tony isaacs consulting pty ltd

Sustainable Building Specialist

PRINCIPLES AND METHODOLOGY FOR SETTING NCC HEATING AND COOLING LOAD INTENSITY LIMITS & DRAFT HEATING AND COOLING LOAD INTENSITY LIMITS FOR ALL NATHERS CLIMATES

TONY ISAACS AND

ROBERT FOSTER (ENERGY EFFICIENT STRATEGIES)

tony isaacs

TONY ISAACS CONSULTING | 31 DONALD STREET BRUNSWICK 3056 VIC | 03 9386 0700 | 0422 674 840

TICONSULT@HOTMAIL.COM | TONY.TICONSULT@GMAIL.COM

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1 Introduction

This report is the first from a larger project that includes:

- The development of maximum heating and cooling load intensity limits in addition to minimum star ratings for Class 1 and 2 dwellings,
- A description of how these load limits will affect the design and construction of houses in all Nationwide House Energy Rating Scheme (NatHERS) climate zones[1], and
- A calculation showing the overall reduction in heating and cooling loads that have been brought about by the introduction of national minimum energy efficiency regulations in 2004. This is achieved by comparing heating and cooling loads in houses and apartments constructed to the requirements of the National Construction Code (NCC) 2016 with the same buildings constructed to meet regulations in 2003 prior to the introduction of national regulations.

This report covers the development of heating and cooling load intensity limits. The limits described in this report have been updated since the first draft of this report based on a significantly greater number of permit applications. The initial sample size of around 57,000 building permit records was found to be strongly focused on capital cities and did not include data for many regional centres. CSIRO kindly provided access to its full database and the load limits have now been established using over 170,000 records. Despite this increase, a number of regional climates with low population and building activity still had either no data, or too small a set to be statistically reliable. An alternative methodology to calculate load limits in these climates was derived based on simulation for an additional 30-50 houses in these climate zones. This is described in section 2.4.

1.1 Current Regulatory Requirements

The current National Construction Code (NCC 2016) mandates minimum performance standards for the energy efficiency of residential building fabric. These minimum performance requirements are generally set to require 6 star performance under the NatHERS scheme. In NatHERS, 6 stars is defined in terms of a predicted maximum combined heating and cooling load intensity for a typical year of hourly weather data. For example, 6 stars in NatHERS climate 62 (Moorabbin) equates to a maximum combined heating and cooling load intensity of 125 MJ/m^2.annum.

The NatHERS metric is MJ/m^2.annum of combined heating and cooling load intensity. The metric is best described as a measure of load intensity i.e. a maximum value that cannot be exceeded, rather than efficiency which is in fact the inverse of intensity.

Throughout Australia there are both individual jurisdictions which apply a lower or different star ratings, and there are dispensations within NCC 2016 which allow a lower rating than 6 stars. In summary, these are as follows:

[1] NatHERS divides Australia into 69 climate zones. The National Construction Code has eight climate zones. Climate zones are specified in this report as NatHERS climate zones or NCC climate zones to avoid any confusion.

- Class 2 dwellings must achieve an average rating across all dwelling units within a development of 6 stars and no individual dwelling unit may have a rating below 5 stars,
- NCC climate zones 1 and 2 where dispensations are provided as follows:
    - For dwellings with an outdoor living area as defined in the NCC, a minimum 5.5 star standard.
    - For dwellings with an outdoor living area fitted with ceiling fans as defined in the NCC, a minimum 5.0 star standard
- State Variations:
    - Northern Territory uses NCC 2009 which sets minimum requirements at 5 stars,
    - NSW uses BASIX that results in building fabric performance standards down to as low as 4 stars or less but are on average around the 5 star mark.
    - In Queensland, Class 2 dwellings are covered by NCC 2009 which requires a minimum 4 stars and an average of 5 stars,

The load limits in this report cover only NCC 2016 variations and do not allow for individual jurisdiction variations. Separate load limits were developed for 4 cases:

- Class 1 dwellings on a concrete slab,
- Class 1 dwellings on a timber floor,
- Class 2 dwellings on a concrete slab, and
- Class 2 dwellings on a timber floor.

Note that:

For Class 1 dwellings separate limits for 5.5 and 5 stars were developed for NCC climate zones 1 and 2.

For Class 2 dwellings separate limits were developed for the average building performance level (6 stars) and the minimum performance level for any one apartment (5 stars).

This is broadly similar to the categories of load limits which BASIX uses. They represent cases where thermal performance theory shows that heating and cooling loads will be fundamentally different e.g. Class 2 dwellings have large areas of building fabric shared with other units and so have lower heating loads while Class 1 dwellings on a slab will have lower cooling loads due to the lower temperatures under a slab compared to a sub floor temperature in hot weather.

1.2 Heating and cooling load intensity limits

The NatHERS methodology adds together the heating and cooling load intensity to derive a star rating. In climates with both heating and cooling loads this can sometimes lead to a design response which focusses on minimising heating loads without sufficient consideration of cooling loads (or vice versa).

In NSW, BASIX has addressed the limitation of the NatHERS star rating by developing heating and cooling caps which set the maximum load intensity in each season. The development of heating and cooling load intensity limits for this project allows the NCC to provide a similar level of control of heating and cooling loads to the BASIX approach across all climates in

Australia. In this report the BASIX approach is described as heating and cooling 'caps' and the proposed NCC approach is described as heating and cooling load intensity limits or simply 'load limits'.

The introduction of heating and cooling load limits is not meant to change the stringency — the overall benefit-to-cost ratio—of the current regulations. At this stage its main function is to capture outliers with high energy use in each season, and to provide for future policy flexibility. By focusing on outliers, the load limits will capture those dwellings with the highest heating or cooling loads where, in general terms, benefits are highest and costs are lowest.

These load limits developed by this study are additional to the existing combined heating and cooling load intensity limits (i.e. the current NatHERS minimum star rating requirements) which under the terms of reference of this study, are required to remain unchanged.

Excessively high heating or cooling load intensities within a residential building can have detrimental effects at both a household and a state level. Such effects can include:

- Heat stress during the summer leading to discomfort and even fatality.
- Cold stress during the winter leading to discomfort, respiratory illness and fatalities.
- Peak electrical load problems in summer (but also potentially in winter) producing supply issues such as brown outs and black outs.
- Increased greenhouse gas emissions depending on the fuel mix used to heat and cool a dwelling.

Introducing heating and cooling load limits provides a more precise policy instrument than the current total load limits. It will allow regulators to fine tune policy settings to better respond to policy drivers such as those noted above.

The introduction of load limits is deliberately not intended to have any significant impact on the cost of compliance (stringency). The load limits have therefore been set at a level so that only the worst houses are affected and the extent of change to design and specifications required to comply will be minimal. The introduction of these load limits is therefore not solving the issues entirely like heat stress quoted above. The introduction of load limits provides a mechanism to address these issues in future.

2 Methodology

2.1 Overview

As noted in section 1, the aim of this regulatory change is to eliminate those dwelling designs that represent extreme outliers either in terms of excessively high heating load intensity or excessively high cooling load intensity.

In consultation with ABCB it was agreed that those outliers (5% worst performance in terms of heating load and 5% worst performance in terms of cooling load) of the current designs approved under current regulations are to be excluded. Further, it was also decided that there was to be no bias applied to heating and cooling. This means that the outliers captured would contain equal numbers of houses based on their heating and cooling loads i.e. 5% of designs with the highest heating loads and 5% with the highest cooling loads. While 5% of

dwellings cannot meet either heating or cooling load limits, it should be noted that the extent to which dwellings do not achieve cooling load limits is greater than the extent to which they do not achieve heating load limits in terms of MJ/m^2/annum (4.2 MJ/m^2 for cooling compared to 2.5 for heating in the climate used in the 6 star RIS (ABCB, 2009)).

To assess what heating and cooling load limits would deliver such an outcome, two interrelated methods were used depending on data availability, and these were:

- **Method 1**: Statistical analysis of a sample of dwellings from the universal certificate dataset, used where the particular climate/dwelling type under consideration had sufficient numbers to allow analysis (see section 2.3 for a detailed description of method 1). Because this method relies on a sample of actual dwellings approved under the current regulations it was the favoured method but naturally could not be used where the sample size was deemed inadequate. In this case an alternative method was devised (Method 2).
- **Method 2**: In those climates where the sample size was too small to derive a statistically valid result an analysis correlating the average heating fraction (i.e. proportion of the total loads represented by heating) in a given climate zone with heating and cooling load limits (expressed as a percentage of the combined target e.g. 6 stars) was developed. The correlation curves were derived from the results obtained from method one above (see section 2.4). The average heating fractions for a given climate were derived from a pre-existing database of ratings prepared for analysis of star bands for the NatHERS administrator[2] (see section 2.5). This database contained up to 40 houses at the appropriate regulatory rating level in each of the 69 climates (see section 2.4 for a detailed description of method 2).

Outputs from Method 1 are presented in Appendix 3: Load Limits.

Note that separate heating and cooling load limits are not needed in climates where energy loads are dominated by loads in one season. For the purposes of this study this has been taken to represent climates where the ratio of heating load to the total of heating and cooling loads is under 5% or over 95%. This effectively means that only a total load limit is needed for much of northern Australia e.g. Darwin, Cairns and Broome, Alpine areas and Tasmania. The one exception to this is in the NSW climate of Orange where separate load limits have been developed even though the heating fraction is above 95%. This was done to maintain consistency with BASIX in NSW.

2.2 Data Inputs

All NatHERS ratings must be submitted to a data portal to generate a NatHERS Universal Certificate which logs data on star rating and energy loads as well as information about the design and specification of the dwelling. To help develop the load limits for the NCC, Sustainability Victoria (SV) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) have provided selected data from all the ratings submitted to their

[2] This database of results was developed to test the impacts of changing weather data in NatHERS on star bands. This data was used with the permission of the NatHERS Administrator. This database contains ratings for a range of dwellings including volume builder houses, semidetached houses, apartments and specialist passive houses solar in cooler climates and well ventilated houses in hotter climates

data portals from September to November 2016. This has provided data for over 57,000 building permits across a wide range of climates (but not all climates).

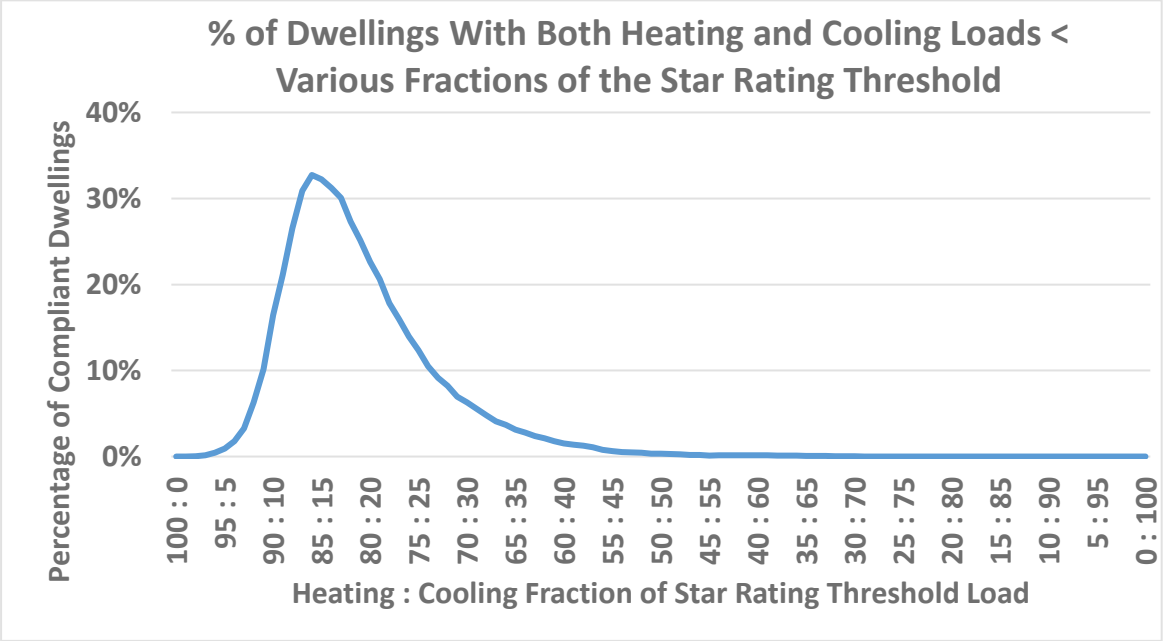
The SV and CSIRO data facilitates statistical analysis of building permits for the setting of heating and cooling load limits. However, the available dataset in each NatHERS climate varies considerably (see Appendix 1: Sample profile).

2.3 Method 1 – climates with well populated datasets

To facilitate the statistical analysis of the data available from the universal dataset a special tool was developed in Microsoft Excel. The key features and outputs from this tool are described in Appendix 2: Sample Analysis Tool.

Initially a total target is specified (combined heating and cooling). For example, for NatHERS Climate 62 the target is set to 6 stars and that equates to 125 MJ/m^2/Year. Next, that target is split into 100 combinations of heating and cooling fractions ranging from 100% heating and 0% cooling to 0% heating and 100% cooling (i.e. in 1% increments). For each option the % of the sample that is compliant is assessed (see Figure 1) and the particular fraction that delivers the highest number of sample dwellings that come in under both the heating and cooling fractions is identified e.g. in NatHERS Climate 62 the fraction is 87% heating and 13% cooling. This can be considered the optimal split of the total target (6 star threshold) for the sample produced under the current regulations (i.e. the peak in the distribution curve in Figure 1 below).

FIGURE 1: COMPLIANCE RATE – DWELLINGS WITH BOTH HEATING AND COOLING LOADS < VARIOUS FRACTIONS OF THE SR THRESHOLD



As can be seen in Figure 1, simply splitting the total target into 2 parts will only deliver a relatively low level of compliance (typically 20 – 30%; this is true in most climates except where only heating or only cooling is required), well below the agreed target of 90% compliance with the proposed new regulations for the designs produced under the current regulations.

This means that in most climates the individual heating and cooling load limits when added together will need to exceed the current total load limit (i.e. 6 stars) in order that the target compliance rate of 90% can be met. This does not in any way lower the currently applied stringency - because the current total load limit is still applied - but provides the designer with a degree of latitude when designing to meet the individual heating and cooling load limits.

To set the heating and cooling load limits such that the goal of 90% compliance is met the following process was undertaken using the tool.

1. The relevant section of the sample was selected e.g. NatHERS Climate 62, NCC Class 1a, Concrete Floor, current 6 star NatHERS target.
2. Heating and cooling loads for each record were separated and then sorted from highest to lowest.
3. The number of outliers to be eliminated was calculated based on the target compliance rate (90% in this case, but any % can be modelled by the tool as required) and the population of the particular cohort under examination e.g. in NatHERS Climate 62, 4166 records. So, in this case the number of outliers to be eliminated = 416 (10% x 4166)
4. The number of outliers to be eliminated was then divided into two parts, heating outliers and cooling outliers. As discussed earlier this division was agreed with ABCB to be equal (50/50) hence 208 heating and 208 cooling (other ratios could be modelled by the tool if required).
5. The 209th highest heating and cooling loads were then selected, and these represent the load limits required to achieve the 90% compliance target.

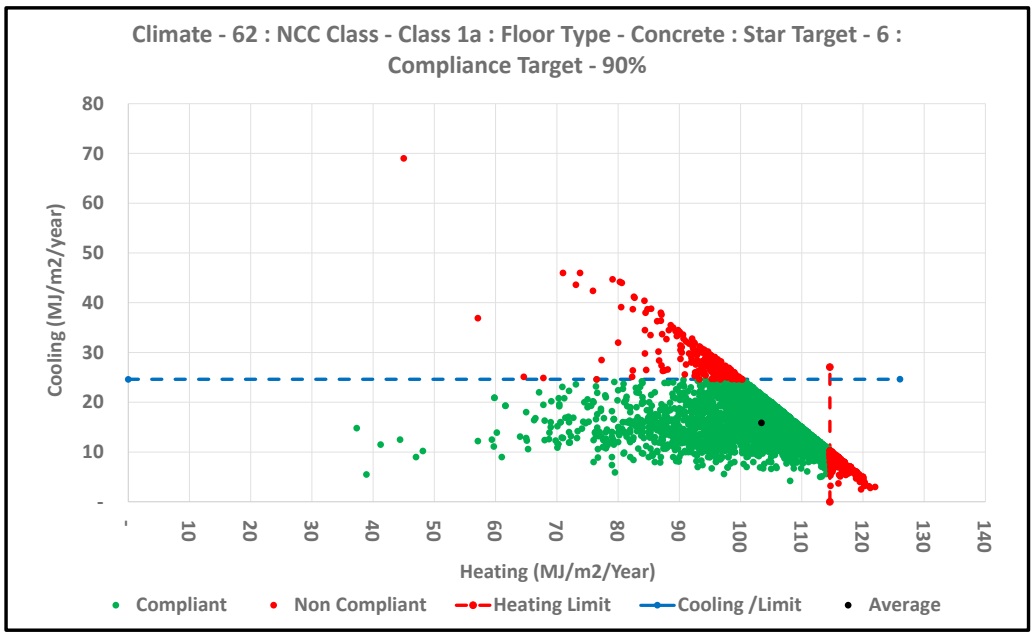
The process described above is illustrated in the tool output chart below (see

Figure 2: In this figure, each data point on the chart represents a sample dwelling. The vertical axis indicates the sample's cooling load and the horizontal axis its heating load. The red dotted vertical line represents the required heating load limit and the blue dotted horizontal line the required cooling load limit such that the specified % of the sample is compliant (90% in this case). The red points to the right of the heating load limit represent the 208 (5% of the sample) non-compliant outliers in terms of heating load and the red points above the cooling load limit represent the 208 (5% of the sample) non-compliant outliers in terms of cooling load. The results from this particular analysis indicate the following load limits should apply:

- Heating = 114.6 MJ/m^2/Year
- Cooling = 24.6 MJ/m^2/Year
- Combined Heating and Cooling = 125 MJ/m^2/Year (i.e. 6 stars)

It is notable that in this Melbourne based climate the maximum observed load for cooling in the sample (69 MJ/m^2/y) is 435% of the average[3] while the maximum for heating (122 MJ/m^2.annum) is only 118% of the average. This would seem to confirm the perception that the current total energy load metric does not provide sufficient control over cooling loads in this climate where heating loads are 4 to 5 times higher than cooling loads on average.

FIGURE 2: SAMPLE OUTPUT FROM THE UNIVERSAL CERTIFICATE SAMPLE ANALYSIS TOOL



This proposed combination of total load and individual heating and cooling load limits formulated as proposed above serves to:

- Maintain current performance standards,
- Provides designers with a degree of flexibility to meet the combined target e.g. in the example above design options ranging up to 114.6 MJ/m^2/y for heating and 24.6 MJ/m^2/y for cooling would be permitted,
- Eliminates the worst performing designs (outliers) in terms of excessive heating or cooling loads which addresses the key issue with the current 6 star total load metric, and
- Only affects 10% of the existing market (i.e. 90% of the market will not need to undertake any design changes)

Other climates with sufficient data show a similar positive set of outcomes at this 10% non-compliance level. Outputs from the analysis tool for climates/dwelling types where a sample size that exceeded 10 dwellings was available are shown in Appendix 4: Outputs from Method 1 analysis.

[3] This is in fact an extreme outlier (see

Figure 2). Even so, more moderate outliers around the 40-45 MJ/m^2/y level still represent more than 250% of the average cooling load intensity.

Because the proposed approach focusses only on those dwellings with either the highest heating or cooling energy loads, only those dwellings where the benefits are greatest are affected. Experience with ratings in Melbourne climates used in the example above suggests that those dwellings with the highest cooling loads will generally be those with the highest window area. At high window areas, high performance glazing is needed to moderate heating loads in this climate. The most rational response to the proposed cooling load limit in this case will be to trim window sizes. This would also reduce total construction costs. It is therefore possible that the introduction of heating and cooling load limits could improve the benefit-to-cost ratio of the regulation and reduce average housing costs.

2.4 Method 2 – climates with poorly populated datasets

Statistical analysis of the climates where data is available (see section 2.3) has shown that if we know the average proportion of load at the particular star rating target (typically 6 stars) which is attributable to heating (called the heating fraction in this report) we can then estimate what the heating and cooling load limits will be as a proportion of the total target value e.g. 6 stars.

Figure 3 (heating) and Figure 4 (cooling) on page 11 show a correlation curve for detached dwellings with concrete floors relating the heating proportion at 6 stars (horizontal axis) against the heating (Figure 3) or cooling (Figure 4) load limits expressed as a percentage of the 6 star MJ/m^2/year figure (vertical axis).

Each solid red data point (heating figure) or blue data point (cooling figure) represents a different climate where a reasonable level of data is available from the sample. As can be seen the data points in this case provide a comprehensive spread from heating dominated climates through to cooling dominated climates.

The R^2 values shown on the graphs show that the correlation is very strong. They represent a correlation coefficient of very close to 1 which is a near perfect correlation. Separate correlations have been produced for Class 1 and Class 2 and at 5 and 5.5 stars to represent houses in northern climates which use the allowance for an outdoor room with and without a ceiling fan.

FIGURE 3 HEATING LOAD LIMIT CORRELATION

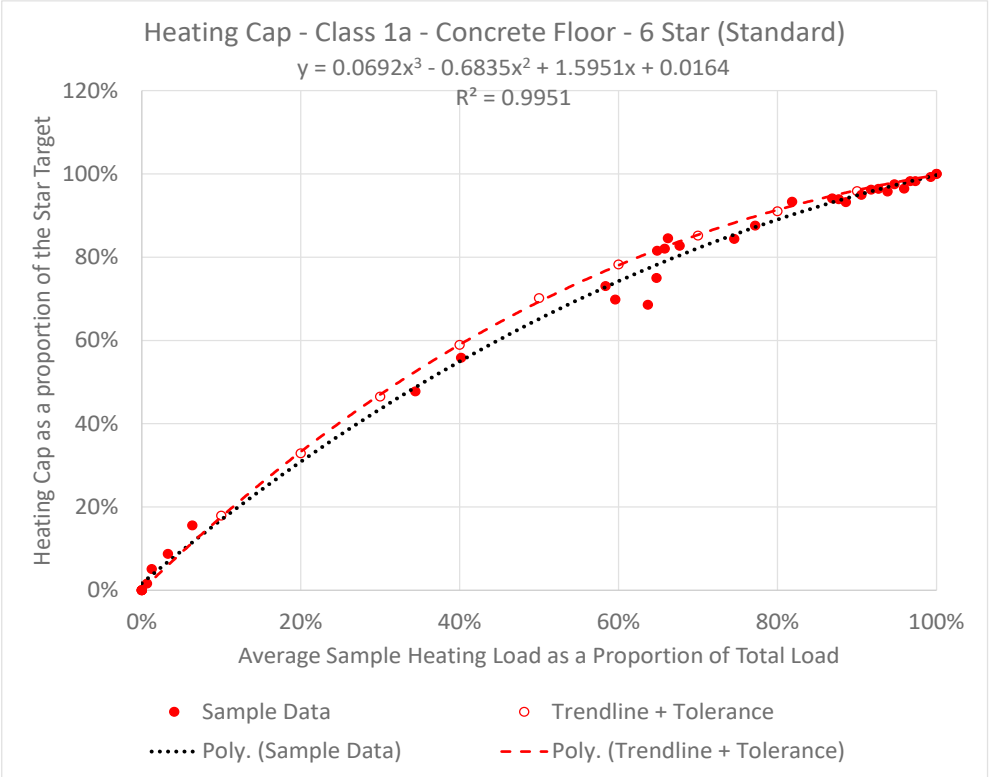
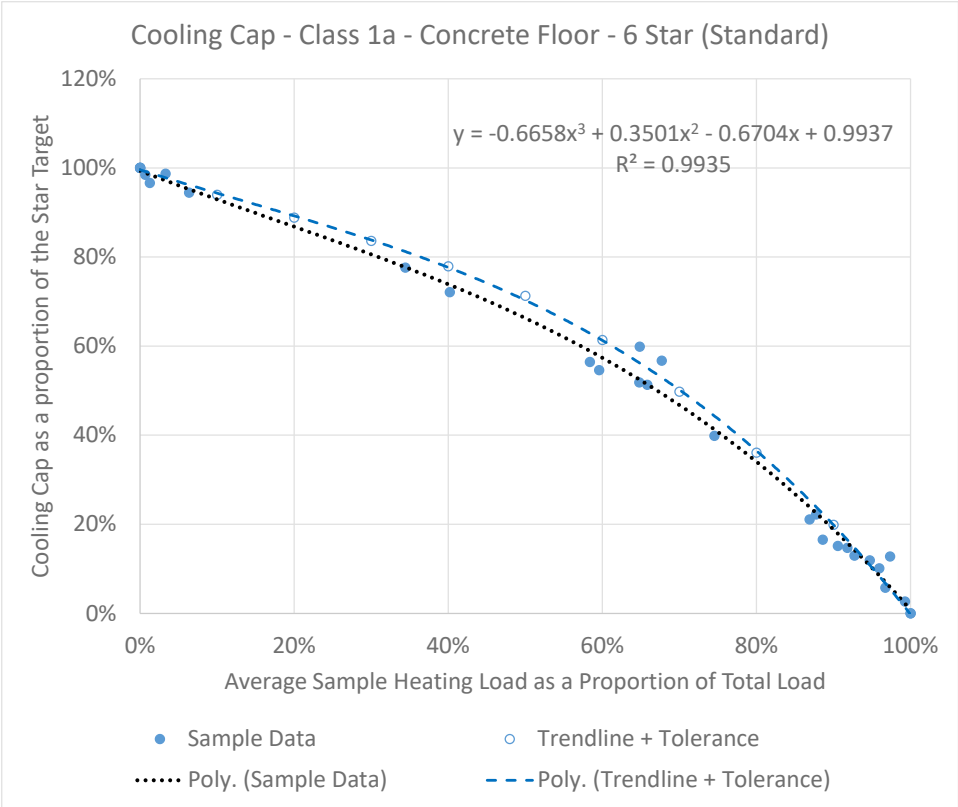


FIGURE 4 COOLING LOAD LIMIT CORRELATION



For some dwelling types (e.g. Class 2 dwellings or dwellings with timber floors) the range of available data points is more limited. In these cases, inferred data points at 0% heating proportion (assumed limits = 100% for cooling and 0% for heating) e.g. Darwin, and at 100% heating proportion (assumed limits = 0% for cooling and 100% for heating) e.g. Alpine, are added to help improve the automated curve fitting functions.

The proposed load limit correlation curves are indicated by the red dotted line in the heating figure and the blue dotted line in the cooling figure. These correlation curves track through the uppermost data points rather than the centre of the data points (the trend-lines through the centre of the data points are indicated by the black dotted lines). By using these adjusted trend-lines (typically to a maximum of 5% above the average) that track through close to the uppermost data points, conservative (higher) estimates are made for the heating and cooling load limits. This conservative approach is considered appropriate because these estimates are based on correlations from the star band data set rather than field data, and there is less certainty about how well this data represents what is happening in the field.

This methodology for climates with poorly populated datasets relies on estimates of average heating loads as a proportion of total loads (i.e. the heating fraction) derived from the star band data set. The method for determining this heating fraction is detailed in section 2.5 below.

2.5 Estimating the heating load fraction (for method 2)

In climate zones where portal data is inadequate but we have reasonable estimates for the heating fraction, we can still derive heating and cooling load limits by using the correlation curves described in section 2.4.

To derive an appropriate heating fraction data developed by Tony Isaacs Consulting and Floyd Energy for the NatHERS administrator, used for calculating NatHERS star bands (the “star band data set”) was utilised. Every climate zone is included in this dataset and in each climate zone houses ranging from 5 to 7 stars are available. Energy ratings of up to 40 dwellings in each climate include typical volume market houses, semidetached houses and apartments on a slab and timber floor at ratings between 5 and 7 stars. The NatHERS Administrator gave permission to use this data.

Before the star band data set can be used to predict the heating fraction in those climates without portal data it is important to see how the heating fractions from the star band set compare to those from the portal. This allows the consultants to compensate for any systematic differences between the two data sets. Table 1 below compares the heating fractions observed in the star band data set (for houses with ratings between 5.5 and 6.5 stars for the 6 star load limits) with those found from the field in the CSIRO and SV portals.

TABLE 1 COMPARISON BETWEEN PORTAL DATA HEATING FRACTION AND THE HEATING FRACTION ESTIMATED WITH THE STAR BAND DATA SET FOR CLASS 1 HOUSES ON A CONCRETE SLAB FLOOR

Location NatHERS climate zone	Heating Fraction – Star band data set	Heating Fraction – Portal	Difference
Townsville 5	1.1%	0.2%	-0.9%
Rockhampton 7	10.7%	6.6%	-4.1%
Amberley 9	54.1%	32.4%	-21.7%
Brisbane 10	23.2%	40.4%	17.2%
Coffs Harbour 11	44.3%	50.7%	6.4%
Perth 13	50.6%	68.2%	17.6%
Armidale 14	87.8%	93.5%	5.7%
Williamtown 15	62.5%	62.5%	0.0%
Adelaide 16	48.0%	59.2%	11.2%
Nowra 18	66.4%	77.1%	10.7%
Wagga 20	72.1%	79.6%	7.5%
Melbourne 21	77.7%	74.5%	-3.2%
East Sale 22	84.6%	86.9%	2.3%
Canberra 24	87.2%	89.9%	2.7%
Hobart 26	97.9%	96.0%	-1.9%
Richmond 28	48.9%	55.9%	7.0%
Cairns 32	0.0%	0.0%	0.0%
Dubbo 48	73.4%	81.5%	8.1%
Oakley 50	46.9%	58.3%	11.4%
Swanbourne 52	57.4%	65.8%	8.4%
Mandurah 54	46.5%	64.9%	18.4%
Mascot 56	64.8%	58.1%	-6.7%
Tullamarine 60	85.7%	85.9%	0.2%
Mt Gambier 61	90.5%	92.7%	2.2%
Moorabbin 62	86.5%	86.7%	0.2%
Warrnambool 63	89.0%	90.5%	1.5%
Ballarat 66	89.7%	91.8%	2.1%

The star band data set gives a good approximation to the portal data where the Heating Fraction is over 70% or under 10%, however, in between these limits there are several outliers. These are shown highlighted in Table 1 above.

It is likely that these outliers stem from the limitation of the star band data set. In most cases in the star band data set it was assumed that walls would be insulated to achieve 6 stars. This does not necessarily represent the building industry's typical response to achieving 6 stars in some climates where high mass wall construction is used e.g. in WA, northern Qld, the NT and houses in SA traditionally use a higher proportion of high mass wall construction than in eastern states. The building industry is more reluctant to use wall insulation in concrete block or brick cavity walls due to the higher costs than framed construction or the need to use greater cavity widths in brick cavity construction. The assumption about wall insulation has a significant impact on the heating fraction. The higher heating faction observed in climates like Perth and Alice Springs compared to the star band data set suggests that a number of dwellings are not insulating walls at the 6 star level.

To examine the impact of wall insulation on the heating fraction the houses from the star band data set in Alice Springs were modified to achieve 6 stars without wall insulation. This

showed that the average heating proportion increases from 24% to 36% if walls are not insulated. The heating load limit will be 50% higher at 36% than it is at 24%.

To address this issue, the heating fractions obtained from the star band data set were correlated with those obtained from the CSIRO and SV portals (for those climates with sufficient numbers). This allowed the development of a correlation function which could be used to modify the heating fractions obtained from the star band set to be more consistent with the portal data. This correlation is shown below:

FIGURE 5 CORRELATION BETWEEN STAR BAND SIMULATION SET AND PORTAL DATA

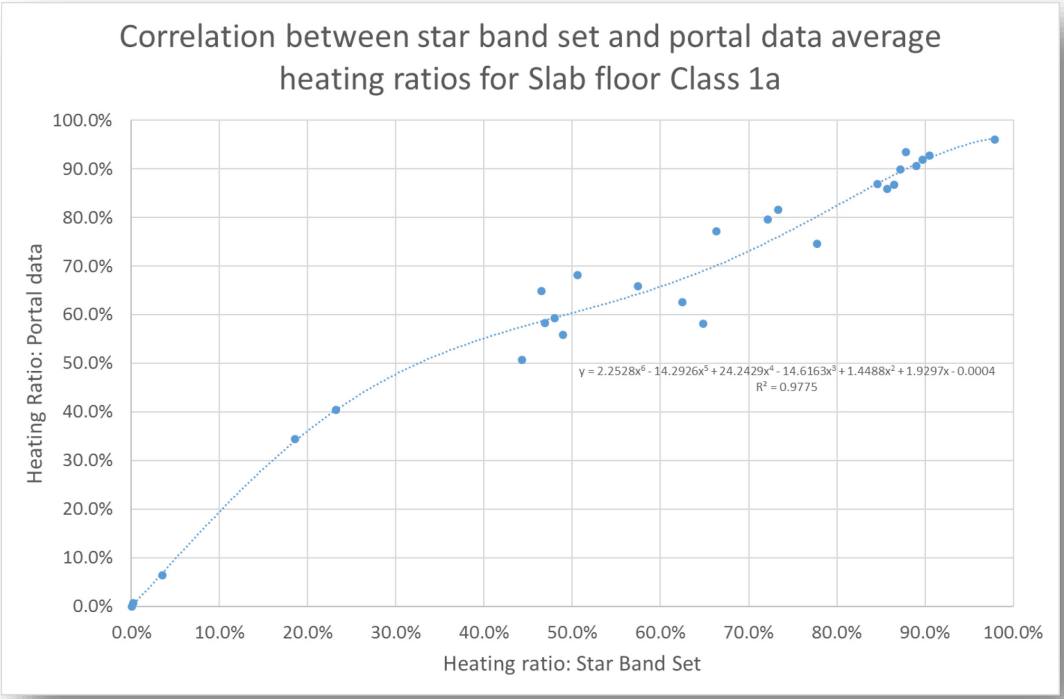


Figure 5 above shows the correlation developed for Class 1 dwellings on a concrete slab floor. Appendix 5 shows correlations for timber floored and Class 2 dwellings.

The table below shows the heating load limit percentage predicted with portal data (again, for those climates with sufficient numbers) that would be implied from using the star band data set without modification and the load limit heating percentage that would be predicted after applying the correlation equation. This shows that the correlated loads give a much more accurate estimate of the heating fraction.

TABLE 2 HEATING LOAD LIMIT PERCENTAGE: PORTAL DATA, RAW STAR BAND SET AND CORRELATED STAR BAND SET

Heating Load limit			
Location	**Portal**	**Star band raw data**	**Proposed: Star band correlated**
Townsville 5	1.1%	0.2%	0.6%
Rockhampton 7	12.0%	6.6%	12.9%
Amberley 9	54.1%	32.4%	53.5%
Brisbane 10	60.9%	39.4%	60.9%
Coffs Harbour 11	71.1%	65.0%	76.9%
Perth 13	84.5%	71.0%	79.3%
Armidale 14	97.1%	94.8%	95.7%
Williamtown 15	80.6%	80.6%	84.0%
Adelaide 16	78.2%	68.6%	78.3%
Nowra 18	89.7%	83.3%	85.7%
Wagga 20	91.0%	86.9%	88.5%
Melbourne 21	88.3%	90.1%	91.3%
East Sale 22	94.5%	93.4%	94.5%
Canberra 24	95.7%	94.6%	95.5%
Hobart 26	98.1%	98.7%	98.1%
Richmond 28	75.6%	69.5%	78.7%
Cairns 32	-0.3%	-0.2%	-0.3%
Dubbo 48	92.0%	87.7%	89.1%
Oakley 50	77.5%	67.6%	77.9%
Swanbourne 52	82.9%	76.8%	81.8%
Mandurah 54	82.3%	67.2%	77.7%
Mascot 56	77.3%	82.3%	85.0%
Tullamarine 60	94.0%	93.9%	94.9%
Mt Gambier 61	96.8%	96.0%	96.6%
Moorabbin 62	94.4%	94.3%	95.2%
Warrnambool 63	96.0%	95.4%	96.2%
Ballarat 66	96.5%	95.7%	96.4%
Average error		4.8%	0.1%

This approach gives a lower absolute error in NatHERS 22 of the 27 climates. The worst errors are in Mascot (7.7%), Perth (5.3%), and Coffs Harbour (5.5%). These climates have quite low energy loads, so the impact of the percentage difference in terms of MJ/m^2 is likely to be within rounding error.

This example shows just houses on a slab floor, but the star band simulation set also has houses on timber floors and Class 2 dwellings. A similar approach has been taken with those dwellings. These results are shown in Appendix 5.

It would be preferable to have real data to base the load limits on in every climate zone. While this approach is 'theoretical', it does predict figures very close to the load limits generated for those climates which have data. It is based on NatHERS simulations of at least 30 compliant houses in every climate. So, while it is 'theoretical' compared to interrogating data on actual building permit submissions, method 2 is still reasonably robust. Nevertheless, it would be wise to carefully monitor the application of the heating and cooling load limits. This caveat should not be taken to indicate that the authors have no

confidence in the limits developed, simply that it would be prudent to update the load limits when data becomes available. The alternative was to not develop load limits for those climates where there was no portal data. Note that those climates where load limits have been generated with real portal data are now estimated to apply to 95% of the Australian population.

2.6 Issues

Portal data for Class 2 dwellings showed that the heating fraction at 6 stars in East Sydney (25.0%) was very much lower than in similar climates like Mascot (63.0%), West Sydney (57.4%) and Williamtown (61.6%). Data for Class 1 dwellings showed that the heating fractions in these climates were much closer.

Further investigation showed that over half of the ratings available at over 5 stars were from one apartment building. Because the BASIX heating and cooling caps were used, rather than the NCC methodology this appears to have led to a skewing of results toward a lower heating fraction that would not occur if the NCC methodology was used. The only units that had ratings in the appropriate range (over 5 and 6 stars) all had very low heating fractions, while all those units from the same development which were excluded from the analysis because they were below 5 stars had much higher heating fractions. This could occur if the building itself has a predominant north orientation which would result in lower heating loads, or if those units in the sample from this building over 5 stars were mainly north facing. The consultants will be seeking further portal data to overcome the limitations of the current sample.

The addition of further data resolved this issue to an extent, however, there is still a significant difference between portal data heating proportion and the star band data set. Because these issues relate to NSW climates where the BASIX caps will be used this issue may never become a problem. Should the NSW government wish to replace BASIX caps with the load limits developed in this report, however, some further investigation of this issue would be recommended.

The Star Band Data Set only contained data for Class 2 dwellings with a concrete slab floor. To obtain heating and cooling load limits for Class 2 timber floored dwellings in climates with no portal data using Method 2 the concrete floor load limits for Class 2 dwellings were adjusted to reflect the relativity of Class 1 timber and concrete floors.

3 Conclusion

Estimates of the heating load fraction in climates with low numbers of permit applications is based on the star band data set prepared for the NatHERS Administrator. Statistical analysis of those climates with sufficient portal data showed that if we can confidently predict the average heating load as a proportion of 6 stars then both the heating and cooling load limits can be accurately calculated using the average heating load at the star rating level as shown in Figures 3 and 4. Star band data set heating proportions were amended through correlation with portal data so that these amended star band data set heating proportions provided a good match to those obtained with the portal.

This theoretical approach successfully predicts the heating proportion in climates where sufficient data is available. Although it is not based on portal data directly, it does correlate well with portal data, so it is still reasonably robust. Those locations with insufficient portal data are all in climate zones which have very low building activity. It is estimated that 95% of the Australian population is covered by climates where there was sufficient data.

