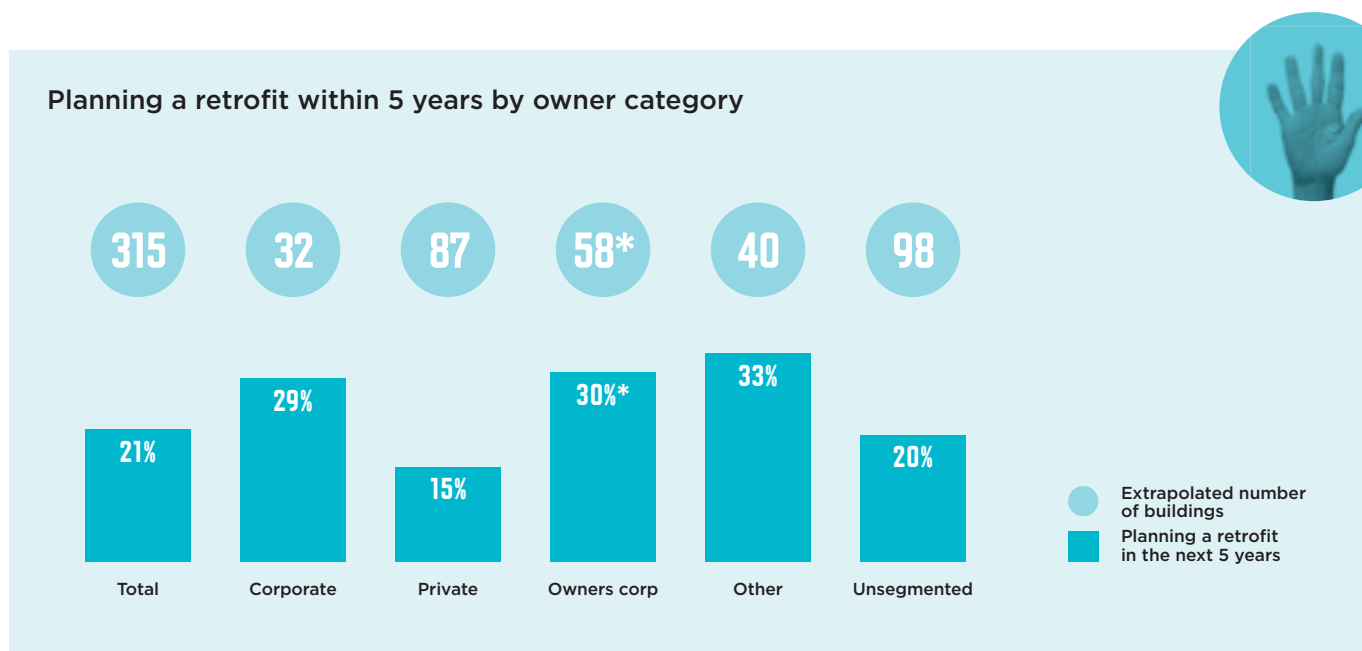


Figure 13 Total = 387, Corporate = 44, Private = 149, OC = 24, Other = 51, Unsegmented = 119
* Small sample



Planning a retrofit within 5 years by building profile

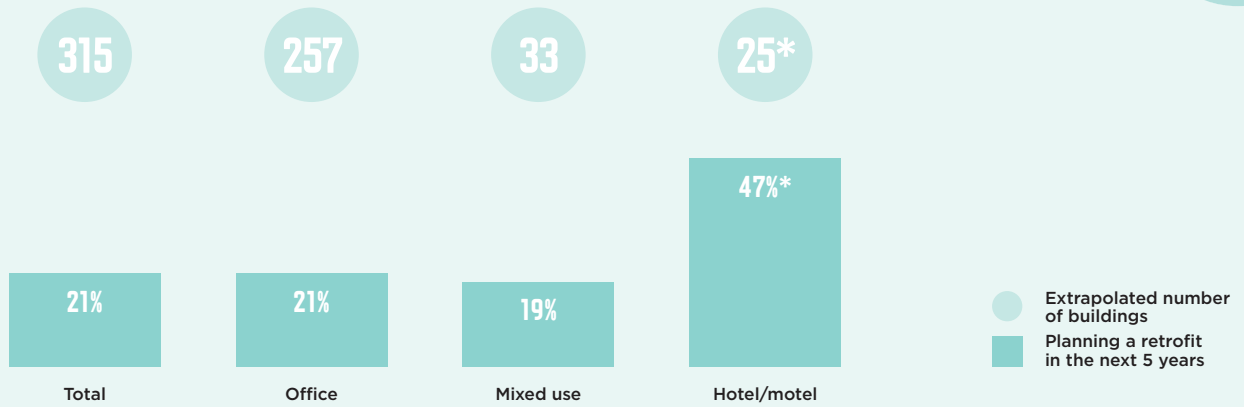


Figure 14 Total = 387; Office = 333, Mixed use = 37, Hotel/motel = 17
* Small sample



Planned retrofit actions within 5 years

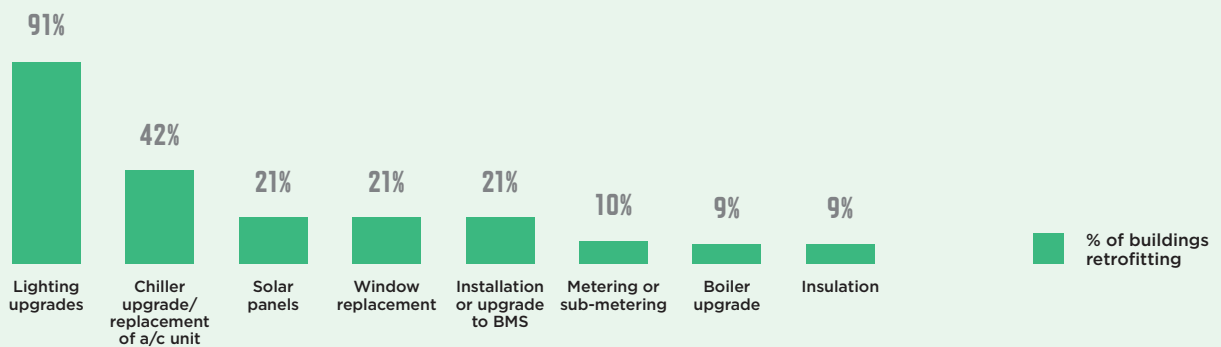


Figure 15 Total = 84

Summary of retrofit activity

To summarise which types of respondent are more likely to retrofit on a continuous basis, respondents were divided into three categories, based on past, present and future activity.

- Those who have not conducted any retrofits in the past or present and are not planning to in the future (non-retrofiters).

- Those who have conducted a single retrofit activity in the past, present or are planning to in the future (one-off retrofits).

- Those who have conducted multiple retrofit activities in the past, present or are planning to in the future (retrofit program).

The majority of respondents (63 per cent) have conducted or are planning to conduct one or more retrofit/s in the next five years. Corporate owners are more likely to undertake multiple retrofits (48 per cent) compared with private owners (18 per cent) and owners corporations (25 per cent - note small sample size).

One-off and multiple retrofit actions are fairly consistent regarding office and mixed-use buildings. By contrast, the hotel/motel segment is more prolific in terms of multiple retrofits at 59 per cent compared with the average of 24 per cent (note, small sample size).

In 2015 the proportions that had undertaken or were planning to undertake some type of retrofit was significantly higher than in either 2013 or 2011, signifying a potential acceleration in reactivity.



Retrofit program summary by owner category

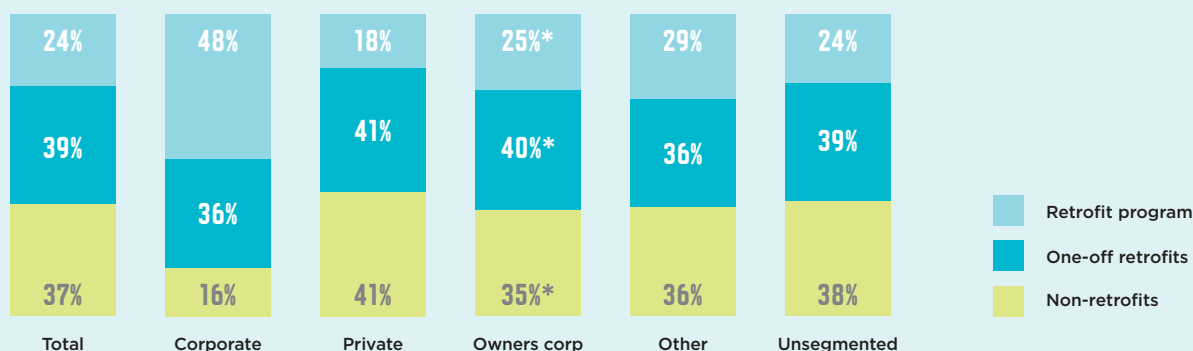


Figure 16 Total = 333, Corporate = 31, Private = 130, Owners corporation = 20, Other = 42, Unsegmented = 110
* Small sample



Retrofit program summary by building profile

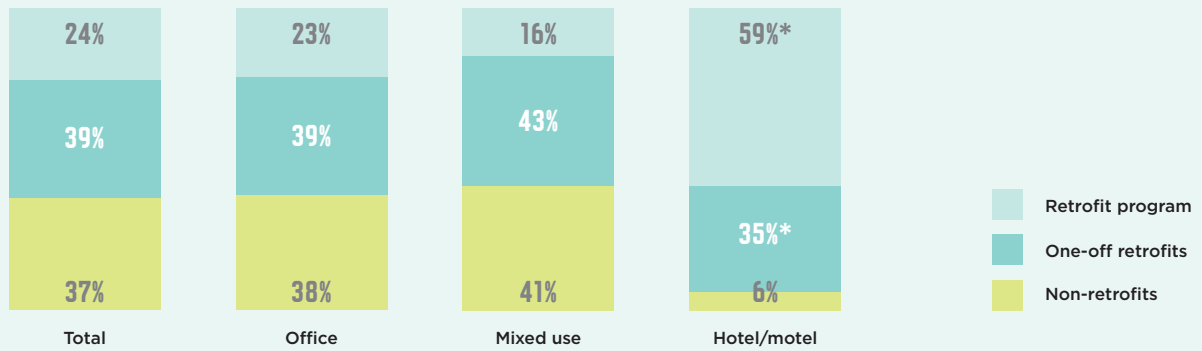


Figure 17 Total = 33, Office = 281, Mixed use = 35, Hotel/motel = 17

* Small sample



Retrofit program summary by year

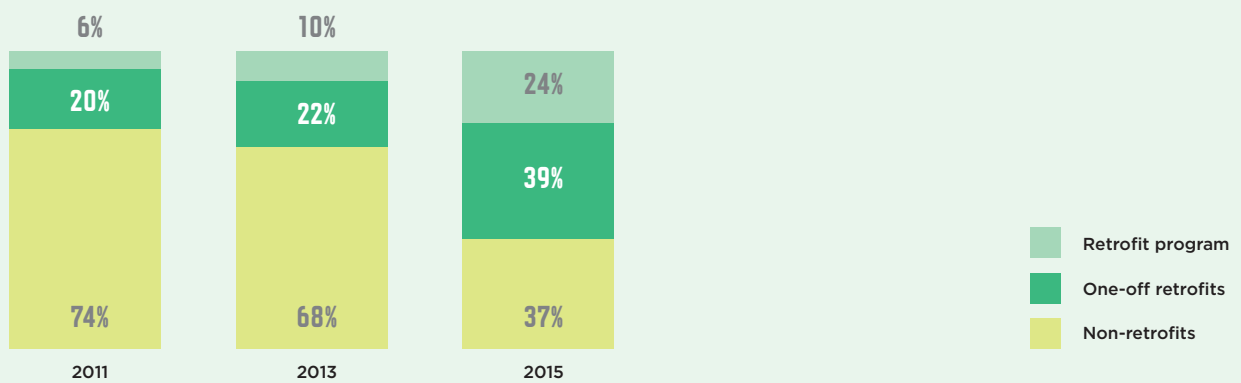


Figure 18 Total = 333

Q How much did your most recent retrofit cost?

The average cost of the most recent retrofits was \$343,000 per building. Twelve per cent of retrofits (99 buildings) cost over \$1,000,000 and the corporate segment retrofits were significantly more expensive on

average compared with the private and owners corporation segments, with 43 per cent (36 buildings) of corporate retrofits costing in excess of \$1,000,000. In comparison only seven per cent of private owner retrofits cost over \$1,000,000 and no owners corporation buildings spent over \$500,000.

By contrast 28 per cent of the private and 36 per cent of the owners corporation segments spent under \$20,000. Only nine per cent of the corporate segment spent under \$20,000.

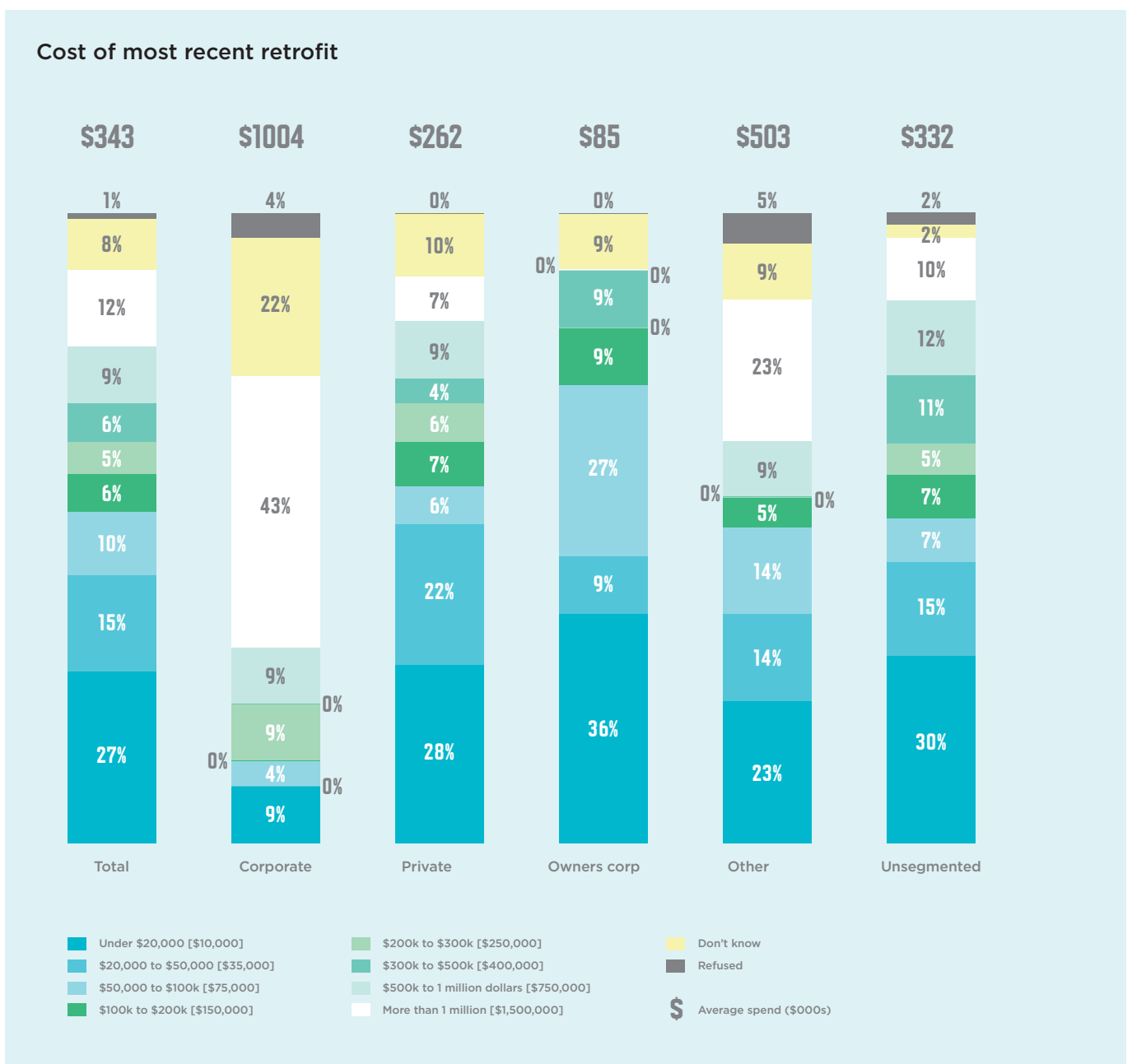


Figure 19 Total = 222



MINOR RETROFIT ACTIVITY

In addition to recording retrofits (two or more retrofit activities), the survey also recorded the level of activity where only one retrofit action was undertaken (minor retrofits).

one retrofit activity. This proportion was largely unchanged from the 2013 survey (3 per cent). The incidence of minor retrofitting was significantly higher among the corporate segment.