The differences between the original star band data set and portal data were greatest in climates where the main wall construction type was high thermal mass. While a correlation approach was used to overcome this limitation, this is a theoretical approach and as a result may not be as accurate. It may inadvertently capture more or less than 10% of outliers as a result. The method 2 load limits are robust, however, there is no substitute for real data. It is recommended that the ABCB carefully monitor the outcomes delivered in those climates where this approach is used as it may need adjustment when more field data becomes available.

Heating and cooling load limits using both Method 1 and Method 2 for ALL 69 NatHERS climates are shown in the Appendices.

The Appendices contain the following information:

Appendix 1: Sample profile showing the number of dwelling records from the CSIRO and SV portals available in each climate zone,

Appendix 2: A description of the Excel based tool used to analyse portal data,

Appendix 3: Heating and Cooling Load limits for ALL climate zones,

Appendix 4: Tool outputs for all climate zones where the sample size exceeded 10 dwellings,

Appendix 5: Correlations between portal data and the star band data set.

Appendix 1: Sample profile

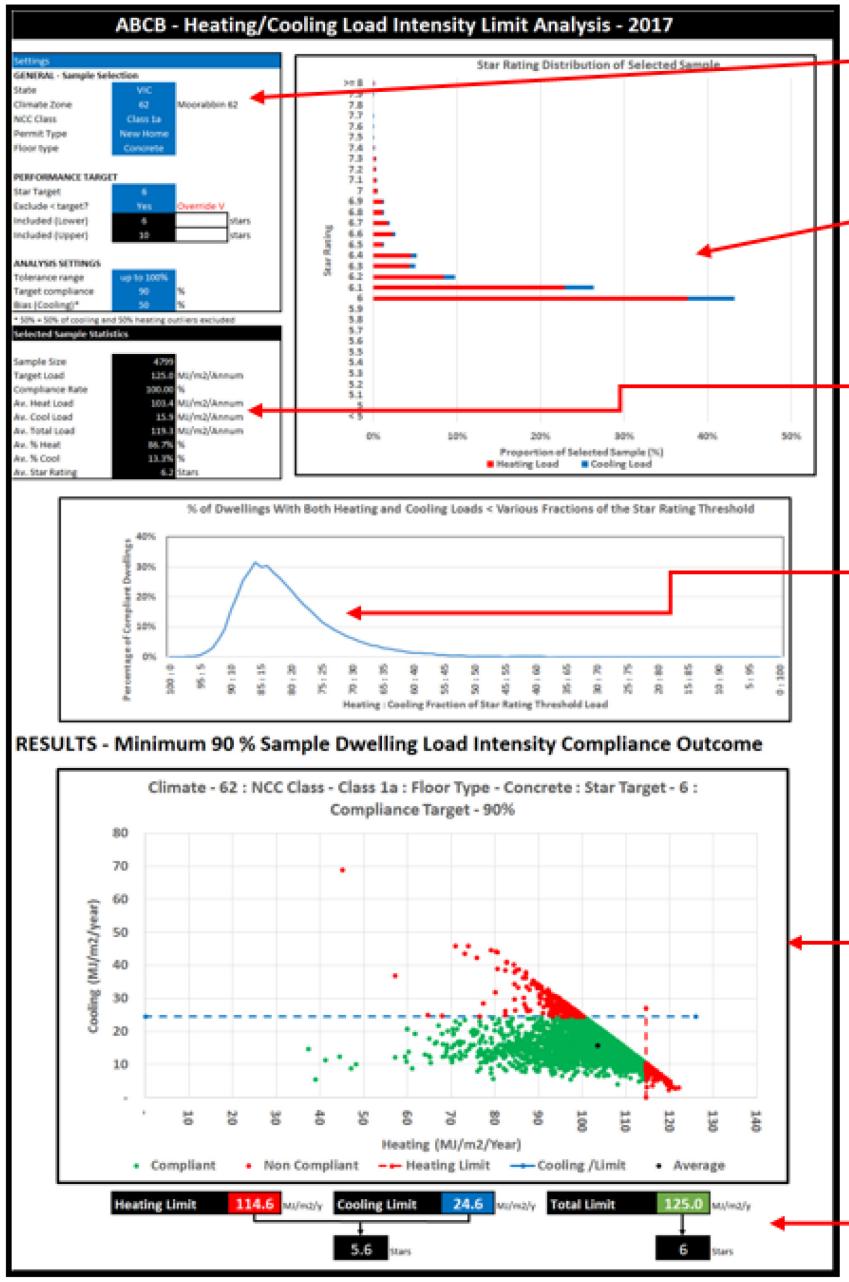
Note that a total of around 177,000 records were provided. Only around 103,000 were used because:

- The rating was below the minimum required for the NCC, or
- In some locations there were over 10,000 records (e.g. Mascot). Only the first 10,000 records were used for analysis.

Climate	Class 1 Concrete	Class 1 Timber	Class 2 Concrete	Class 2 Timber	Total
Darwin 1	859	73	242	0	1174
Pt Hedland 2	0	0	0	0	0
Longreach 3	19	11	0	0	30
Carnarvon 4	0	0	0	0	0
Townsville 5	774	210	63	0	1047
Alice Springs 6	50	0	0	0	50
Rockhampton 7	419	40	0	0	459
Moree 8	0	0	0	0	0
Amberley 9	4458	133	0	0	4591
Brisbane 10	8687	526	2074	0	11287
Coffs Harbour 11	320	11	248	0	579
Geraldton 12	90	0	0	0	90
Perth 13	962	21	354	0	1337
Armidale 14	0	0	0	0	0
Williamtown 15	1059	16	2645	31	3751
Adelaide 16	1779	25	163	15	1982
Sydney E 17	58	0	2033	91	2182
Nowra 18	295	0	295	0	590
Charleville 19	13	0	0	0	13
Wagga 20	542	11	65	0	618
Melb 21	506	141	1920	11	2578
East Sale 22	658	93	0	0	751
Launceston 23	56	23	0	0	79
Canberra 24	1117	178	509	10	1814
Cabramurra 25	0	0	0	0	0
Hobart 26	266	250	0	0	516
Mildura 27	298	18	0	0	316
Richmond 28	3665	29	15071	247	19012
Weipa 29	58	145	0	0	203
Wyndham 30	0	0	0	0	0
Willis Is 31	0	34	0	0	34
Cairns 32	954	124	0	0	1078

Climate	Class 1 Concrete	Class 1 Timber	Class 2 Concrete	Class 2 Timber	Total
Broome 33	0	0	0	0	0
Learmouth 34	0	0	0	0	0
Mackay 35	273	45	0	0	318
Gladstone 36	626	55	0	0	681
Halls Creek 37	0	0	0	0	0
Tennant Crk 38	0	0	0	0	0
Mt Isa 39	0	0	0	0	0
Newman 40	0	0	0	0	0
Giles 41	0	0	0	0	0
Meekatharra 42	0	0	0	0	0
Oodnadatta 43	0	0	0	0	0
Kalgoorlie 44	94	0	0	0	94
Woomera 45	0	0	0	0	0
Cobar 46	0	0	0	0	0
Bickley 47	69	18	0	0	87
Dubbo 48	171	0	0	0	171
Katanning 49	0	0	0	0	0
Oakley 50	843	13	0	0	856
Forrest 51	0	0	0	0	0
Swanbourne 52	277	0	0	0	277
Ceduna 53	0	0	0	0	0
Mandurah 54	472	18	0	0	490
Esperance 55	0	0	0	0	0
Mascot 56	1874	15	20000	101	21990
Manjimup 57	0	0	0	0	0
Albany 58	132	35	0	0	167
Mt Lofty 59	180	16	0	0	196
Tullamarine 60	7551	258	526	19	8354
Mt Gambier 61	69	0	0	0	69
Moorabbin 62	7110	837	903	12	8862
Warrnambool 63	144	26	0	0	170
Cape Otway 64	697	98	0	0	795
Orange 65	62	10	0	13	85
Ballarat 66	2584	247	0	0	2831
Low Head 67	101	37	0	0	138
Launceston air68	78	45	0	0	123
Thredbo 69	0	0	0	0	0
Total	**51369**	**3885**	**47111**	**550**	**102915**

Appendix 2: Sample Analysis Tool



1. Settings – Specify the details of the sample to be analysed, the performance target, compliance target, climate zone building class and climate zone

2. Chart: Star Rating Distribution – Displays the distribution of star ratings for the selected sample, including the average heating and cooling loads for the particular star rating

3. Sample Statistics – Basic statistics in relation to the selected sample of dwellings, sample size, target load, compliance rate, average heating, cooling and total loads and average star rating

4. Heating and Cooling load Profile – Shows compliance rates within the selected sample based on a range of heating and cooling fractions of the target total load (6 stars in this case). E.g. 31% of the sample has a heating load ≤ 85% of the target AND a cooling load ≤ 15% of the target. In all cases in this chart the two fractions when combined make up 100% of the target

6. Chart: Heating and Cooling Load Profile with Load Limits – Each data point on the chart represents a sample dwelling. The vertical axis indicates the samples cooling load and the horizontal axis its heating load. The red dotted vertical line represents the required heating load limit and the blue dotted horizontal line the required cooling load limit such that the specified % of the sample is compliant (90% in this case). The red points to the right of the heating load limit represent the non-compliant outliers in terms of heating load and the red points above the cooling load limit represent the non-compliant outliers in terms of cooling load. Together, in this example, all of the identified outliers (heating and cooling) represent just under 10% of the sample (i.e. 90% compliance).

7 Heating / Cooling Load limits 6 star load – These three values indicate the required heating, cooling and total load intensity caps such that the noted % of the sample is compliant (90% in this case).

Appendix 3: Load Limits

The heating and cooling load intensity limits in the flowing sections are shown in tabular format. The following information explains each of the column headings:

Column	Explanatory Information
Climate Name	Shows the NatHERS climate name and number
Climate No.	NatHERS climate number
Sample Available?	**YES** if the Portal data from CSIRO and SV contained data for this climate, **NO** if it did not.
Sample size	The number of dwellings from the portal data
Target (Stars)	The NCC required 6 stars but allows Class 1 dwellings in climate zones 1 and 2 to be 5.5 stars with an outdoor room and 5.0 stars with an outdoor room which is fitted with a fan. This shows what rating level the heating and cooling load limits apply to.
Target (MJ/m^2/year)	The total load limit for the star rating in the previous column e.g. the number of MJ/m^2 for 6 stars.
Sample % Heating (Method 1)	The average proportion of heating load compared to the total of heating and cooling load. Our analysis shows that when this is known the heating and cooling load limits for climates with poor sample sizes can be derived by correlation. See sections 2.4 and 2.5.
Deemed % Heating (Method 2)	Where the sample does not contain any data the Star Band Data Set was used to derive a heating proportion (Method 2). This proportion is used where the portal data does not contain sufficient data to enable derivation of heating and cooling load limits from the portal data, typically where the sample is less than 20 units. Note that it is suggested that heating and cooling load limits are not required where the heating proportion is below 5% or over 95% because dwelling performance in these climates is dominated by one season. In Gladstone and McKay, the heating proportion is under 5% for houses with concrete floors but over 5% for dwellings with timber floors. At this stage, we suggest that no heating and cooling load limits should be applied, but are happy to discuss. In Orange, the heating proportion is under 5%, but we have produced heating and cooling load limits for Orange to be consistent with BASIX.
Deemed Heating Load Limit (MJ/m2/year)	The Heating Load Limit taken from Method 1 for climates with sufficient portal data or Method 2 for climates with insufficient portal data.
Deemed Cooling Load Limit (MJ/m2/year)	The Cooling Load Limit taken from Method 1 for climates with sufficient portal data or Method 2 for climates with insufficient portal data.
Equivalent Star Rating	This shows what star rating would be obtained by adding together the Heating and Cooling Load Limit. This may be useful for comparison with BASIX outcomes, and illustrates how stringency would be affected if there was no total load limit.
Correlation Curve tolerances >	In red shows the proportion of the sample which would not pass the heating load limit. Note that we have assumed 5% for both heating and cooling.
	In blue shows the proportion of the sample which would not pass the cooling load limit. Note that we have assumed 5% for both heating and cooling.

Class 1

6 star Energy Load Limits (Draft)

Class 1a-Concrete Floor-6 Star Target (Standard Case)							Correlation Curve tolerances >	5%	5%
Climate Name	Climate No.	Adequate Sample Available?	Sample size	Target (Stars)	Target (MJ/m2/year)	Sample % Heating	Deemed % Heating (Correlation Analysis)	Deemed Heating Load Limit (MJ/m2/year)	Deemed Cooling Load Limit (MJ/m2/year)	Eqivalent Star Rating
Darwin 1	1	YES	696	6	349	0%	0%	0	349	6
Pt Hedland 2	2	NO		6	215		0%	0	215	6
Longreach 3	3	NO		6	141		0%	0	141	6
Carnarvon 4	4	NO		6	53		9%	8	50	5.6
Townsville 5	5	YES	717	6	127	1%	0%	2	125	6
Alice Springs 6	6	NO		6	113		33%	57	91	5
Rockhampton 7	7	YES	342	6	90	6%	11%	13	85	5.5
Moree 8	8	NO		6	94		59%	71	57	4.7
Amberley 9	9	YES	3600	6	67	34%	37%	33	52	5
Brisbane 10	10	YES	6490	6	43	40%	42%	24	31	5
Coffs Harbour 11	11	YES	320	6	44	50%	61%	30	25	5
Geraldton 12	12	YES	90	6	57	52%	44%	35	44	4.7
Perth 13	13	YES	962	6	70	67%	66%	57	39	4.7
Armidale 14	14	NO		6	128		89%	121	26	5.5
Williamtown 15	15	YES	1059	6	67	63%	74%	48	32	5.3
Adelaide 16	16	YES	1779	6	96	59%	65%	67	52	5.2
Sydney E 17	17	YES	58	6	39	33%	60%	15	31	5.3
Nowra 18	18	YES	295	6	81	77%	77%	67	27	5.4
Charleville 19	19	NO		6	87		41%	52	66	4.8
Wagga 20	20	YES	542	6	137	79%	80%	114	47	5.4
Melb 21	21	YES	506	6	114	74%	85%	96	45	5.2
East Sale 22	22	YES	658	6	133	86%	90%	123	27	5.5
Launceston 23	23	YES	56	6	160	95%	100%	156	19	5.6
Canberra 24	24	YES	1117	6	165	88%	91%	154	38	5.4
Cabramurra 25	25	NO		6	352		100%	352	0	6
Hobart 26	26	YES	266	6	155	96%	100%	150	15	5.7
Mildura 27	27	YES	298	6	110	64%	69%	82	57	5.1
Richmond 28	28	YES	3665	6	87	58%	66%	61	46	5.2
Weipa 29	29	YES	58	6	326	0%	0%	0	326	6
Wyndham 30	30	NO		6	406		0%	0	406	6
Willis Is 31	31	NO		6	176		0%	0	176	6
Cairns 32	32	YES	784	6	128	0%	0%	0	128	6
Broome 33	33	NO		6	285		0%	0	285	6
Learmouth 34	34	NO		6	134		0%	0	134	6
Mackay 35	35	YES	235	6	92	4%	0%	9	90	5.6
Gladstone 36	36	YES	613	6	59	2%	0%	4	57	5.9
Halls Creek 37	37	NO		6	211		0%	0	211	6
Tennant Creek 38	38	NO		6	170		0%	0	170	6
Mt Isa 39	39	NO		6	164		0%	0	164	6
Newman 40	40	NO		6	127		7%	16	122	5.6
Giles 41	41	NO		6	98		17%	28	89	5.3
Meekatharra 42	42	NO		6	70		17%	20	63	5.3
Oodnadatta 43	43	NO		6	103		20%	35	91	5.2
Kalgoorlie 44	44	YES	94	6	70	65%	65%	52	32	5.3
Woomera 45	45	NO		6	90		56%	66	57	4.7
Cobar 46	46	NO		6	89		60%	68	53	4.8
Bickley 47	47	YES	69	6	94	81%	74%	87	40	4.8
Dubbo 48	48	YES	171	6	103	81%	79%	85	27	5.7
Katanning 49	49	NO		6	100		71%	85	47	4.9
Oakley 50	50	YES	659	6	78	59%	62%	57	44	4.8
Forrest 51	51	NO		6	72		64%	57	40	4.8
Swanbourne 52	52	YES	277	6	39	68%	71%	32	19	5
Ceduna 53	53	NO		6	78		65%	62	43	4.8
Mandurah 54	54	YES	472	6	65	65%	64%	53	39	4.5
Esperance 55	55	NO		6	62		76%	54	25	5.1
Mascot 56	56	YES	1874	6	51	58%	74%	36	27	5.1
Manjimup 57	57	NO		6	108		78%	96	40	5.1
Albany 58	58	YES	132	6	83	92%	91%	79	13	5.6
Mt Lofty 59	59	YES	180	6	230	97%	100%	226	13	5.8
Tullamarine 60	60	YES	7551	6	138	86%	91%	126	31	5.5
Mt Gambier 61	61	YES	69	6	144	92%	94%	139	20	5.6
Moorabbin 62	62	YES	7110	6	125	87%	91%	115	24	5.6
Warrnambool 63	63	YES	144	6	151	90%	93%	140	22	5.7
Cape Otway 64	64	YES	697	6	127	89%	92%	119	21	5.6
Orange 65	65	YES	62	6	219	97%	95%	210	14	5.9
Ballarat 66	66	YES	2584	6	197	92%	93%	189	26	5.6
Low Head 67	67	YES	101	6	116	97%	100%	114	13	5.6
Launceston air68	68	YES	78	6	188	99%	100%	187	5	5.9
Thredbo 69	69	NO		6	298		100%	298	0	6

Class 1a-Timber Floor-6 Star Target (Standard Case)							Correlation Curve tolerances >	5%	5%
Climate Name	Climate No.	Adequate Sample Available?	Sample size	Target (Stars)	Target (MJ/m2/year)	Sample % Heating	Deemed % Heating (Correlation Analysis)	Deemed Heating Load Limit (MJ/m2/year)	Deemed Cooling Load Limit (MJ/m2/year)	Eqivalent Star Rating
Darwin 1	1	YES	34	6	349	0%	0%	0	349	6
Pt Hedland 2	2	NO		6	215		0%	0	215	6
Longreach 3	3	NO		6	141		0%	0	141	6
Carnarvon 4	4	NO		6	53		15%	15	49	5.1
Townsville 5	5	YES	95	6	127	5%	0%	14	124	5.5
Alice Springs 6	6	NO		6	113		37%	64	89	4.8
Rockhampton 7	7	YES	15	6	90	11%	15%	18	86	5.3
Moree 8	8	NO		6	94		49%	65	63	4.7
Amberley 9	9	YES	48	6	67	40%	35%	34	47	5.2
Brisbane 10	10	YES	313	6	43	46%	42%	28	31	4.7
Coffs Harbour 11	11	YES	11	6	44	52%	50%	24	23	5.7
Geraldton 12	12	NO		6	57		45%	37	41	4.7
Perth 13	13	YES	21	6	70	45%	58%	38	46	5.2
Armidale 14	14	NO		6	128		80%	113	40	5.3
Williamtown 15	15	YES	16	6	67	52%	57%	45	36	5.2
Adelaide 16	16	YES	25	6	96	49%	58%	55	59	5.3
Sydney E 17	17	NO		6	39		50%	27	26	4.8
Nowra 18	18	NO		6	81		57%	60	48	4.9
Charleville 19	19	NO		6	87		43%	55	64	4.8
Wagga 20	20	YES	11	6	137	70%	58%	93	47	5.9
Melb 21	21	YES	141	6	114	68%	80%	88	47	5.3
East Sale 22	22	YES	93	6	133	82%	87%	117	39	5.4
Launceston 23	23	YES	23	6	160	92%	100%	152	22	5.7
Canberra 24	24	YES	178	6	165	80%	86%	143	47	5.4
Cabramurra 25	25	NO		6	352		100%	352	0	6
Hobart 26	26	YES	250	6	155	95%	100%	149	15	5.8
Mildura 27	27	YES	18	6	110	54%	51%	78	68	4.9
Richmond 28	28	YES	29	6	87	52%	58%	60	55	4.9
Weipa 29	29	YES	18	6	326	0%	0%	0	326	6
Wyndham 30	30	NO		6	406		0%	0	406	6
Willis Is 31	31	YES	17	6	176	0%	0%	0	176	6
Cairns 32	32	YES	99	6	128	1%	0%	3	127	5.9
Broome 33	33	NO		6	285		0%	0	285	6
Learmouth 34	34	NO		6	134		0%	0	134	6
Mackay 35	35	YES	35	6	92	13%	0%	22	89	5
Gladstone 36	36	YES	55	6	59	14%	0%	14	54	5.3
Halls Creek 37	37	NO		6	211		0%	0	211	6
Tennant Creek 38	38	NO		6	170		0%	0	170	6
Mt Isa 39	39	NO		6	164		0%	0	164	6
Newman 40	40	NO		6	127		5%	14	124	5.6
Giles 41	41	NO		6	98		25%	42	86	4.9
Meekatharra 42	42	NO		6	70		26%	31	61	4.9
Oodnadatta 43	43	NO		6	103		28%	48	88	4.9
Kalgoorlie 44	44	NO		6	70		57%	52	42	4.9
Woomera 45	45	NO		6	90		50%	62	61	4.7
Cobar 46	46	NO		6	89		50%	62	59	4.8
Bickley 47	47	YES	18	6	94	62%	55%	68	50	5.1
Dubbo 48	48	NO		6	103		60%	79	58	4.9
Katanning 49	49	NO		6	100		54%	72	63	4.8
Oakley 50	50	YES	13	6	78	59%	50%	58	44	4.8
Forrest 51	51	NO		6	72		51%	51	47	4.8
Swanbourne 52	52	NO		6	39		54%	28	24	4.9
Ceduna 53	53	NO		6	78		52%	55	51	4.8
Mandurah 54	54	YES	18	6	65	37%	50%	42	47	4.7
Esperance 55	55	NO		6	62		63%	49	33	5
Mascot 56	56	YES	15	6	51	61%	59%	39	27	5
Manjimup 57	57	NO		6	108		64%	85	56	5
Albany 58	58	YES	35	6	83	84%	88%	77	18	5.5
Mt Lofty 59	59	YES	16	6	230	93%	100%	220	24	5.7
Tullamarine 60	60	YES	258	6	138	79%	85%	121	43	5.3
Mt Gambier 61	61	NO		6	144		86%	132	31	5.5
Moorabbin 62	62	YES	837	6	125	82%	88%	109	34	5.5
Warrnambool 63	63	YES	26	6	151	83%	90%	138	36	5.4
Cape Otway 64	64	YES	98	6	127	84%	90%	113	31	5.5
Orange 65	65	YES	10	6	219	96%	92%	203	16	6
Ballarat 66	66	YES	247	6	197	86%	90%	181	48	5.4
Low Head 67	67	YES	37	6	116	98%	100%	115	5	5.8
Launceston air68	68	YES	45	6	188	98%	100%	185	7	5.9
Thredbo 69	69	NO		6	298		100%	298	0	6

Class 1

5 and 5.5 star Energy Load Limits (Draft)

The tables below show the heating and cooling load limits for Class 1 dwellings in NCC Climate Zones 1 and 2 which have an outdoor room (5.5 star) and an outdoor room with fan (5 star). Note that most of the climates in NCC zone 1 and 2 are cooling dominated and therefore do not need a heating load limit. ***Only NatHERS climates 7, 9, 10 and 11 require heating and cooling load limits***. All NCC Zone 1 and 2 climates in the tables below. This demonstrates that most of these climates are cooling dominated and therefore do not need separate heating and cooling load limits. Climates not in NCC zones 1 and 2 are generally shown with grey fill.

Class 1a-Concrete Floor-5.5 Star Target (Outdoor area Case)							Correlation Curve tolerances >	5%	5%
Climate Name	Climate No.	Adequate Sample Available?	Sample size	Target (Stars)	Target (MJ/m2/year)	Sample % Heating	Deemed % Heating (Correlation Analysis)	Deemed Heating Load Limit (MJ/m2/year)	Deemed Cooling Load Limit (MJ/m2/year)	Eqivalent Star Rating
Darwin 1	1	YES	92	5.5	381	0%	0%	0	381	5.5
Pt Hedland 2	2	NO		5.5	237		0%	0	237	5.5
Longreach 3	3	YES	19	5.5	159	3%	0%	16	146	5.4
Carnarvon 4	4	NO		5.5	59		0%	0	59	5.5
Townsville 5	5	YES	23	5.5	140	1%	0%	4	139	5.3
Alice Springs 6	6	YES	21	5.5	130	33%	35%	76	89	4.6
Rockhampton 7	7	YES	48	5.5	99	6%	10%	15	97	4.9
Moree 8	8	NO		5.5	106			#VALUE!	#VALUE!	#VALUE!
Amberley 9	9	YES	448	5.5	75	33%	34%	43	61	4.3
Brisbane 10	10	YES	846	5.5	48	41%	39%	31	36	4.2
Coffs Harbour 11	11	NO		5.5	49		55%	37	31	4.2
Geraldton 12	12	NO		5.5	64			#VALUE!	#VALUE!	#VALUE!
Perth 13	13	NO		5.5	79		0%	0	79	5.5
Armidale 14	14	NO		5.5	147		89%	134	32	5
Williamtown 15	15	NO		5.5	76		66%	61	41	4.3
Adelaide 16	16	NO		5.5	109		0%	0	109	5.5
Sydney E 17	17	NO		5.5	44		0%	0	44	5.5
Nowra 18	18	NO		5.5	92		69%	75	46	4.5
Charleville 19	19	YES	13	5.5	100	30%	0%	48	71	4.8
Wagga 20	20	NO		5.5	156		72%	129	73	4.5
Melb 21	21	NO		5.5	131		0%	0	131	5.5
East Sale 22	22	NO		5.5	153		0%	0	153	5.5
Launceston 23	23	NO		5.5	183		0%	0	183	5.5
Canberra 24	24	NO		5.5	189		0%	0	189	5.5
Cabramurra 25	25	NO		5.5	401		0%	0	401	5.5
Hobart 26	26	NO		5.5	177		0%	0	177	5.5
Mildura 27	27	NO		5.5	126		0%	0	126	5.5
Richmond 28	28	NO		5.5	99		59%	77	60	4.2
Weipa 29	29	NO		5.5	355		0%	0	355	5.5
Wyndham 30	30	NO		5.5	447		0%	0	447	5.5
Willis Is 31	31	NO		5.5	191		0%	0	191	5.5
Cairns 32	32	YES	54	5.5	140	0%	0%	1	140	5.4
Broome 33	33	NO		5.5	310		0%	0	310	5.5
Learmouth 34	34	NO		5.5	149		0%	0	149	5.5
Mackay 35	35	YES	21	5.5	102	4%	1%	15	100	4.8
Gladstone 36	36	YES	13	5.5	66	3%	5%	8	65	5
Halls Creek 37	37	NO		5.5	235		0%	0	235	5.5
Tennant Creek 38	38	NO		5.5	191		0%	0	191	5.5
Mt Isa 39	39	NO		5.5	184		0%	0	184	5.5
Newman 40	40	NO		5.5	144		0%	0	144	5.5
Giles 41	41	NO		5.5	111		0%	0	111	5.5
Meekatharra 42	42	NO		5.5	79		0%	0	79	5.5
Oodnadatta 43	43	NO		5.5	118		0%	0	118	5.5
Kalgoorlie 44	44	NO		5.5	80		0%	0	80	5.5
Woomera 45	45	NO		5.5	102		0%	0	102	5.5
Cobar 46	46	NO		5.5	101		0%	0	101	5.5
Bickley 47	47	NO		5.5	107		0%	0	107	5.5
Dubbo 48	48	NO		5.5	118		0%	0	118	5.5
Katanning 49	49	NO		5.5	114		0%	0	114	5.5
Oakley 50	50	YES	76	5.5	87	64%	57%	66	44	4.5
Forrest 51	51	NO		5.5	82		0%	0	82	5.5
Swanbourne 52	52	NO		5.5	45		0%	0	45	5.5
Ceduna 53	53	NO		5.5	89		0%	0	89	5.5
Mandurah 54	54	NO		5.5	73		0%	0	73	5.5
Esperance 55	55	NO		5.5	71		0%	0	71	5.5
Mascot 56	56	NO		5.5	58		66%	47	31	4.4
Manjimup 57	57	NO		5.5	124		0%	0	124	5.5
Albany 58	58	NO		5.5	95		0%	0	95	5.5
Mt Lofty 59	59	NO		5.5	264		0%	0	264	5.5
Tullamarine 60	60	NO		5.5	158		0%	0	158	5.5
Mt Gambier 61	61	NO		5.5	165		0%	0	165	5.5
Moorabbin 62	62	NO		5.5	144		0%	0	144	5.5
Warrnambool 63	63	NO		5.5	173		0%	0	173	5.5
Cape Otway 64	64	NO		5.5	146		0%	0	146	5.5
Orange 65	65	NO		5.5	250		0%	0	250	5.5
Ballarat 66	66	NO		5.5	225		0%	0	225	5.5
Low Head 67	67	NO		5.5	133		0%	0	133	5.5
Launceston air68	68	NO		5.5	215		0%	0	215	5.5
Thredbo 69	69	NO		5.5	341		100%	341	0	5.5

Class 1a-Timber Floor-5.5 Star Target (Outdoor area Case)							Correlation Curve tolerances >	5%	5%
Climate Name	Climate No.	Adequate Sample Available?	Sample size	Target (Stars)	Target (MJ/m2/year)	Sample % Heating	Deemed % Heating (Correlation Analysis)	Deemed Heating Load Limit (MJ/m2/year)	Deemed Cooling Load Limit (MJ/m2/year)	Eqivalent Star Rating
Darwin 1	1	YES	17	5.5	381	0%	0%	0	381	5.5
Pt Hedland 2	2	NO		5.5	237			#VALUE!	#VALUE!	#VALUE!
Longreach 3	3	NO		5.5	159			#VALUE!	#VALUE!	#VALUE!
Carnarvon 4	4	NO		5.5	59			#VALUE!	#VALUE!	#VALUE!
Townsville 5	5	YES	100	5.5	140	5%	5%	14	126	5.5
Alice Springs 6	6	NO		5.5	130			#VALUE!	#VALUE!	#VALUE!
Rockhampton 7	7	YES	14	5.5	99	14%	17%	25	93	4.6
Moree 8	8	NO		5.5	106			#VALUE!	#VALUE!	#VALUE!
Amberley 9	9	YES	26	5.5	75	41%	40%	42	52	4.6
Brisbane 10	10	YES	58	5.5	48	52%	46%	36	32	4.2
Coffs Harbour 11	11	NO		5.5	49		55%	39	32	4.1
Geraldton 12	12	NO		5.5	64			#VALUE!	#VALUE!	#VALUE!
Perth 13	13	NO		5.5	79			#VALUE!	#VALUE!	#VALUE!
Armidale 14	14	NO		5.5	147		80%	141	55	4.4
Williamtown 15	15	NO		5.5	76		63%	65	44	4.1
Adelaide 16	16	NO		5.5	109			#VALUE!	#VALUE!	#VALUE!
Sydney E 17	17	NO		5.5	44			#VALUE!	#VALUE!	#VALUE!
Nowra 18	18	NO		5.5	92		65%	80	52	4.2
Charleville 19	19	NO		5.5	100			#VALUE!	#VALUE!	#VALUE!
Wagga 20	20	NO		5.5	156		66%	137	87	4.1
Melb 21	21	NO		5.5	131			#VALUE!	#VALUE!	#VALUE!
East Sale 22	22	NO		5.5	153			#VALUE!	#VALUE!	#VALUE!
Launceston 23	23	NO		5.5	183			#VALUE!	#VALUE!	#VALUE!
Canberra 24	24	NO		5.5	189			#VALUE!	#VALUE!	#VALUE!
Cabramurra 25	25	NO		5.5	401			#VALUE!	#VALUE!	#VALUE!
Hobart 26	26	NO		5.5	177			#VALUE!	#VALUE!	#VALUE!
Mildura 27	27	NO		5.5	126			#VALUE!	#VALUE!	#VALUE!
Richmond 28	28	NO		5.5	99		57%	80	64	4
Weipa 29	29	YES	70	5.5	355	0%	0%	0	355	5.5
Wyndham 30	30	NO		5.5	447		0%	0	447	5.5
Willis Is 31	31	YES	17	5.5	191	0%	0%	0	191	5.5
Cairns 32	32	YES	12	5.5	140	0%	1%	1	139	5.5
Broome 33	33	NO		5.5	310			#VALUE!	#VALUE!	#VALUE!
Learmouth 34	34	NO		5.5	149			#VALUE!	#VALUE!	#VALUE!
Mackay 35	35	NO		5.5	102		5%	10	98	5.2
Gladstone 36	36	NO		5.5	66		14%	16	60	4.8
Halls Creek 37	37	NO		5.5	235			#VALUE!	#VALUE!	#VALUE!
Tennant Creek 38	38	NO		5.5	191			#VALUE!	#VALUE!	#VALUE!
Mt Isa 39	39	NO		5.5	184			#VALUE!	#VALUE!	#VALUE!
Newman 40	40	NO		5.5	144			#VALUE!	#VALUE!	#VALUE!
Giles 41	41	NO		5.5	111			#VALUE!	#VALUE!	#VALUE!
Meekatharra 42	42	NO		5.5	79			#VALUE!	#VALUE!	#VALUE!
Oodnadatta 43	43	NO		5.5	118			#VALUE!	#VALUE!	#VALUE!
Kalgoorlie 44	44	NO		5.5	80			#VALUE!	#VALUE!	#VALUE!
Woomera 45	45	NO		5.5	102			#VALUE!	#VALUE!	#VALUE!
Cobar 46	46	NO		5.5	101			#VALUE!	#VALUE!	#VALUE!
Bickley 47	47	NO		5.5	107			#VALUE!	#VALUE!	#VALUE!
Dubbo 48	48	NO		5.5	118			#VALUE!	#VALUE!	#VALUE!
Katanning 49	49	NO		5.5	114			#VALUE!	#VALUE!	#VALUE!
Oakley 50	50	NO		5.5	87			#VALUE!	#VALUE!	#VALUE!
Forrest 51	51	NO		5.5	82			#VALUE!	#VALUE!	#VALUE!
Swanbourne 52	52	NO		5.5	45			#VALUE!	#VALUE!	#VALUE!
Ceduna 53	53	NO		5.5	89			#VALUE!	#VALUE!	#VALUE!
Mandurah 54	54	NO		5.5	73			#VALUE!	#VALUE!	#VALUE!
Esperance 55	55	NO		5.5	71			#VALUE!	#VALUE!	#VALUE!
Mascot 56	56	NO		5.5	58		64%	50	34	4.1
Manjimup 57	57	NO		5.5	124		0%	0	124	5.5
Albany 58	58	NO		5.5	95		0%	0	95	5.5
Mt Lofty 59	59	NO		5.5	264		0%	0	264	5.5
Tullamarine 60	60	NO		5.5	158		0%	0	158	5.5
Mt Gambier 61	61	NO		5.5	165		0%	0	165	5.5
Moorabbin 62	62	NO		5.5	144		0%	0	144	5.5
Warrnambool 63	63	NO		5.5	173		0%	0	173	5.5
Cape Otway 64	64	NO		5.5	146		0%	0	146	5.5
Orange 65	65	NO		5.5	250		0%	0	250	5.5
Ballarat 66	66	NO		5.5	225		0%	0	225	5.5
Low Head 67	67	NO		5.5	133		0%	0	133	5.5
Launceston air68	68	NO		5.5	215		0%	0	215	5.5
Thredbo 69	69	NO		5.5	341		102%	341	0	5.5

Class 1a-Concrete Floor-5 Star Target (Outdoor + fan Case)							Correlation Curve tolerances >	5%	5%
Climate Name	Climate No.	Adequate Sample Available?	Sample size	Target (Stars)	Target (MJ/m2/year)	Sample % Heating	Deemed % Heating (Correlation Analysis)	Deemed Heating Load Limit (MJ/m2/year)	Deemed Cooling Load Limit (MJ/m2/year)	Eqivalent Star Rating
Darwin 1	1	YES	71	5	413	0%	0%	0	413	5
Pt Hedland 2	2	NO		5	260		0%	0	260	5
Longreach 3	3	NO		5	178		6%	23	173	4.6
Carnarvon 4	4	NO		5	66		16%	22	61	3.9
Townsville 5	5	YES	34	5	153	1%	0%	5	152	4.8
Alice Springs 6	6	YES	28	5	148	42%	37%	85	103	4.1
Rockhampton 7	7	YES	29	5	110	10%	13%	23	106	4.2
Moree 8	8	NO		5	119		55%	94	78	3.6
Amberley 9	9	YES	410	5	85	33%	38%	45	67	4
Brisbane 10	10	YES	1351	5	55	43%	42%	38	42	3.6
Coffs Harbour 11	11	NO		5	55		54%	43	36	3.7
Geraldton 12	12	NO		5	73		43%	50	56	3.6
Perth 13	13	NO		5	89		59%	72	54	3.8
Armidale 14	14	NO		5	169		94%	164	20	4.7
Williamtown 15	15	NO		5	86		69%	75	43	3.9
Adelaide 16	16	NO		5	125		59%	101	77	3.7
Sydney E 17	17	NO		5	50		54%	39	33	3.8
Nowra 18	18	NO		5	105		75%	94	44	4
Charleville 19	19	NO		5	114		41%	76	88	3.7
Wagga 20	20	NO		5	178		79%	162	66	4.1
Melb 21	21	NO		5	149		85%	140	40	4.3
East Sale 22	22	NO		5	175		91%	168	30	4.5
Launceston 23	23	NO		5	208		0%	0	208	5
Canberra 24	24	NO		5	216		93%	209	30	4.6
Cabramurra 25	25	NO		5	454		0%	0	454	5
Hobart 26	26	NO		5	202		100%	202	0	5
Mildura 27	27	NO		5	143		62%	119	83	3.7
Richmond 28	28	NO		5	112		59%	91	69	3.7
Weipa 29	29	NO		5	384		0%	0	384	5
Wyndham 30	30	NO		5	488		0%	0	488	5
Willis Is 31	31	NO		5	207		0%	0	207	5
Cairns 32	32	YES	116	5	153	0%	0%	1	152	5
Broome 33	33	NO		5	335		0%	0	335	5
Learmouth 34	34	NO		5	166		0%	0	166	5
Mackay 35	35	YES	17	5	112	4%	2%	15	110	4.4
Gladstone 36	36	NO		5	73		7%	11	71	4.4
Halls Creek 37	37	NO		5	259		0%	0	259	5
Tennant Creek 38	38	NO		5	213		0%	0	213	5
Mt Isa 39	39	NO		5	205		3%	15	202	4.7
Newman 40	40	NO		5	162		8%	28	156	4.4
Giles 41	41	NO		5	126		26%	61	111	3.7
Meekatharra 42	42	NO		5	91		27%	46	79	3.8
Oodnadatta 43	43	NO		5	135		28%	69	117	3.8
Kalgoorlie 44	44	NO		5	91		58%	73	56	3.8
Woomera 45	45	NO		5	115		52%	87	79	3.6
Cobar 46	46	NO		5	115		57%	92	73	3.7
Bickley 47	47	NO		5	122		70%	106	60	3.9
Dubbo 48	48	NO		5	134		76%	121	54	4
Katanning 49	49	NO		5	130		71%	114	62	3.9
Oakley 50	50	YES	108	5	98	57%	55%	75	59	3.8
Forrest 51	51	NO		5	93		63%	78	53	3.8
Swanbourne 52	52	NO		5	51		65%	43	28	4
Ceduna 53	53	NO		5	101		63%	85	57	3.8
Mandurah 54	54	NO		5	82		57%	66	52	3.7
Esperance 55	55	NO		5	82		78%	75	30	4.2
Mascot 56	56	NO		5	66		70%	58	32	3.9
Manjimup 57	57	NO		5	143		82%	133	44	4.2
Albany 58	58	NO		5	110		92%	107	16	4.6
Mt Lofty 59	59	NO		5	301		100%	301	0	5
Tullamarine 60	60	NO		5	182		92%	176	28	4.5
Mt Gambier 61	61	NO		5	189		96%	185	16	4.7
Moorabbin 62	62	NO		5	165		92%	160	23	4.6
Warrnambool 63	63	NO		5	197		95%	192	20	4.7
Cape Otway 64	64	NO		5	168		94%	163	20	4.7
Orange 65	65	NO		5	285		99%	283	5	4.9
Ballarat 66	66	NO		5	257		95%	251	25	4.7
Low Head 67	67	NO		5	153		100%	153	0	5
Launceston air68	68	NO		5	245		100%	245	0	5
Thredbo 69	69	NO		5	387		100%	387	0	5

Class 1a-Timber Floor-5 Star Target (Outdoor + fan Case)							Correlation Curve tolerances >	5%	5%
Climate Name	Climate No.	Adequate Sample Available?	Sample size	Target (Stars)	Target (MJ/m2/year)	Sample % Heating	Deemed % Heating (Correlation Analysis)	Deemed Heating Load Limit (MJ/m2/year)	Deemed Cooling Load Limit (MJ/m2/year)	Eqivalent Star Rating
Darwin 1	1	YES	22	5	413	0%	1%	0	413	5
Pt Hedland 2	2	NO		5	260		1%	0	260	5
Longreach 3	3	YES	11	5	178	14%	6%	32	164	4.6
Carnarvon 4	4	NO		5	66		27%	28	58	3.8
Townsville 5	5	YES	15	5	153	4%	4%	27	147	4.3
Alice Springs 6	6	NO		5	148		40%	91	117	3.8
Rockhampton 7	7	YES	11	5	110	15%	16%	24	106	4.2
Moree 8	8	NO		5	119		54%	94	79	3.6
Amberley 9	9	YES	59	5	85	41%	43%	47	62	4.1
Brisbane 10	10	YES	155	5	55	50%	49%	40	37	3.7
Coffs Harbour 11	11	NO		5	55		55%	44	36	3.7
Geraldton 12	12	NO		5	73		50%	54	51	3.7
Perth 13	13	NO		5	89		56%	72	57	3.7
Armidale 14	14	NO		5	169		88%	169	35	4.3
Williamtown 15	15	NO		5	86		65%	77	47	3.7
Adelaide 16	16	NO		5	125		56%	101	80	3.7
Sydney E 17	17	NO		5	50		55%	40	33	3.8
Nowra 18	18	NO		5	105		68%	97	53	3.8
Charleville 19	19	NO		5	114		46%	79	84	3.7
Wagga 20	20	NO		5	178		70%	166	86	3.7
Melb 21	21	NO		5	149		80%	148	50	4
East Sale 22	22	NO		5	175		89%	175	36	4.3
Launceston 23	23	NO		5	208		1%	0	208	5
Canberra 24	24	NO		5	216		88%	216	45	4.3
Cabramurra 25	25	NO		5	454		1%	0	454	5
Hobart 26	26	NO		5	202		99%	202	4	4.9
Mildura 27	27	NO		5	143		58%	118	90	3.6
Richmond 28	28	NO		5	112		56%	90	72	3.6
Weipa 29	29	YES	57	5	384	0%	1%	0	384	5
Wyndham 30	30	NO		5	488		1%	0	488	5
Willis Is 31	31	NO		5	207		1%	0	207	5
Cairns 32	32	YES	13	5	153	1%	1%	3	152	4.9
Broome 33	33	NO		5	335		1%	0	335	5
Learmouth 34	34	NO		5	166		2%	4	165	4.9
Mackay 35	35	YES	10	5	112	11%	8%	18	104	4.5
Gladstone 36	36	NO		5	73		23%	26	66	3.9
Halls Creek 37	37	NO		5	259		1%	0	259	5
Tennant Creek 38	38	NO		5	213		1%	5	211	4.9
Mt Isa 39	39	NO		5	205		4%	12	202	4.8
Newman 40	40	NO		5	162		9%	23	157	4.5
Giles 41	41	NO		5	126		31%	60	108	3.8
Meekatharra 42	42	NO		5	91		31%	44	78	3.9
Oodnadatta 43	43	NO		5	135		33%	69	114	3.9
Kalgoorlie 44	44	NO		5	91		56%	73	59	3.7
Woomera 45	45	NO		5	115		55%	91	76	3.6
Cobar 46	46	NO		5	115		56%	93	74	3.6
Bickley 47	47	NO		5	122		62%	106	71	3.7
Dubbo 48	48	NO		5	134		66%	121	72	3.7
Katanning 49	49	NO		5	130		61%	111	78	3.7
Oakley 50	50	NO		5	98		55%	78	64	3.6
Forrest 51	51	NO		5	93		57%	76	59	3.7
Swanbourne 52	52	NO		5	51		61%	44	30	3.8
Ceduna 53	53	NO		5	101		59%	85	62	3.7
Mandurah 54	54	NO		5	82		56%	66	53	3.6
Esperance 55	55	NO		5	82		76%	80	33	3.9
Mascot 56	56	NO		5	66		65%	59	36	3.7
Manjimup 57	57	NO		5	143		76%	139	57	3.9
Albany 58	58	NO		5	110		90%	110	19	4.4
Mt Lofty 59	59	NO		5	301		100%	301	0	5
Tullamarine 60	60	NO		5	182		87%	182	41	4.2
Mt Gambier 61	61	NO		5	189		93%	189	24	4.5
Moorabbin 62	62	NO		5	165		91%	165	28	4.4
Warrnambool 63	63	NO		5	197		93%	197	26	4.5
Cape Otway 64	64	NO		5	168		93%	168	21	4.5
Orange 65	65	NO		5	285		97%	285	16	4.7
Ballarat 66	66	NO		5	257		92%	257	36	4.5
Low Head 67	67	NO		5	153		100%	153	0	5
Launceston air68	68	NO		5	245		100%	245	0	5
Thredbo 69	69	NO		5	387		100%	387	0	5

Class 2

Energy Load Limits (Draft)

Column Descriptions are the same as Class 1. Two load limits are needed for Class 2 dwellings to be consistent with the current NCC methodology of a minimum 5 star with an average 6 star. These tables provide a Maximum load limit for any individual unit and an Average load limit for the entire building.

Class 2-Concrete Floor-6 Star Target (Average Case)							Correlation Curve tolerances >	5%	5%
Climate Name	Climate No.	Adequate Sample Available?	Sample size	Target (Stars)	Target (MJ/m2/year)	Sample % Heating	Deemed % Heating (Correlation Analysis)	Deemed Heating Load Limit (MJ/m2/year)	Deemed Cooling Load Limit (MJ/m2/year)	Eqivalent Star Rating
Darwin 1	1	YES	242	6	349	0%	0%	0	349	6
Pt Hedland 2	2	NO		6	215		0%	0	215	6
Longreach 3	3	NO		6	141		0%	0	141	6
Carnarvon 4	4	NO		6	53		10%	13	50	5.2
Townsville 5	5	YES	63	6	127	1%	0%	4	124	5.9
Alice Springs 6	6	NO		6	113		41%	75	83	4.7
Rockhampton 7	7	NO		6	90		7%	17	87	5.3
Moree 8	8	NO		6	94		50%	67	61	4.7
Amberley 9	9	NO		6	67		49%	48	44	4.7
Brisbane 10	10	YES	1440	6	43	32%	27%	25	32	4.8
Coffs Harbour 11	11	YES	248	6	44	41%	51%	30	28	4.8
Geraldton 12	12	NO		6	57		49%	41	37	4.7
Perth 13	13	YES	289	6	70	56%	45%	52	41	4.8
Armidale 14	14	NO		6	128		94%	119	12	5.9
Williamtown 15	15	YES	1551	6	67	61%	66%	46	31	5.4
Adelaide 16	16	YES	163	6	96	52%	52%	58	53	5.4
Sydney E 17	17	YES	1269	6	39	28%	55%	20	34	4.7
Nowra 18	18	YES	177	6	81	77%	75%	66	24	5.6
Charleville 19	19	NO		6	87		46%	61	59	4.8
Wagga 20	20	YES	65	6	137	81%	75%	109	28	6
Melb 21	21	YES	1550	6	114	75%	79%	88	36	5.7
East Sale 22	22	NO		6	133		88%	118	23	5.8
Launceston 23	23	NO		6	160		100%	160	0	6
Canberra 24	24	YES	509	6	165	88%	89%	144	31	5.8
Cabramurra 25	25	NO		6	352		100%	352	0	6
Hobart 26	26	NO		6	155		100%	155	0	6
Mildura 27	27	NO		6	110		55%	81	65	4.9
Richmond 28	28	YES	9261	6	87	53%	61%	57	49	5.2
Weipa 29	29	NO		6	326		0%	0	326	6
Wyndham 30	30	NO		6	406		0%	0	406	6
Willis Is 31	31	NO		6	176		0%	0	176	6
Cairns 32	32	NO		6	128		0%	0	128	6
Broome 33	33	NO		6	285		0%	0	285	6
Learmouth 34	34	NO		6	134		0%	0	134	6
Mackay 35	35	NO		6	92		0%	0	92	6
Gladstone 36	36	NO		6	59		0%	0	59	6
Halls Creek 37	37	NO		6	211		0%	0	211	6
Tennant Creek 38	38	NO		6	170		0%	0	170	6
Mt Isa 39	39	NO		6	164		0%	0	164	6
Newman 40	40	NO		6	127		7%	23	123	5.4
Giles 41	41	NO		6	98		21%	45	87	4.8
Meekatharra 42	42	NO		6	70		21%	32	62	4.8
Oodnadatta 43	43	NO		6	103		22%	48	91	4.9
Kalgoorlie 44	44	NO		6	70		50%	50	45	4.8
Woomera 45	45	NO		6	90		49%	64	59	4.7
Cobar 46	46	NO		6	89		50%	64	57	4.8
Bickley 47	47	NO		6	94		70%	75	39	5.2
Dubbo 48	48	NO		6	103		82%	87	26	5.6
Katanning 49	49	NO		6	100		70%	79	42	5.3
Oakley 50	50	NO		6	78		53%	57	47	4.7
Forrest 51	51	NO		6	72		57%	54	41	4.9
Swanbourne 52	52	NO		6	39		63%	30	20	5.1
Ceduna 53	53	NO		6	78		55%	58	46	4.9
Mandurah 54	54	NO		6	65		53%	48	40	4.7
Esperance 55	55	NO		6	62		76%	51	21	5.4
Mascot 56	56	YES	10000	6	51	55%	69%	36	30	5
Manjimup 57	57	NO		6	108		82%	92	27	5.6
Albany 58	58	NO		6	83		91%	76	10	5.8
Mt Lofty 59	59	NO		6	230		100%	230	0	6
Tullamarine 60	60	YES	410	6	138	77%	87%	113	47	5.4
Mt Gambier 61	61	NO		6	144		93%	133	15	5.9
Moorabbin 62	62	YES	606	6	125	84%	86%	109	26	5.7
Warrnambool 63	63	NO		6	151		92%	138	18	5.8
Cape Otway 64	64	NO		6	127		89%	113	20	5.8
Orange 65	65	NO		6	219		95%	206	17	5.9
Ballarat 66	66	NO		6	197		90%	178	28	5.8
Low Head 67	67	NO		6	116		100%	116	0	6
Launceston air68	68	NO		6	188		100%	188	0	6
Thredbo 69	69	NO		6	298		100%	298	0	6

Class 2-Concrete Floor-5 Star Target (Maximum Case)							Correlation Curve tolerances >	5%	5%
Climate Name	Climate No.	Adequate Sample Available?	Sample size	Target (Stars)	Target (MJ/m2/year)	Sample % Heating	Deemed % Heating (Correlation Analysis)	Deemed Heating Load Limit (MJ/m2/year)	Deemed Cooling Load Limit (MJ/m2/year)	Eqivalent Star Rating
Darwin 1	1	NO		5	413		0%	0	413	5
Pt Hedland 2	2	NO		5	260		0%	0	260	5
Longreach 3	3	NO		5	178		17%	76	178	3.5
Carnarvon 4	4	NO		5	66		29%	39	64	3.1
Townsville 5	5	NO		5	153		3%	15	153	4.5
Alice Springs 6	6	NO		5	148		44%	108	124	3.4
Rockhampton 7	7	NO		5	110		24%	59	108	3.1
Moree 8	8	NO		5	119		50%	91	92	3.4
Amberley 9	9	NO		5	85		45%	62	71	3.4
Brisbane 10	10	YES	634	5	55	43%	45%	40	48	3.3
Coffs Harbour 11	11	NO		5	55		51%	42	42	3.6
Geraldton 12	12	NO		5	73		45%	54	60	3.4
Perth 13	13	YES	65	5	89	60%	48%	70	57	3.8
Armidale 14	14	NO		5	169		90%	155	29	4.7
Williamtown 15	15	YES	1094	5	86	66%	64%	64	39	4.3
Adelaide 16	16	NO		5	125		52%	96	93	3.5
Sydney E 17	17	YES	764	5	50	41%	54%	32	39	3.8
Nowra 18	18	YES	118	5	105	81%	74%	89	33	4.4
Charleville 19	19	NO		5	114		45%	84	95	3.4
Wagga 20	20	NO		5	178		73%	149	80	4.1
Melb 21	21	YES	370	5	149	76%	78%	120	62	4.3
East Sale 22	22	NO		5	175		87%	157	40	4.5
Launceston 23	23	NO		5	208		0%	0	208	5
Canberra 24	24	NO		5	216		87%	194	47	4.6
Cabramurra 25	25	NO		5	454		0%	0	454	5
Hobart 26	26	NO		5	202		94%	190	22	4.8
Mildura 27	27	NO		5	143		57%	113	97	3.6
Richmond 28	28	YES	5810	5	112	61%	60%	82	64	4
Weipa 29	29	NO		5	384		0%	0	384	5
Wyndham 30	30	NO		5	488		0%	0	488	5
Willis Is 31	31	NO		5	207		0%	0	207	5
Cairns 32	32	NO		5	153		0%	0	153	5
Broome 33	33	NO		5	335		0%	0	335	5
Learmouth 34	34	NO		5	166		2%	9	166	4.7
Mackay 35	35	NO		5	112		7%	21	112	4.1
Gladstone 36	36	NO		5	73		17%	31	73	3.4
Halls Creek 37	37	NO		5	259		0%	0	259	5
Tennant Creek 38	38	NO		5	213		2%	11	213	4.7
Mt Isa 39	39	NO		5	205		9%	52	205	3.9
Newman 40	40	NO		5	162		23%	84	161	3.3
Giles 41	41	NO		5	126		40%	89	110	3.2
Meekatharra 42	42	NO		5	91		41%	65	79	3.4
Oodnadatta 43	43	NO		5	135		40%	95	118	3.4
Kalgoorlie 44	44	NO		5	91		52%	70	68	3.6
Woomera 45	45	NO		5	115		46%	85	94	3.3
Cobar 46	46	NO		5	115		50%	87	89	3.5
Bickley 47	47	NO		5	122		71%	101	60	4
Dubbo 48	48	NO		5	134		78%	114	51	4.2
Katanning 49	49	NO		5	130		69%	107	68	3.9
Oakley 50	50	NO		5	98		54%	76	71	3.5
Forrest 51	51	NO		5	93		58%	74	62	3.7
Swanbourne 52	52	NO		5	51		64%	41	30	4
Ceduna 53	53	NO		5	101		59%	80	67	3.7
Mandurah 54	54	NO		5	82		54%	64	59	3.5
Esperance 55	55	NO		5	82		75%	69	35	4.2
Mascot 56	56	YES	10000	5	66	65%	67%	51	38	3.9
Manjimup 57	57	NO		5	143		80%	123	49	4.3
Albany 58	58	NO		5	110		88%	99	23	4.6
Mt Lofty 59	59	NO		5	301		100%	301	0	5
Tullamarine 60	60	YES	116	5	182	82%	86%	160	48	4.5
Mt Gambier 61	61	NO		5	189		89%	172	35	4.6
Moorabbin 62	62	YES	297	5	165	88%	85%	147	37	4.6
Warrnambool 63	63	NO		5	197		88%	178	40	4.6
Cape Otway 64	64	NO		5	168		86%	150	39	4.5
Orange 65	65	NO		5	285		93%	266	37	4.7
Ballarat 66	66	NO		5	257		89%	233	50	4.6
Low Head 67	67	NO		5	153		100%	153	0	5
Launceston air68	68	NO		5	245		100%	245	0	5
Thredbo 69	69	NO		5	387		100%	387	0	5

Class 2-Timber Floor-6 Star Target (Average Case)							Correlation Curve tolerances >	5%	5%
Climate Name	Climate No.	Adequate Sample Available?	Sample size	Target (Stars)	Target (MJ/m2/year)	Sample % Heating	Deemed % Heating (Correlation Analysis)	Deemed Heating Load Limit (MJ/m2/year)	Deemed Cooling Load Limit (MJ/m2/year)	Eqivalent Star Rating
Darwin 1	1	NO		6	349		0%	0	349	6
Pt Hedland 2	2	NO		6	215		0%	0	215	6
Longreach 3	3	NO		6	141		0%	0	141	6
Carnarvon 4	4	NO		6	53		16%	12	48	5.4
Townsville 5	5	NO		6	127		0%	0	127	6
Alice Springs 6	6	NO		6	113		44%	64	77	5.2
Rockhampton 7	7	NO		6	90		11%	14	85	5.5
Moree 8	8	NO		6	94		41%	50	67	5.1
Amberley 9	9	NO		6	67		46%	39	44	5.1
Brisbane 10	10	NO		6	43		28%	16	35	5.3
Coffs Harbour 11	11	NO		6	44		46%	26	29	5
Geraldton 12	12	NO		6	57		51%	36	35	5.1
Perth 13	13	NO		6	70		38%	35	52	5.1
Armidale 14	14	NO		6	128		84%	115	29	5.6
Williamtown 15	15	NO		6	67		59%	48	36	5.1
Adelaide 16	16	YES	11	6	96	45%	45%	46	54	5.8
Sydney E 17	17	YES	27	6	39	26%	51%	13	34	5.3
Nowra 18	18	NO		6	81		67%	63	36	5.2
Charleville 19	19	NO		6	87		47%	52	57	5.1
Wagga 20	20	NO		6	137		66%	105	63	5.2
Melb 21	21	YES	20	6	114	68%	73%	88	56	5.1
East Sale 22	22	NO		6	133		85%	120	29	5.6
Launceston 23	23	NO		6	160		100%	160	0	6
Canberra 24	24	YES	31	6	165	86%	84%	141	24	6
Cabramurra 25	25	NO		6	352		100%	352	0	6
Hobart 26	26	NO		6	155		100%	155	0	6
Mildura 27	27	NO		6	110		37%	54	82	5.2
Richmond 28	28	YES	93	6	87	54%	53%	58	44	5.3
Weipa 29	29	NO		6	326		0%	0	326	6
Wyndham 30	30	NO		6	406		0%	0	406	6
Willis Is 31	31	NO		6	176		0%	0	176	6
Cairns 32	32	NO		6	128		0%	0	128	6
Broome 33	33	NO		6	285		0%	0	285	6
Learmouth 34	34	NO		6	134		0%	0	134	6
Mackay 35	35	NO		6	92		0%	0	92	6
Gladstone 36	36	NO		6	59		0%	0	59	6
Halls Creek 37	37	NO		6	211		0%	0	211	6
Tennant Creek 38	38	NO		6	170		0%	0	170	6
Mt Isa 39	39	NO		6	164		0%	0	164	6
Newman 40	40	NO		6	127		5%	9	123	5.8
Giles 41	41	NO		6	98		29%	38	80	5.2
Meekatharra 42	42	NO		6	70		30%	28	57	5.2
Oodnadatta 43	43	NO		6	103		29%	41	84	5.3
Kalgoorlie 44	44	NO		6	70		42%	38	49	5.1
Woomera 45	45	NO		6	90		42%	49	63	5.1
Cobar 46	46	NO		6	89		40%	47	64	5.1
Bickley 47	47	NO		6	94		51%	60	58	5.1
Dubbo 48	48	NO		6	103		64%	77	50	5.2
Katanning 49	49	NO		6	100		52%	64	61	5.1
Oakley 50	50	NO		6	78		41%	42	56	5
Forrest 51	51	NO		6	72		44%	41	49	5.1
Swanbourne 52	52	NO		6	39		46%	23	26	5.2
Ceduna 53	53	NO		6	78		42%	43	55	5.1
Mandurah 54	54	NO		6	65		38%	33	48	5
Esperance 55	55	NO		6	62		63%	46	30	5.3
Mascot 56	56	YES	103	6	51	56%	61%	32	27	5.4
Manjimup 57	57	NO		6	108		68%	85	47	5.3
Albany 58	58	NO		6	83		88%	77	14	5.6
Mt Lofty 59	59	NO		6	230		100%	230	0	6
Tullamarine 60	60	YES	46	6	138	69%	82%	108	59	5.3
Mt Gambier 61	61	NO		6	144		85%	131	31	5.5
Moorabbin 62	62	YES	43	6	125	76%	83%	100	37	5.7
Warrnambool 63	63	NO		6	151		89%	141	24	5.6
Cape Otway 64	64	NO		6	127		87%	117	24	5.6
Orange 65	65	NO		6	219		92%	208	25	5.7
Ballarat 66	66	NO		6	197		87%	181	37	5.6
Low Head 67	67	NO		6	116		100%	116	0	6
Launceston air68	68	NO		6	188		100%	188	0	6
Thredbo 69	69	NO		6	298		100%	298	0	6

Class 2-Timber Floor-5 Star Target (Maximum Case)							Correlation Curve tolerances >	5%	5%
Climate Name	Climate No.	Adequate Sample Available?	Sample size	Target (Stars)	Target (MJ/m2/year)	Sample % Heating	Deemed % Heating (Correlation Analysis)	Deemed Heating Load Limit (MJ/m2/year)	Deemed Cooling Load Limit (MJ/m2/year)	Eqivalent Star Rating
Darwin 1	1	NO		5	413		1%	0	413	5
Pt Hedland 2	2	NO		5	260		1%	0	260	5
Longreach 3	3	NO		5	178		18%	49	149	4.5
Carnarvon 4	4	NO		5	66		40%	36	45	4.1
Townsville 5	5	NO		5	153		7%	16	142	4.8
Alice Springs 6	6	NO		5	148		47%	91	94	4.2
Rockhampton 7	7	NO		5	110		27%	43	85	4.3
Moree 8	8	NO		5	119		49%	75	74	4.1
Amberley 9	9	NO		5	85		50%	54	52	4.2
Brisbane 10	10	NO		5	55		52%	36	33	4.1
Coffs Harbour 11	11	NO		5	55		52%	36	33	4.2
Geraldton 12	12	NO		5	73		52%	48	44	4.1
Perth 13	13	NO		5	89		45%	53	58	4.2
Armidale 14	14	NO		5	169		85%	154	43	4.4
Williamtown 15	15	YES		5	86	59%	60%	57	42	4.4
Adelaide 16	16	YES		5	125	47%	50%	66	65	4.8
Sydney E 17	17	YES		5	50	39%	56%	26	35	4.3
Nowra 18	18	NO		5	105		67%	83	49	4.2
Charleville 19	19	NO		5	114		49%	73	70	4.2
Wagga 20	20	NO		5	178		65%	137	87	4.1
Melb 21	21	YES		5	149	64%	73%	105	61	4.6
East Sale 22	22	NO		5	175		85%	159	45	4.4
Launceston 23	23	NO		5	208		1%	0	208	5
Canberra 24	24	YES		5	216	90%	83%	190	26	5
Cabramurra 25	25	NO		5	454		1%	0	454	5
Hobart 26	26	NO		5	202		93%	192	27	4.6
Mildura 27	27	NO		5	143		53%	96	85	4.1
Richmond 28	28	YES		5	112	63%	57%	81	56	4.2
Weipa 29	29	NO		5	384		0%	0	384	5
Wyndham 30	30	NO		5	488		0%	0	488	5
Willis Is 31	31	NO		5	207		1%	0	207	5
Cairns 32	32	NO		5	153		1%	2	151	5
Broome 33	33	NO		5	335		1%	0	335	5
Learmouth 34	34	NO		5	166		3%	7	160	4.9
Mackay 35	35	NO		5	112		12%	20	99	4.7
Gladstone 36	36	NO		5	73		22%	24	59	4.4
Halls Creek 37	37	NO		5	259		1%	4	255	5
Tennant Creek 38	38	NO		5	213		3%	9	206	4.9
Mt Isa 39	39	NO		5	205		10%	31	185	4.7
Newman 40	40	NO		5	162		24%	57	128	4.4
Giles 41	41	NO		5	126		45%	75	82	4.1
Meekatharra 42	42	NO		5	91		45%	54	59	4.2
Oodnadatta 43	43	NO		5	135		45%	81	87	4.2
Kalgoorlie 44	44	NO		5	91		49%	58	57	4.2
Woomera 45	45	NO		5	115		49%	73	72	4.1
Cobar 46	46	NO		5	115		49%	72	72	4.1
Bickley 47	47	NO		5	122		63%	92	62	4.1
Dubbo 48	48	NO		5	134		67%	106	63	4.1
Katanning 49	49	NO		5	130		59%	94	71	4.1
Oakley 50	50	NO		5	98		54%	66	57	4.1
Forrest 51	51	NO		5	93		52%	62	55	4.2
Swanbourne 52	52	NO		5	51		60%	37	27	4.3
Ceduna 53	53	NO		5	101		55%	69	58	4.2
Mandurah 54	54	NO		5	82		52%	54	49	4.1
Esperance 55	55	NO		5	82		72%	68	34	4.3
Mascot 56	56	YES		5	66	58%	61%	47	37	4.1
Manjimup 57	57	NO		5	143		74%	120	57	4.2
Albany 58	58	NO		5	110		86%	101	26	4.5
Mt Lofty 59	59	NO		5	301		100%	301	0	5
Tullamarine 60	60	YES		5	182	72%	81%	158	81	4
Mt Gambier 61	61	NO		5	189		87%	174	42	4.5
Moorabbin 62	62	YES		5	165	79%	83%	137	51	4.5
Warrnambool 63	63	NO		5	197		87%	181	45	4.4
Cape Otway 64	64	NO		5	168		86%	154	40	4.4
Orange 65	65	YES		5	285	96%	91%	267	19	4.9
Ballarat 66	66	NO		5	257		86%	236	60	4.4
Low Head 67	67	NO		5	153		100%	153	0	5
Launceston air68	68	NO		5	245		100%	245	0	5
Thredbo 69	69	NO		5	387		100%	387	0	5

Appendix 4: Outputs from Method 1 analysis

Note: Results only reported for climates/dwelling types where the available sample was 10 or more dwellings. Note that method 2 was used where there were 20 dwellings of less. The tool outputs were not used in this case so there will be some differences between the load limits shown in Appendix 3 above.

Class 1 Dwellings

Concrete Floor

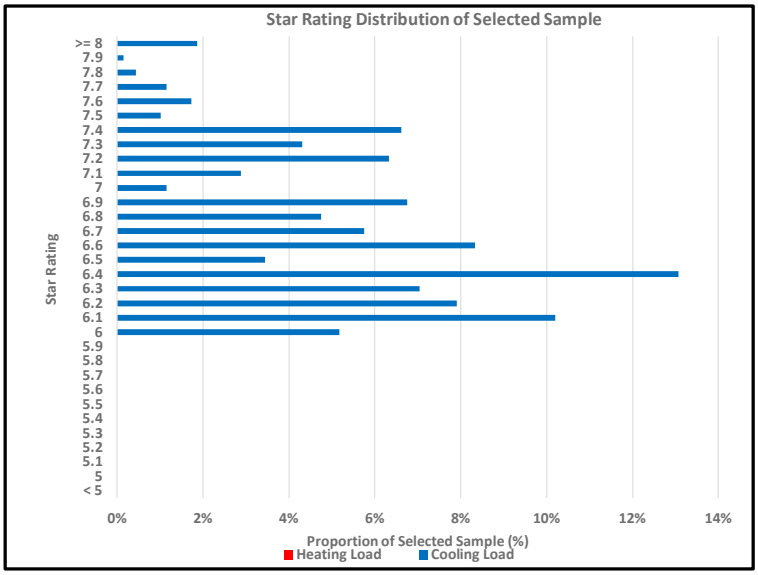
6 Star Standard

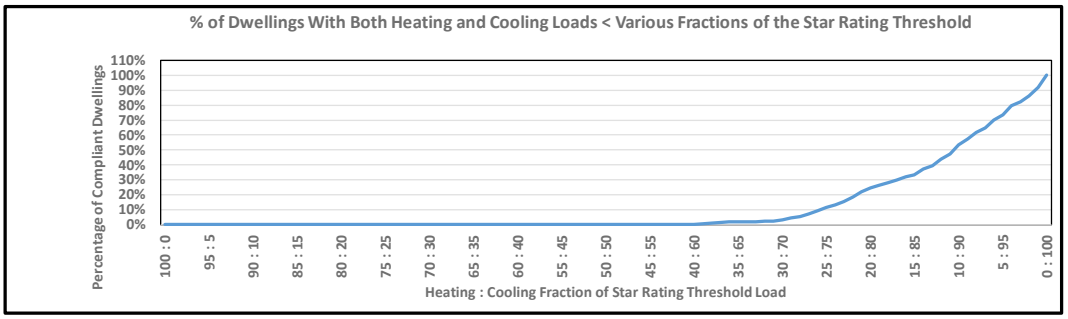
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	ALL	
Climate Zone	1	Darwin 1
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

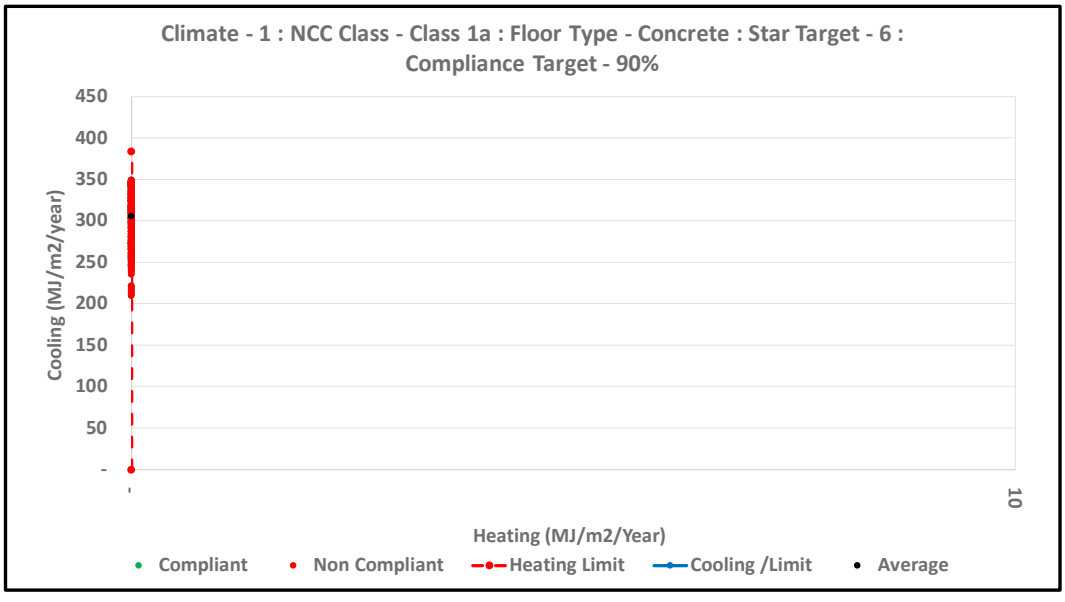
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	696	
Target Load	349.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	0.0	MJ/m2/Annum
Av. Cool Load	305.9	MJ/m2/Annum
Av. Total Load	305.9	MJ/m2/Annum
Av. % Heat	0.0%	%
Av. % Cool	100.0%	%
Av. Star Rating	6.7	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



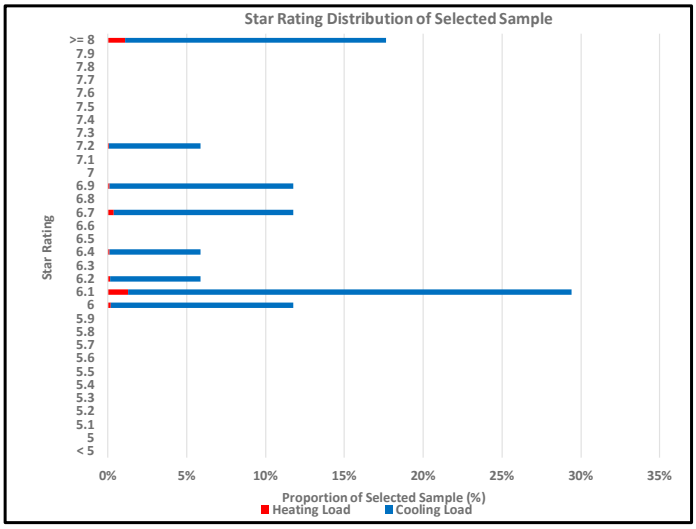
Heating Limit	0.0	MJ/m2/y	Cooling Limit	349.0	MJ/m2/y	Total Limit	349.0	MJ/m2/y
			5.9	Stars		6	Stars	

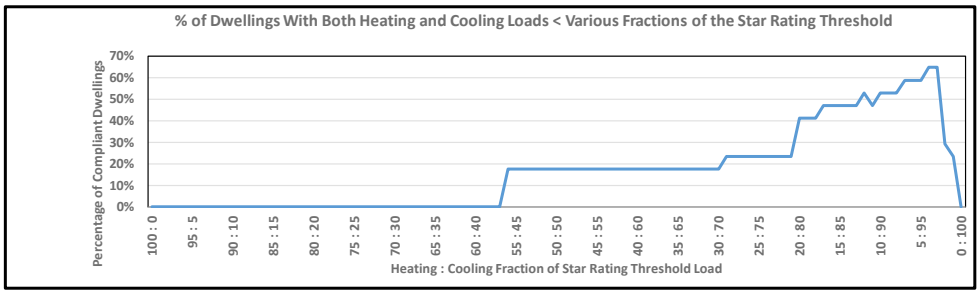
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	ALL	
Climate Zone	3	Longreach 3
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

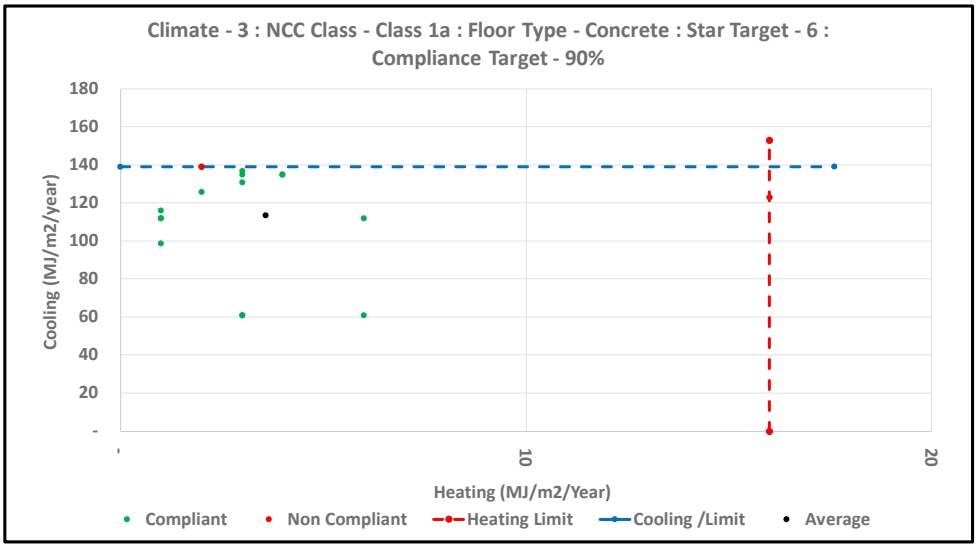
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	17	
Target Load	141.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	3.6	MJ/m2/Annum
Av. Cool Load	113.8	MJ/m2/Annum
Av. Total Load	117.4	MJ/m2/Annum
Av. % Heat	3.1%	%
Av. % Cool	97.0%	%
Av. Star Rating	6.7	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



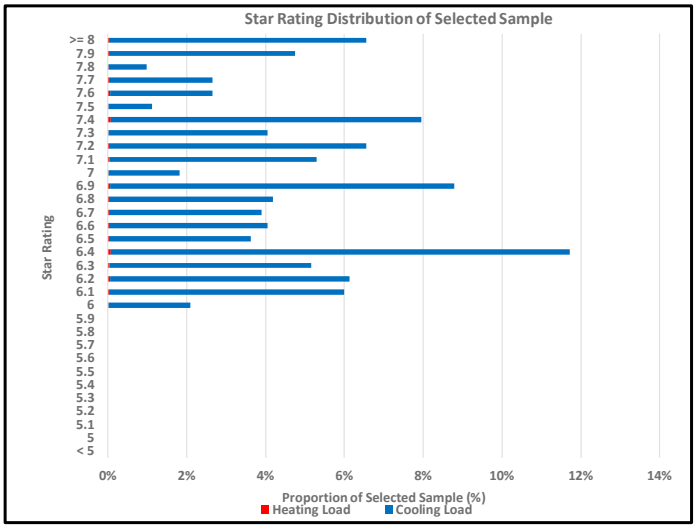
Heating Limit	16.0	MJ/m2/y	Cooling Limit	139.0	MJ/m2/y	Total Limit	141.0	MJ/m2/y
			5.5	Stars			6	Stars

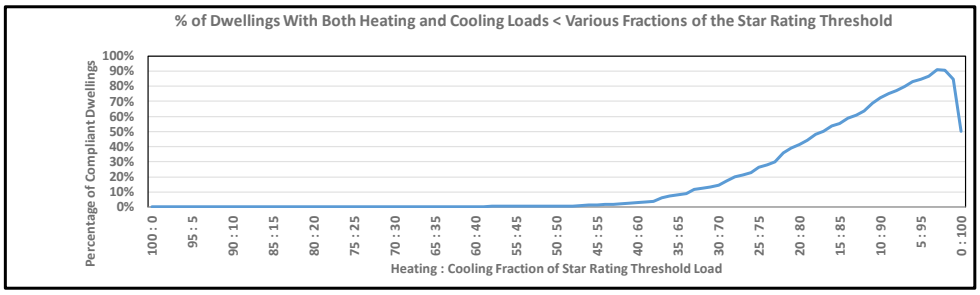
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	5	Townsville 5
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