Minor retrofit activity – current

Two per cent, equating to nine of the buildings surveyed were currently undertaking one retrofit activity. If extrapolated over the entire sample, 31 buildings were currently undertaking

Q Are you currently retrofitting the building/s?

Those undertaking a minor retrofit were most likely undertaking a chiller upgrade. However, this result should be treated with caution due to the very small sample size (n = 9).

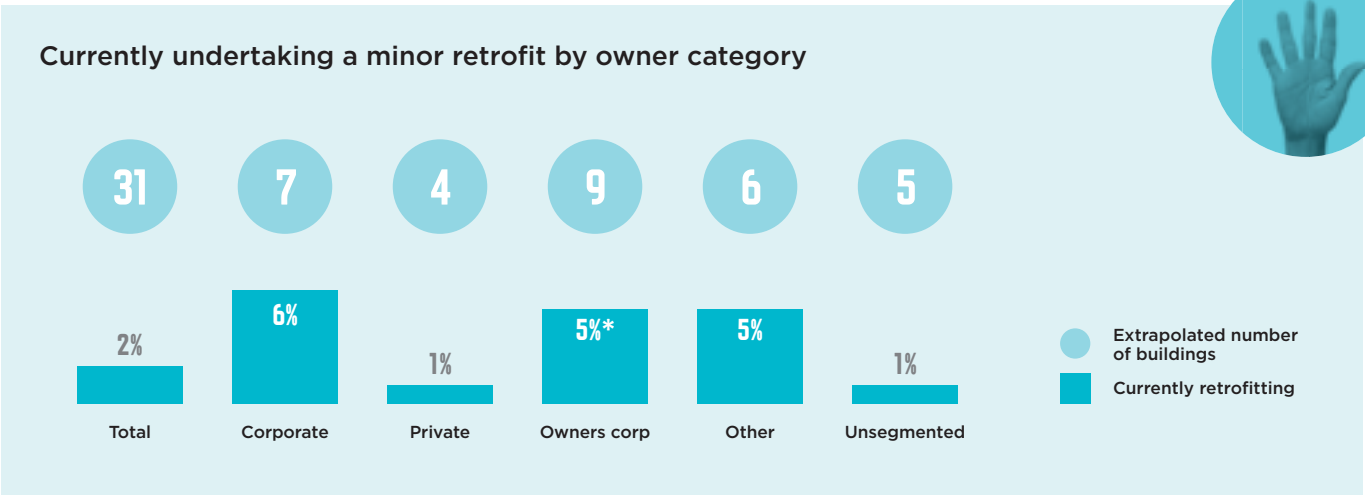


Figure 20 Total = 387, Corporate = 44, Private = 149, OC = 24, Other = 51, Unsegmented = 119
* Small sample

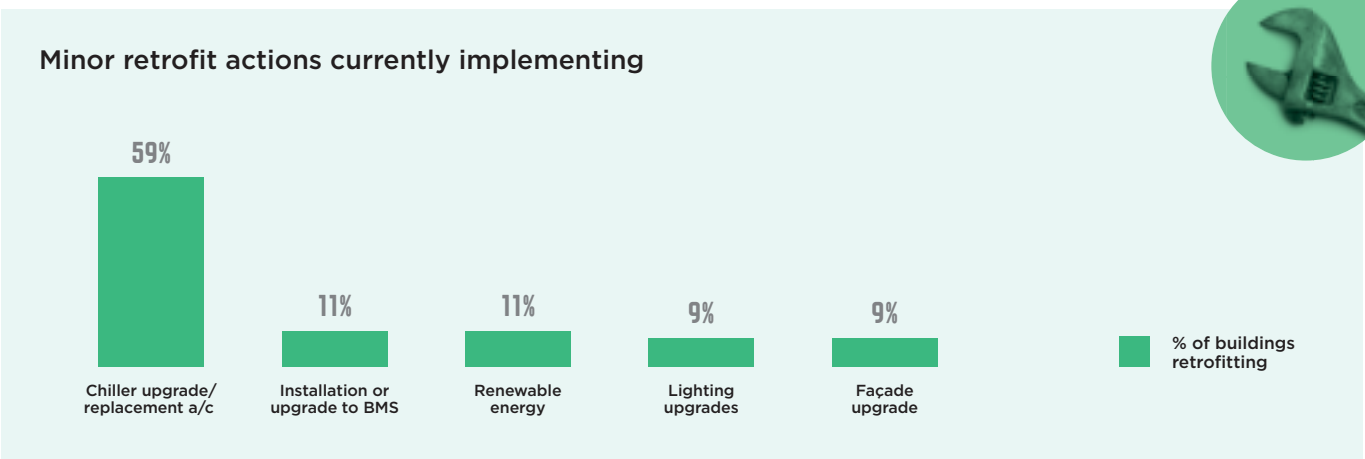


Figure 21 Total = 9 Note: Small sample

Minor retrofit activity - past to present (2010 - 2015)

Since 2010, 11 per cent or 40 of the buildings surveyed had undertaken or were undertaking one retrofit activity.

If extrapolated over the entire sample, 163 buildings had undertaken a minor retrofit since 2010. This level is not significantly different from the 2013 survey (14 per cent).

The majority of minor retrofits were either chiller (55 per cent) or lighting (40 per cent) upgrades.

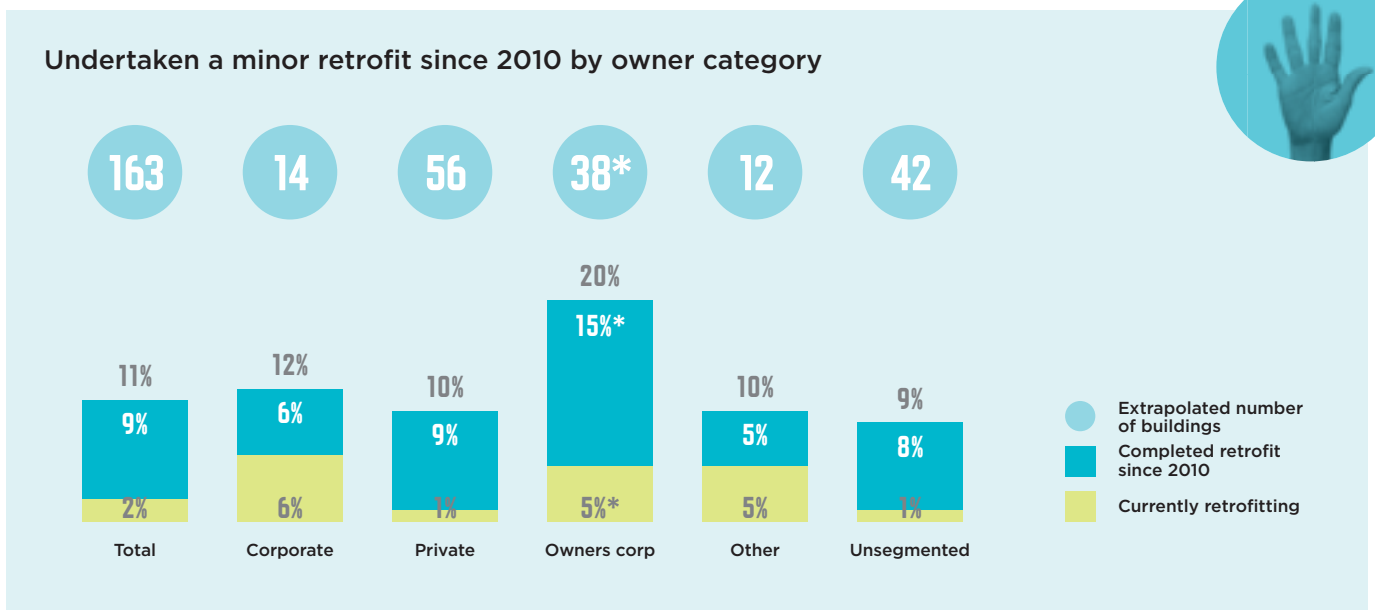


Figure 22 Total = 387, Corporate = 44, Private = 149, OC = 24, Other = 51, Unsegmented = 119
* Small sample

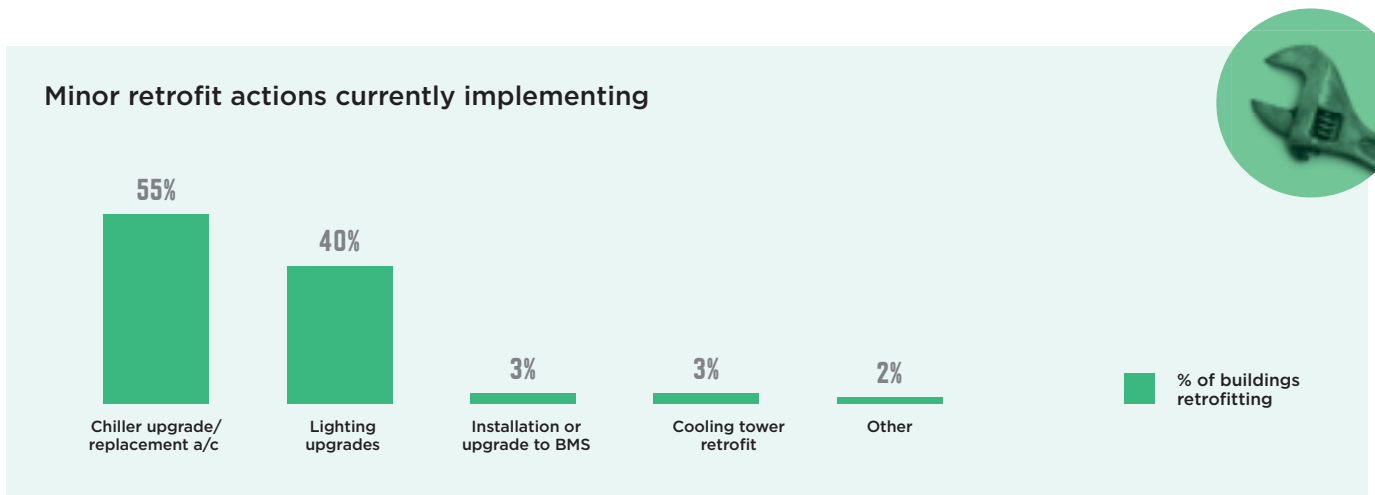


Figure 23 Total = 31

Minor retrofit activity - future intentions (2015 - 2020)

Q Are you planning to retrofit your building in the next five years?

Five per cent or 23 of the building surveyed (71 extrapolated across the entire sample) indicated that they were intending to undertake a minor

retrofit in the next five years. This was significantly lower than the 2013 survey result of 9 per cent.

The corporate segment were significantly more likely to be planning a once-off retrofit (16 per cent), which is likely to be part of a planned approach to upgrading building services over the longer term.

Interestingly, while there is evidence that retrofit activity has increased since 2013, minor retrofit activity appears to have declined. This suggests that

of those undertaking retrofit activities, increasing proportions are undertaking two or more activities rather than just one. Of those planning a minor retrofit, one third (32 per cent) were first-time retrofitters.

Close to half (46 per cent) of the minor retrofits planned over the next five years will involve the heating, ventilation and air-conditioning (HVAC) system. Note, these percentages should be treated as indicative only due to the small sample size.