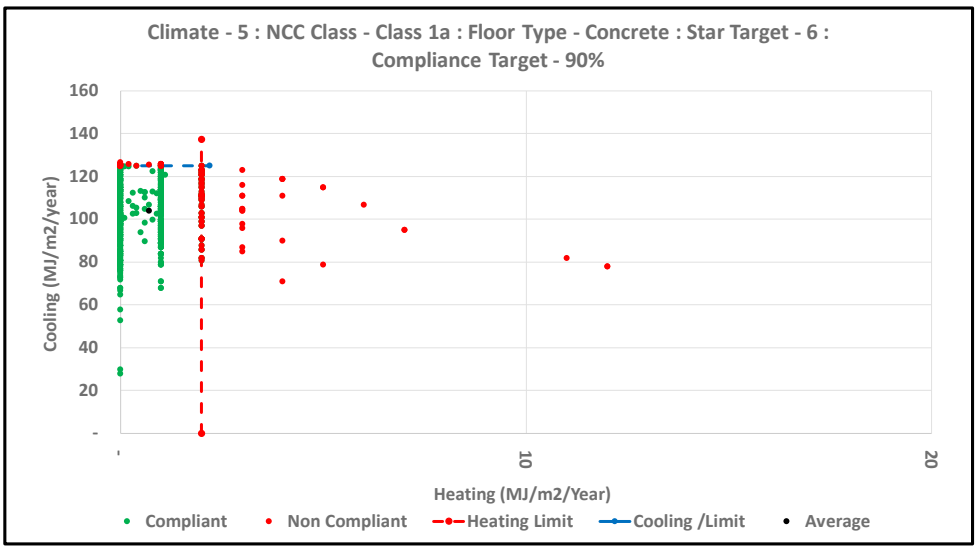
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	717	
Target Load	127.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	0.7	MJ/m2/Annum
Av. Cool Load	104.2	MJ/m2/Annum
Av. Total Load	104.9	MJ/m2/Annum
Av. % Heat	0.7%	%
Av. % Cool	99.3%	%
Av. Star Rating	6.9	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



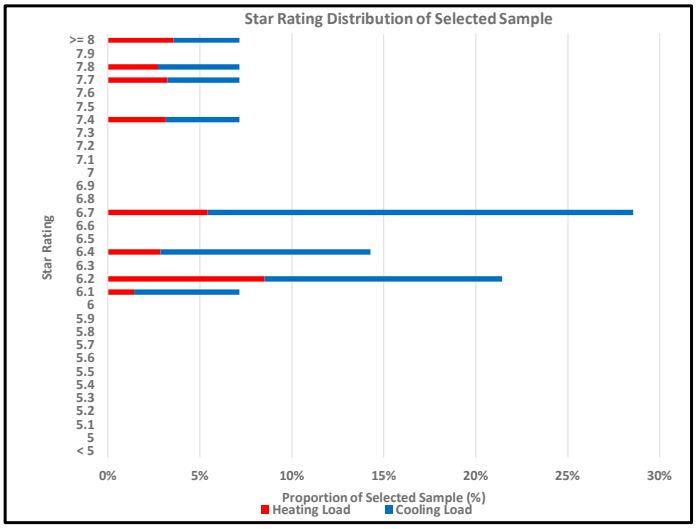
Heating Limit	2.0	MJ/m2/y	Cooling Limit	125.0	MJ/m2/y	Total Limit	127.0	MJ/m2/y
			5.9	Stars			6	Stars

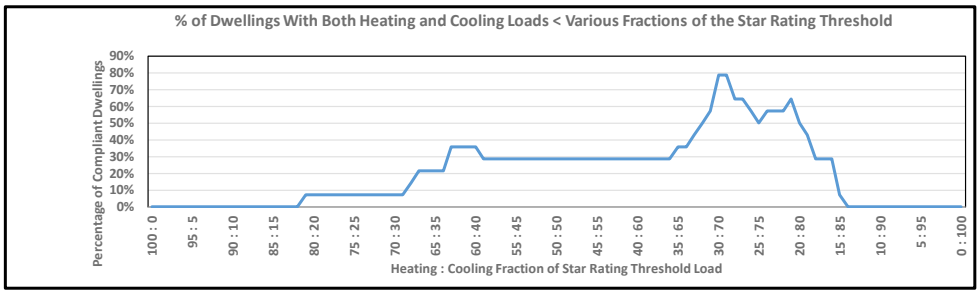
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	ALL	
Climate Zone	6	Alice Springs 6
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

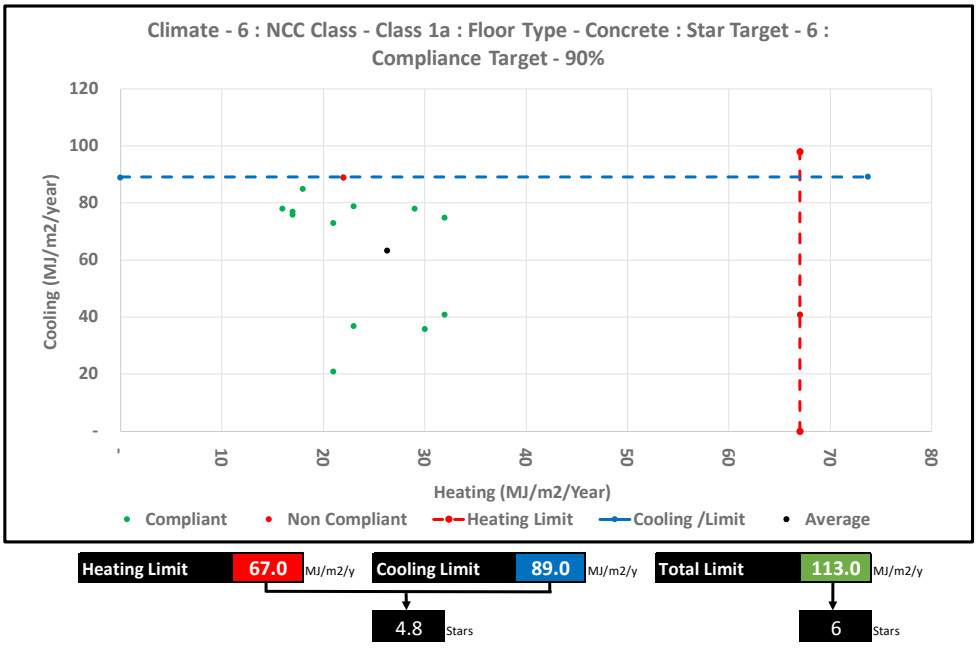
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	14	
Target Load	113.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	26.3	MJ/m2/Annum
Av. Cool Load	63.3	MJ/m2/Annum
Av. Total Load	89.6	MJ/m2/Annum
Av. % Heat	29.4%	%
Av. % Cool	70.7%	%
Av. Star Rating	6.8	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



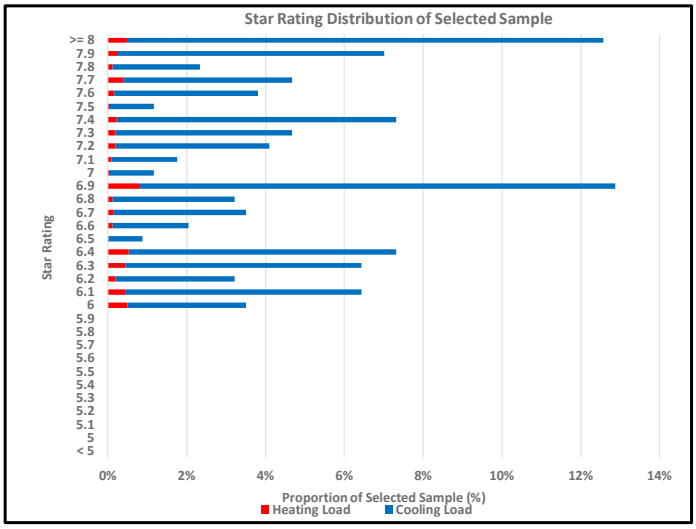
Heating Limit	67.0	MJ/m2/y	Cooling Limit	89.0	MJ/m2/y	Total Limit	113.0	MJ/m2/y
			4.8	Stars		6	Stars	

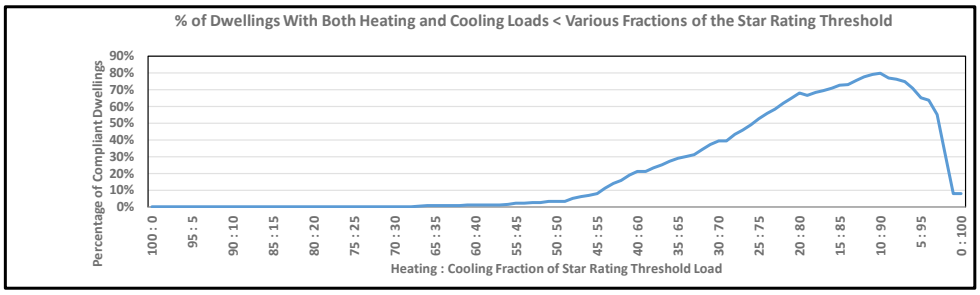
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	7	Rockhampton 7
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

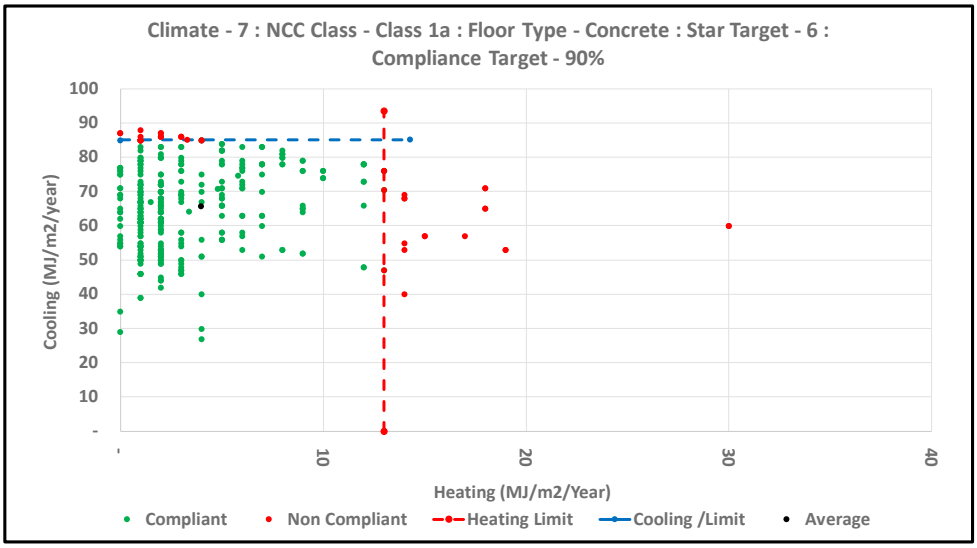
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	342	
Target Load	90.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	4.0	MJ/m2/Annum
Av. Cool Load	65.8	MJ/m2/Annum
Av. Total Load	69.8	MJ/m2/Annum
Av. % Heat	5.7%	%
Av. % Cool	94.3%	%
Av. Star Rating	7.1	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



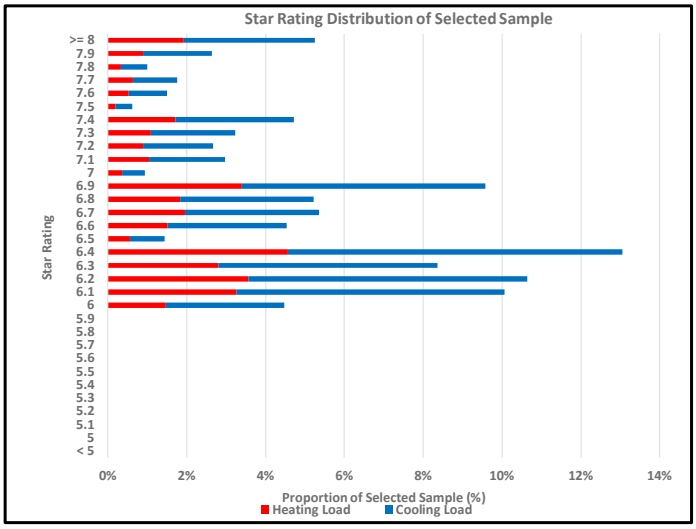
Heating Limit	13.0	MJ/m2/y	Cooling Limit	85.0	MJ/m2/y	Total Limit	90.0	MJ/m2/y
			5.5	Stars		6	Stars	

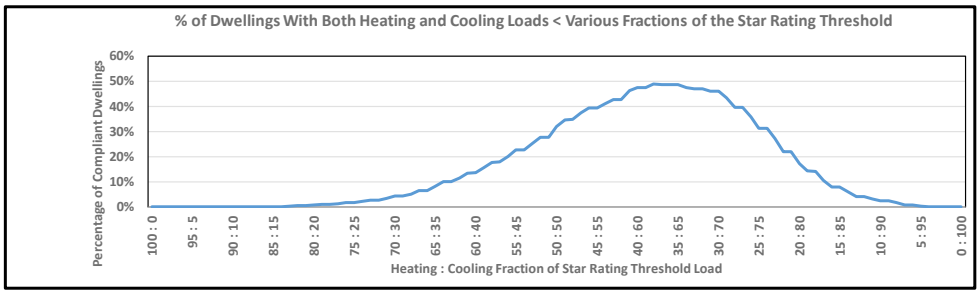
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	9	Amberley 9
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

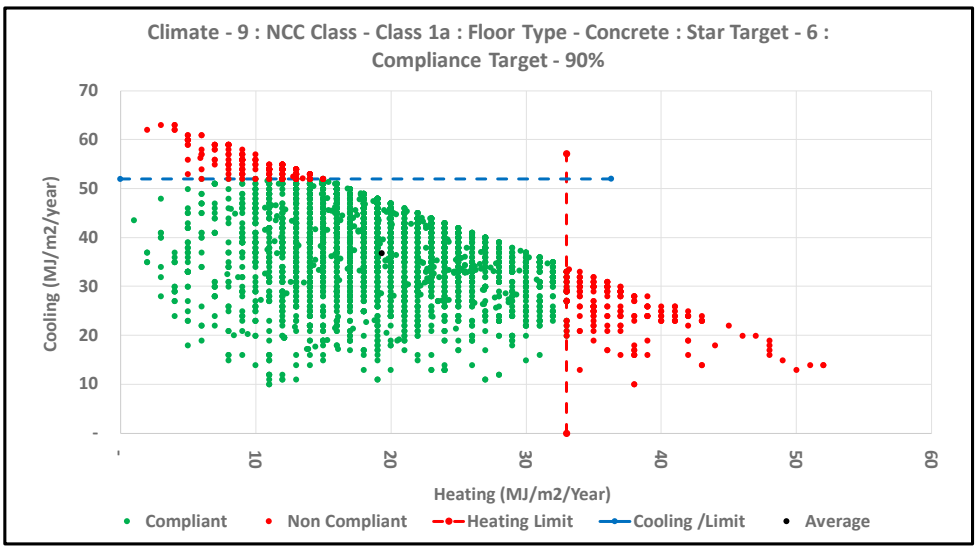
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	3600	
Target Load	67.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	19.3	MJ/m2/Annum
Av. Cool Load	36.9	MJ/m2/Annum
Av. Total Load	56.2	MJ/m2/Annum
Av. % Heat	34.4%	%
Av. % Cool	65.7%	%
Av. Star Rating	6.7	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



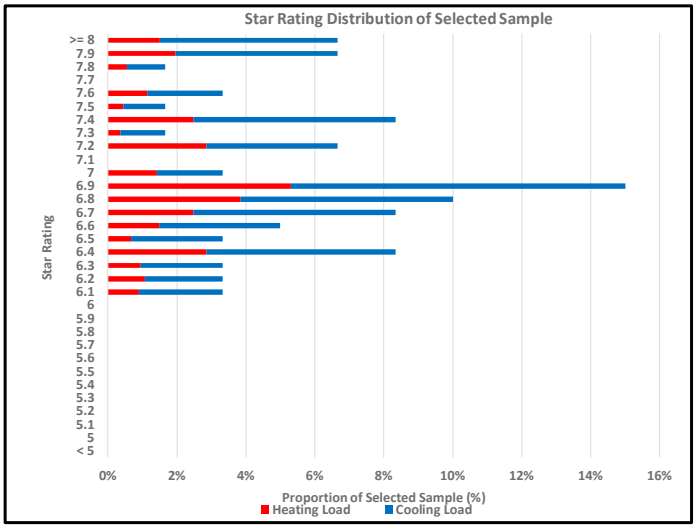
Heating Limit	33.0	MJ/m2/y	Cooling Limit	52.0	MJ/m2/y	Total Limit	67.0	MJ/m2/y
			4.9	Stars		6	Stars	

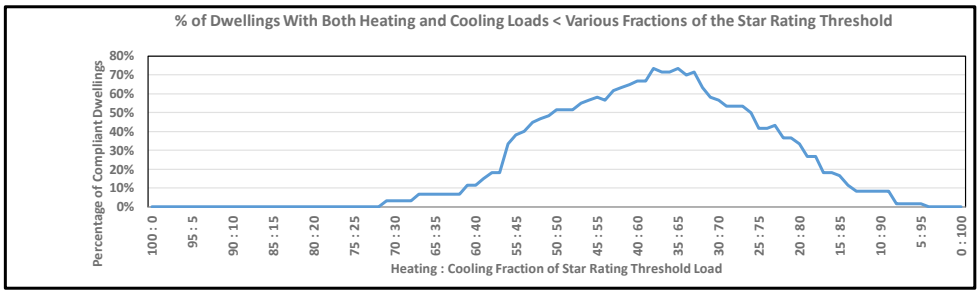
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	9	Amberley 9
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

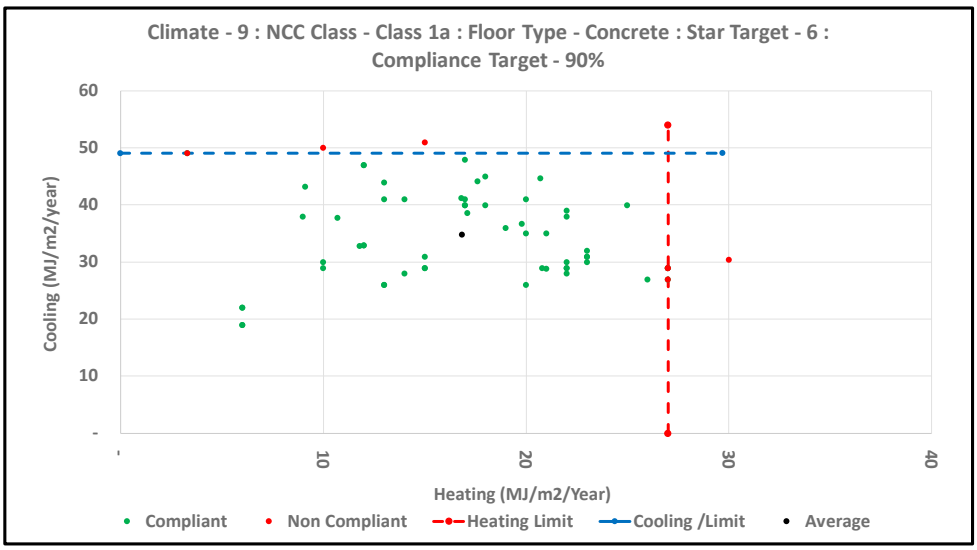
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	60	
Target Load	67.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	16.8	MJ/m2/Annum
Av. Cool Load	34.8	MJ/m2/Annum
Av. Total Load	51.6	MJ/m2/Annum
Av. % Heat	32.6%	%
Av. % Cool	67.4%	%
Av. Star Rating	7.1	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



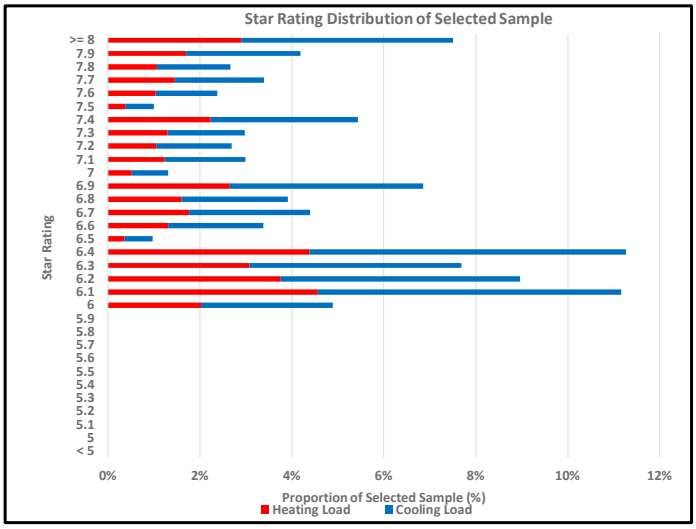
Heating Limit	27.0	MJ/m2/y	Cooling Limit	49.1	MJ/m2/y	Total Limit	67.0	MJ/m2/y
			5.4	Stars			6	Stars

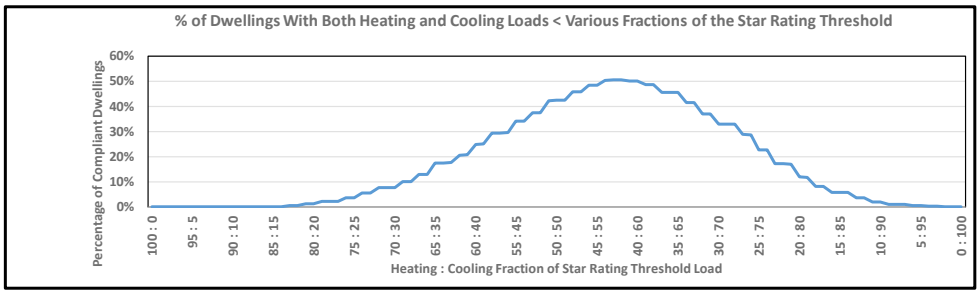
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	10	Brisbane 10
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

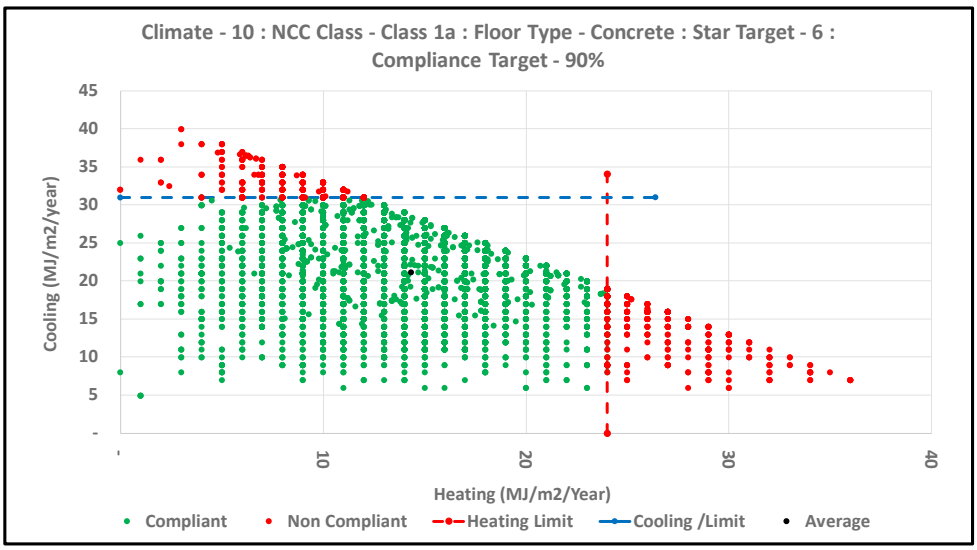
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	6490	
Target Load	43.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	14.3	MJ/m2/Annum
Av. Cool Load	21.1	MJ/m2/Annum
Av. Total Load	35.5	MJ/m2/Annum
Av. % Heat	40.4%	%
Av. % Cool	59.6%	%
Av. Star Rating	6.9	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



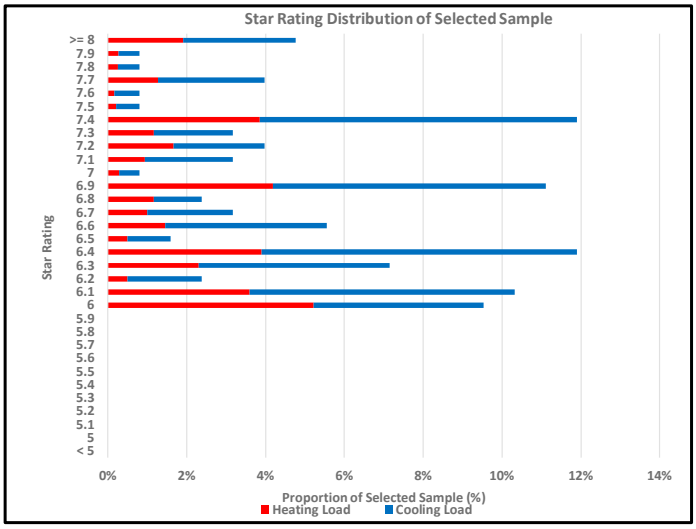
Heating Limit	24.0	MJ/m2/y	Cooling Limit	31.0	MJ/m2/y	Total Limit	43.0	MJ/m2/y
			4.9	Stars		6	Stars	

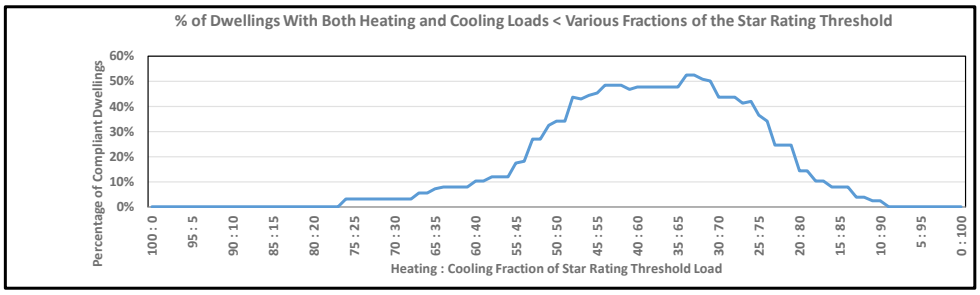
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	10	Brisbane 10
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

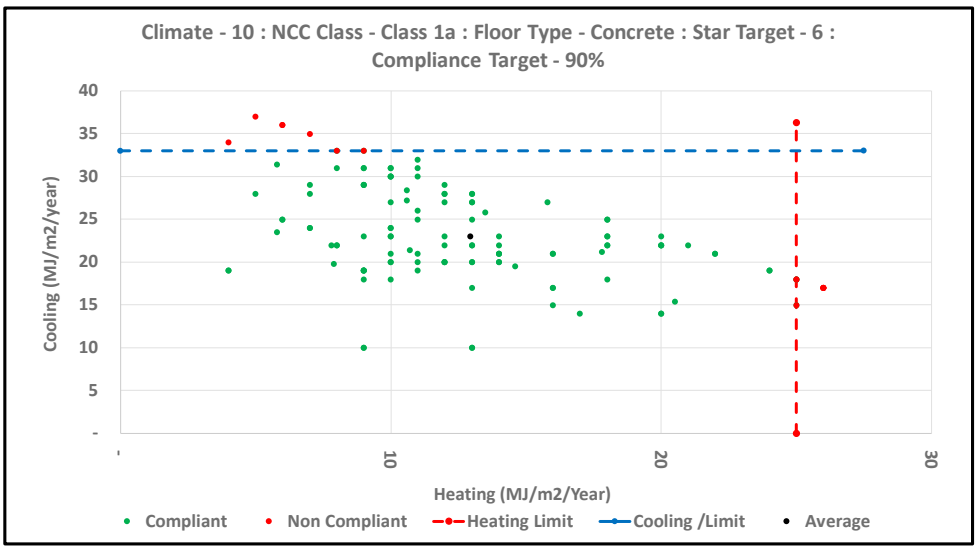
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	126	
Target Load	43.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	12.9	MJ/m2/Annum
Av. Cool Load	23.0	MJ/m2/Annum
Av. Total Load	36.0	MJ/m2/Annum
Av. % Heat	36.0%	%
Av. % Cool	64.0%	%
Av. Star Rating	6.8	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



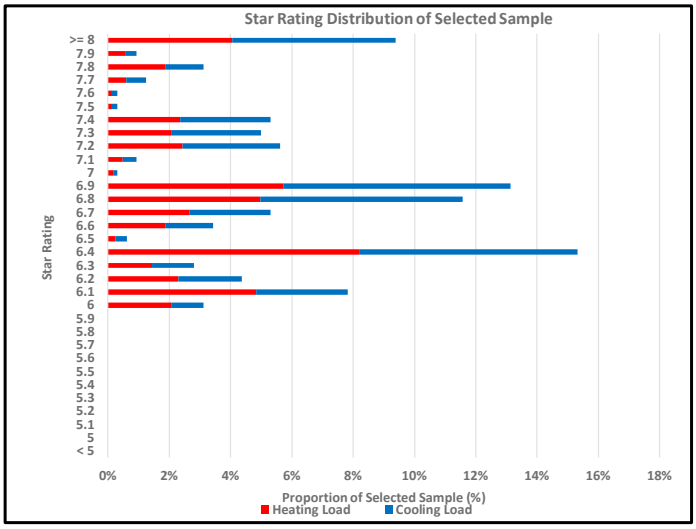
Heating Limit	25.0	MJ/m2/y	Cooling Limit	33.0	MJ/m2/y	Total Limit	43.0	MJ/m2/y
			4.7	Stars			6	Stars

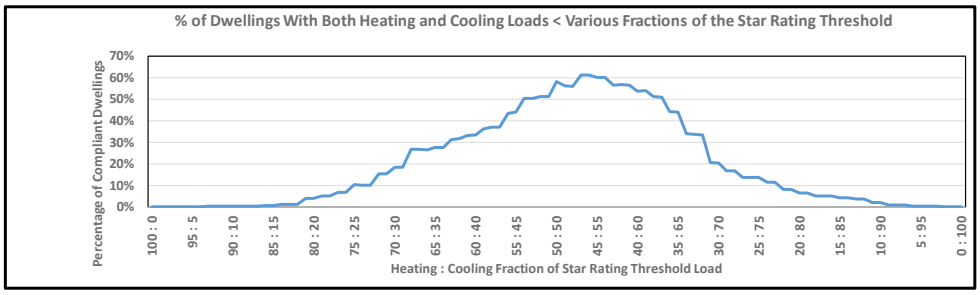
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	11	Coffs Harbour 11
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

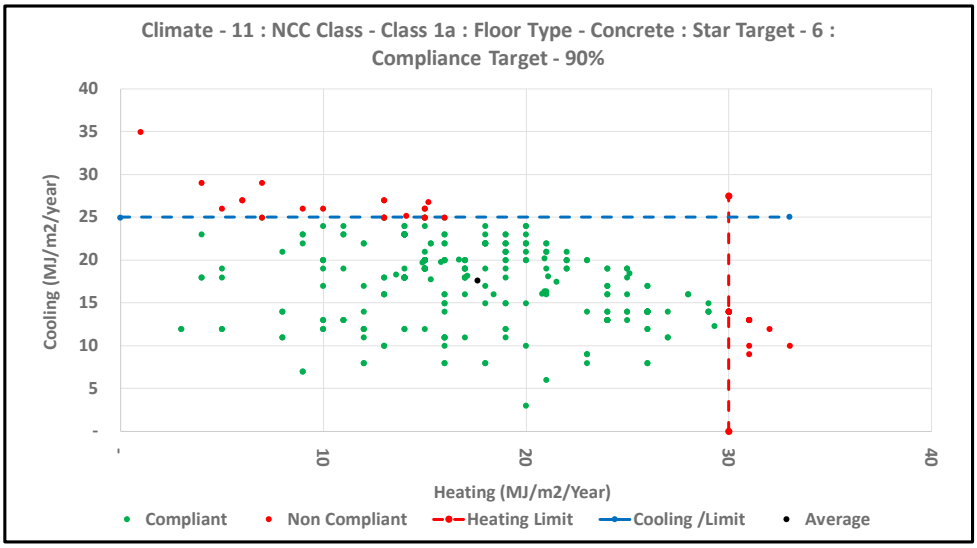
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	320	
Target Load	44.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	17.6	MJ/m2/Annum
Av. Cool Load	17.7	MJ/m2/Annum
Av. Total Load	35.3	MJ/m2/Annum
Av. % Heat	49.9%	%
Av. % Cool	50.1%	%
Av. Star Rating	6.9	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



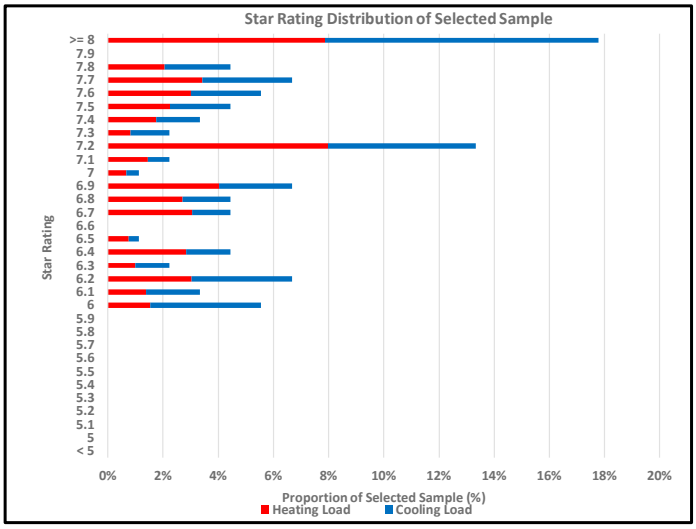
Heating Limit	30.0	MJ/m2/y	Cooling Limit	25.0	MJ/m2/y	Total Limit	44.0	MJ/m2/y
			4.9	Stars			6	Stars

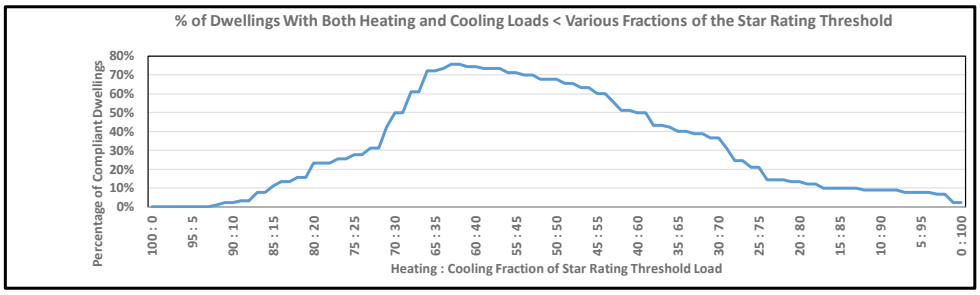
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	12	Geraldton 12
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

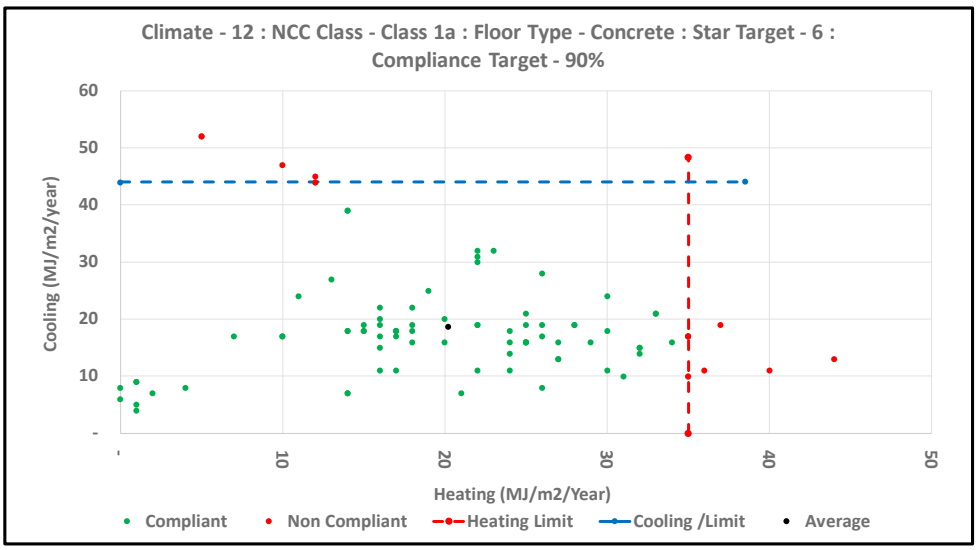
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	90	
Target Load	57.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	20.2	MJ/m2/Annum
Av. Cool Load	18.6	MJ/m2/Annum
Av. Total Load	38.8	MJ/m2/Annum
Av. % Heat	52.0%	%
Av. % Cool	48.0%	%
Av. Star Rating	7.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



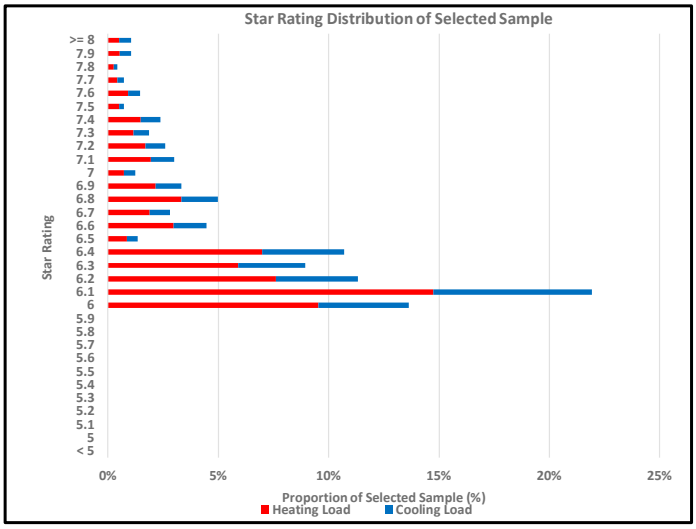
Heating Limit	35.0	MJ/m2/y	Cooling Limit	44.0	MJ/m2/y	Total Limit	57.0	MJ/m2/y
			4.6	Stars			6	Stars

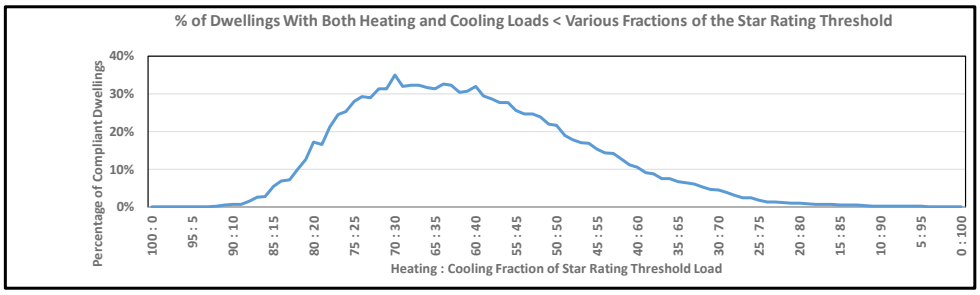
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	13	Perth 13
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

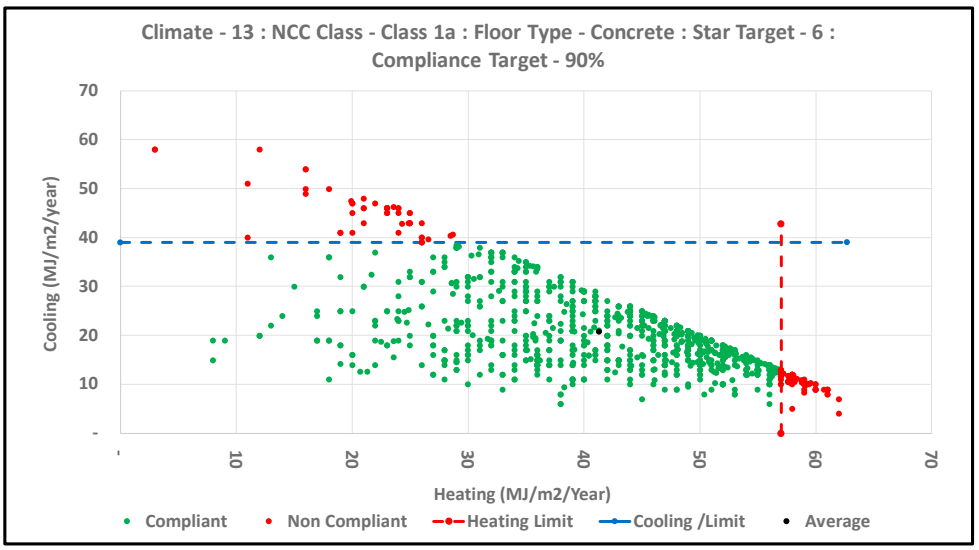
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	962	
Target Load	70.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	41.3	MJ/m2/Annum
Av. Cool Load	20.8	MJ/m2/Annum
Av. Total Load	62.0	MJ/m2/Annum
Av. % Heat	66.5%	%
Av. % Cool	33.5%	%
Av. Star Rating	6.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



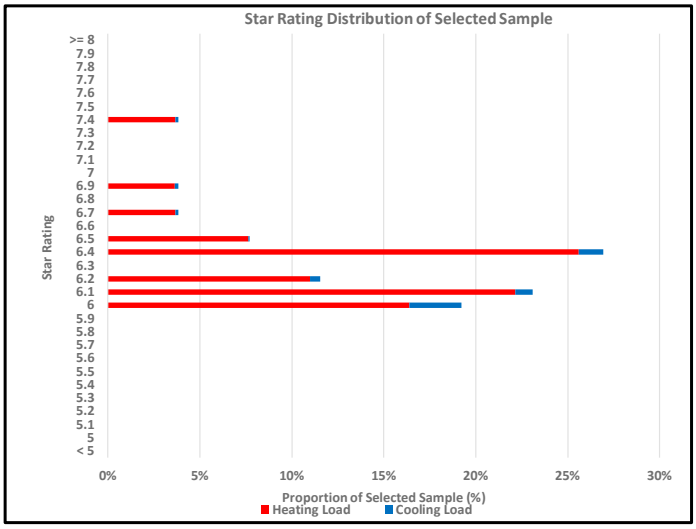
Heating Limit	57.0	MJ/m2/y	Cooling Limit	39.0	MJ/m2/y	Total Limit	70.0	MJ/m2/y
			4.7	Stars		6	Stars	

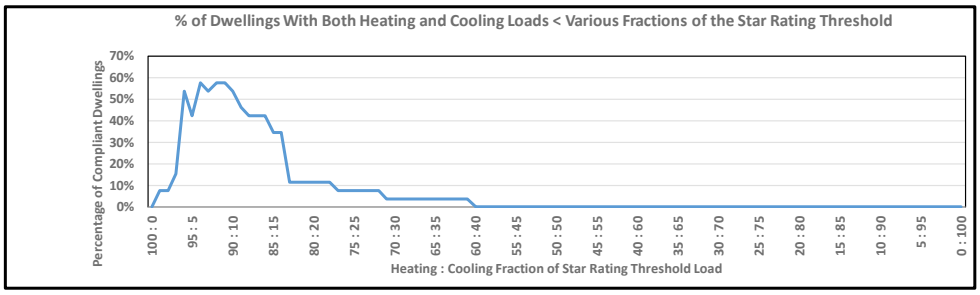
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	14	Armidale 14
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

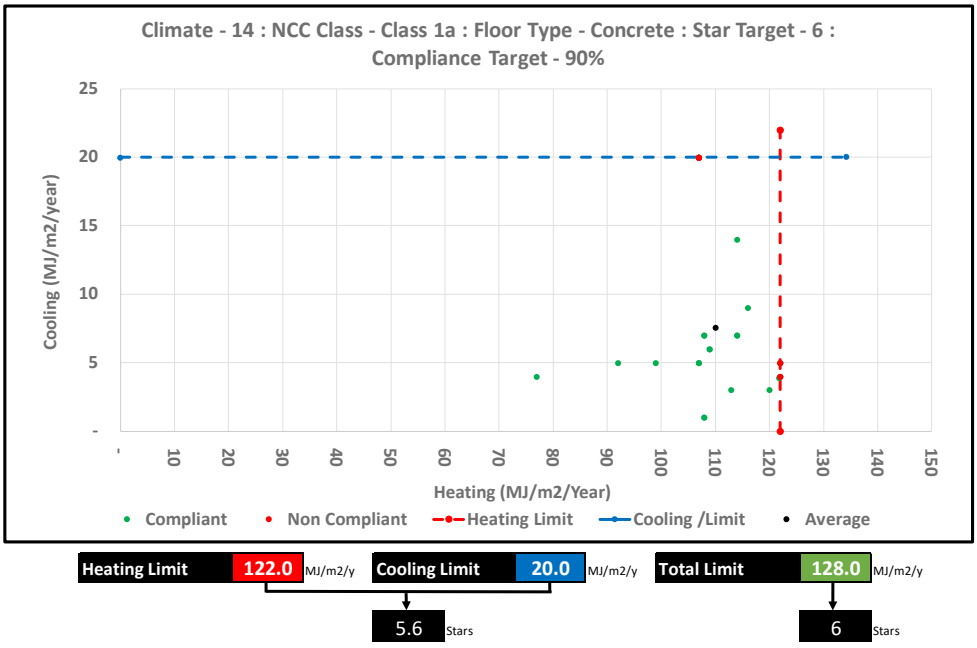
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	26	
Target Load	128.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	110.0	MJ/m2/Annum
Av. Cool Load	7.6	MJ/m2/Annum
Av. Total Load	117.6	MJ/m2/Annum
Av. % Heat	93.7%	%
Av. % Cool	6.4%	%
Av. Star Rating	6.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



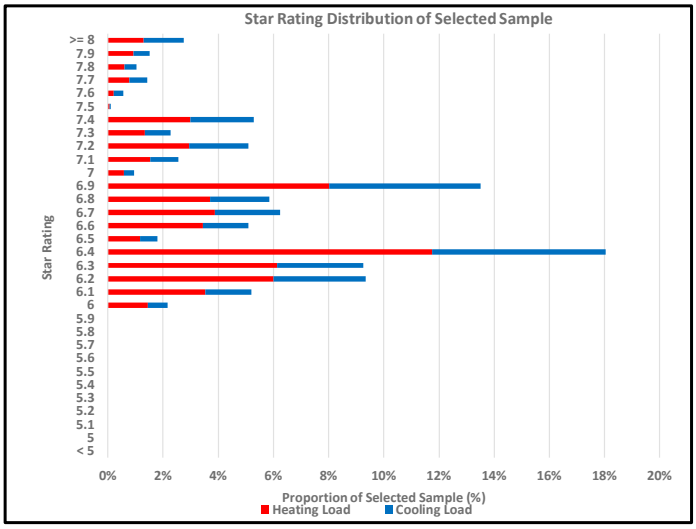
Heating Limit	122.0	MJ/m2/y	Cooling Limit	20.0	MJ/m2/y	Total Limit	128.0	MJ/m2/y
			5.6	Stars			6	Stars

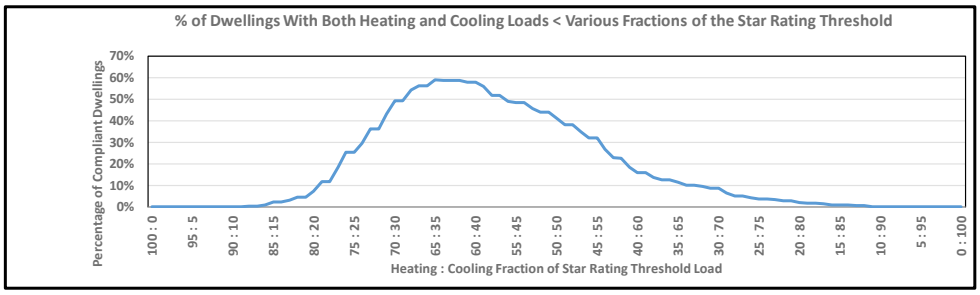
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	15	Williamtown 15
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

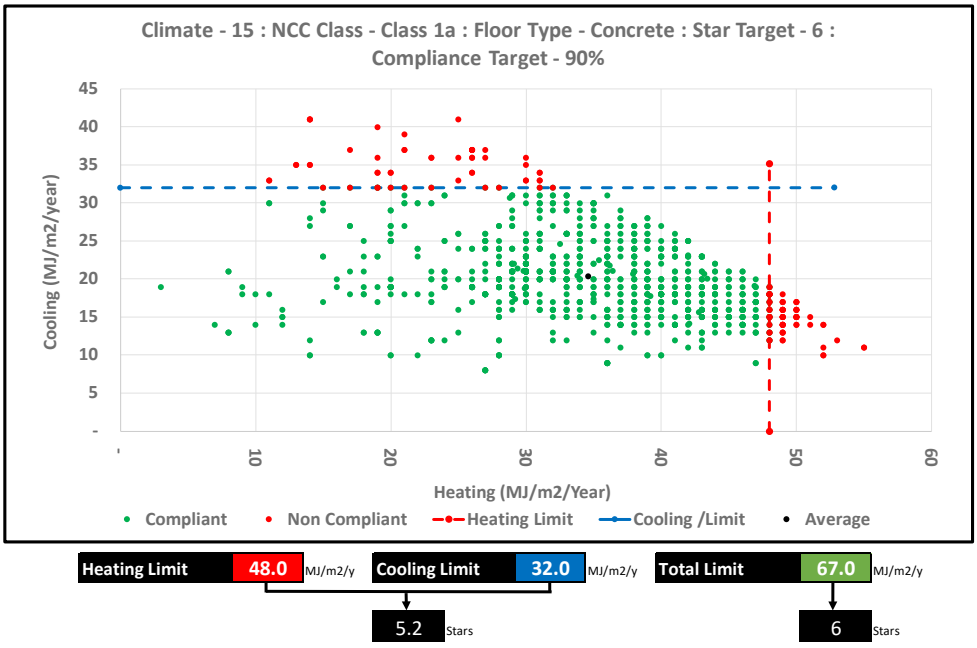
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	1059	
Target Load	67.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	34.6	MJ/m2/Annum
Av. Cool Load	20.3	MJ/m2/Annum
Av. Total Load	55.0	MJ/m2/Annum
Av. % Heat	63.0%	%
Av. % Cool	37.0%	%
Av. Star Rating	6.7	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



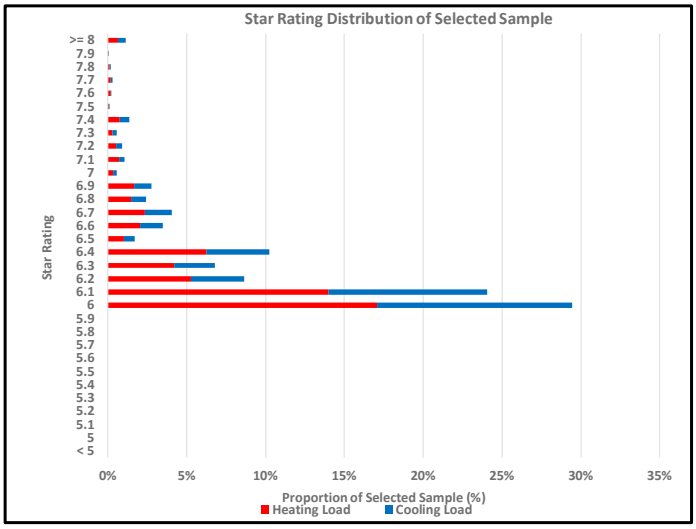
Heating Limit	48.0	MJ/m2/y	Cooling Limit	32.0	MJ/m2/y	Total Limit	67.0	MJ/m2/y
			5.2	Stars			6	Stars

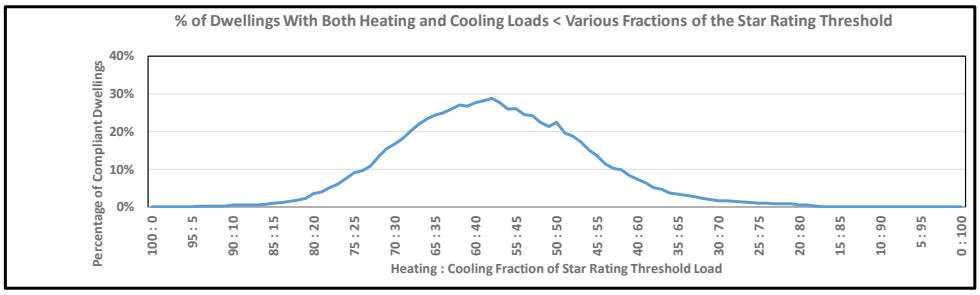
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	SA	
Climate Zone	16	Adelaide 16
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

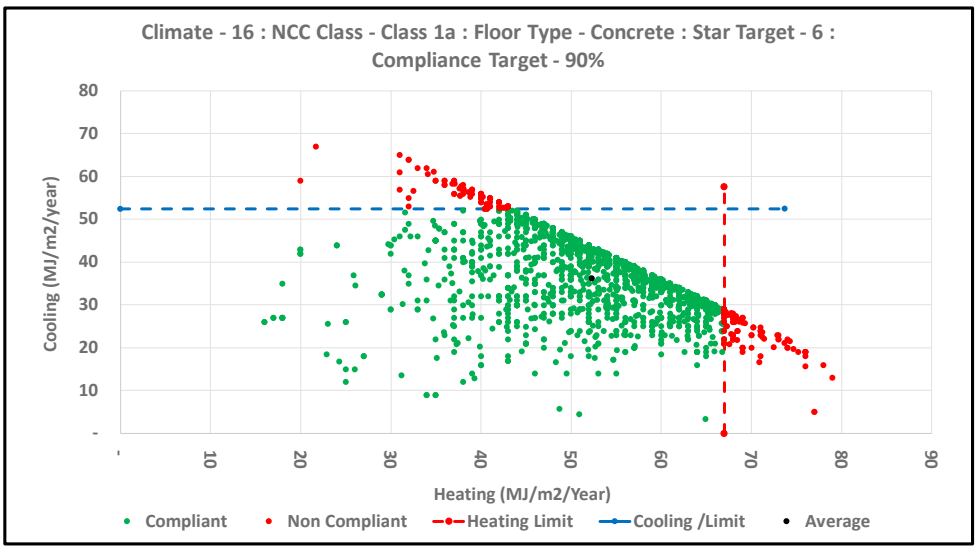
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	1779	
Target Load	96.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	52.3	MJ/m2/Annum
Av. Cool Load	36.2	MJ/m2/Annum
Av. Total Load	88.5	MJ/m2/Annum
Av. % Heat	59.1%	%
Av. % Cool	40.9%	%
Av. Star Rating	6.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



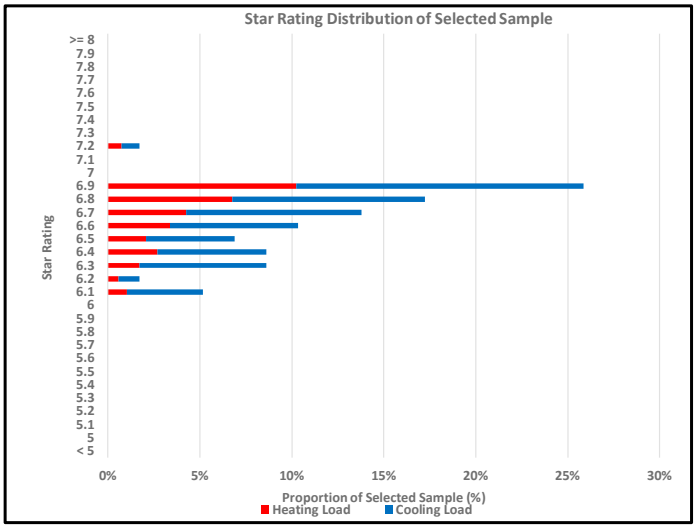
Heating Limit	67.0	MJ/m2/y	Cooling Limit	52.4	MJ/m2/y	Total Limit	96.0	MJ/m2/y
			5.1	Stars			6	Stars

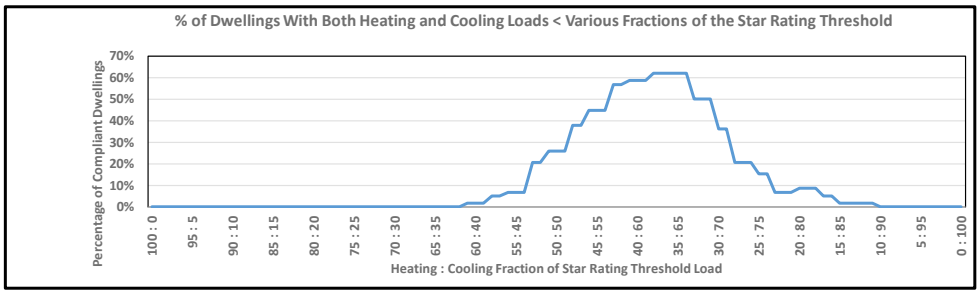
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	17	Sydney E 17
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

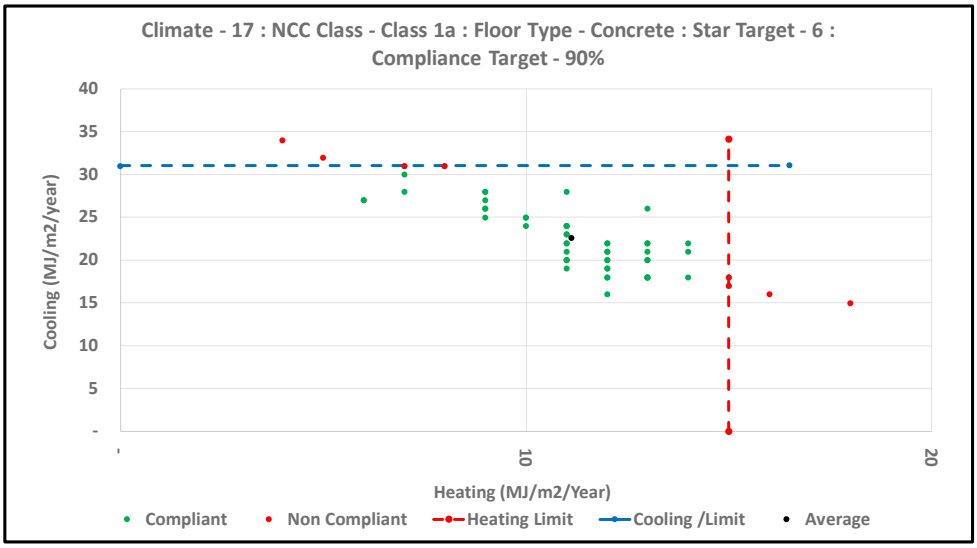
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	58	
Target Load	39.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	11.1	MJ/m2/Annum
Av. Cool Load	22.6	MJ/m2/Annum
Av. Total Load	33.7	MJ/m2/Annum
Av. % Heat	33.0%	%
Av. % Cool	67.1%	%
Av. Star Rating	6.7	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



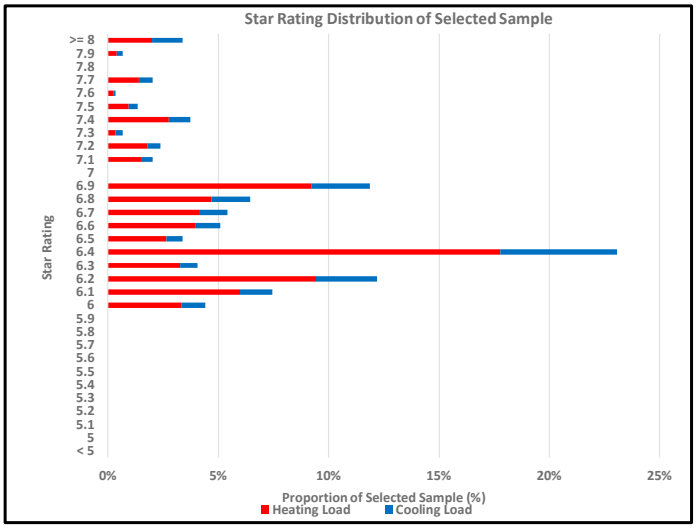
Heating Limit	15.0	MJ/m2/y	Cooling Limit	31.0	MJ/m2/y	Total Limit	39.0	MJ/m2/y
			5.3	Stars			6	Stars

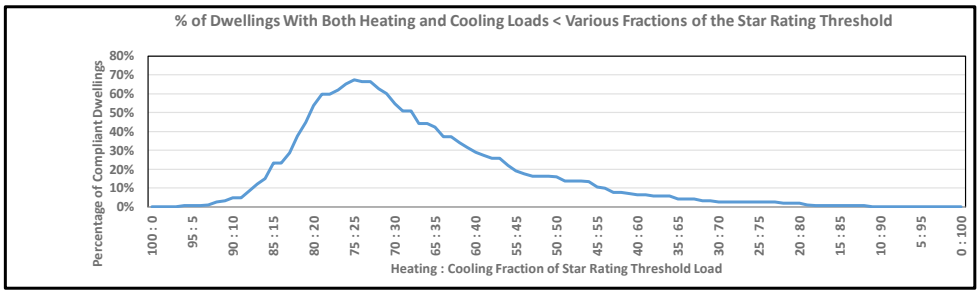
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	18	Nowra 18
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

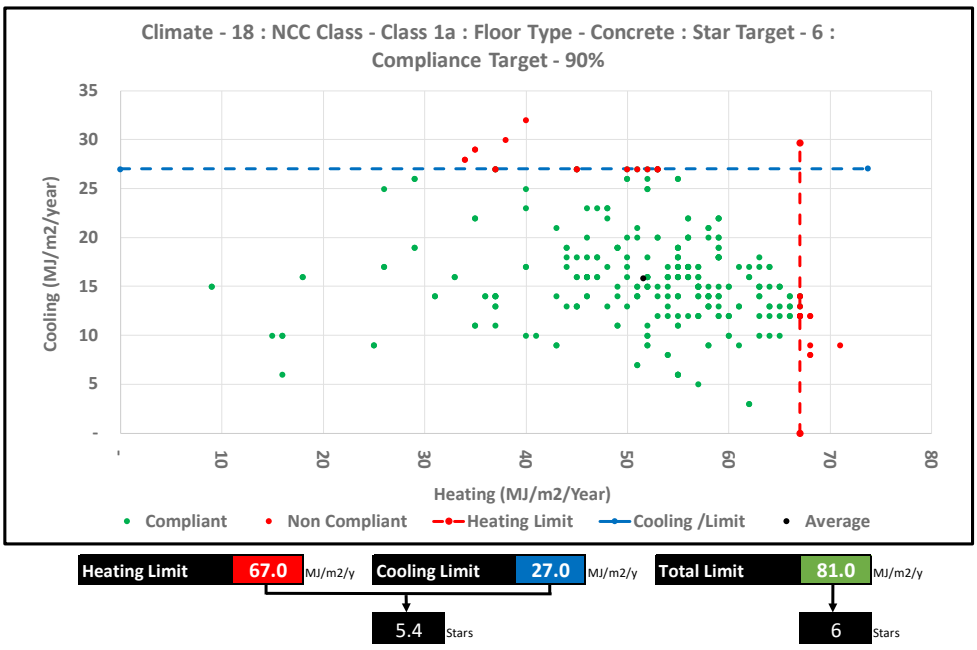
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	295	
Target Load	81.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	51.6	MJ/m2/Annum
Av. Cool Load	15.8	MJ/m2/Annum
Av. Total Load	67.4	MJ/m2/Annum
Av. % Heat	76.5%	%
Av. % Cool	23.5%	%
Av. Star Rating	6.7	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



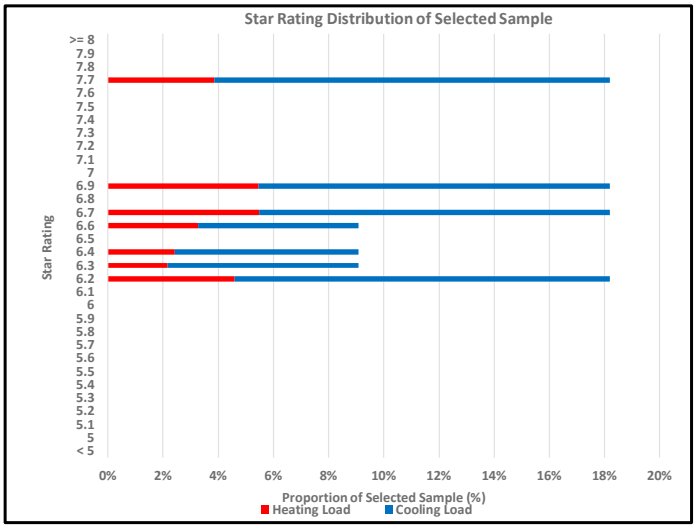
Heating Limit	67.0	MJ/m2/y	Cooling Limit	27.0	MJ/m2/y	Total Limit	81.0	MJ/m2/y
			5.4	Stars		6	Stars	

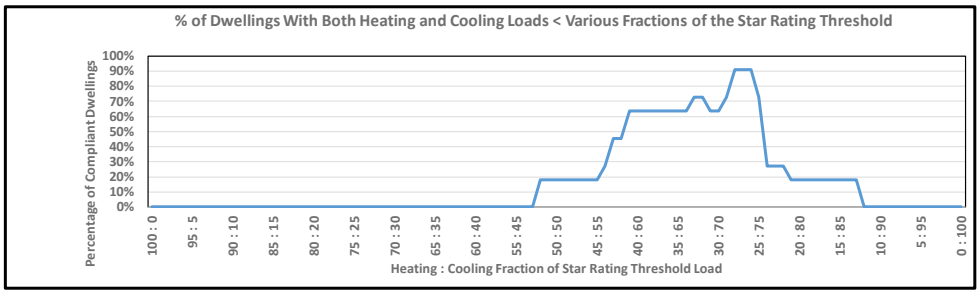
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	19	Charleville 19
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

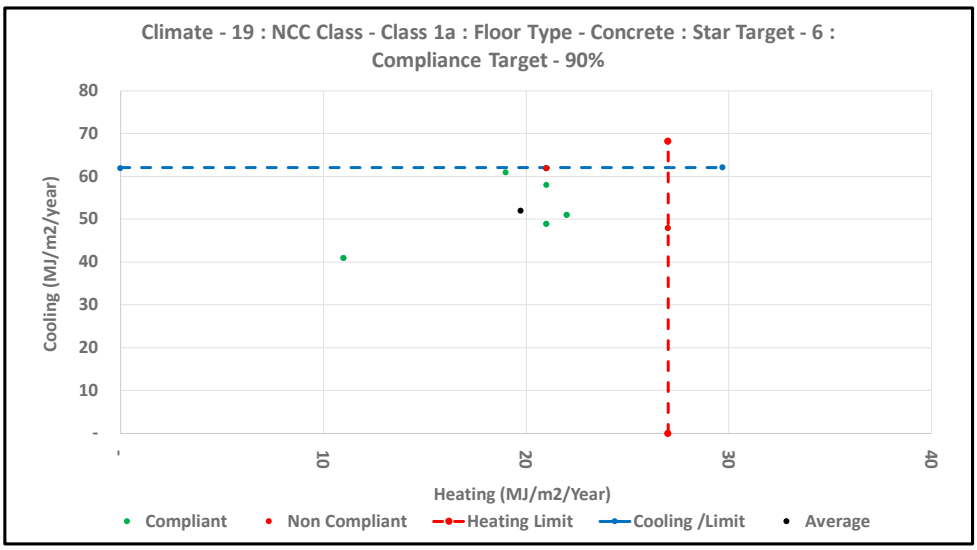
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	11	
Target Load	87.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	19.7	MJ/m2/Annum
Av. Cool Load	52.1	MJ/m2/Annum
Av. Total Load	71.8	MJ/m2/Annum
Av. % Heat	27.5%	%
Av. % Cool	72.6%	%
Av. Star Rating	6.8	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	27.0	MJ/m2/y	Cooling Limit	62.0	MJ/m2/y	Total Limit	87.0	MJ/m2/y
			5.9	Stars			6	Stars

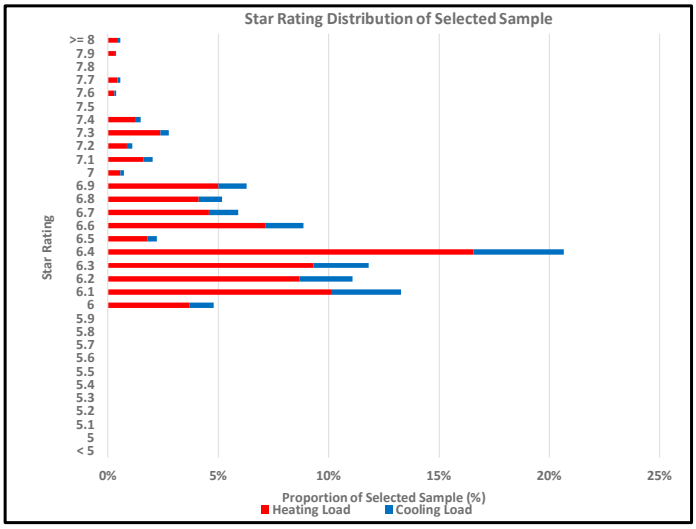
#

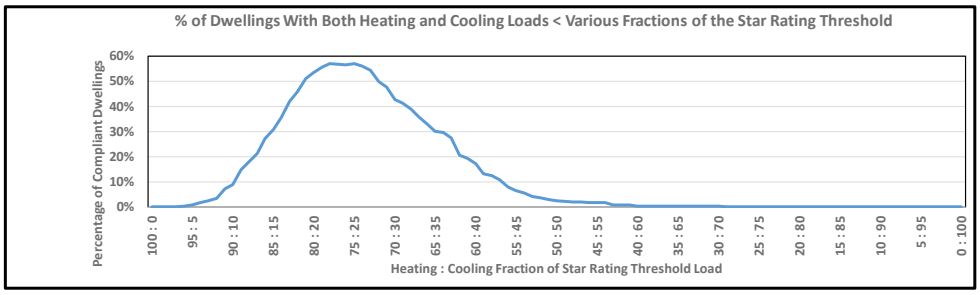
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	ALL	
Climate Zone	20	Wagga 20
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

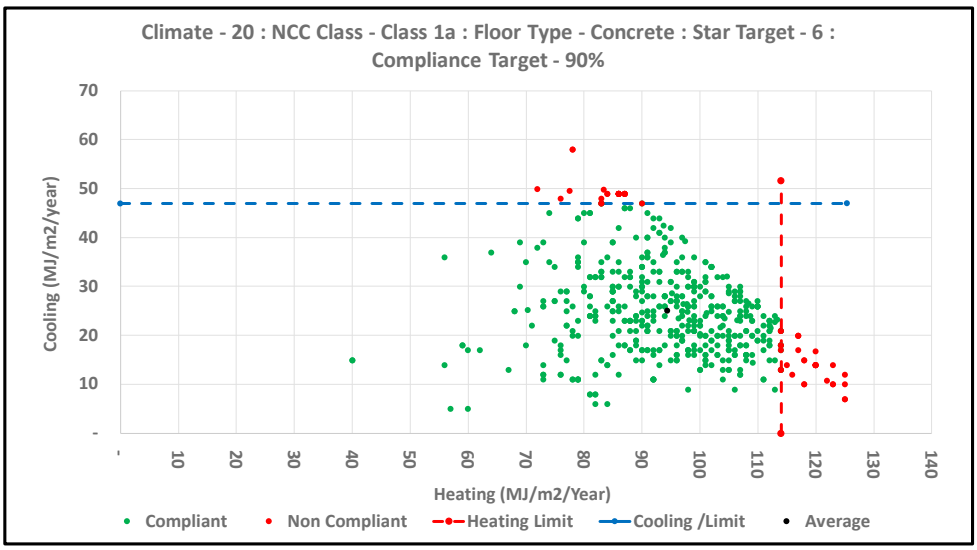
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	542	
Target Load	137.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	94.4	MJ/m2/Annum
Av. Cool Load	25.1	MJ/m2/Annum
Av. Total Load	119.5	MJ/m2/Annum
Av. % Heat	79.0%	%
Av. % Cool	21.0%	%
Av. Star Rating	6.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	114.0	MJ/m2/y	Cooling Limit	47.0	MJ/m2/y	Total Limit	137.0	MJ/m2/y
			5.3	Stars			6	Stars

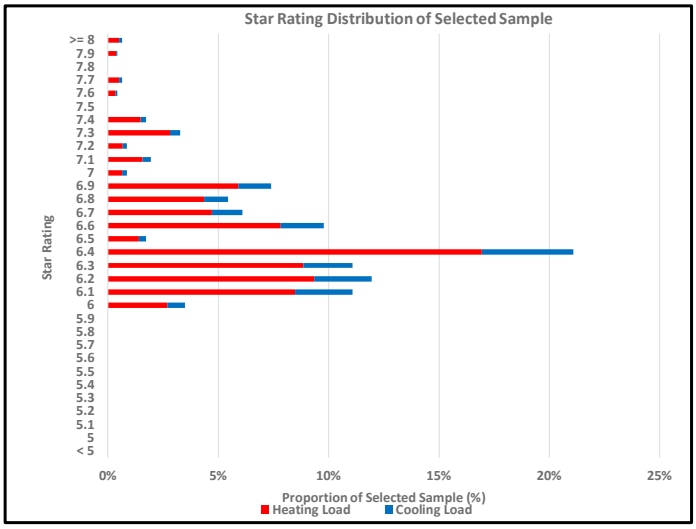
18

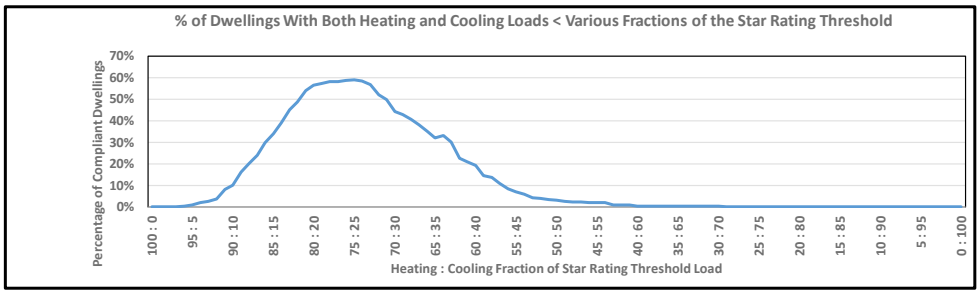
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	20	Wagga 20
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

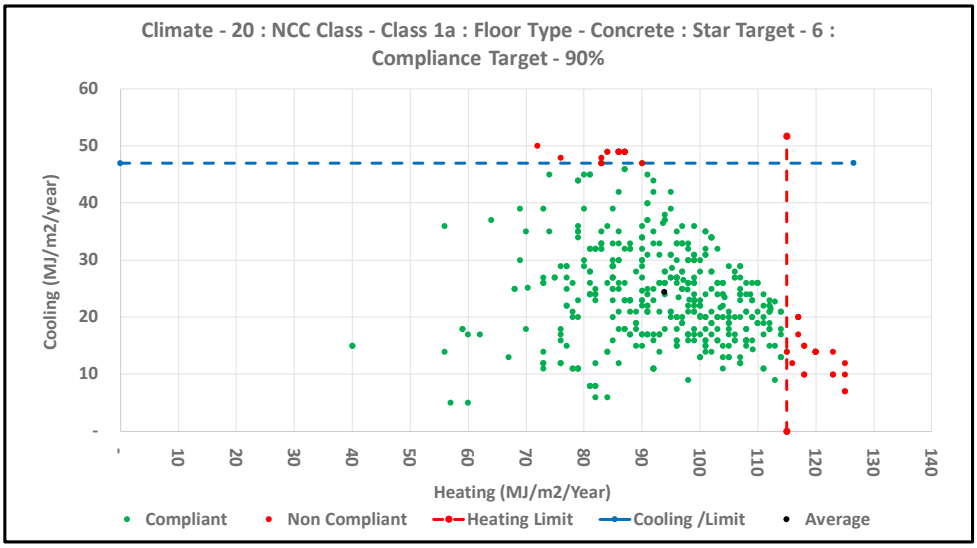
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	460	
Target Load	137.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	93.9	MJ/m2/Annum
Av. Cool Load	24.5	MJ/m2/Annum
Av. Total Load	118.4	MJ/m2/Annum
Av. % Heat	79.3%	%
Av. % Cool	20.7%	%
Av. Star Rating	6.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	115.0	MJ/m2/y	Cooling Limit	47.0	MJ/m2/y	Total Limit	137.0	MJ/m2/y
			5.3	Stars			6	Stars

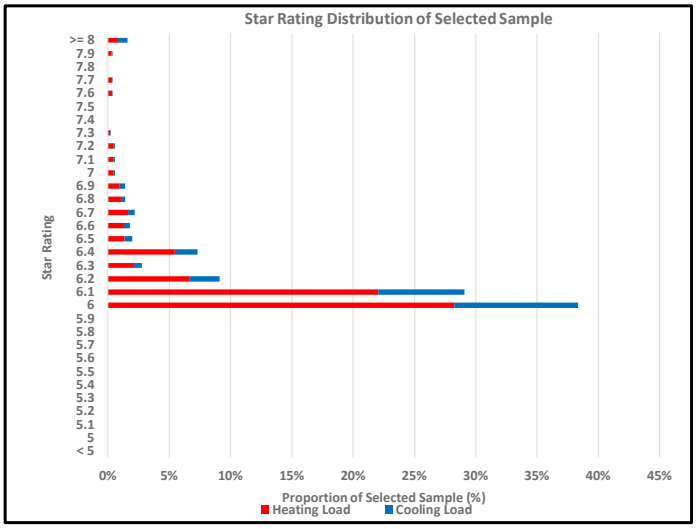
19

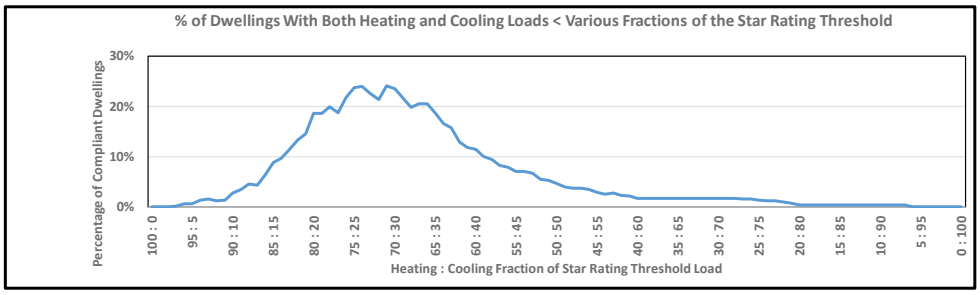
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	21	Melb 21
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