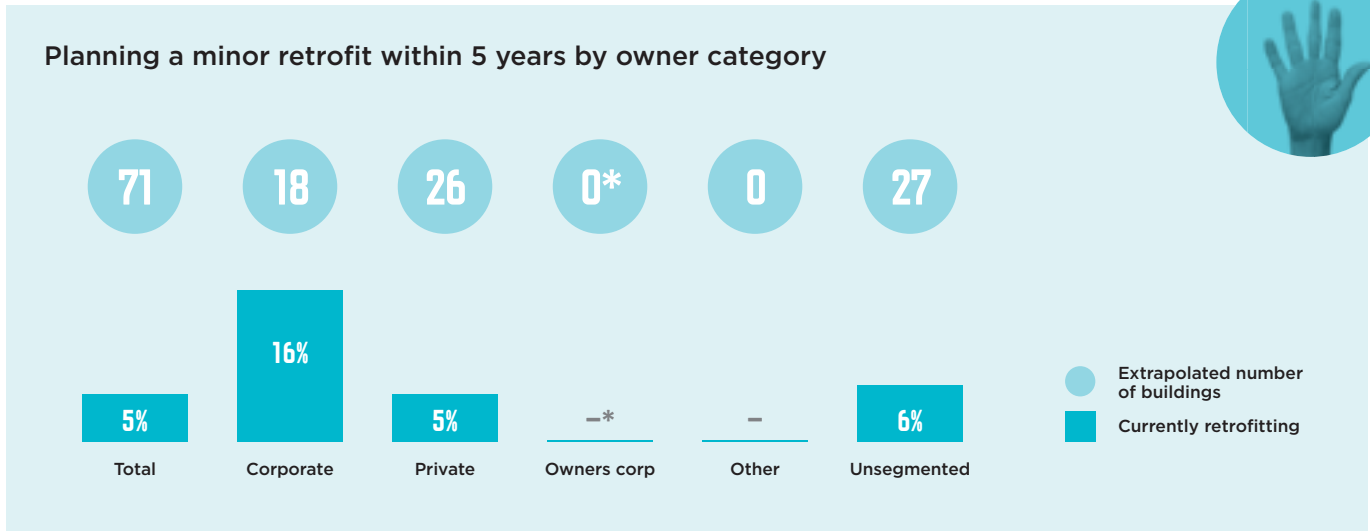


Figure 24 Total = 387, Corporate = 44, Private = 149, OC = 24, Other = 51, Unsegmented = 119
* Small sample

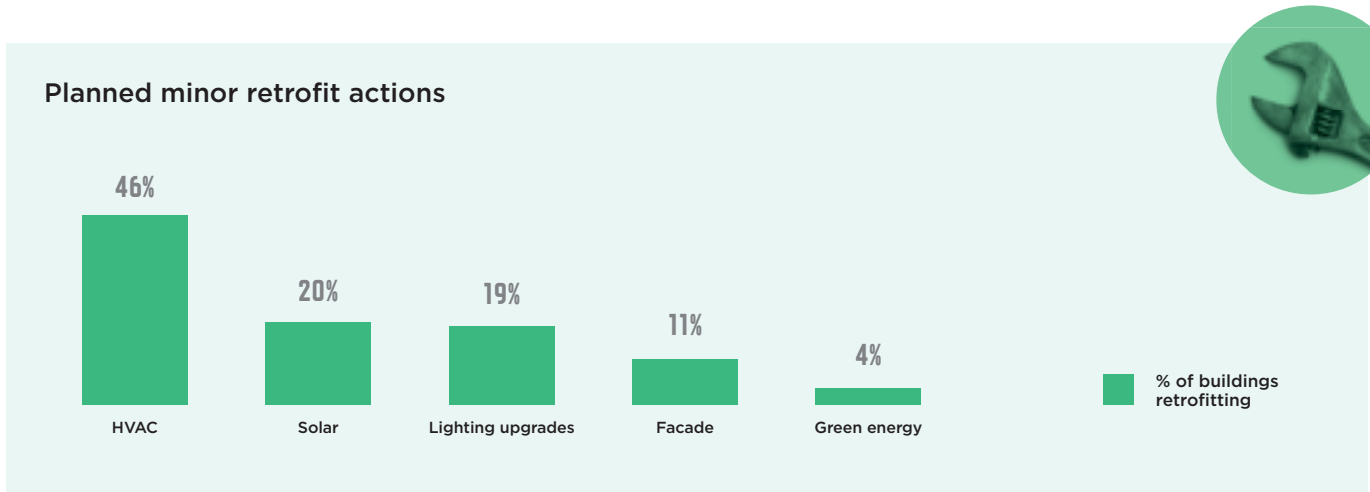


Figure 25 Total = 23 Note: * Small sample

A tall, light-colored building facade with a grid of windows. The windows are arranged in a regular pattern, with some windows reflecting the sky and others showing interior details. The building has a classic architectural style with decorative window frames. The name 'KURRAJONG HOUSE' is prominently displayed in gold lettering on the lower part of the facade.

KURRAJONG HOUSE

TUNE-UP ACTIVITY

In addition to recording retrofits and minor retrofits, the survey also recorded the level of tune-up activity. Tune-ups refer to works that improve the function of existing equipment/plant (operational) rather than replacement or upgrade of that equipment/plant (capital). Note that tune-ups can be conducted on multiple systems simultaneously i.e. tune-up of lighting and HVAC.

Tune-up activity - current

Q Are you currently undertaking a tune-up of this building/s?

Fourteen per cent of buildings were undertaking a tune-up, significantly higher than the 4 per cent that were undertaking a tune-up at the time of the 2013 survey. The incidence of tune-ups was significantly higher in the corporate ownership segment.

There was no difference in the frequency of tune-up activity between the different building profile segments.

Tuning was most commonly performed on air con (A/C) HVAC equipment (44 per cent), followed by BMS at 22 per cent, lighting (16 per cent) and heating (14 per cent).

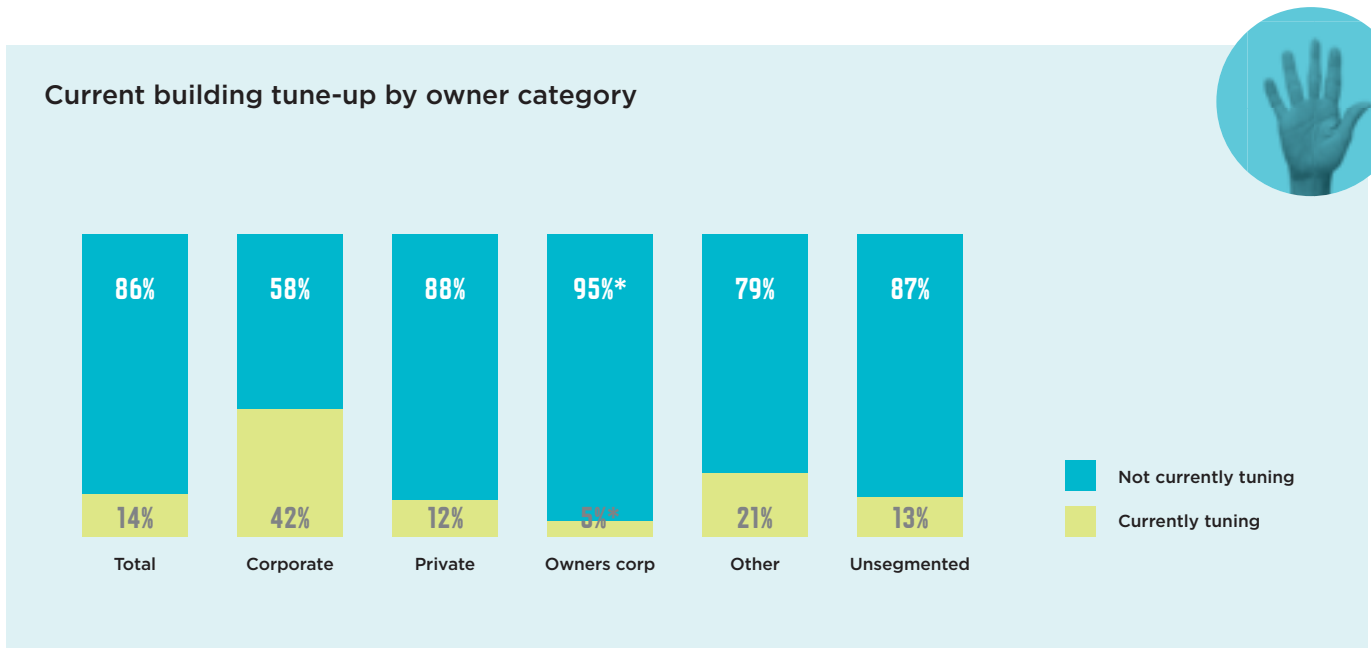


Figure 26 Total = 387, Corporate = 44, Private = 149, Owners corporation = 24, Other = 51, Unsegmented = 119
* Small sample



Current building tune-up by building profile

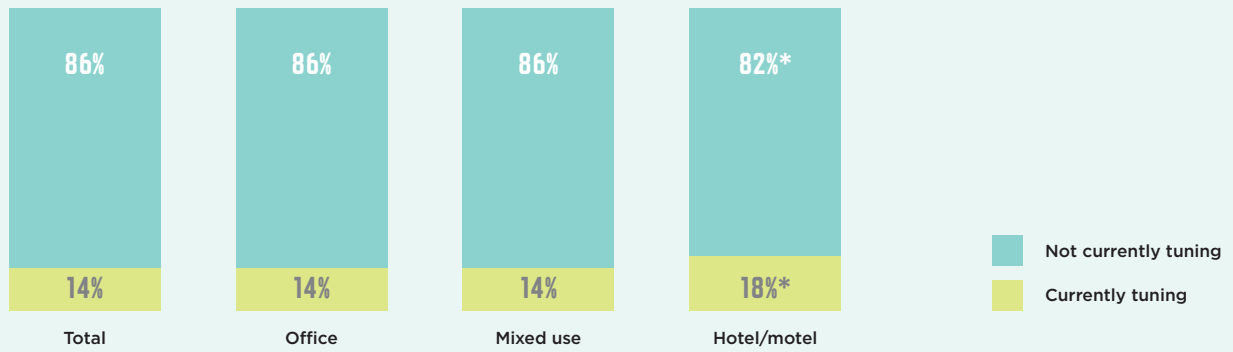


Figure 27 Total = 387, Office = 333, Mixed use = 37, Hotel/motel = 17
* Small sample



Building tune-up actions currently implementing

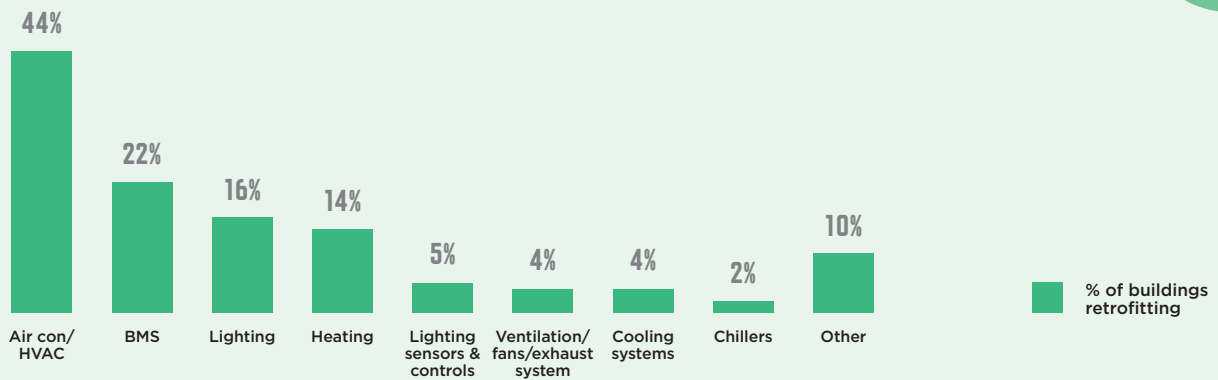


Figure 28 Total = 66

Tune-up activity – past to present (2010 – 2015)

Since 2010, 26 per cent of the buildings had tuned compared with 21 per cent between 2008 and 2013 (2013 Retrofit Survey). The incidence of tuning in the 2015 survey was significantly higher in buildings owned by the corporate segment (61 per cent since 2010).

Tune-up activity in the last five years was consistent across the building segments although the proportion of tune-ups in the hotel/motel segment was higher (note small sample size).

The greatest numbers of building tune-ups in the past five years involved HVAC (44 per cent) while almost a quarter had tuned their BMS (24 per cent).

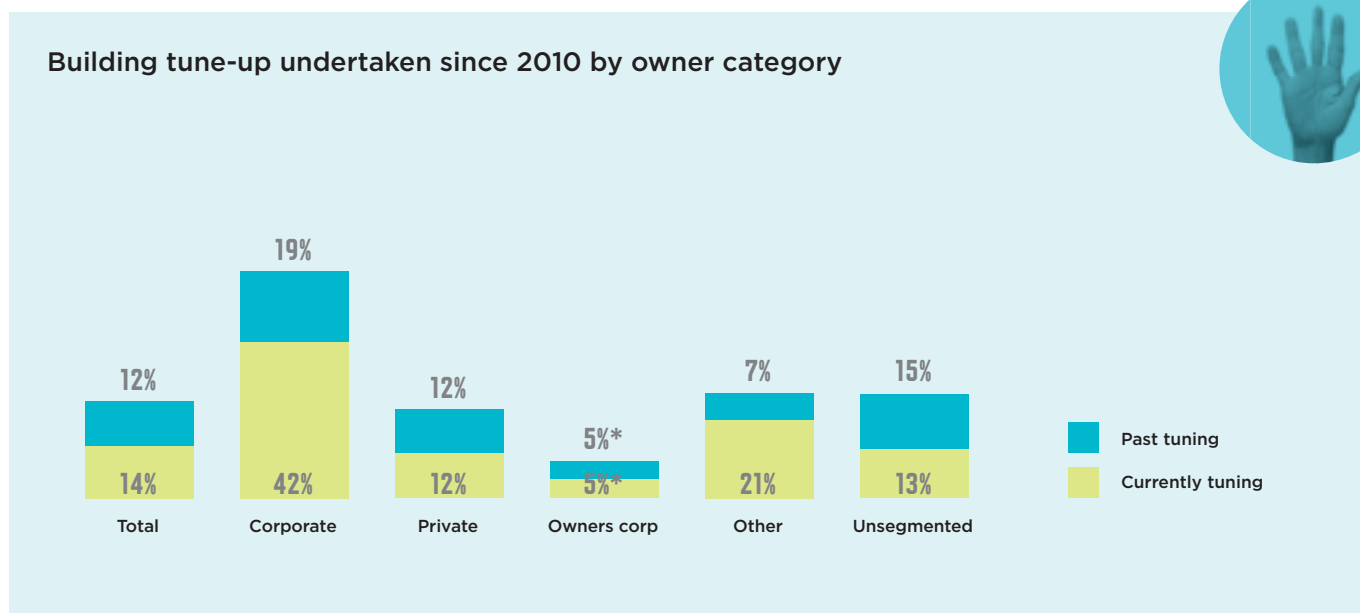


Figure 29 Total = 387 Corporate = 44, Private = 149, Owners corporation = 24, Other = 51, Unsegmented = 119
 * Small sample



Building tune-up undertaken since 2010 by building profile

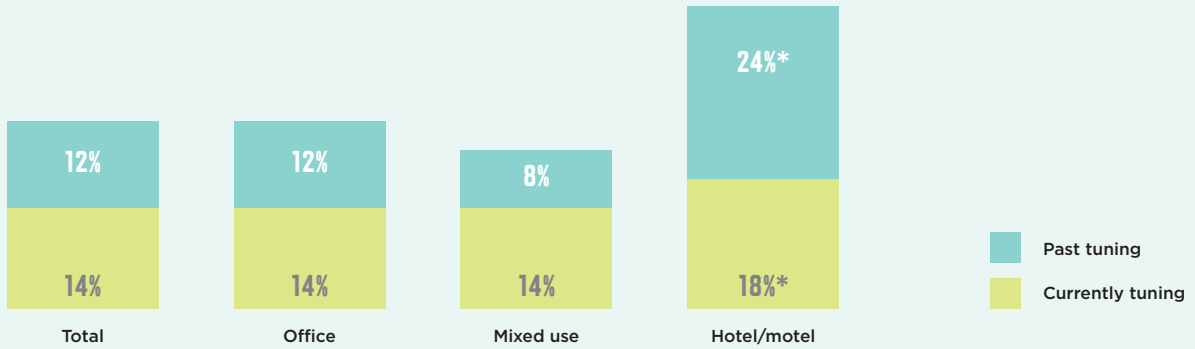


Figure 30 Total = 387; Office = 333, Mixed use = 37, Hotel/motel = 17
* Small sample



Building tune-up actions undertaken since 2010

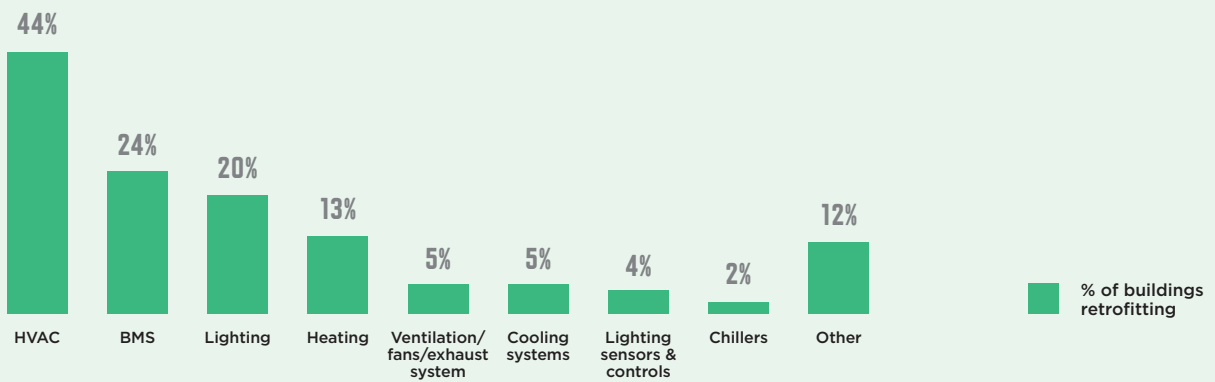


Figure 31 Total = 114

Tune-up activity – future intentions (2015 – 2020)

Q Are you planning a tune-up in the next five years?