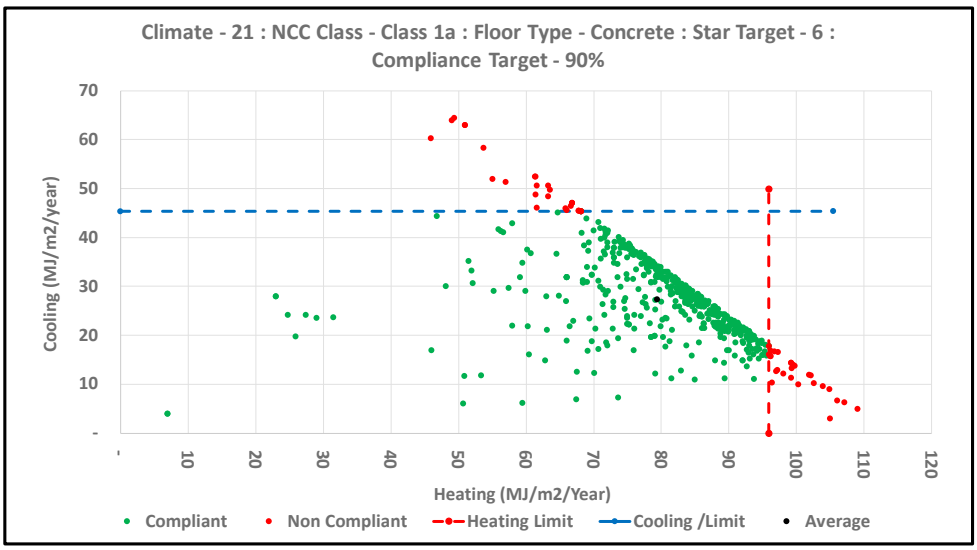
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	506	
Target Load	114.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	79.4	MJ/m2/Annum
Av. Cool Load	27.4	MJ/m2/Annum
Av. Total Load	106.8	MJ/m2/Annum
Av. % Heat	74.3%	%
Av. % Cool	25.7%	%
Av. Star Rating	6.2	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	95.9	MJ/m2/y	Cooling Limit	45.4	MJ/m2/y	Total Limit	114.0	MJ/m2/y
			5.2	Stars		6	Stars	

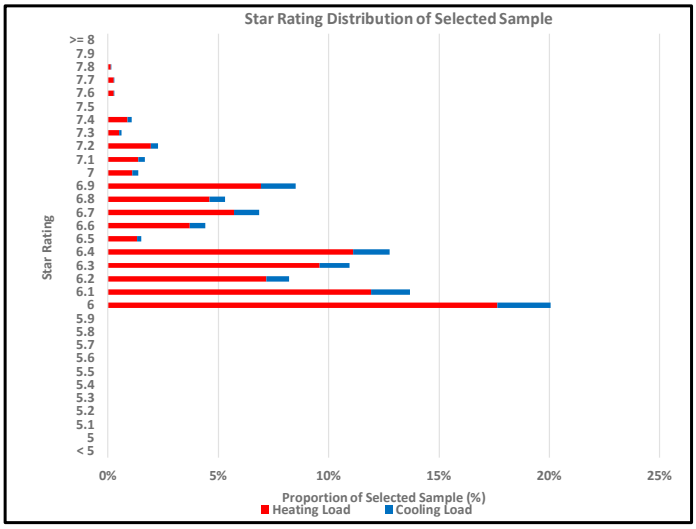
20

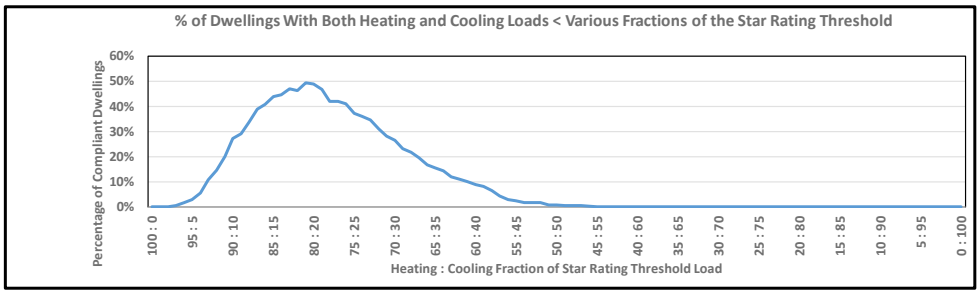
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	22	East Sale 22
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

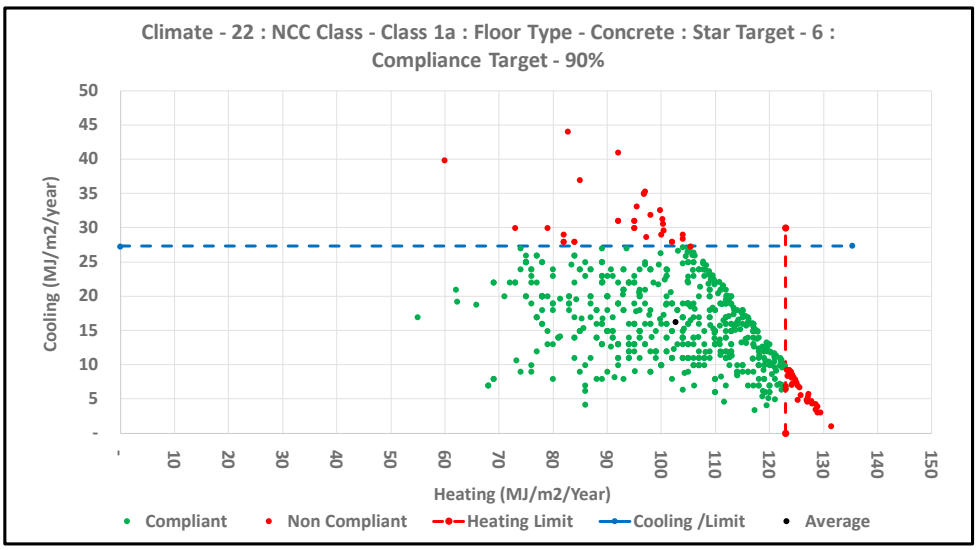
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	658	
Target Load	133.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	102.7	MJ/m2/Annum
Av. Cool Load	16.2	MJ/m2/Annum
Av. Total Load	118.9	MJ/m2/Annum
Av. % Heat	86.4%	%
Av. % Cool	13.7%	%
Av. Star Rating	6.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	123.0	MJ/m2/y	Cooling Limit	27.3	MJ/m2/y	Total Limit	133.0	MJ/m2/y
			5.5	Stars			6	Stars

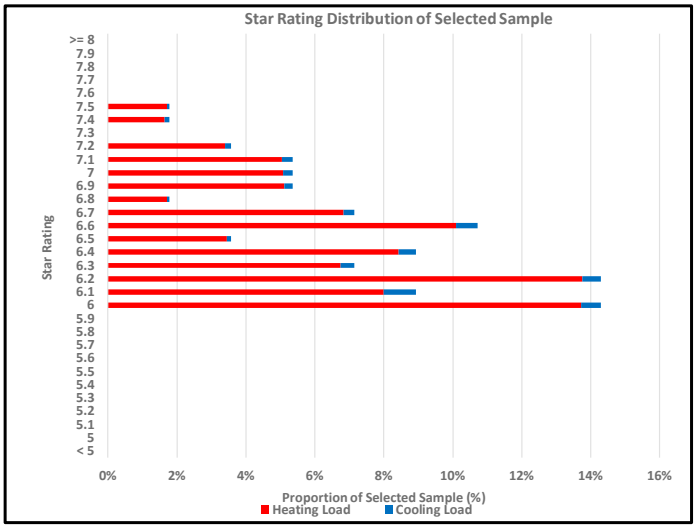
21

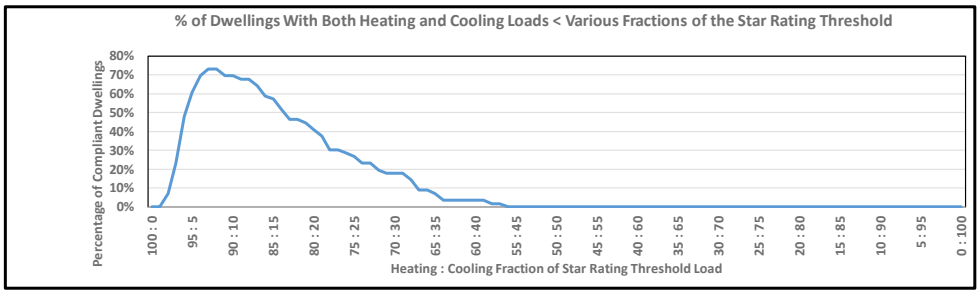
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	TAS	
Climate Zone	23	Launceston 23
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

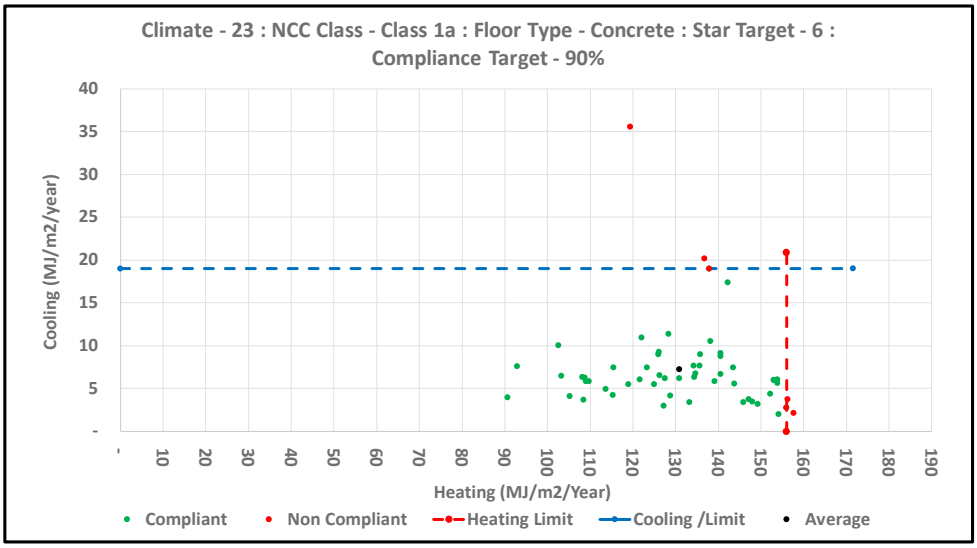
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	56	
Target Load	160.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	130.8	MJ/m2/Annum
Av. Cool Load	7.3	MJ/m2/Annum
Av. Total Load	138.1	MJ/m2/Annum
Av. % Heat	94.7%	%
Av. % Cool	5.3%	%
Av. Star Rating	6.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	156.0	MJ/m2/y	Cooling Limit	19.0	MJ/m2/y	Total Limit	160.0	MJ/m2/y
			5.6	Stars		6	Stars	

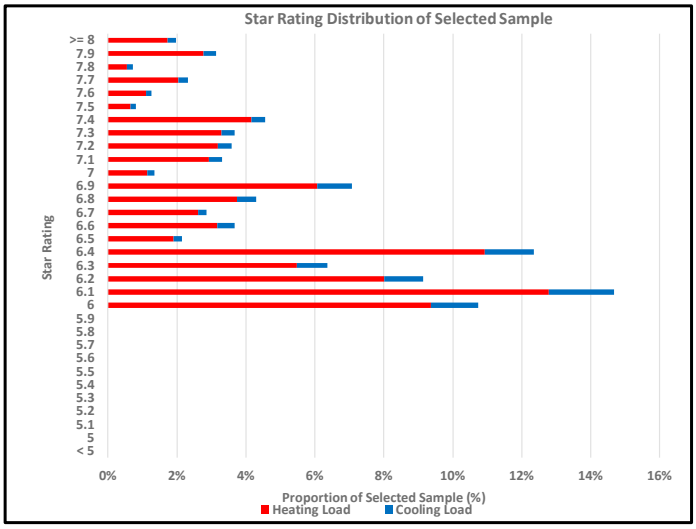
22

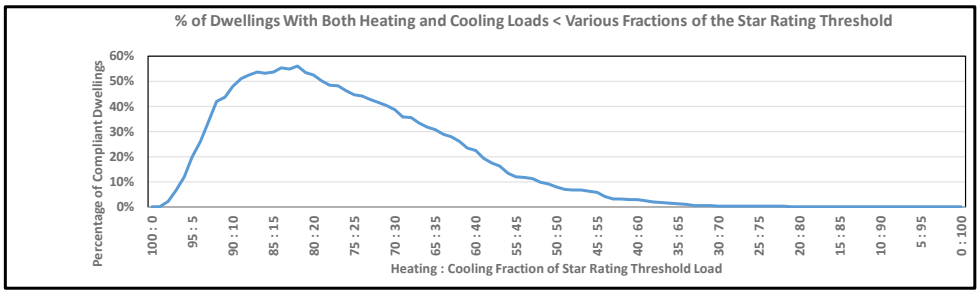
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	ACT	
Climate Zone	24	Canberra 24
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

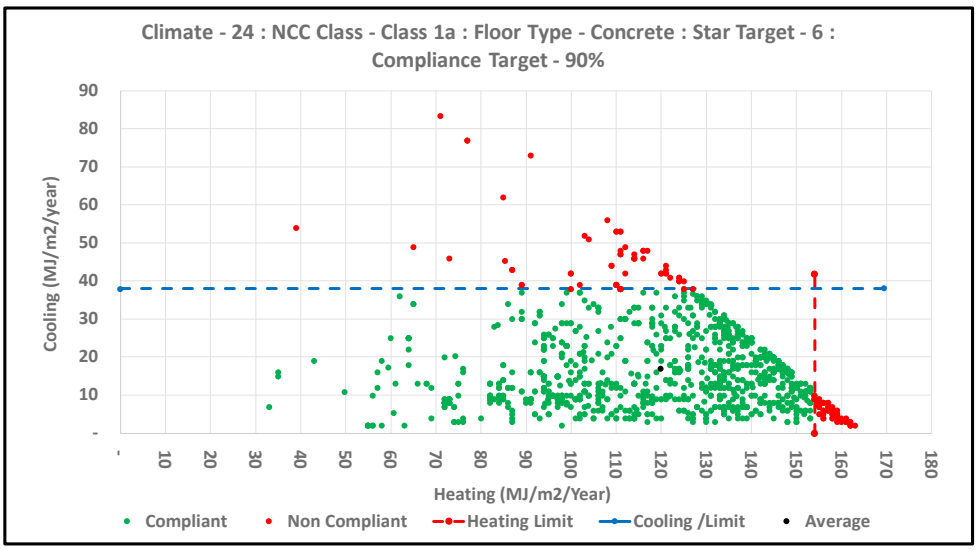
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	1117	
Target Load	165.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	119.9	MJ/m2/Annum
Av. Cool Load	17.0	MJ/m2/Annum
Av. Total Load	136.9	MJ/m2/Annum
Av. % Heat	87.6%	%
Av. % Cool	12.4%	%
Av. Star Rating	6.6	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	154.0	MJ/m2/y	Cooling Limit	38.0	MJ/m2/y	Total Limit	165.0	MJ/m2/y
			5.4	Stars		6	Stars	

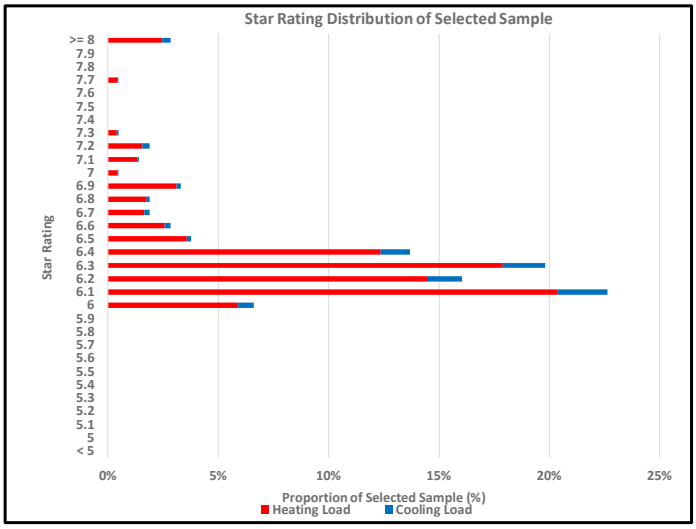
23

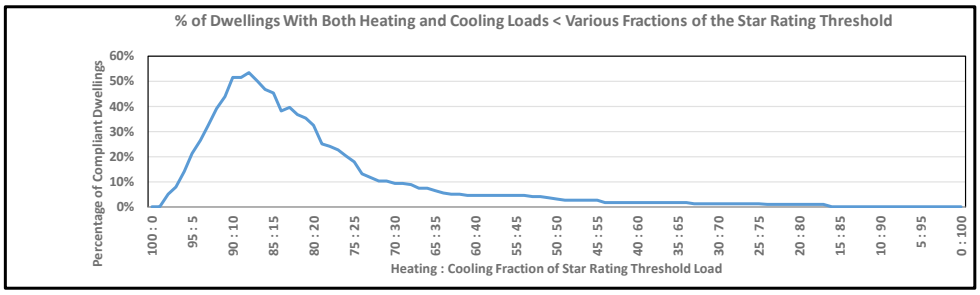
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	24	Canberra 24
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

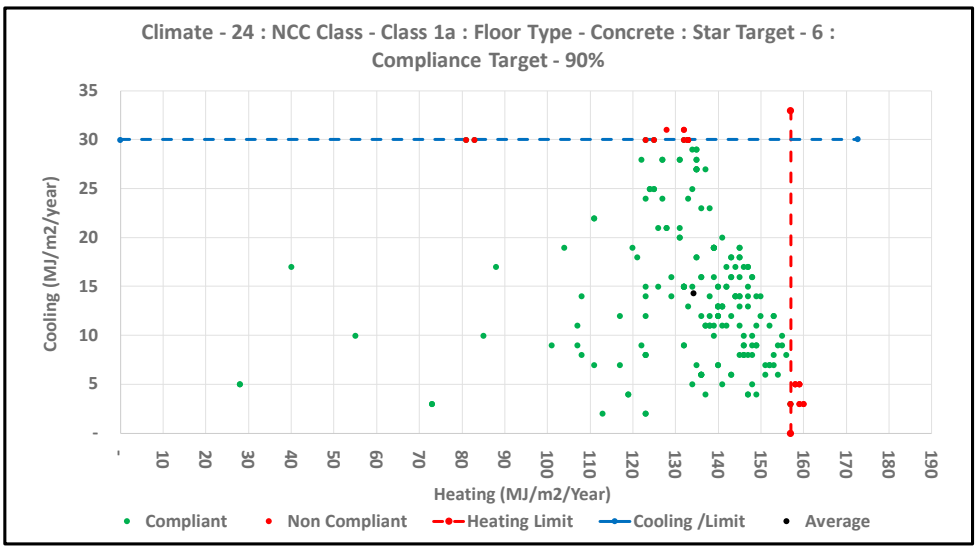
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	212	
Target Load	165.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	134.2	MJ/m2/Annum
Av. Cool Load	14.3	MJ/m2/Annum
Av. Total Load	148.5	MJ/m2/Annum
Av. % Heat	90.4%	%
Av. % Cool	9.6%	%
Av. Star Rating	6.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	157.0	MJ/m2/y	Cooling Limit	30.0	MJ/m2/y	Total Limit	165.0	MJ/m2/y
			5.5	Stars			6	Stars

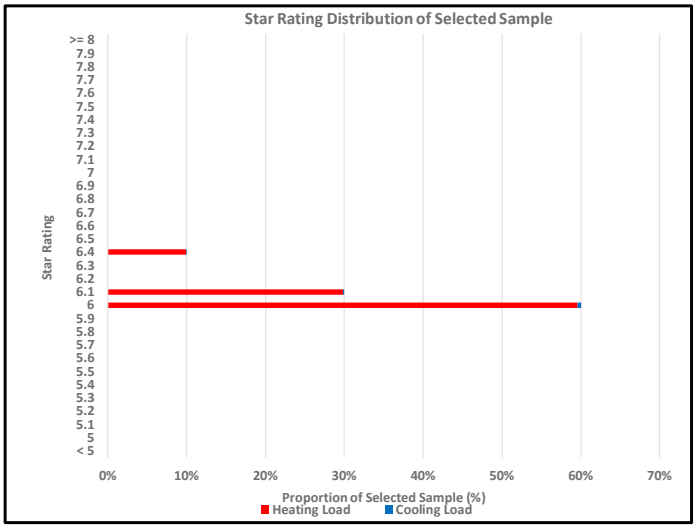
24

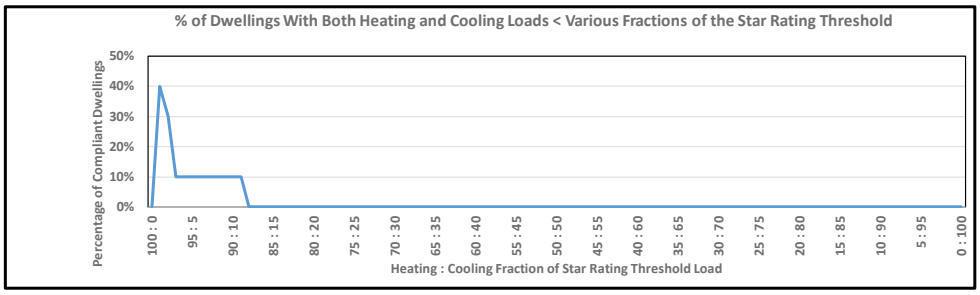
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	25	Cabramurra 25
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

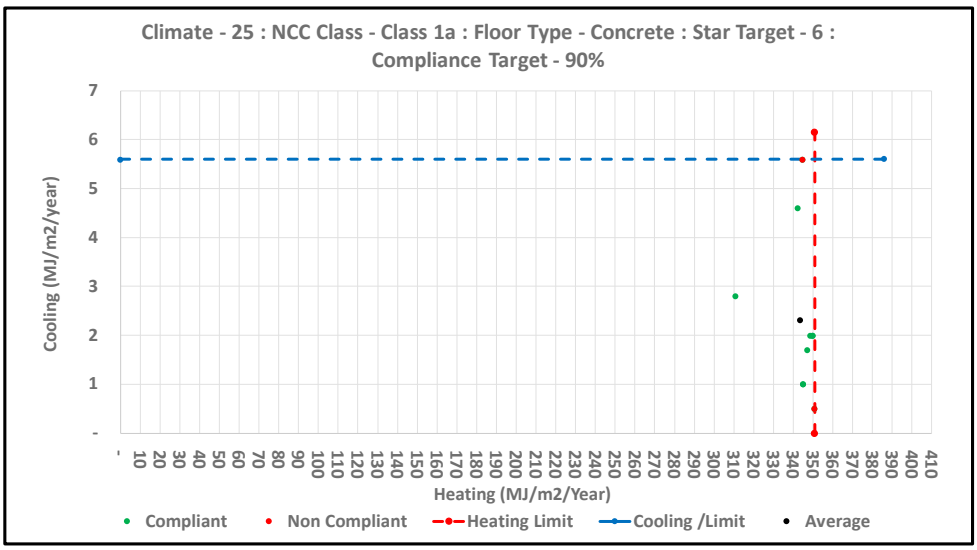
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	10	
Target Load	352.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	343.5	MJ/m2/Annum
Av. Cool Load	2.3	MJ/m2/Annum
Av. Total Load	345.8	MJ/m2/Annum
Av. % Heat	99.3%	%
Av. % Cool	0.7%	%
Av. Star Rating	6.1	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	350.8	MJ/m2/y	Cooling Limit	5.6	MJ/m2/y	Total Limit	352.0	MJ/m2/y
			5.9	Stars			6	Stars

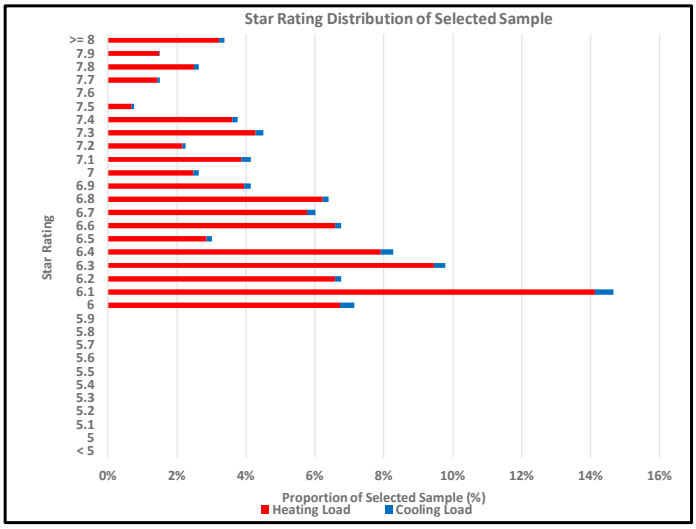
25

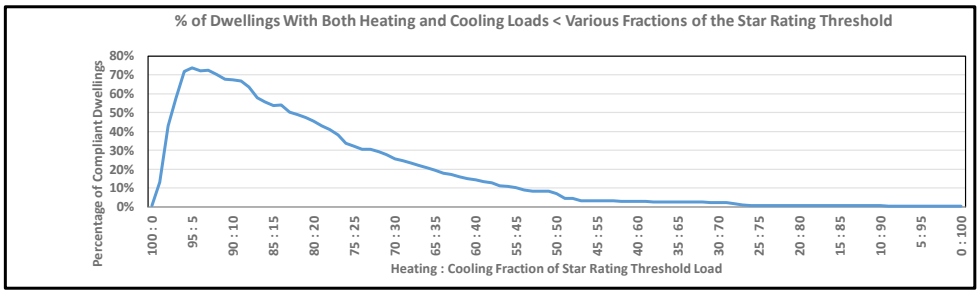
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	TAS	
Climate Zone	26	Hobart 26
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

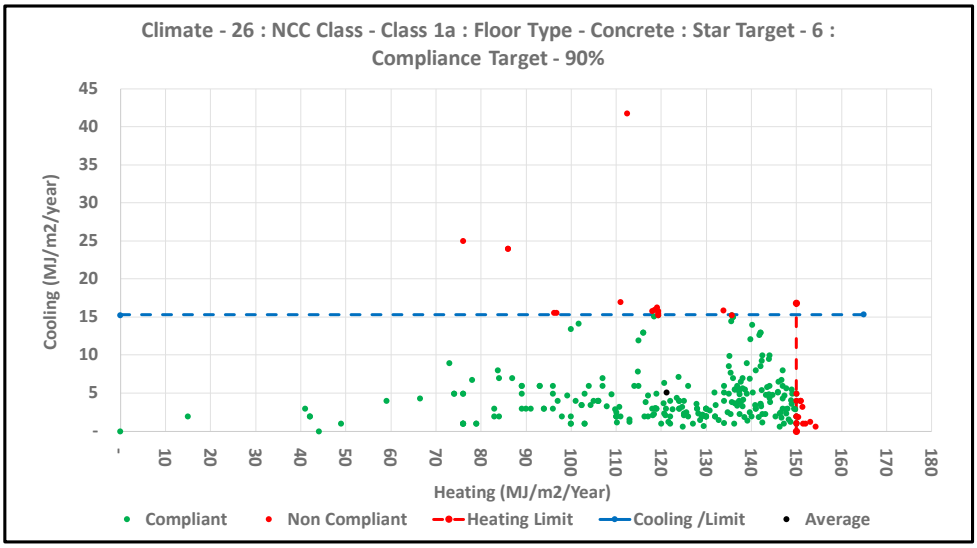
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	266	
Target Load	155.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	121.2	MJ/m2/Annum
Av. Cool Load	5.1	MJ/m2/Annum
Av. Total Load	126.3	MJ/m2/Annum
Av. % Heat	96.0%	%
Av. % Cool	4.0%	%
Av. Star Rating	6.7	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	150.0	MJ/m2/y	Cooling Limit	15.3	MJ/m2/y	Total Limit	155.0	MJ/m2/y
			5.7	Stars			6	Stars

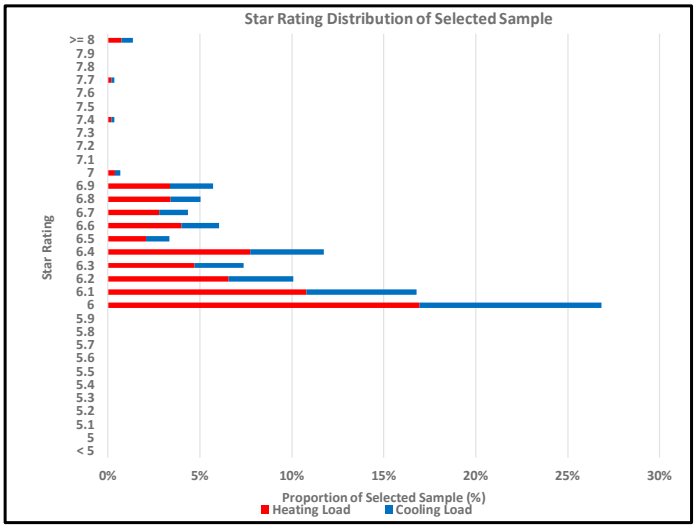
26

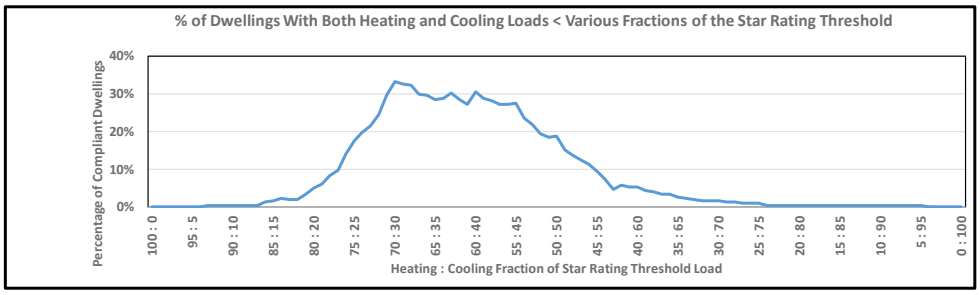
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	27	Mildura 27
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

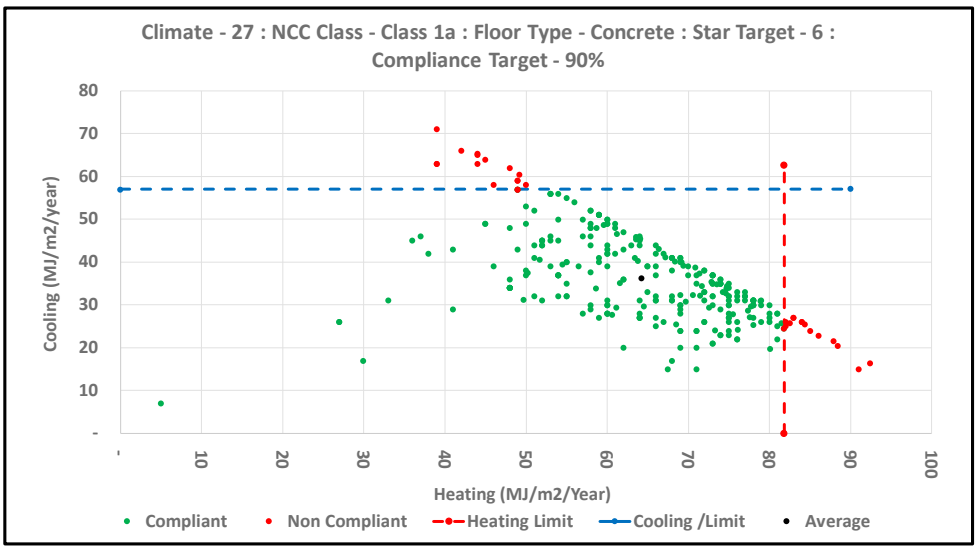
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	298	
Target Load	110.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	64.2	MJ/m2/Annum
Av. Cool Load	36.2	MJ/m2/Annum
Av. Total Load	100.5	MJ/m2/Annum
Av. % Heat	63.9%	%
Av. % Cool	36.1%	%
Av. Star Rating	6.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	81.8	MJ/m2/y	Cooling Limit	57.0	MJ/m2/y	Total Limit	110.0	MJ/m2/y
			5.1	Stars			6	Stars

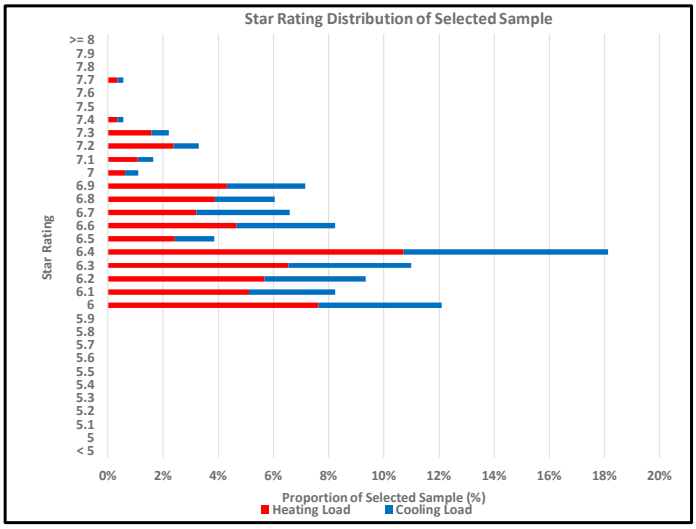
27

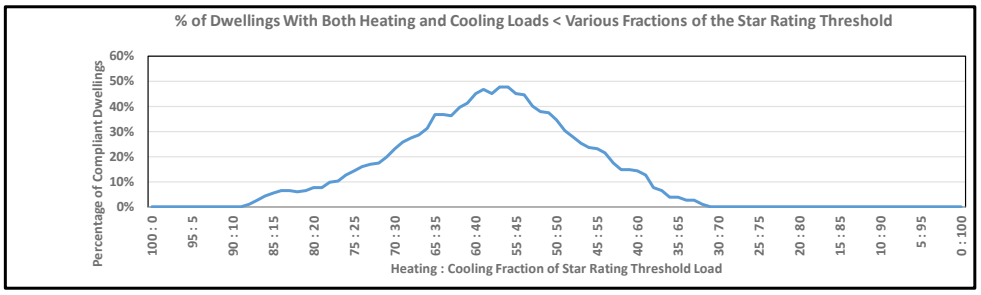
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	27	Mildura 27
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

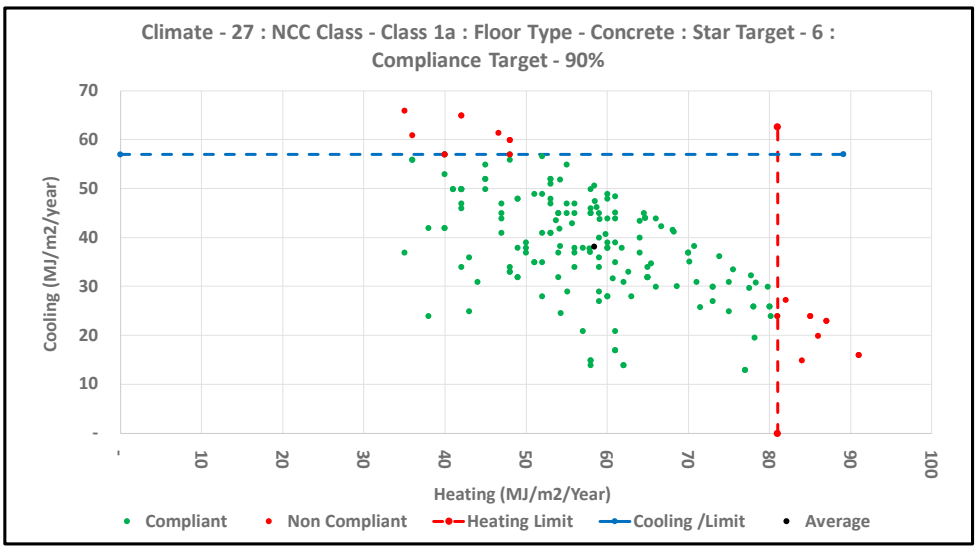
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	182	
Target Load	110.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	58.4	MJ/m2/Annum
Av. Cool Load	38.2	MJ/m2/Annum
Av. Total Load	96.6	MJ/m2/Annum
Av. % Heat	60.5%	%
Av. % Cool	39.6%	%
Av. Star Rating	6.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	81.0	MJ/m2/y	Cooling Limit	57.0	MJ/m2/y	Total Limit	110.0	MJ/m2/y
			5.1	Stars			6	Stars

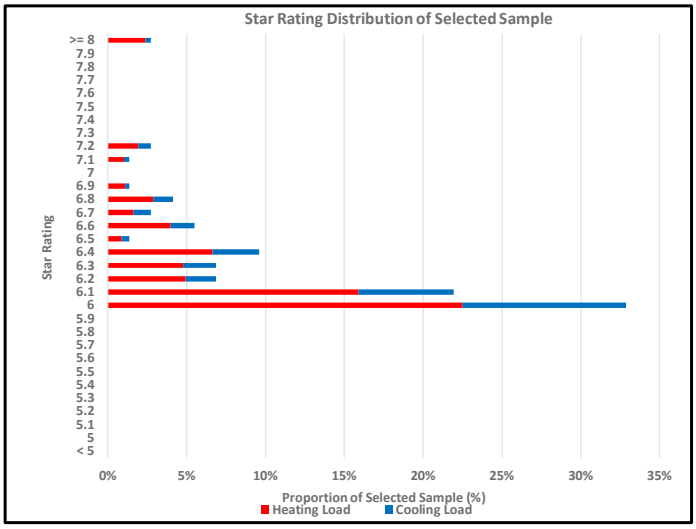
28

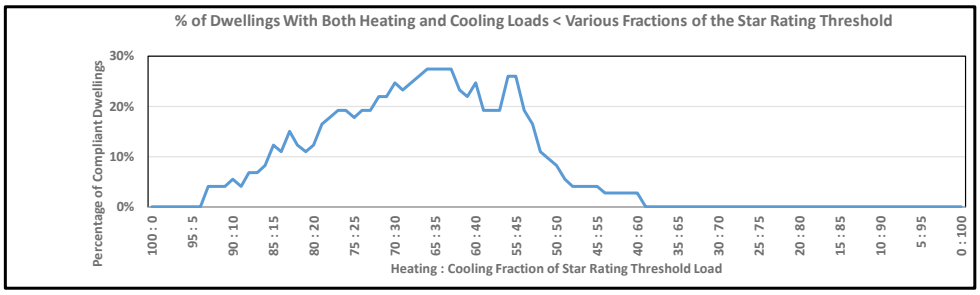
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	SA	
Climate Zone	27	Mildura 27
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

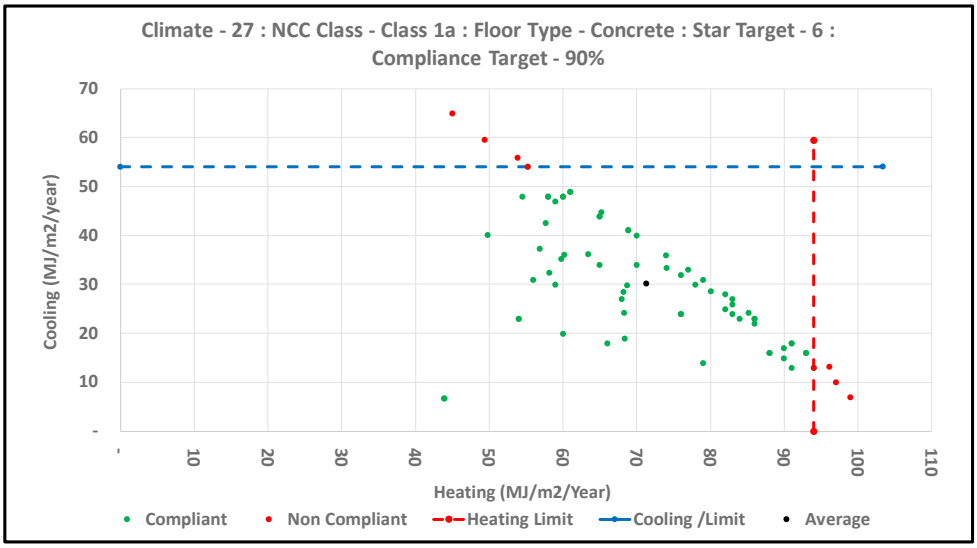
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	73	
Target Load	110.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	71.3	MJ/m2/Annum
Av. Cool Load	30.3	MJ/m2/Annum
Av. Total Load	101.6	MJ/m2/Annum
Av. % Heat	70.2%	%
Av. % Cool	29.8%	%
Av. Star Rating	6.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	94.0	MJ/m2/y	Cooling Limit	54.1	MJ/m2/y	Total Limit	110.0	MJ/m2/y
			4.8	Stars		6	Stars	

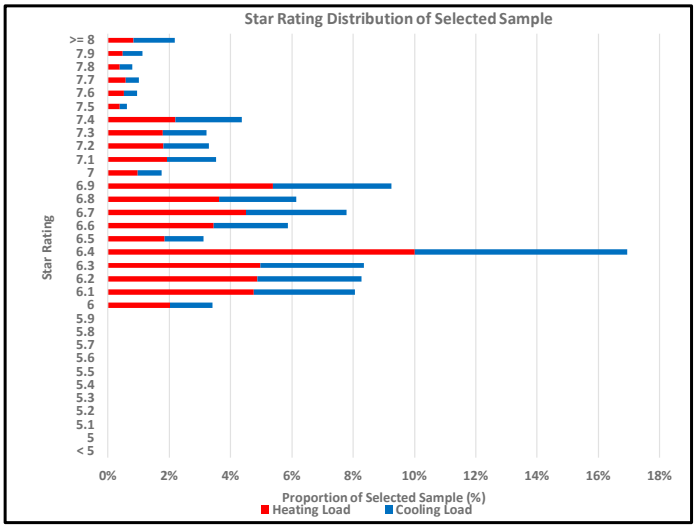
29

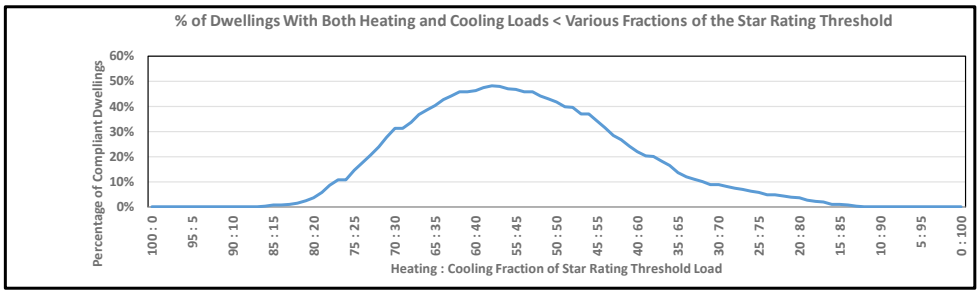
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	28	Richmond 28
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

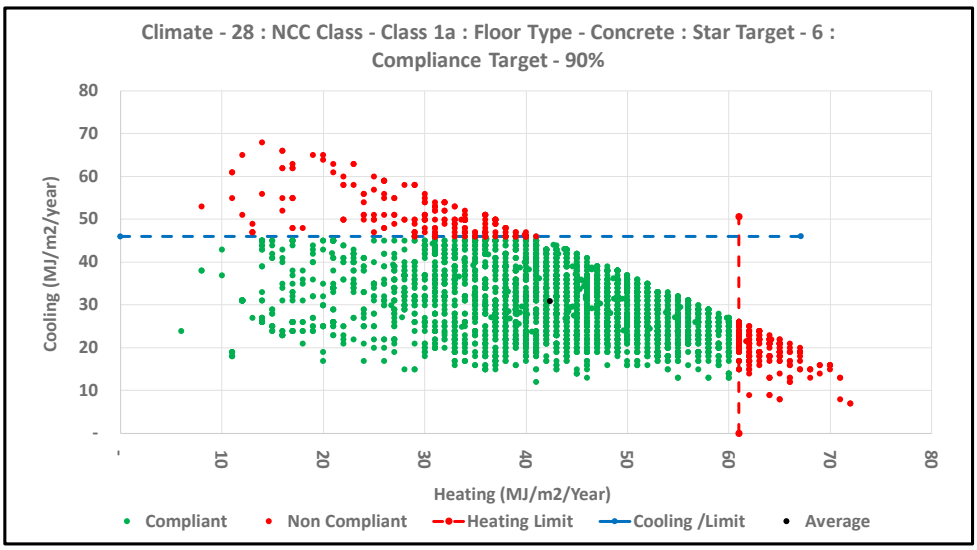
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	3665	
Target Load	87.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	42.4	MJ/m2/Annum
Av. Cool Load	30.9	MJ/m2/Annum
Av. Total Load	73.3	MJ/m2/Annum
Av. % Heat	57.8%	%
Av. % Cool	42.2%	%
Av. Star Rating	6.7	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	61.0	MJ/m2/y	Cooling Limit	46.0	MJ/m2/y	Total Limit	87.0	MJ/m2/y
			5.1	Stars			6	Stars

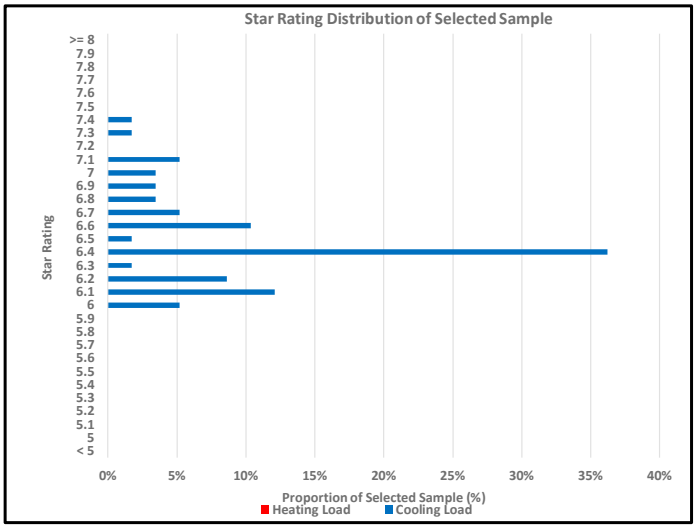
30

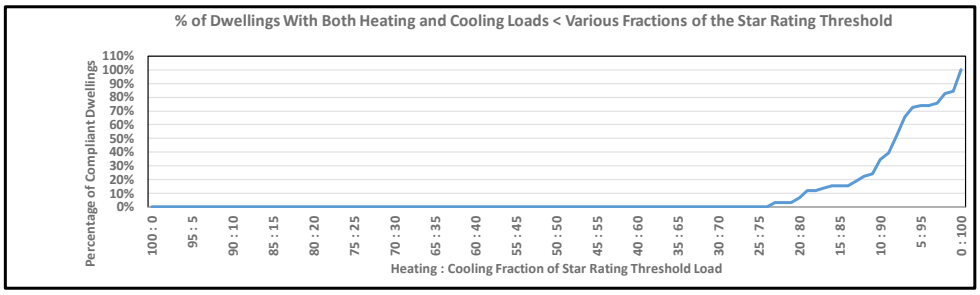
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	29	Weipa 29
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

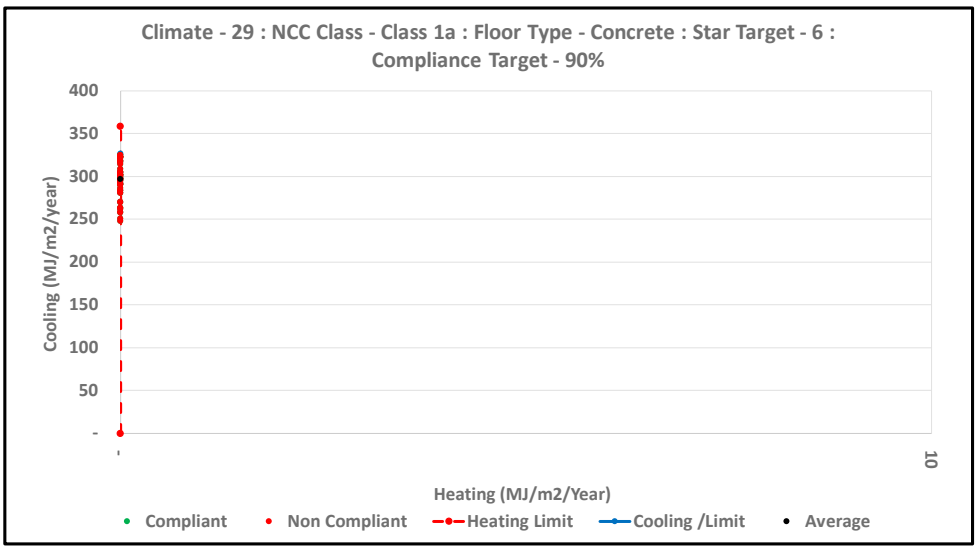
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	58	
Target Load	326.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	0.0	MJ/m2/Annum
Av. Cool Load	297.4	MJ/m2/Annum
Av. Total Load	297.4	MJ/m2/Annum
Av. % Heat	0.0%	%
Av. % Cool	100.0%	%
Av. Star Rating	6.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	0.0	MJ/m2/y	Cooling Limit	326.0	MJ/m2/y	Total Limit	326.0	MJ/m2/y
			5.9	Stars		6	Stars	

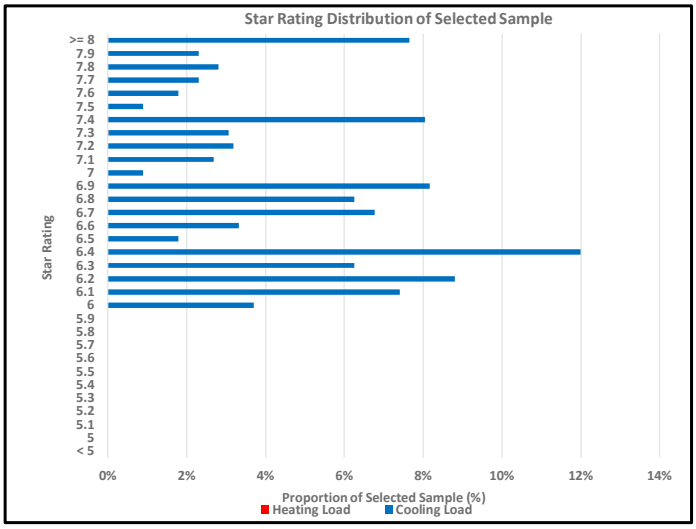
31

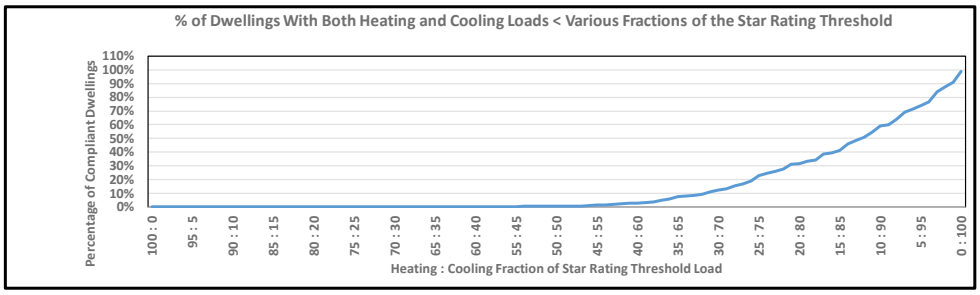
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	32	Cairns 32
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

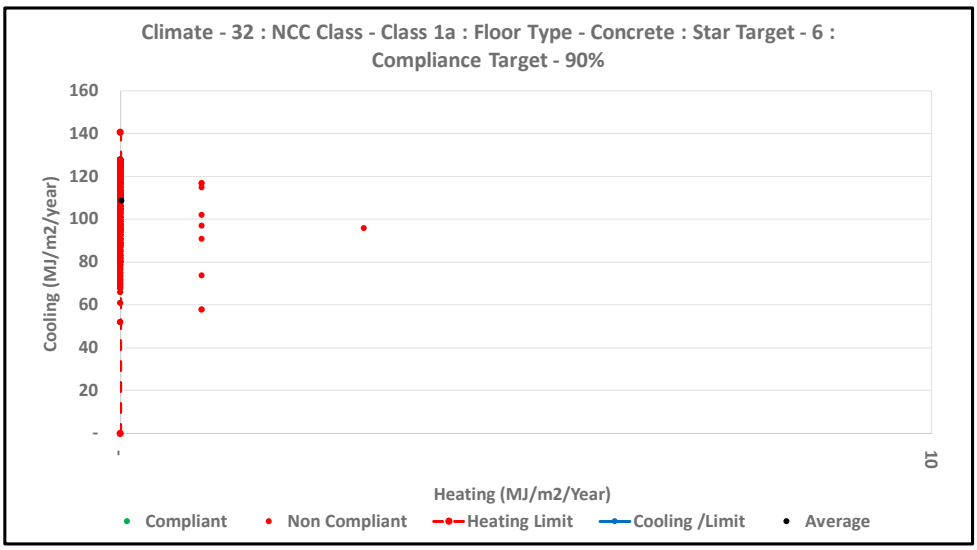
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	784	
Target Load	128.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	0.0	MJ/m2/Annum
Av. Cool Load	108.9	MJ/m2/Annum
Av. Total Load	108.9	MJ/m2/Annum
Av. % Heat	0.0%	%
Av. % Cool	100.0%	%
Av. Star Rating	6.9	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	0.0	MJ/m2/y	Cooling Limit	128.0	MJ/m2/y	Total Limit	128.0	MJ/m2/y
			5.9	Stars			6	Stars

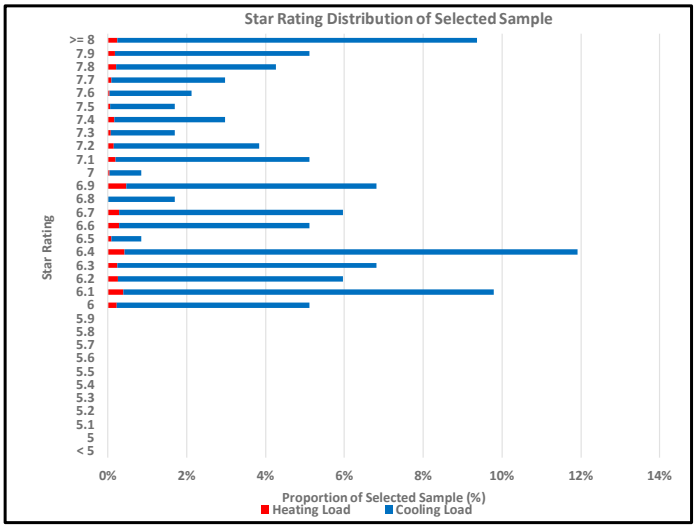
32

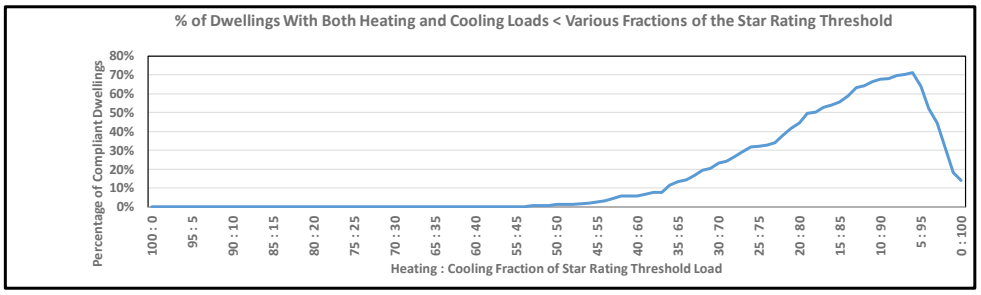
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	35	Mackay 35
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

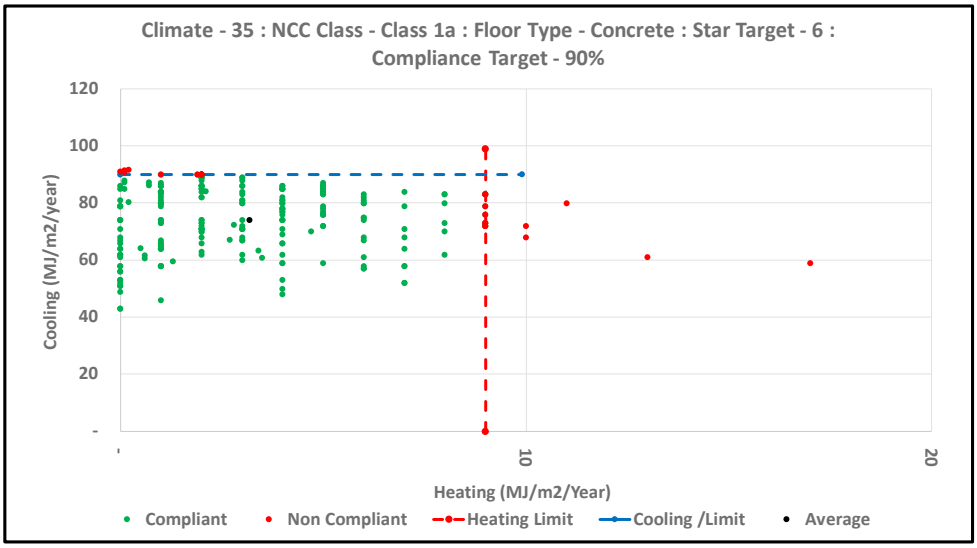
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	235	
Target Load	92.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	3.2	MJ/m2/Annum
Av. Cool Load	74.0	MJ/m2/Annum
Av. Total Load	77.2	MJ/m2/Annum
Av. % Heat	4.1%	%
Av. % Cool	95.8%	%
Av. Star Rating	6.9	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	9.0	MJ/m2/y	Cooling Limit	90.0	MJ/m2/y	Total Limit	92.0	MJ/m2/y
			5.6	Stars			6	Stars

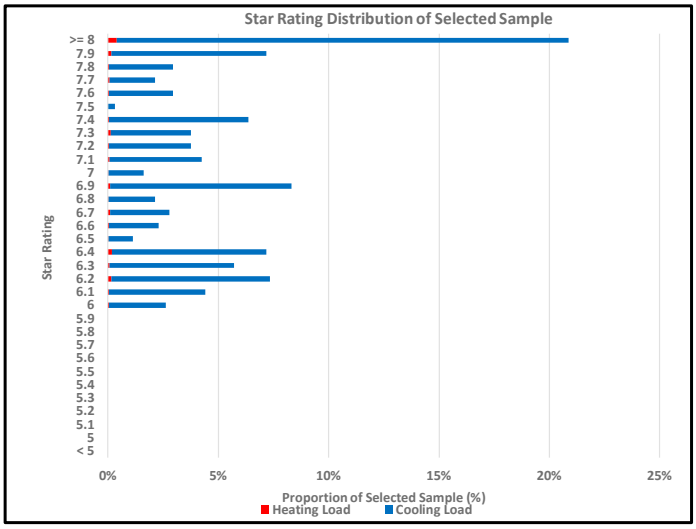
33

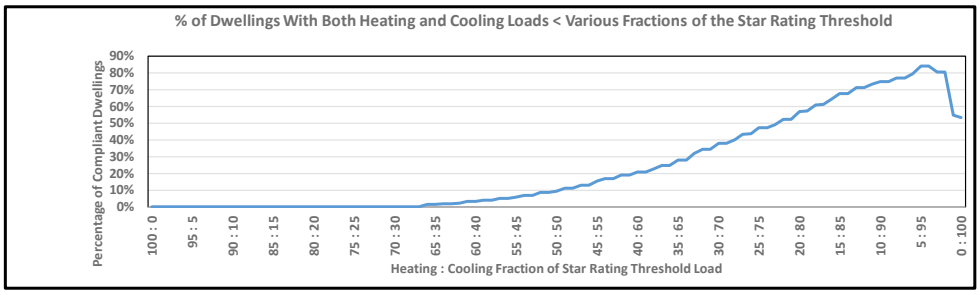
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	36	Gladstone 36
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

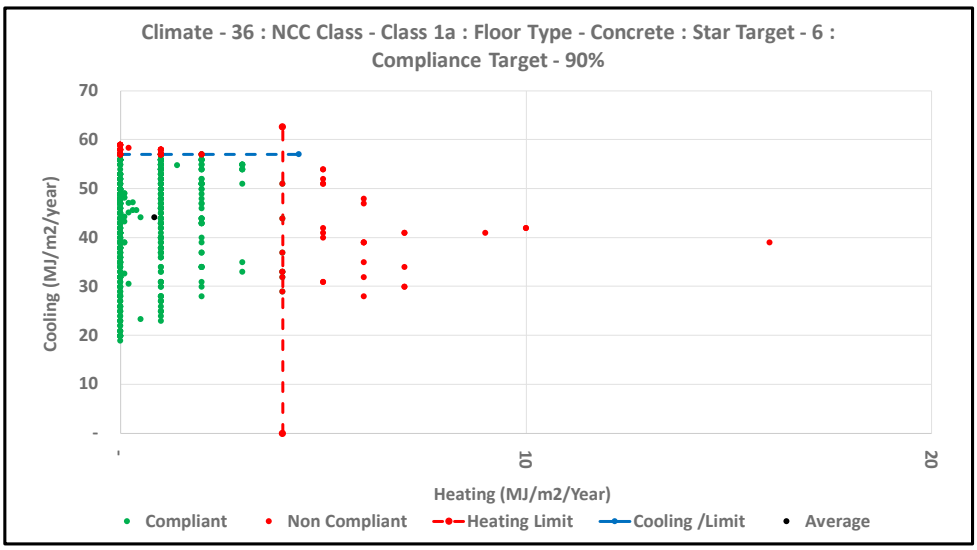
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	613	
Target Load	59.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	0.8	MJ/m2/Annum
Av. Cool Load	44.1	MJ/m2/Annum
Av. Total Load	45.0	MJ/m2/Annum
Av. % Heat	1.9%	%
Av. % Cool	98.0%	%
Av. Star Rating	7.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	4.0	MJ/m2/y	Cooling Limit	57.0	MJ/m2/y	Total Limit	59.0	MJ/m2/y
			5.8	Stars			6	Stars

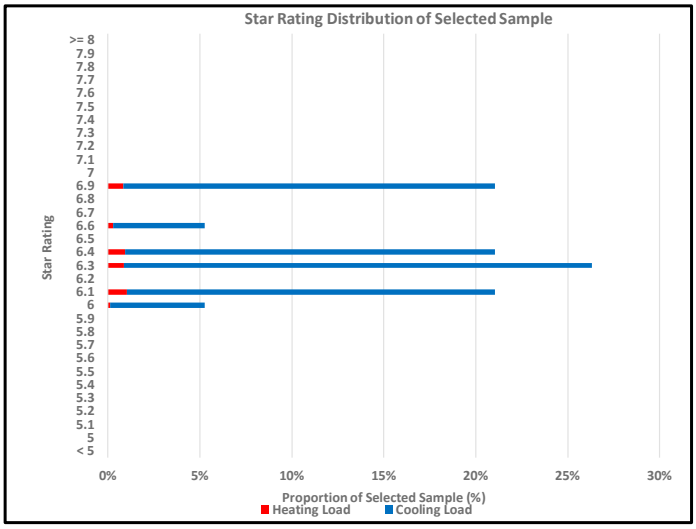
34

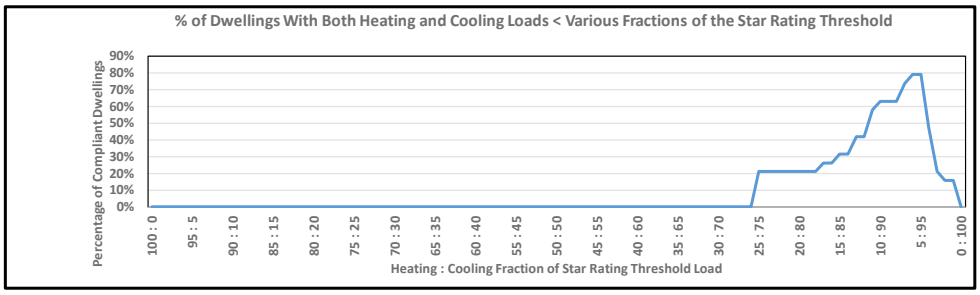
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	ALL	
Climate Zone	39	Mt Isa 39
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

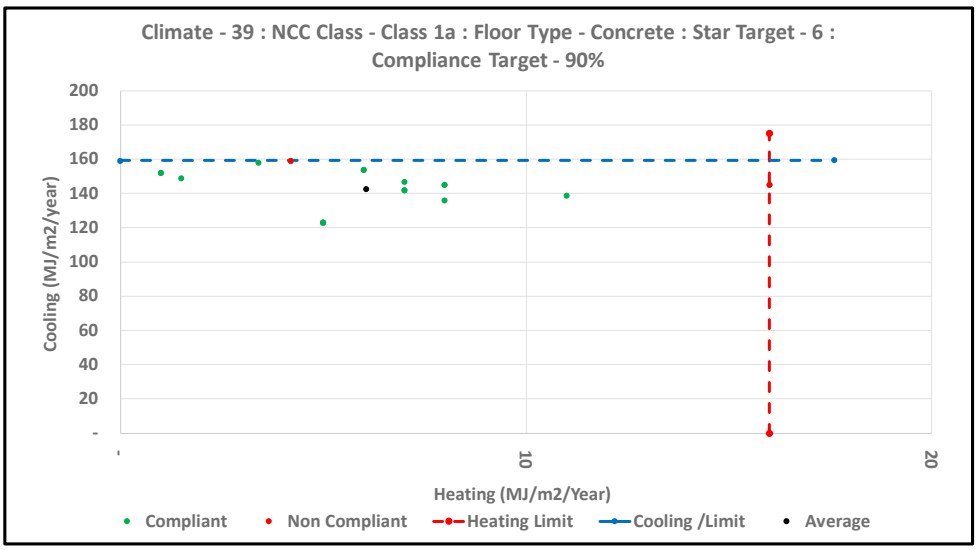
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	19	
Target Load	164.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	6.1	MJ/m2/Annum
Av. Cool Load	142.7	MJ/m2/Annum
Av. Total Load	148.7	MJ/m2/Annum
Av. % Heat	4.1%	%
Av. % Cool	95.9%	%
Av. Star Rating	6.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	16.0 MJ/m2/y	Cooling Limit	159.2 MJ/m2/y	Total Limit	164.0 MJ/m2/y
		5.7 Stars		6 Stars	

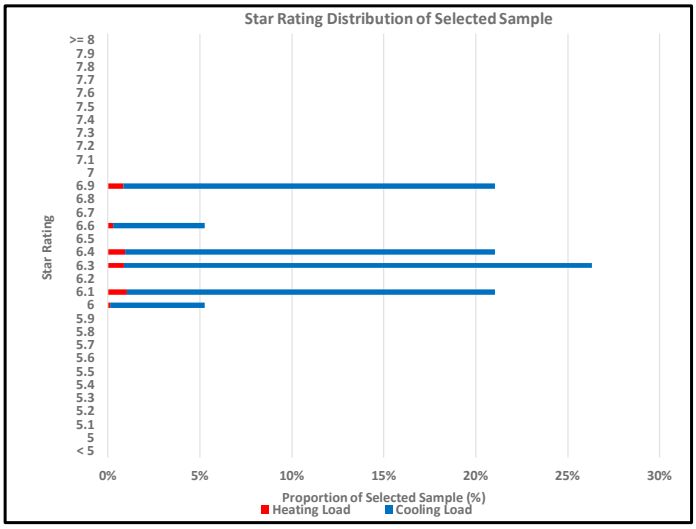
35

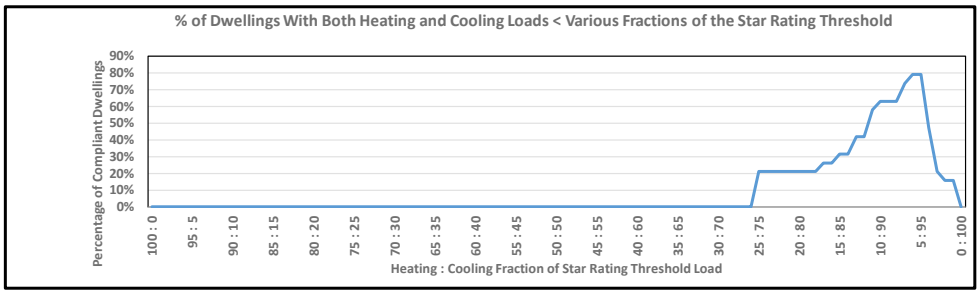
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	All	
Climate Zone	39	Mt Isa 39
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

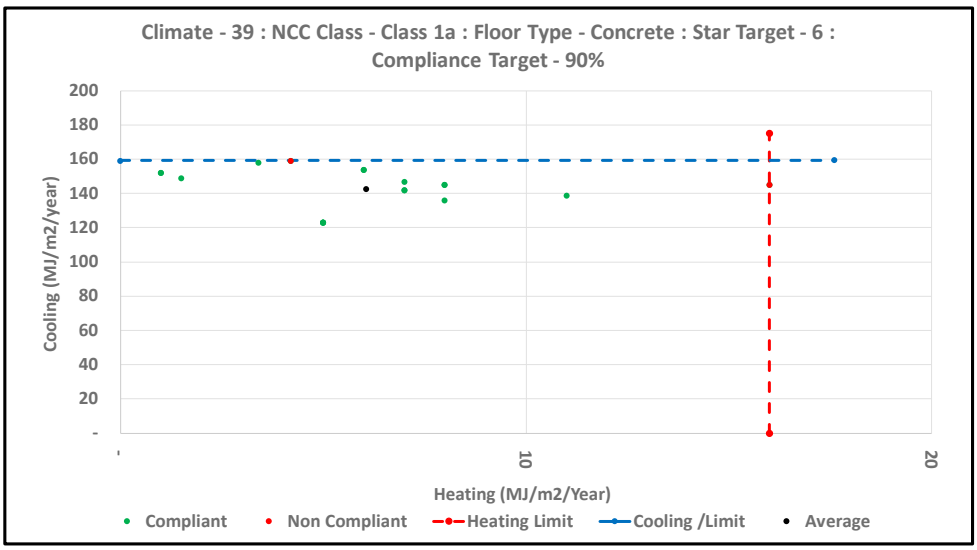
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	19	
Target Load	164.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	6.1	MJ/m2/Annum
Av. Cool Load	142.7	MJ/m2/Annum
Av. Total Load	148.7	MJ/m2/Annum
Av. % Heat	4.1%	%
Av. % Cool	95.9%	%
Av. Star Rating	6.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	16.0	MJ/m2/y	Cooling Limit	159.2	MJ/m2/y	Total Limit	164.0	MJ/m2/y
			5.7	Stars		6	Stars	

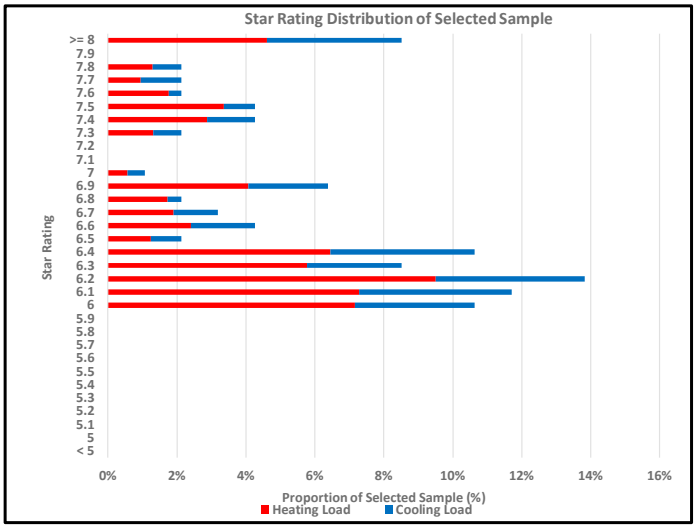
36

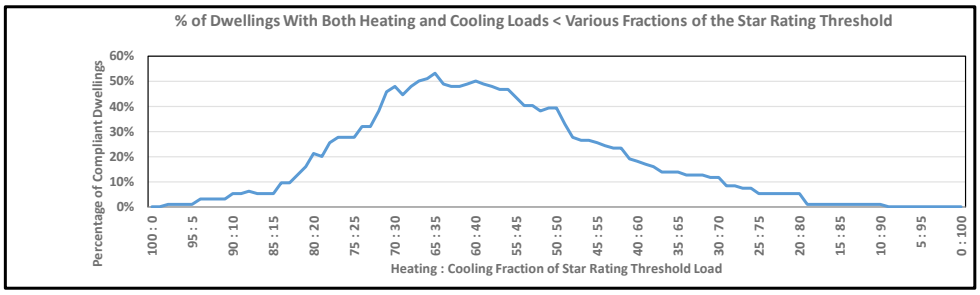
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	44	Kalgoorlie 44
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

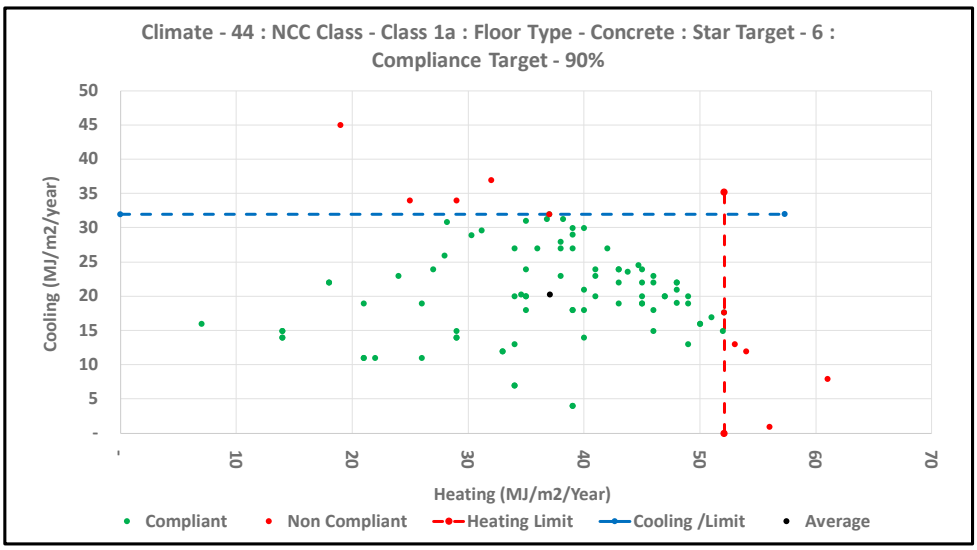
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	94	
Target Load	70.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	37.1	MJ/m2/Annum
Av. Cool Load	20.3	MJ/m2/Annum
Av. Total Load	57.3	MJ/m2/Annum
Av. % Heat	64.8%	%
Av. % Cool	35.4%	%
Av. Star Rating	6.7	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	52.1	MJ/m2/y	Cooling Limit	32.0	MJ/m2/y	Total Limit	70.0	MJ/m2/y
			5.2	Stars			6	Stars

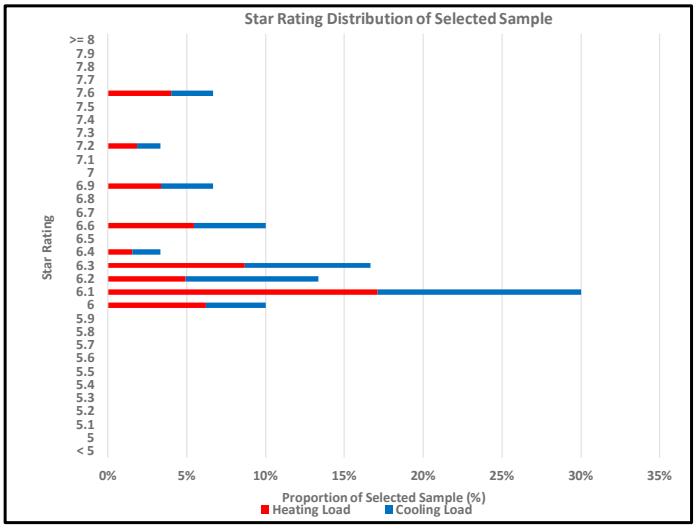
37

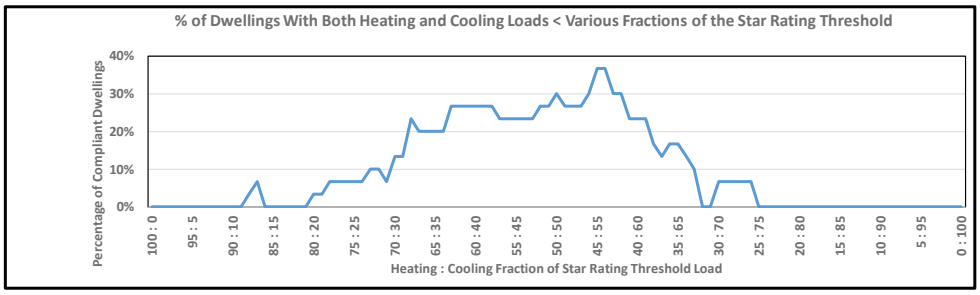
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	SA	
Climate Zone	45	Woomera 45
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

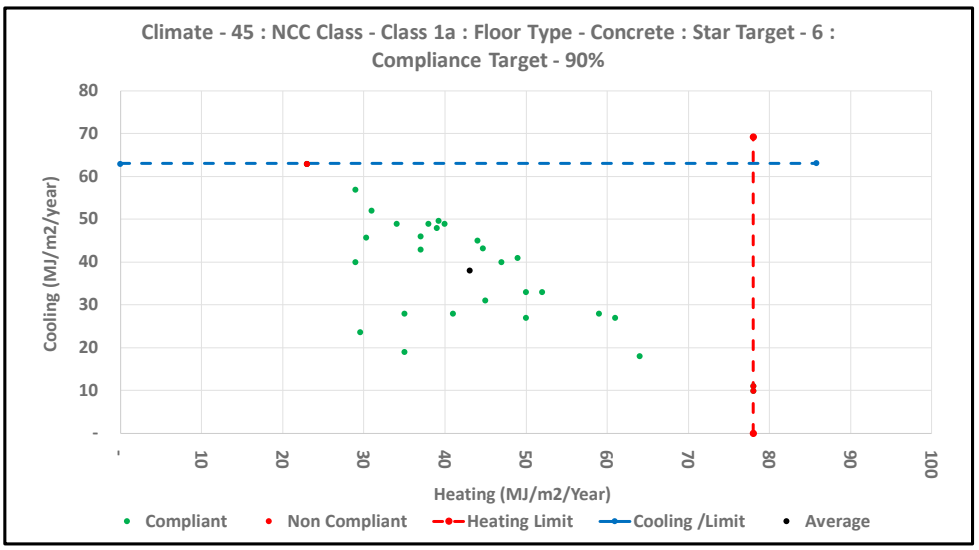
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	30	
Target Load	90.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	43.1	MJ/m2/Annum
Av. Cool Load	38.0	MJ/m2/Annum
Av. Total Load	81.1	MJ/m2/Annum
Av. % Heat	53.1%	%
Av. % Cool	46.9%	%
Av. Star Rating	6.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	78.0	MJ/m2/y	Cooling Limit	63.0	MJ/m2/y	Total Limit	90.0	MJ/m2/y
			4.1	Stars		6	Stars	