Owners and their representatives indicated that close to one-fifth (19 per cent) of buildings would undergo tuning to one or more of the building’s systems in the future.

The corporate segment was significantly more likely to be planning a building tune-up (35 per cent) within the next five years.

The intention to undertake a building tune-up by building type did not differ significantly except for the hotel/motel segment where 59 per cent were planning tuning activity in the next five years but the small sample size means that these results are indicative only.

A substantial minority (39 per cent) are unsure as to what tune-up action they are likely to take. For example, one building owner explained “It’s hard to answer as we are still in the planning stage” and another said “Our current retrofit action has a 12 month monitoring period and there could be some recommendations coming out of that.” Of those tune-up activities that were specified, HVAC was the most frequently mentioned (31 per cent).

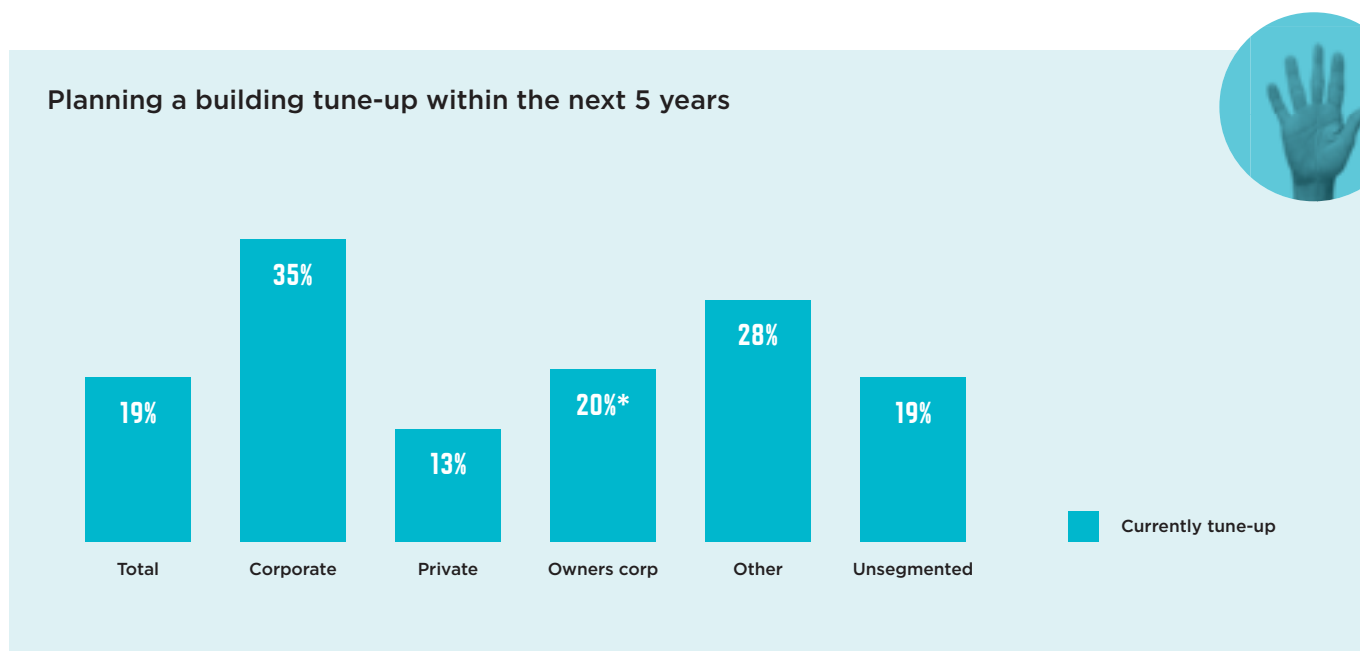


Figure 32 Total = 387, Corporate = 44, Private = 149, Owners corporation = 24, Other = 51, Unsegmented = 119
* Small sample



Planning to undertake a building-tune up within next 5 years

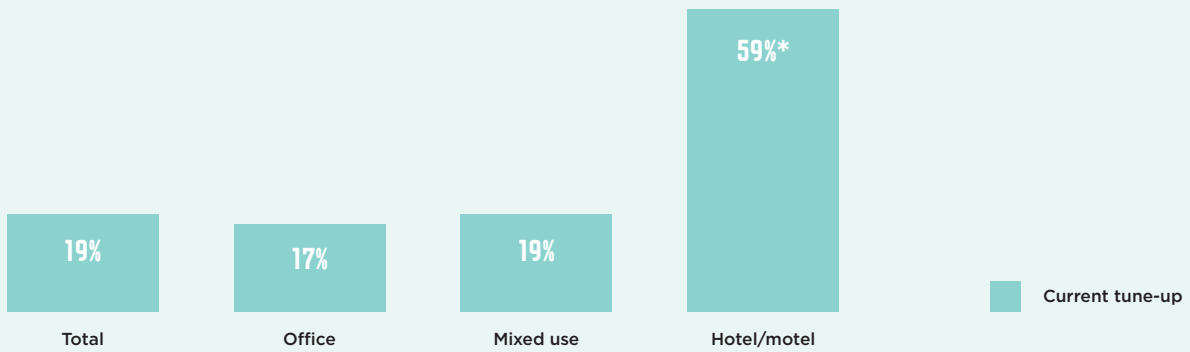


Figure 33 Total = 387; Office = 333, Mixed use = 37, Hotel/motel = 17
* Small sample



Building tune-up actions planned

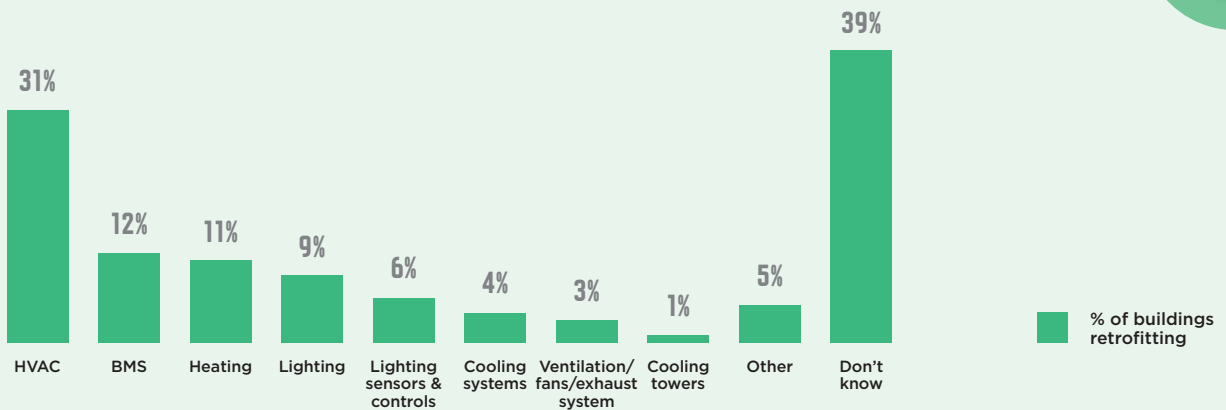


Figure 34 Total = 94



ATON'S BUILDING

DRIVERS AND BARRIERS TO RETROFITTING

Q What motivated you to undertake your most recent retrofit?

Replacing a broken asset was the most common motivation for retrofitting (37 per cent), followed by minimising energy consumption (33 per cent). These two motivations were also the most frequently cited in the 2013 survey.

Q What motivated your most recent tune up?

The most common reasons to tune equipment was to extend the life of the asset (26 per cent), to save money/reduce energy costs (16 per cent) and to retain existing tenants (13 per cent).

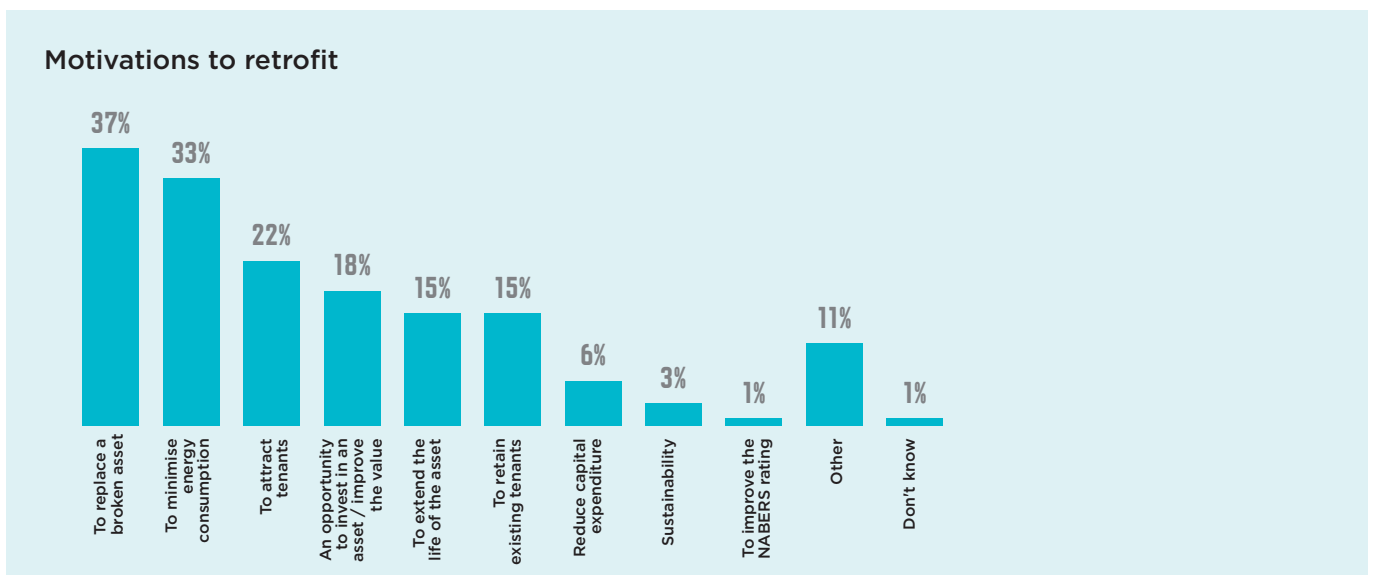


Figure 35 Total = 222

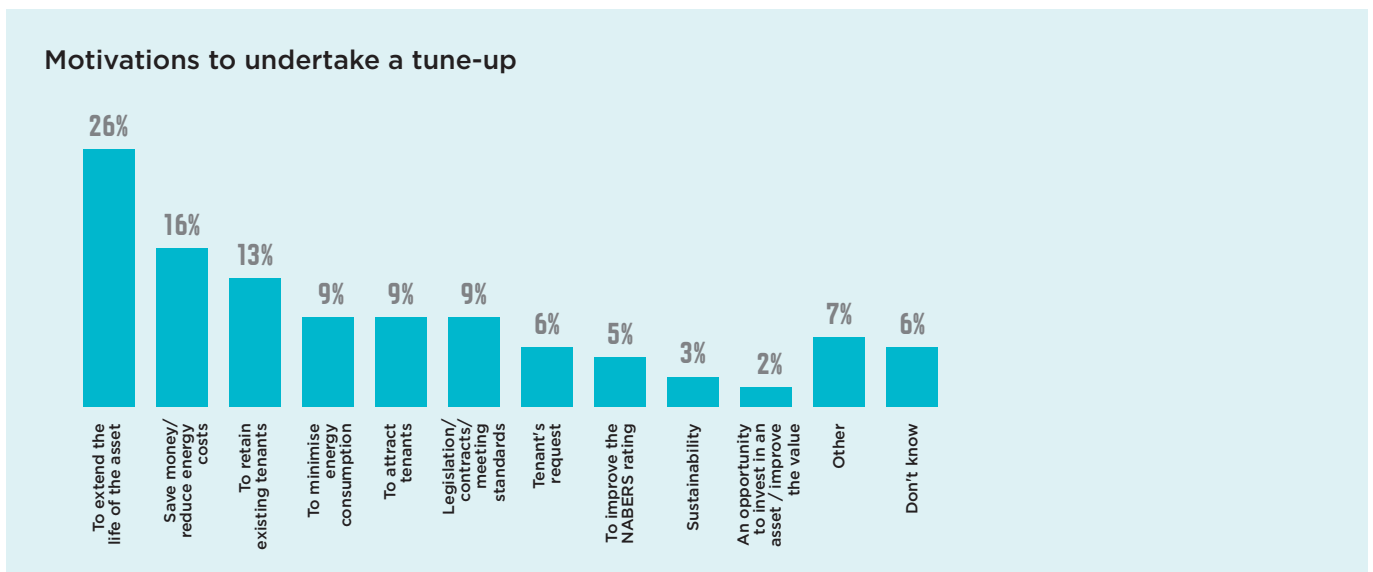


Figure 36 Total = 123

Q How did you fund your most recent retrofit?

Most retrofitters (83 per cent) preferred to self-fund their most recent retrofits. This result was virtually identical to that of the 2013 Retrofit Survey (81 per cent).

Q Is access to finance a barrier to improving your building's performance?

Almost two thirds (68 per cent) of owners or their representatives considered access to finance a 'minor' barrier or 'no barrier' where as one quarter considered access to finance a 'considerable' to 'major barrier'.

Q What is currently preventing you from improving the energy or water efficiency of your buildings?

Twenty two per cent of respondents conceded that there was nothing preventing them from undertaking a building retrofit. Cost and funding was considered by 16 per cent to be a barrier to improving efficiency while 13 per cent of building owner representatives indicated that gaining the owner's permission was a barrier to retrofitting.

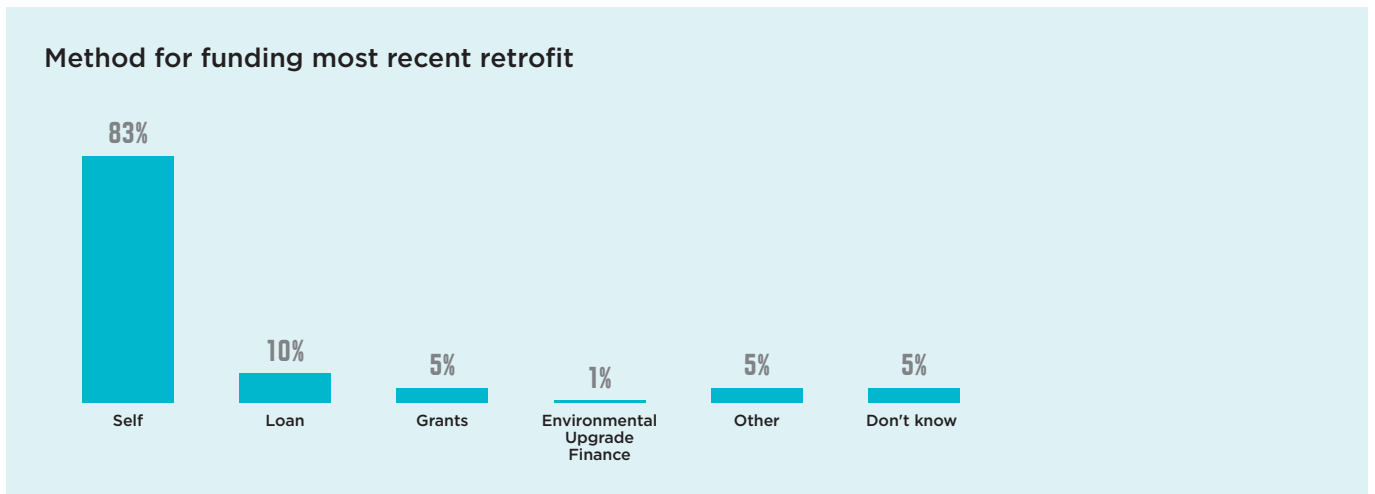


Figure 37 Total = 222

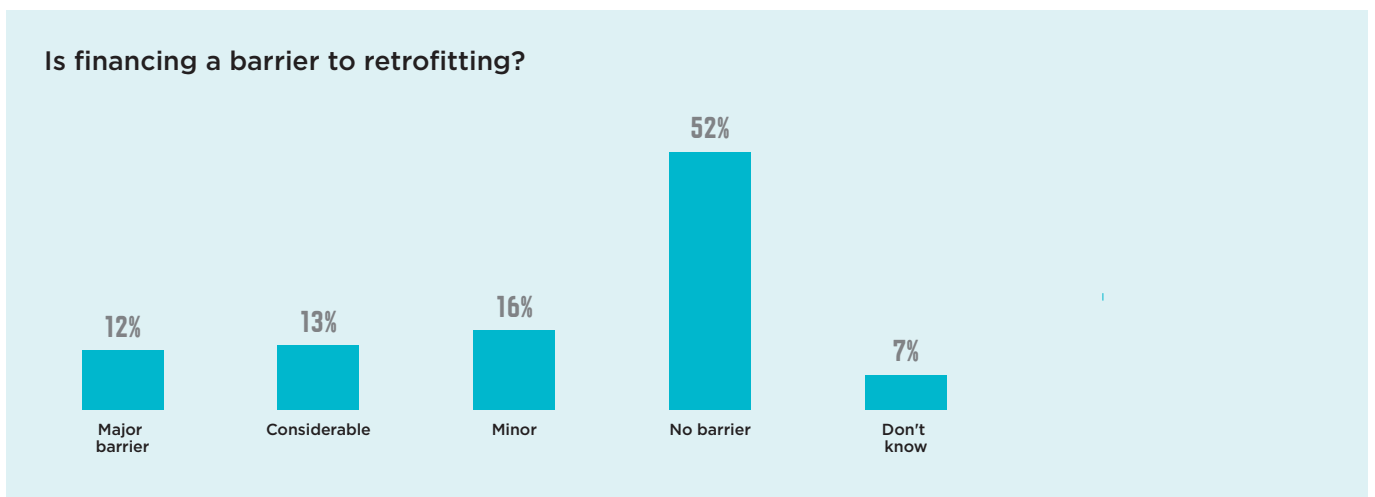


Figure 38 Total = 187

Q On a scale from 1 to 5, where 1 means 'not at all motivated' and 5 means 'extremely motivated', how motivated are you to improve the energy or water efficiency of your buildings?

This question was only put to respondents who had never and were not planning a retrofit. Of this cohort one third (36 per cent) were very to extremely motivated to retrofit, sixteen per cent were not at all motivated and twenty nine per cent were moderately interested.

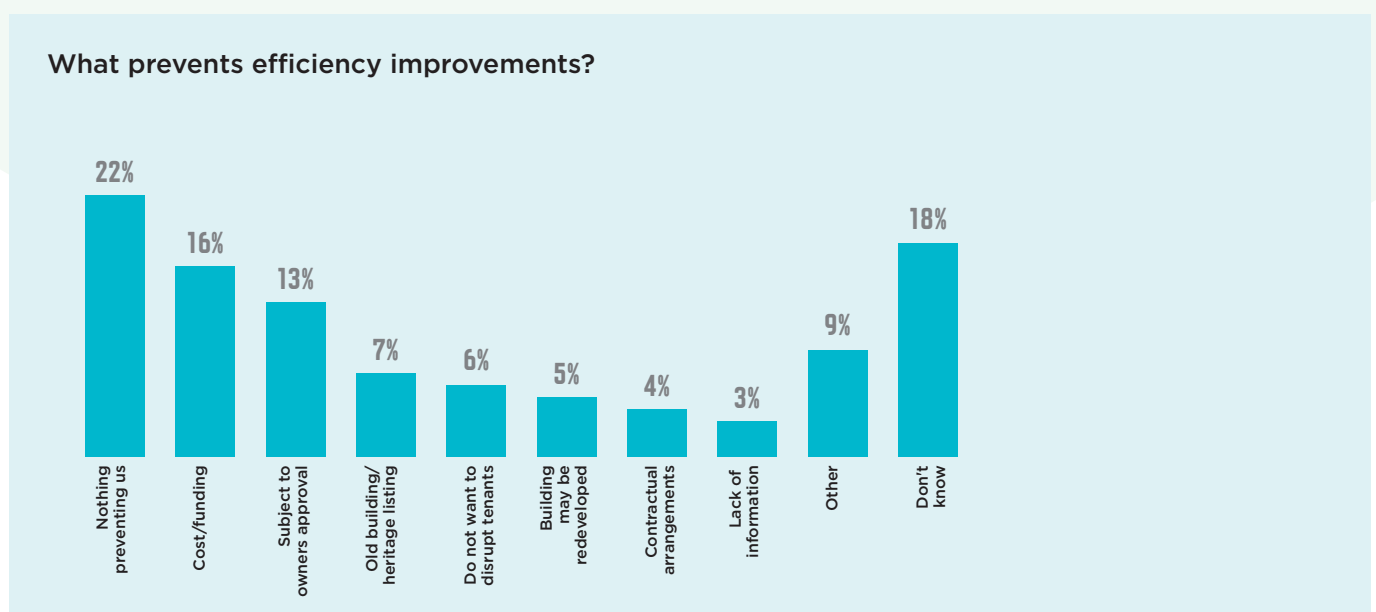


Figure 39 Total = 72

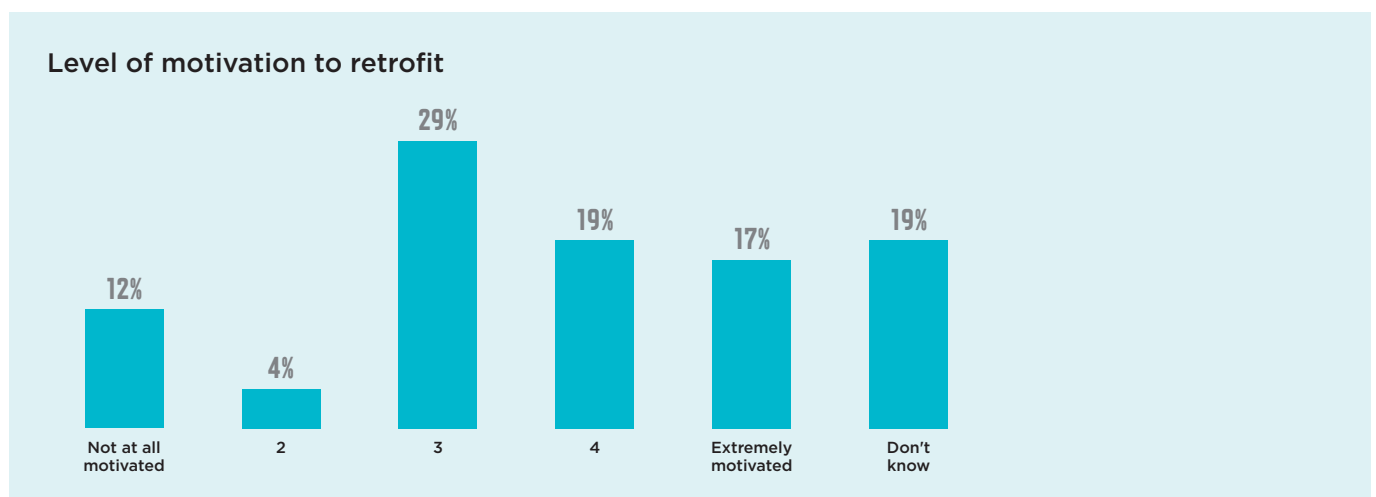


Figure 40 Total = 72

Q In the last five years, what changes, if any, have you made to your internal policies or processes to assist you to improve the management of energy and water use in your building/s?

Twenty per cent of respondents had made changes to internal policies/processes over the past 5 years, the most common being the introduction of monitoring/reporting consumption (9 per cent). However, sixty-nine per cent of respondents had either not made any changes (59 per cent) or were unaware of any changes (10 per cent) being made to internal policies to improve the management of energy and water.

Those in the corporate segment were significantly more likely to have made changes to internal policies (49 per cent) than respondents in general (20 per cent) in keeping with the general trend that the corporate sector is more engaged and proactive in managing building efficiency.

Those in the mixed segment were somewhat more likely to have made changes than those in the office segment. While a high proportion of those in the hotel/motel segment had made changes (58 per cent), this result is indicative only due to the small sample size.

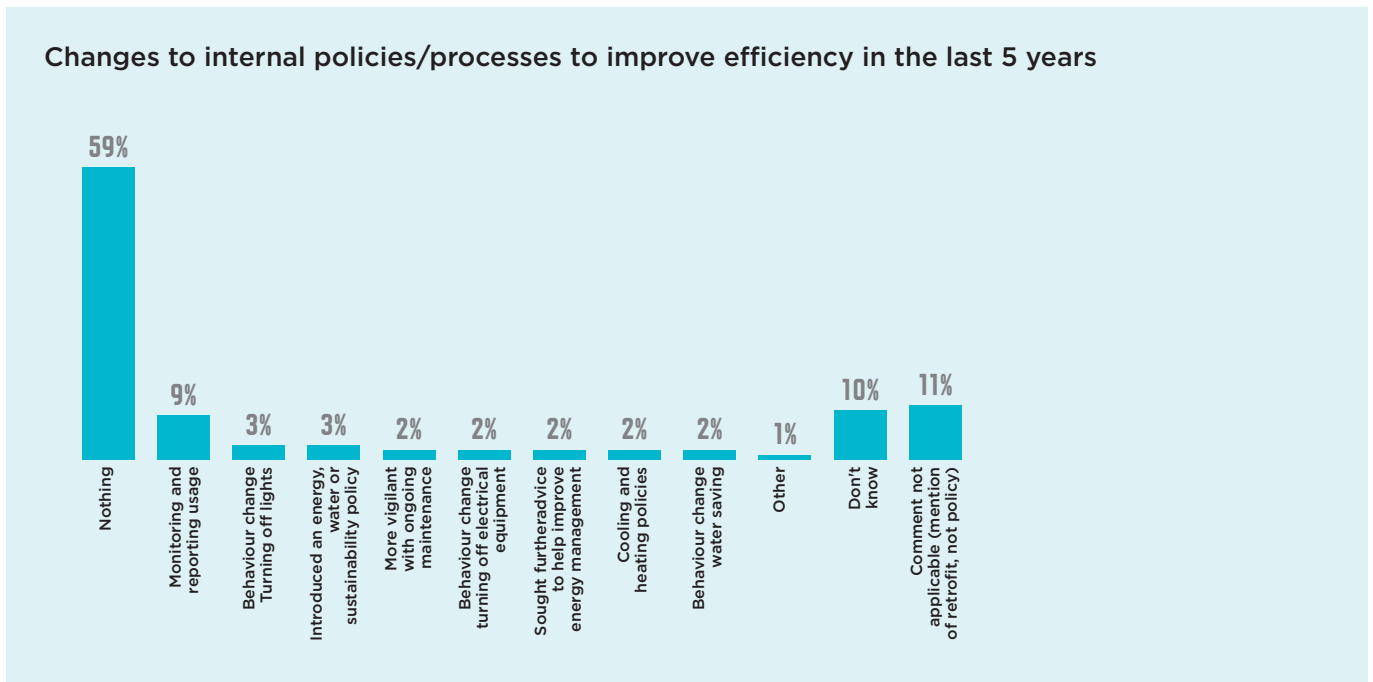


Figure 41 Total = 333 Does not add to 100% as respondents were able to indicate more than one change

Changes to internal policies/processes to improve efficiency in the last 5 years by ownership profile

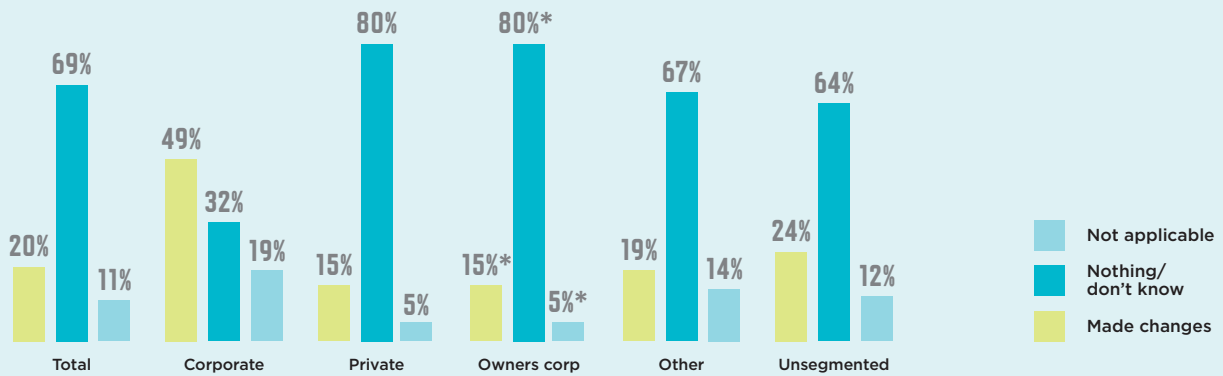


Figure 42 Total = 333, Corporate = 31, Private = 130, Owners corp = 20, Other = 42, Unsegmented = 110
* Small sample

Changes made to internal policies/processes by building segment

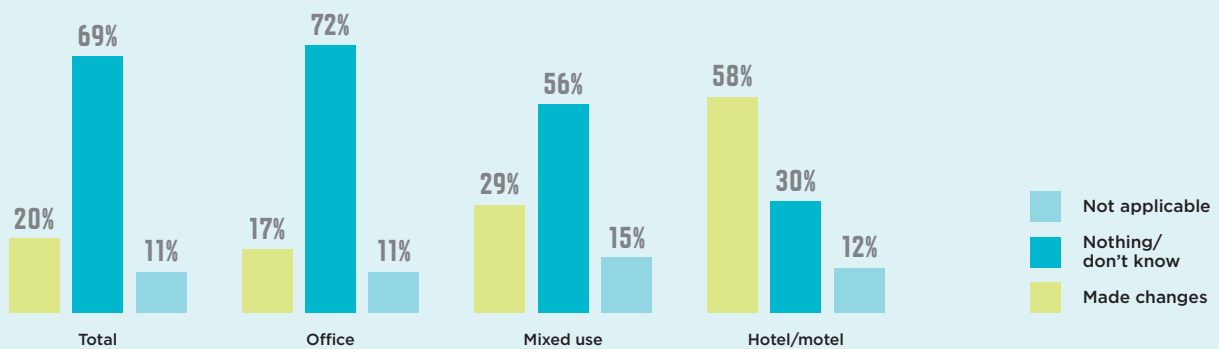


Figure 43 Total = 333, Office = 281, Mixed use = 35, Hotel/motel = 17* Small sample

Q Have you ever received a formal and/or informal NABERS energy rating for this building?

The majority of owners/representatives surveyed had never undertaken a NABERS energy assessment (66 per cent) of their building/s. Only eleven per cent had received a formal NABERS rating and four per cent had undertaken an informal NABERS rating.

While only 15 per cent of all buildings had received a NABERS energy rating, the corporate segment was significantly more engaged, with 68 per cent of buildings having received a NABERS rating.

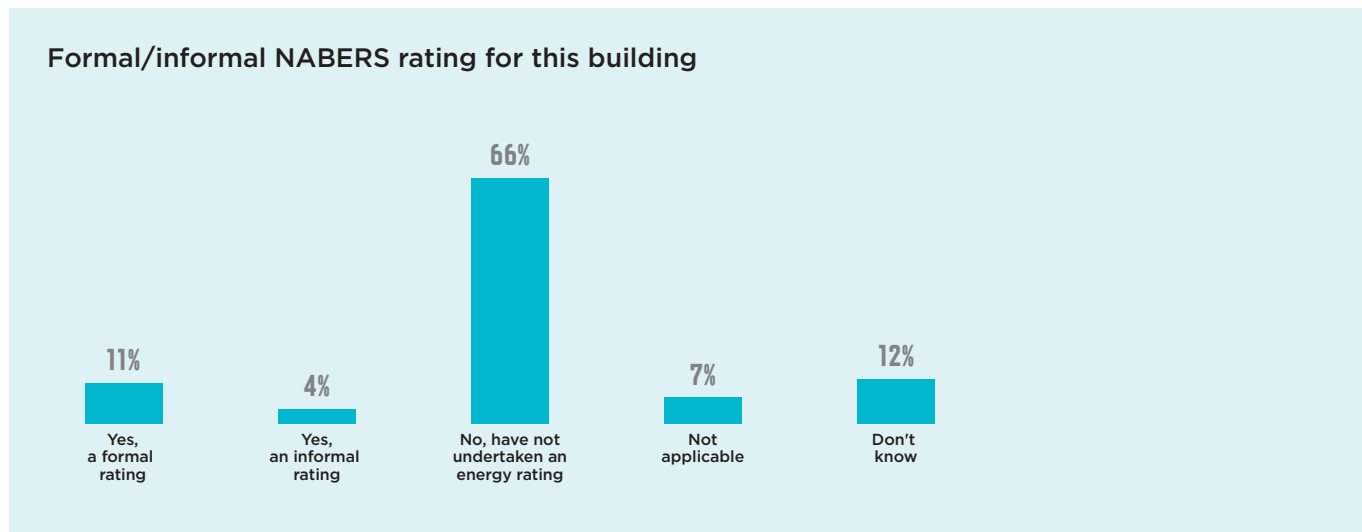


Figure 44 Total = 387

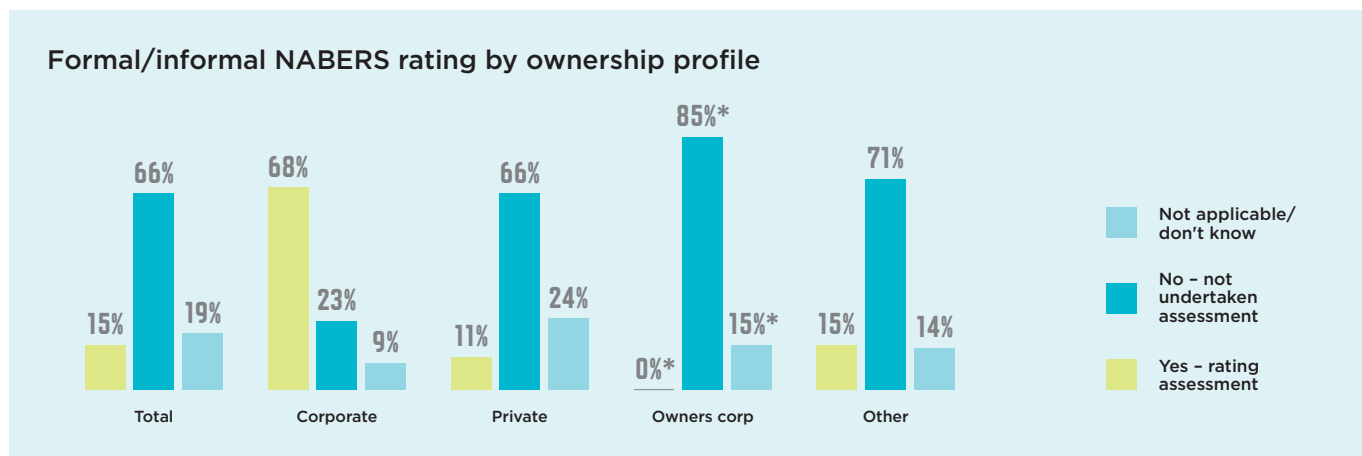


Figure 45 Total = 387, Corporate = 44, Private = 149, Owners corp = 24, Other = 51, Unsegmented = 119

* Small sample

DECENTRALISED ENERGY

How willing would you be to consider installing solar panels in the future?

Attitudes to the installation of solar panels varied, with 20 per cent 'not at all willing' to install solar panels compared with 24 per cent who were 'quite' to 'very willing' to install solar panels. At least 11 per cent of owners/

representatives had considered installing solar panels but due to the issue of overshadowing had not proceeded. In contrast with the general trend of the corporate segment to be more engaged in retrofitting and tuning, there was no significant difference by ownership profile.

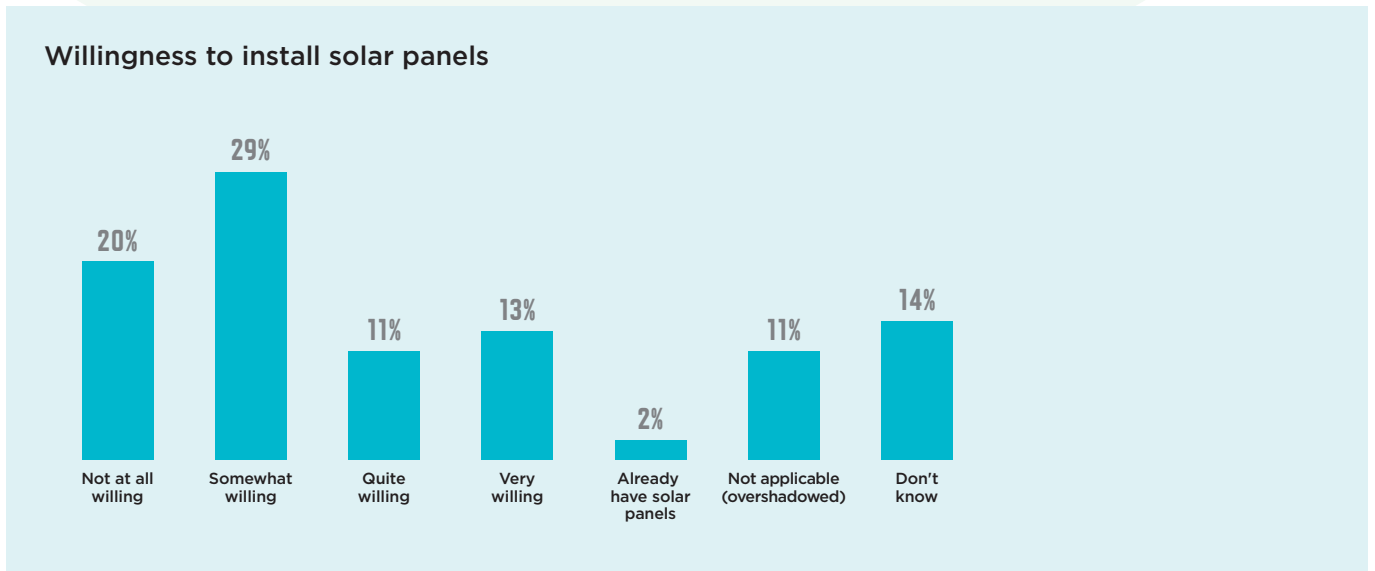


Figure 46 Total = 359

1200 BUILDINGS EVALUATION

Q How interested would you be in using environmental upgrade finance for future retrofits, tune-ups or solar installations?

Thirty per cent of owners were 'quite' to 'very interested' in environmental upgrade finance which was a similar proportion when compared with the 2013 Retrofit Survey.

Q The Sustainable Melbourne Fund administers environmental upgrade finance on behalf of the City of Melbourne. Would you like me to give you more information about this?

Almost two thirds of building owners/representatives showed some interest in being contacted by the Sustainable Melbourne Fund to learn more about environmental upgrade finance (62 per cent).

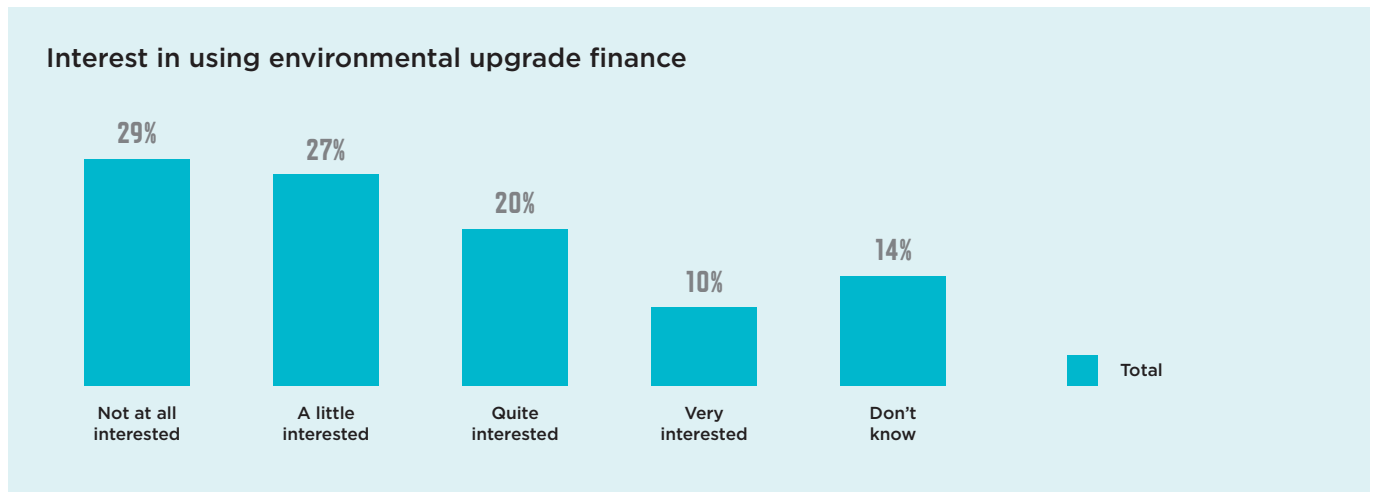


Figure 47 Total = 333

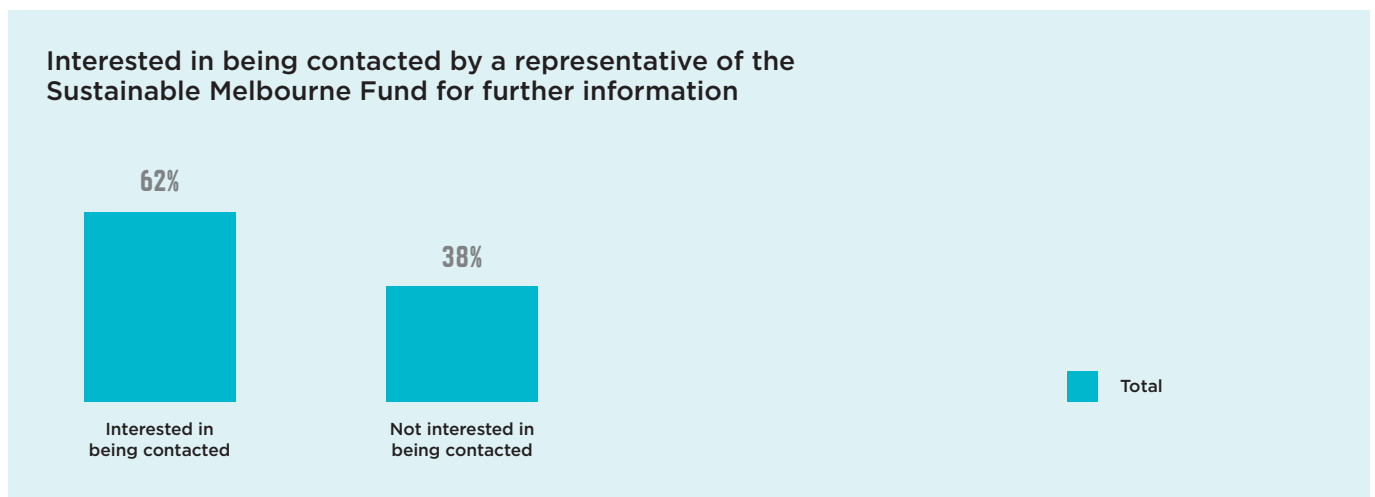


Figure 48 Total = 160

Q Are you aware of the City of Melbourne’s 1200 Building Program?

Compared with the 2013 Retrofit Survey, awareness of the 1200 Buildings Program had grown slightly, from 40 to 42 per cent and was significantly higher among the corporate segment (64 per cent).

Q How did you first hear about the 1200 Buildings Program?

For those who are aware of the 1200 Buildings Program, the most likely way to have found out about it was via a City of Melbourne newsletter (17 per cent), a brochure/letter in the mail (15 per cent) or via an industry association (11 per cent).

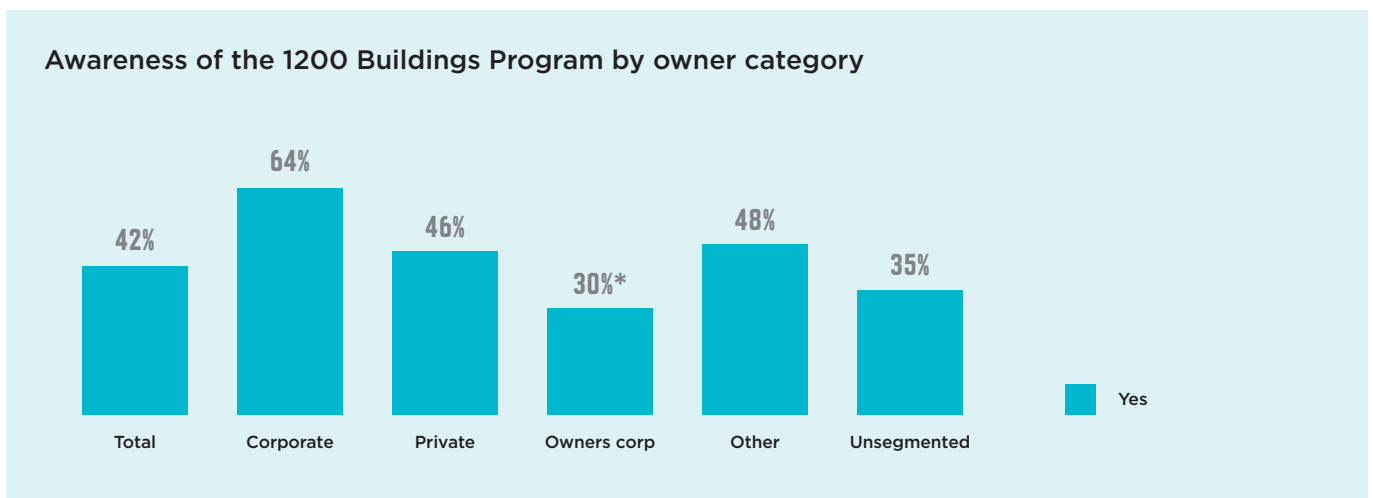


Figure 49 Total = 333; Corporate = 31, Private = 130, Owners corporation = 20, Other = 42, Unsegmented = 110
* Small sample

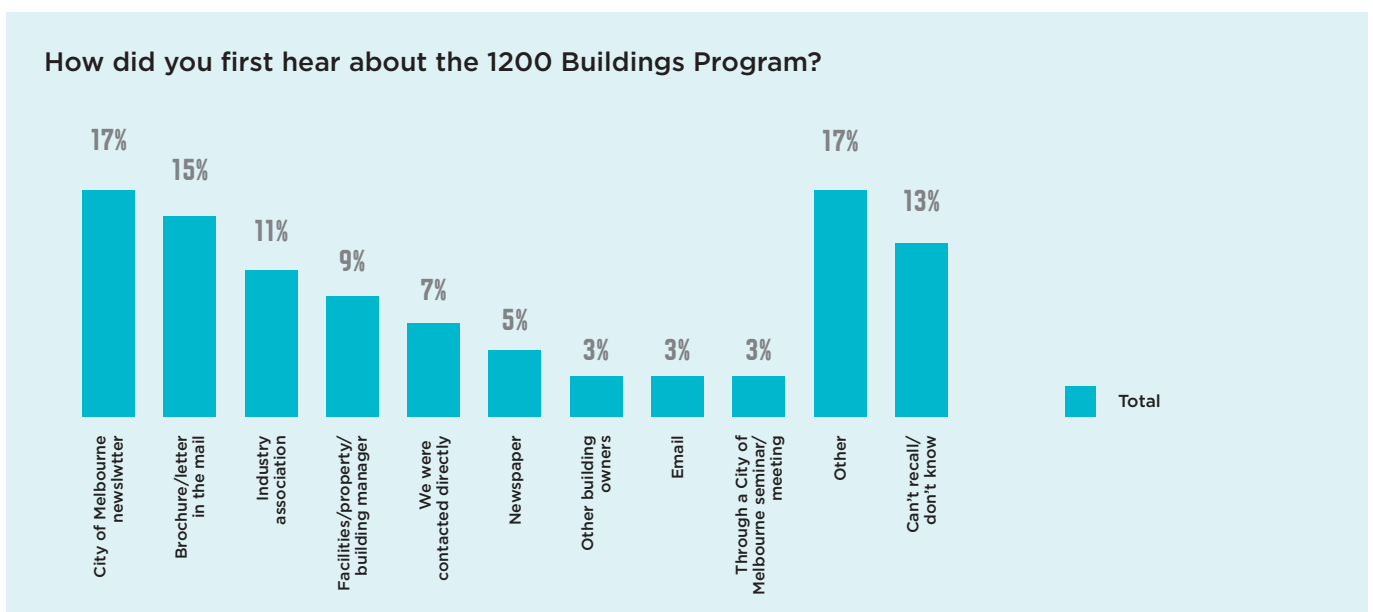


Figure 50 Total = 144

Would you like me to give you some more details about the 1200 Buildings Program?

A substantial minority (39 per cent) indicated they would like to be given further details about the 1200 Buildings Program.

Q Do you feel you have access to the support you need to improve the energy and water efficiency of your building/s (for example, information, knowledge, resources)?

A majority of respondents (71 per cent) believe they had access to the support they need to improve energy and water efficiency in their buildings. The corporate segment was significantly more likely to agree that this was the case (87 per cent).

Q Hotels/motels: Do you use a sustainability program, such as Green Globe certification or a government initiative such as NABERS?

Almost half of the hotel/motel segment uses a sustainability program or rating tool. The most common tool used is the NABERS rating tool (18 per cent). This question was based on a small sample size so the results are indicative only.

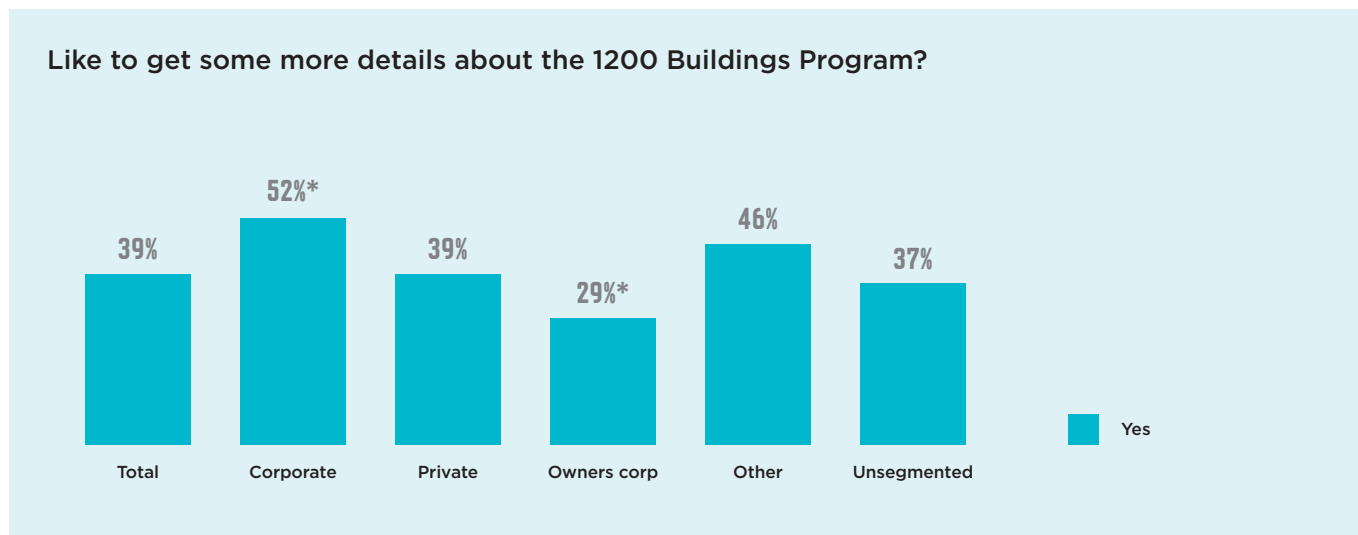


Figure 51 Total = 225; Corporate = 21, Private = 93, Owners corporation = 14, Other = 28, Unsegmented = 69
* Small sample

Access to support by ownership profile?

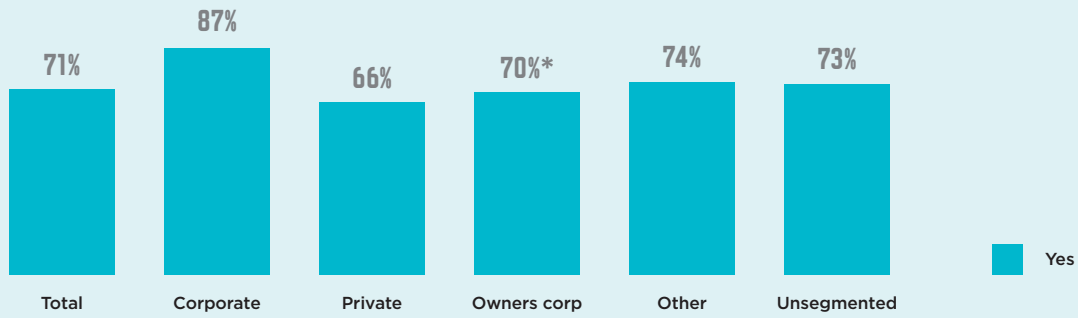


Figure 52 Total = 333, Corporate = 31, Private = 130, Owners corporation = 20, Other = 41, Unsegmented = 110
* Small sample

Hotels: Do you use a sustainability program, such as Green Globe certification or NABERS?

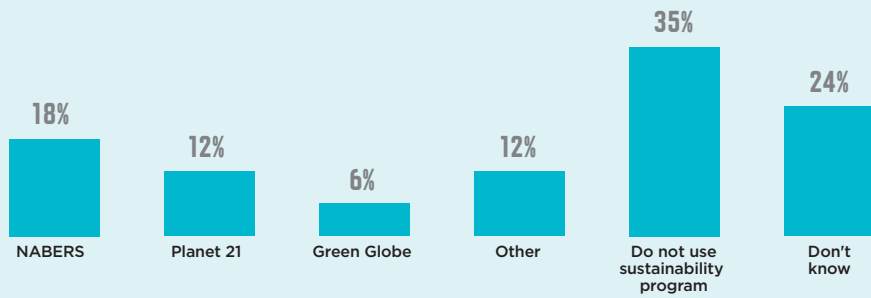


Figure 53 Total = 17

Q In your opinion, what could the 1200 Buildings Program and government in general do to support a greater uptake of sustainable building management in the commercial building sector?

The most commonly cited support actions designed to improve the uptake of retrofit activity were simple and accessible information (21 per cent or the equivalent of 311 buildings extrapolated across the entire sample)

and 'grants/funding' (19 per cent or the equivalent of 277 buildings extrapolated across the whole sample).

There were no significant differences across the ownership segments.

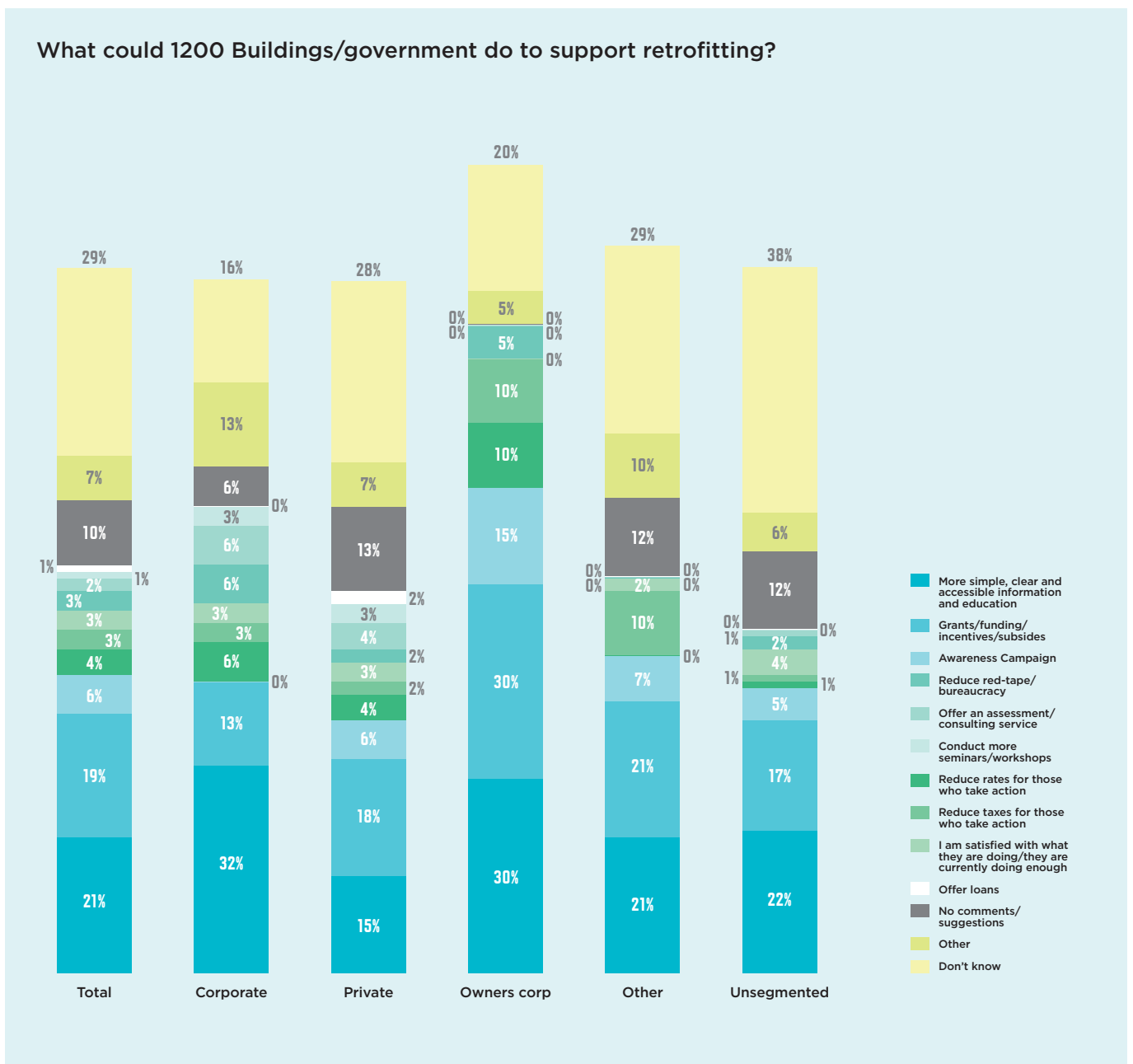


Figure 54 Total respondents = 333



COMPARISON OF RESULTS: 2011-2015

Q Are you currently undertaking a retrofit of this building?

Results in 2011 and 2013 are similar with seven and five per cent respectively of buildings currently undertaking a retrofit. The 2015 survey result displays a significant increase in retrofitting over the past few years with 11 per cent currently retrofitting.

Q Are you currently retrofitting or have you undertaken retrofit in past five years?

Comparing the level of retrofit activity between 2006 and 2011 (21 per cent), 2008 and 2013 (25 per cent), and 2010 and 2015 (37 per cent) there has been some acceleration in retrofit activity.

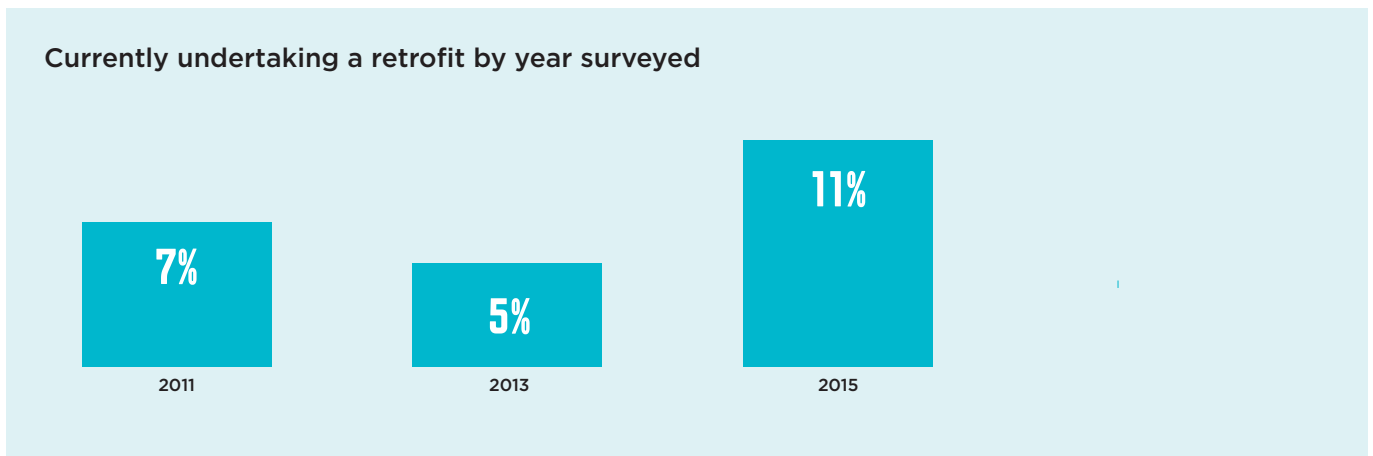


Figure 55 2011 Total = 360, 2013 Total = 552, 2015 Total = 387

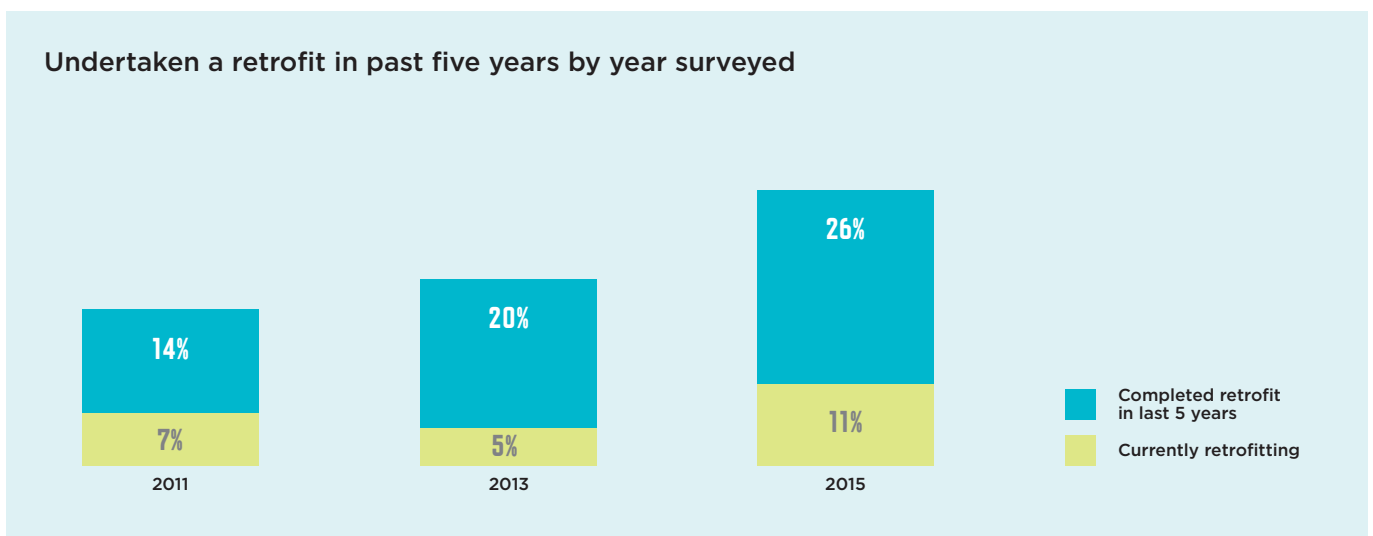


Figure 56 2011 Total = 360, 2013 Total = 552, 2015 Total = 387

Q When are you planning to next undertake a retrofit?

In 2015, 21 per cent of the buildings surveyed claimed they were intending to undertake a retrofit in the next five years. This is a significant increase on the 2011 (10 per cent) and 2013 (16 per cent) results.

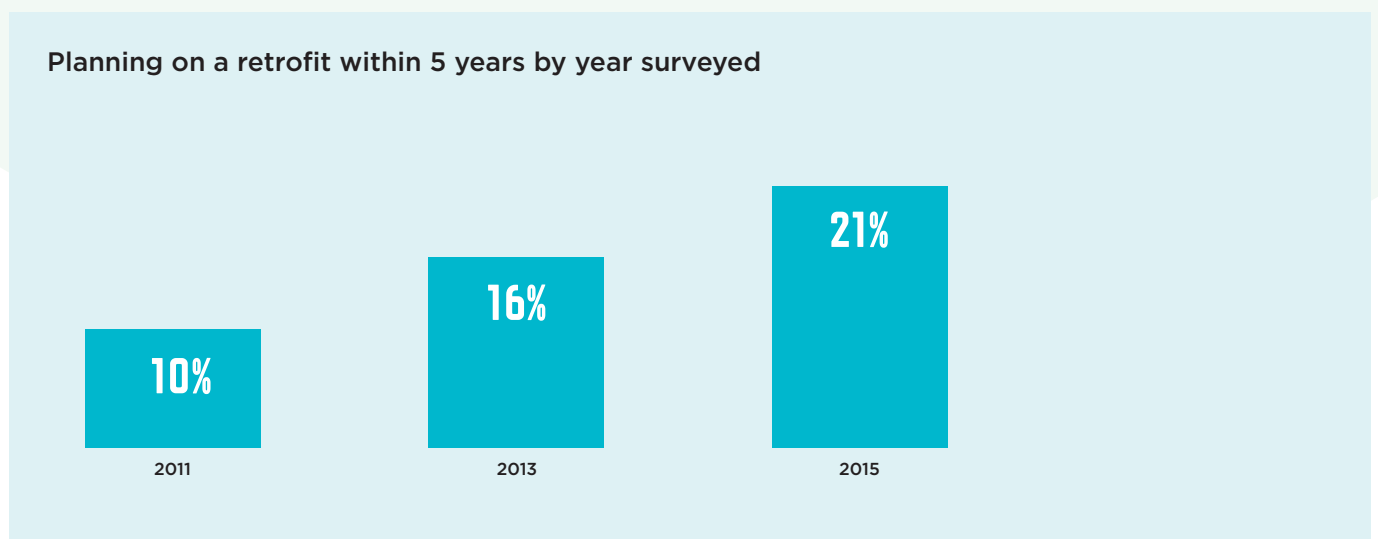


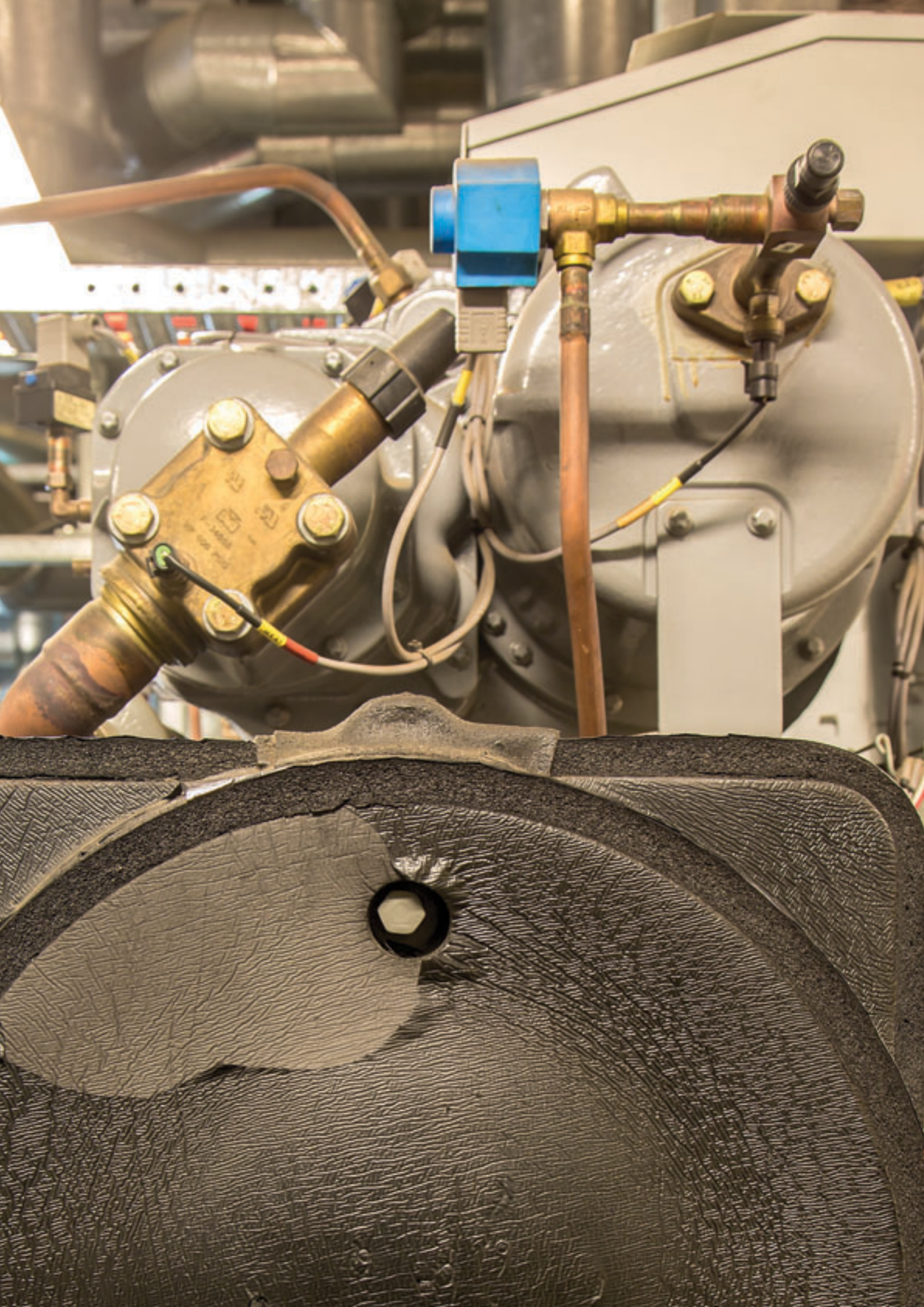
Figure 57 2011 Total = 360, 2013 Total = 552, 2015 Total = 387

PROFILE OF RETROFITTERS

By comparing characteristics of retrofitters versus non-retrofiters and looking for statistically significant differences, a profile can be built of retrofitters. Retrofitters are defined as owners/representatives who have implemented two or more retrofit activities since 2010 (including currently).

Retrofitters are:

- aware of the City of Melbourne 1200 Buildings Program (50 per cent of retrofitters are aware versus 37 per cent of non-retrofiters)
- have obtained a NABERS assessment, either formal or informal (27 per cent of retrofitters versus 8 per cent of non-retrofiters)
- very interested in environmental upgrade finance (17 per cent of retrofitters versus 6 per cent of non-retrofiters)
- motivated by minimising energy consumption (40 per cent of retrofitters versus 19 per cent of non-retrofiters)
- more likely to be from the Corporate segment (11 per cent of retrofitters versus 5 per cent of non-retrofiters)
- willing to consider installing solar panels (61 per cent of retrofitters versus 49 per cent of non-retrofiters)
- more likely to undertake continuous retrofit activity (as defined in Section 3.4) (48 per cent of retrofitters versus 10 per cent of non-retrofiters)
- in buildings with a base area over 2000 square metres (59 per cent of retrofitters versus 38 per cent of non-retrofiters)
- retrofitting buildings constructed after 1970 (44 per cent of retrofitters versus 27 per cent of non-retrofiters)
- have owned their buildings for between two and five years (13 per cent of retrofitters versus 3 per cent of non-retrofiters)
- currently performing building tune-ups (26 per cent of retrofitters versus 8 per cent of non-retrofiters) and plan to in the next five years (27 per cent of retrofitters versus 14 per cent of non-retrofiters).



How to contact us

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