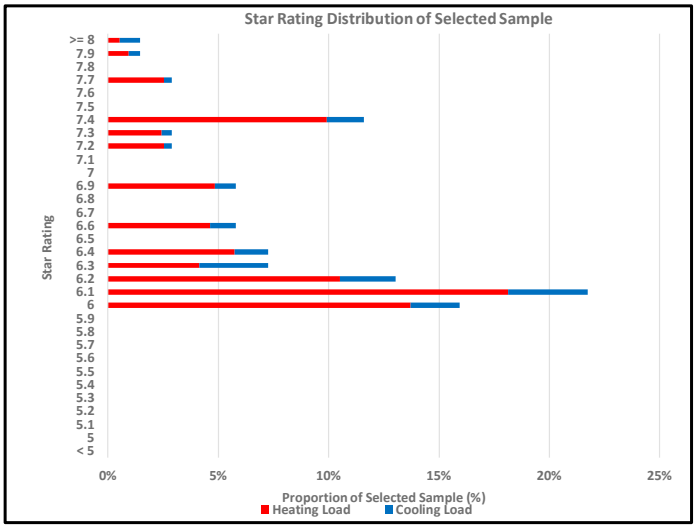
38

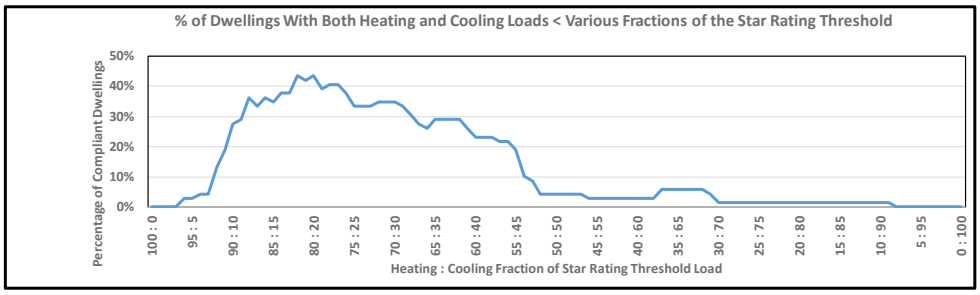
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	47	Bickley 47
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

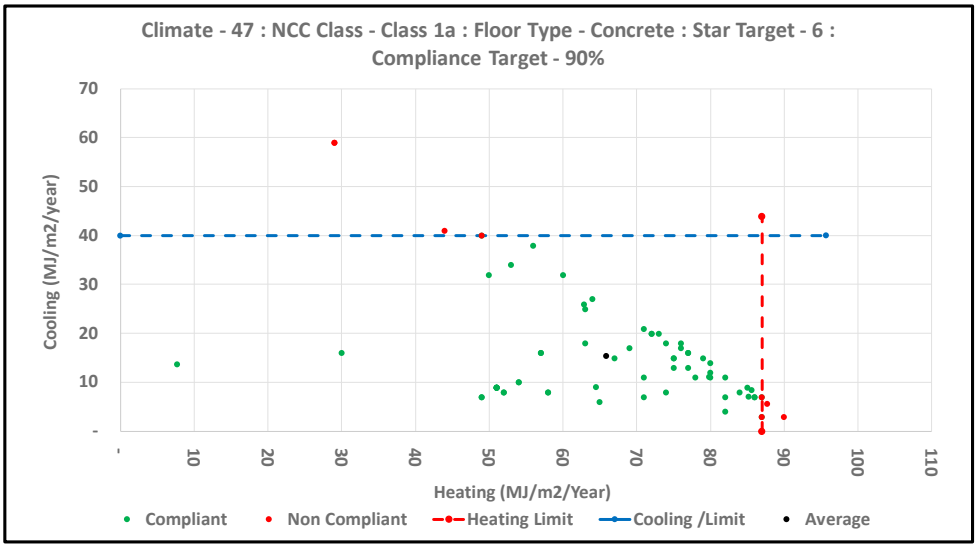
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	69	
Target Load	94.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	65.9	MJ/m2/Annum
Av. Cool Load	15.5	MJ/m2/Annum
Av. Total Load	81.4	MJ/m2/Annum
Av. % Heat	81.0%	%
Av. % Cool	19.1%	%
Av. Star Rating	6.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	87.0	MJ/m2/y	Cooling Limit	40.0	MJ/m2/y	Total Limit	94.0	MJ/m2/y
			4.8	Stars		6	Stars	

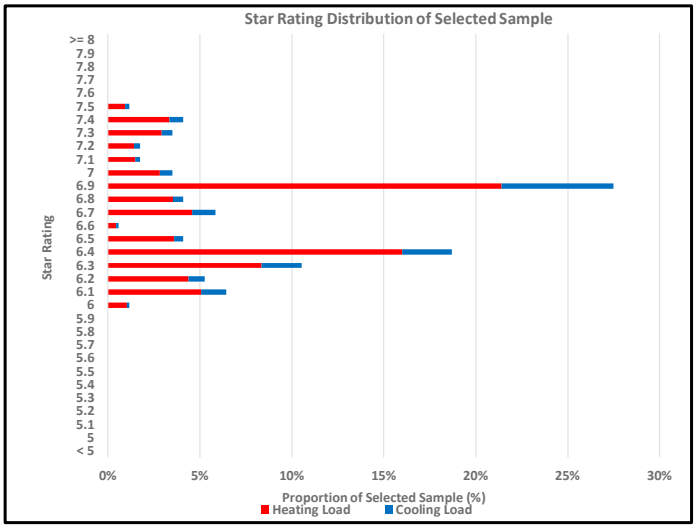
39

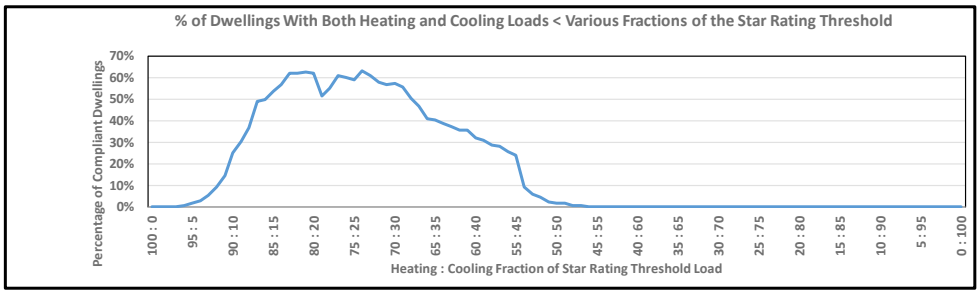
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	48	Dubbo 48
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

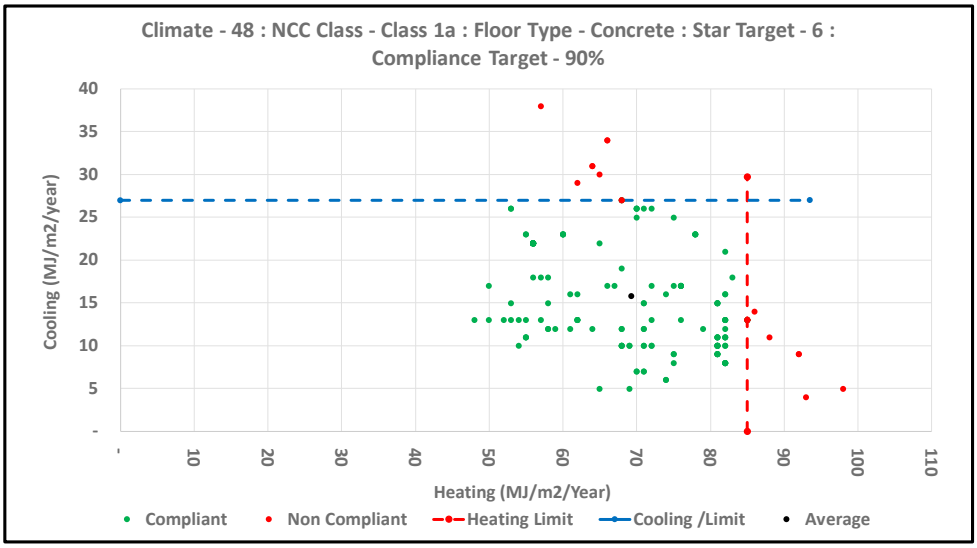
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	171	
Target Load	103.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	69.3	MJ/m2/Annum
Av. Cool Load	15.8	MJ/m2/Annum
Av. Total Load	85.1	MJ/m2/Annum
Av. % Heat	81.5%	%
Av. % Cool	18.6%	%
Av. Star Rating	6.7	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	85.0	MJ/m2/y	Cooling Limit	27.0	MJ/m2/y	Total Limit	103.0	MJ/m2/y
			5.6	Stars			6	Stars

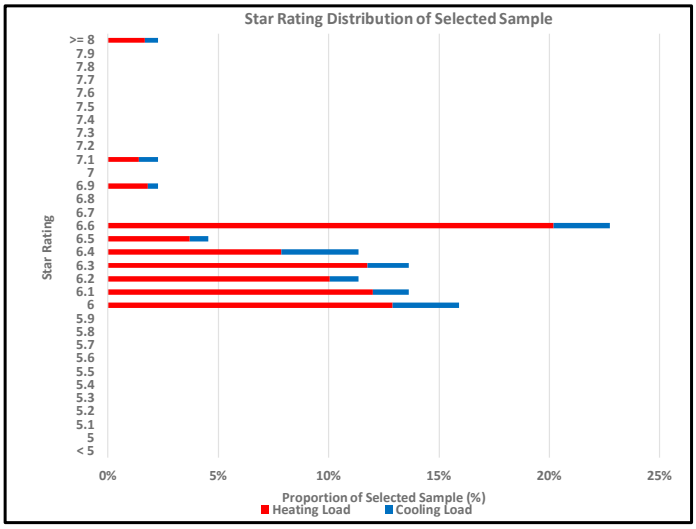
40

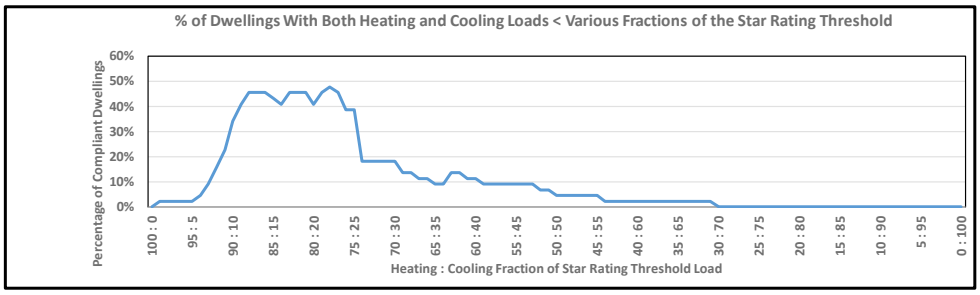
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	49	Katanning 49
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

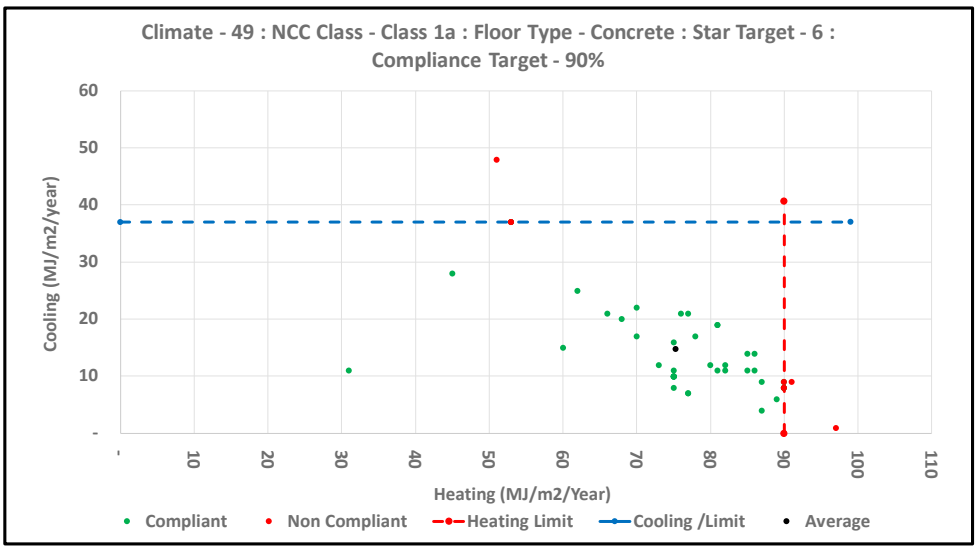
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	44	
Target Load	100.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	75.3	MJ/m2/Annum
Av. Cool Load	14.8	MJ/m2/Annum
Av. Total Load	90.0	MJ/m2/Annum
Av. % Heat	83.7%	%
Av. % Cool	16.4%	%
Av. Star Rating	6.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	90.0	MJ/m2/y	Cooling Limit	37.0	MJ/m2/y	Total Limit	100.0	MJ/m2/y
			5	Stars		6	Stars	

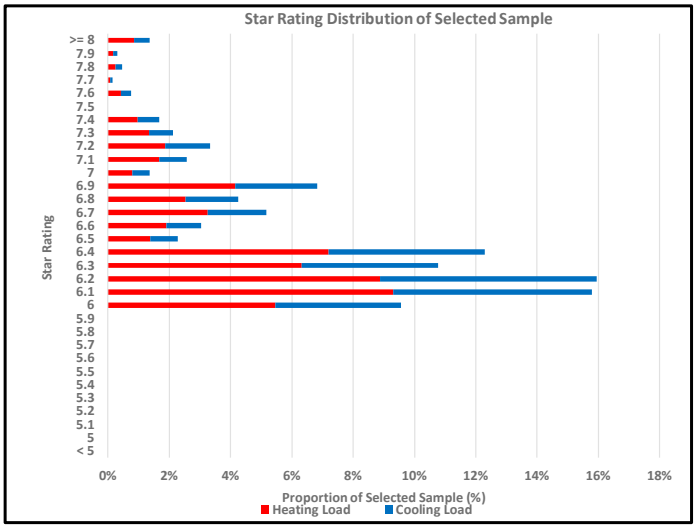
41

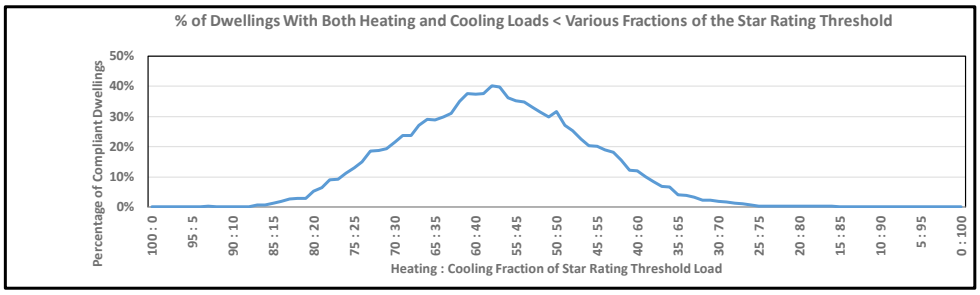
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	50	Oakley 50
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

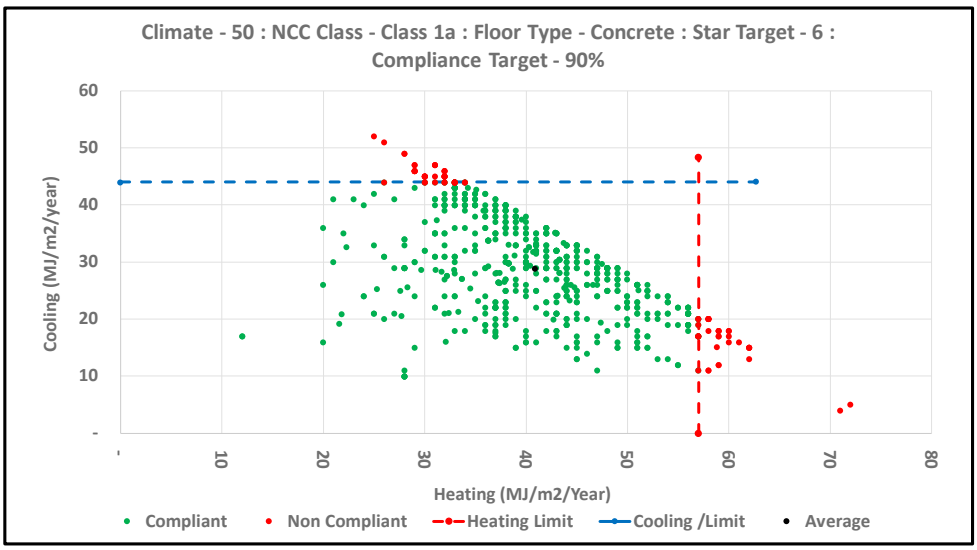
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	659	
Target Load	78.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	40.9	MJ/m2/Annum
Av. Cool Load	28.8	MJ/m2/Annum
Av. Total Load	69.7	MJ/m2/Annum
Av. % Heat	58.7%	%
Av. % Cool	41.3%	%
Av. Star Rating	6.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	57.0	MJ/m2/y	Cooling Limit	44.0	MJ/m2/y	Total Limit	78.0	MJ/m2/y
			4.8	Stars		6	Stars	

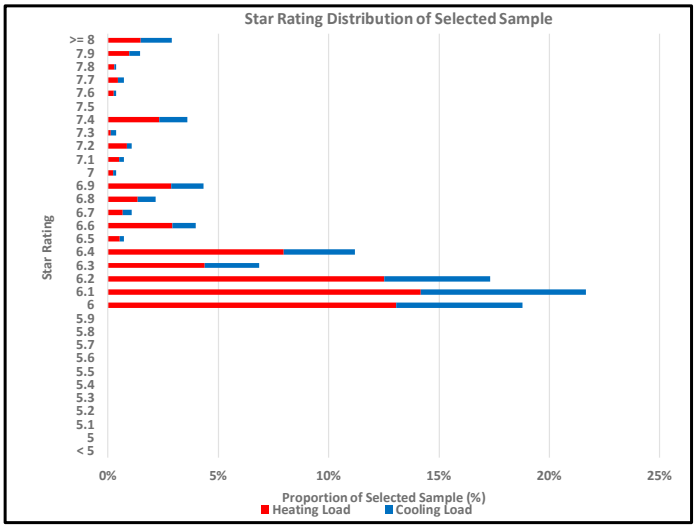
42

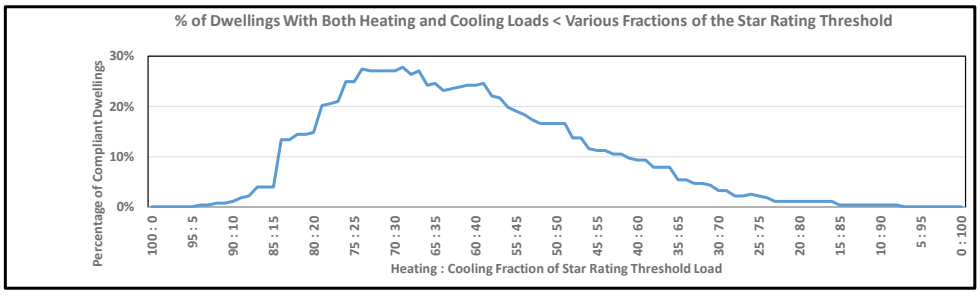
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	52	Swanbourne 52
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

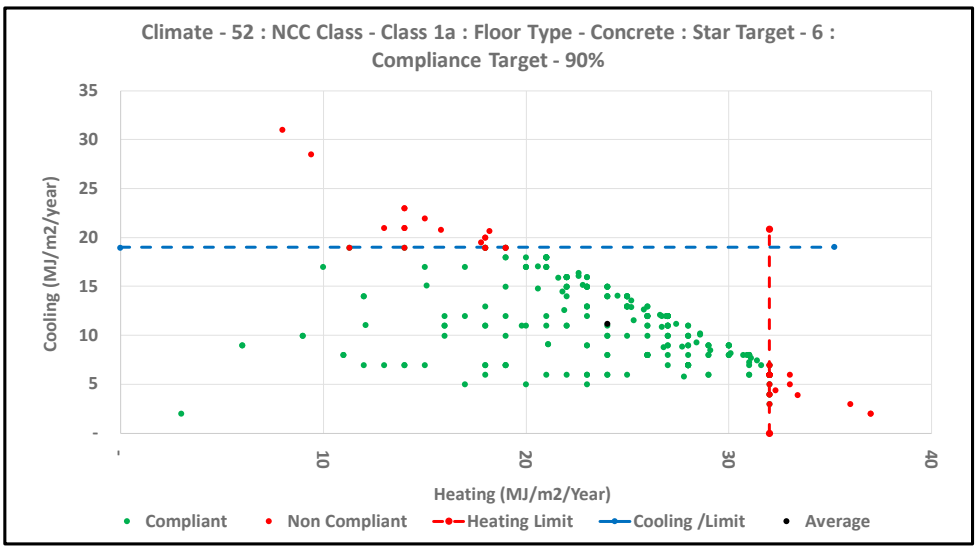
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	277	
Target Load	39.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	24.0	MJ/m2/Annum
Av. Cool Load	11.2	MJ/m2/Annum
Av. Total Load	35.2	MJ/m2/Annum
Av. % Heat	68.2%	%
Av. % Cool	31.8%	%
Av. Star Rating	6.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	32.0	MJ/m2/y	Cooling Limit	19.0	MJ/m2/y	Total Limit	39.0	MJ/m2/y
			4.9	Stars		6	Stars	

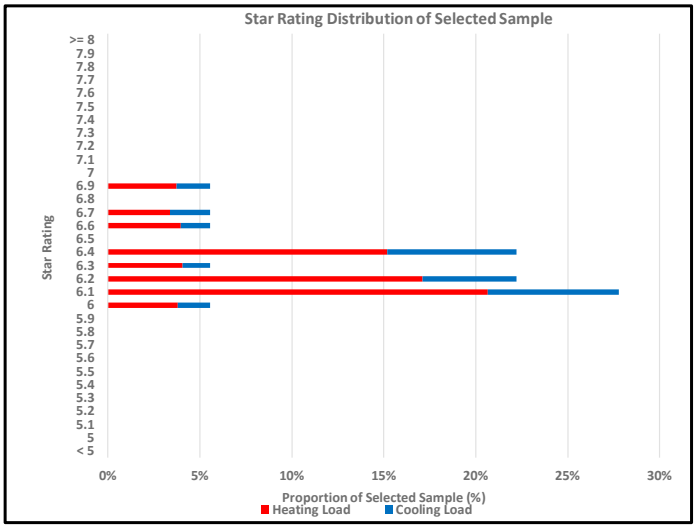
43

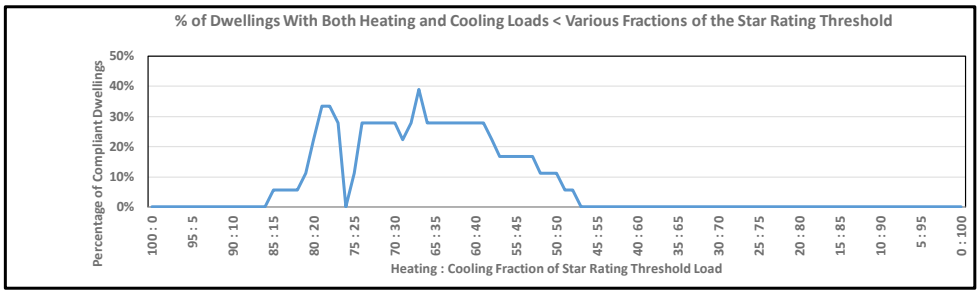
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	SA	
Climate Zone	53	Ceduna 53
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

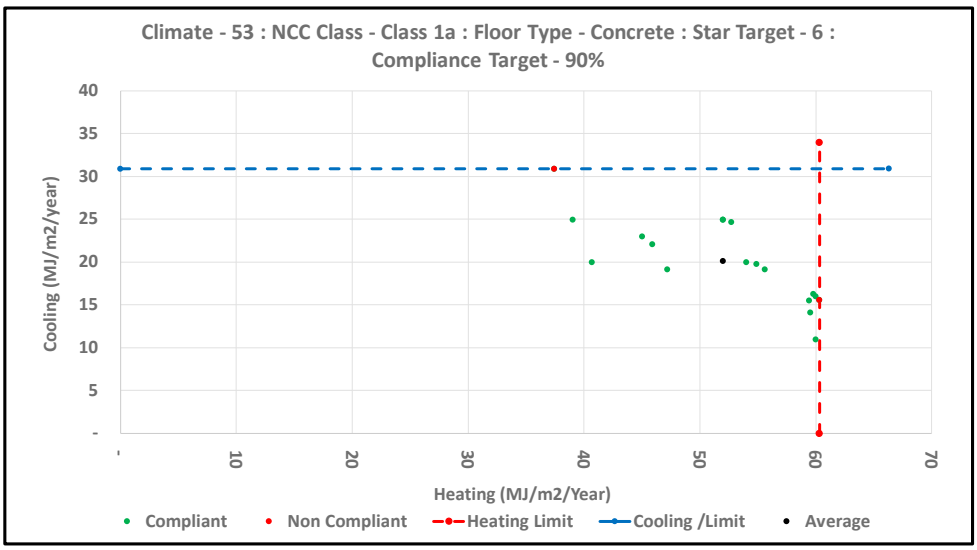
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	18	
Target Load	78.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	52.0	MJ/m2/Annum
Av. Cool Load	20.1	MJ/m2/Annum
Av. Total Load	72.1	MJ/m2/Annum
Av. % Heat	72.1%	%
Av. % Cool	27.9%	%
Av. Star Rating	6.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	60.3	MJ/m2/y	Cooling Limit	30.9	MJ/m2/y	Total Limit	78.0	MJ/m2/y
			5.3	Stars			6	Stars

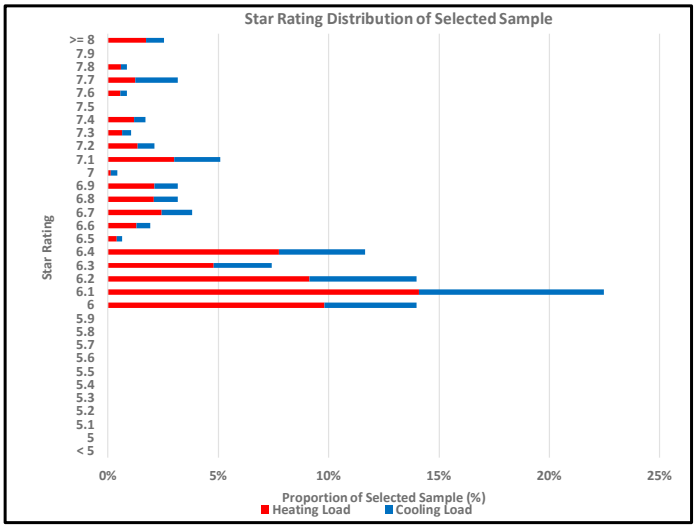
44

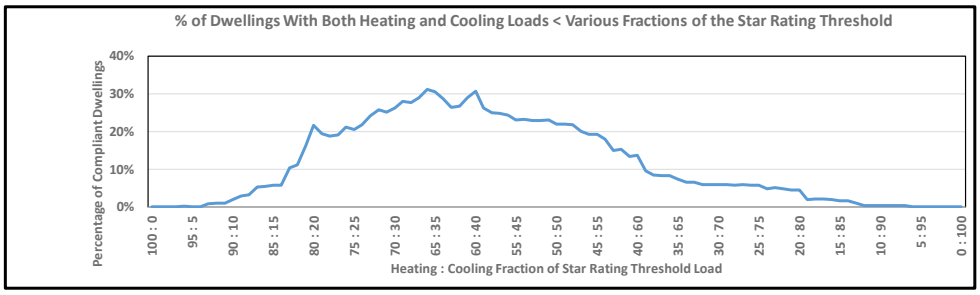
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	54	Mandurah 54
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

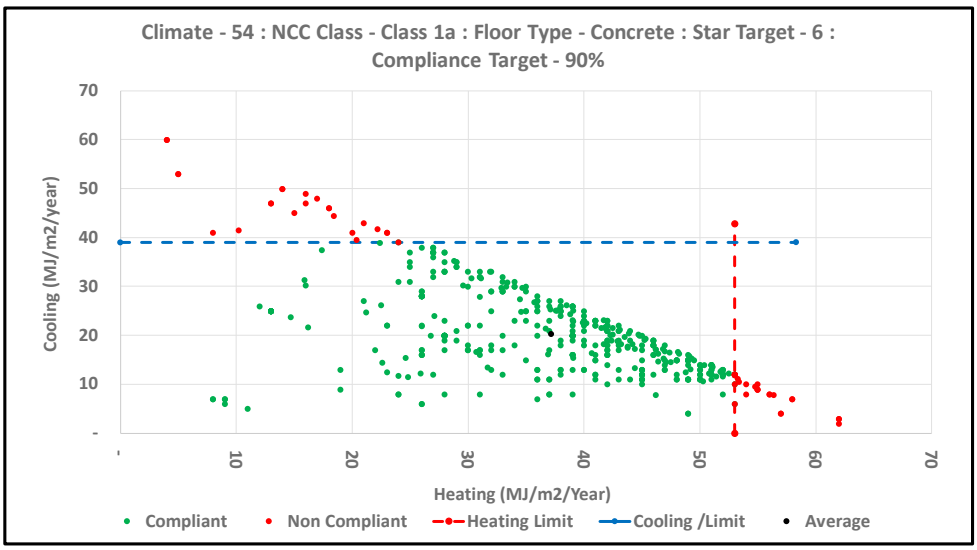
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	472	
Target Load	65.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	37.2	MJ/m2/Annum
Av. Cool Load	20.3	MJ/m2/Annum
Av. Total Load	57.5	MJ/m2/Annum
Av. % Heat	64.6%	%
Av. % Cool	35.3%	%
Av. Star Rating	6.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	53.0	MJ/m2/y	Cooling Limit	39.0	MJ/m2/y	Total Limit	65.0	MJ/m2/y
			4.5	Stars		6	Stars	

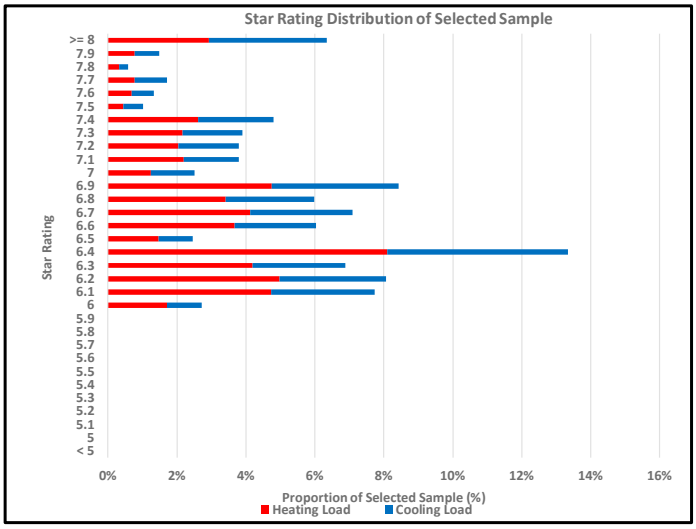
45

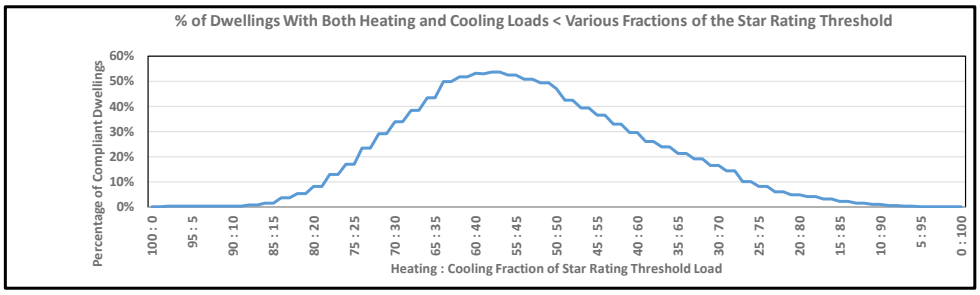
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	56	Mascot 56
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

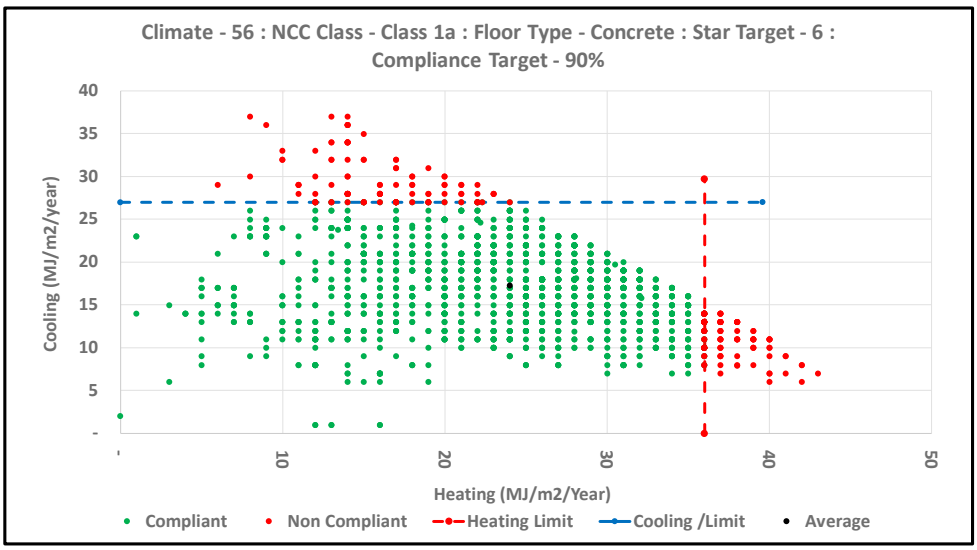
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	1874	
Target Load	51.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	24.0	MJ/m2/Annum
Av. Cool Load	17.3	MJ/m2/Annum
Av. Total Load	41.3	MJ/m2/Annum
Av. % Heat	58.2%	%
Av. % Cool	41.8%	%
Av. Star Rating	6.8	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	36.0	MJ/m2/y	Cooling Limit	27.0	MJ/m2/y	Total Limit	51.0	MJ/m2/y
			5.1	Stars			6	Stars

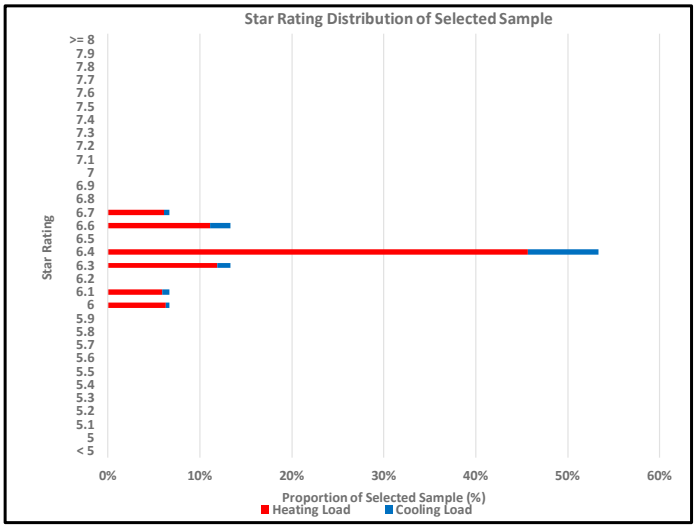
46

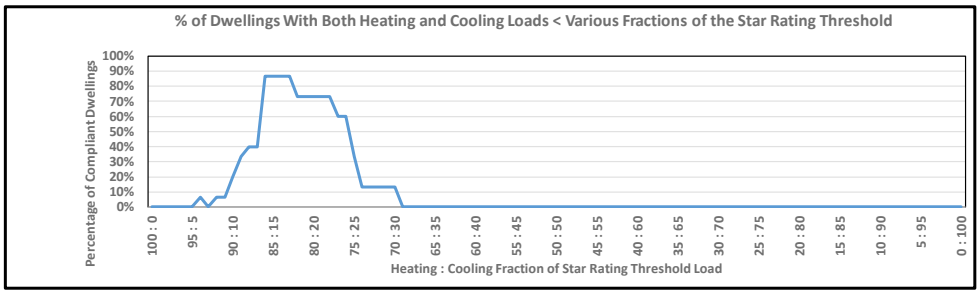
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	57	Manjimup 57
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

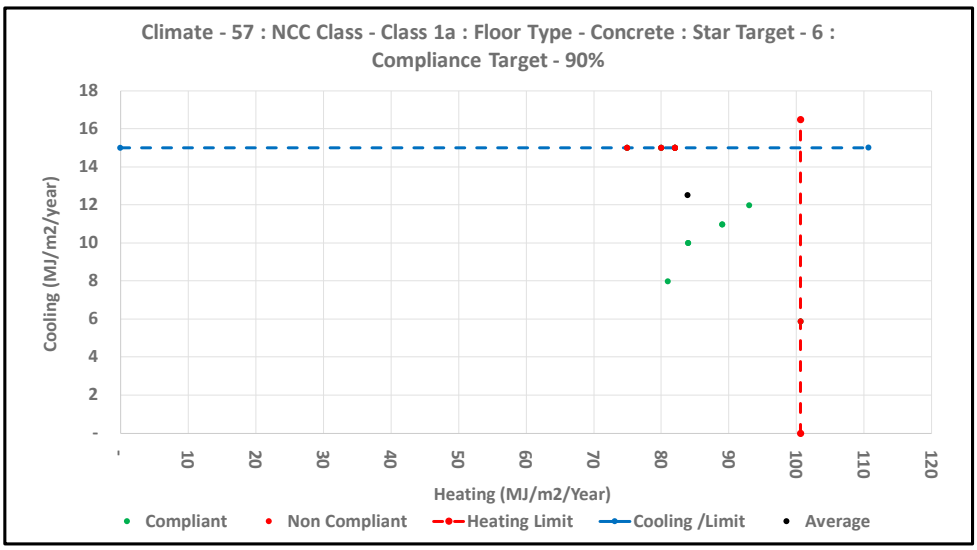
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	15	
Target Load	108.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	83.9	MJ/m2/Annum
Av. Cool Load	12.5	MJ/m2/Annum
Av. Total Load	96.4	MJ/m2/Annum
Av. % Heat	86.9%	%
Av. % Cool	13.0%	%
Av. Star Rating	6.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	100.6	MJ/m2/y	Cooling Limit	15.0	MJ/m2/y	Total Limit	108.0	MJ/m2/y
			5.7	Stars			6	Stars

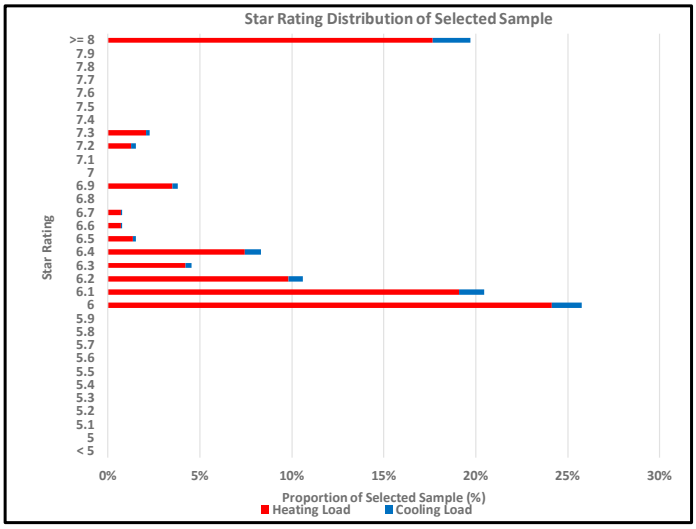
47

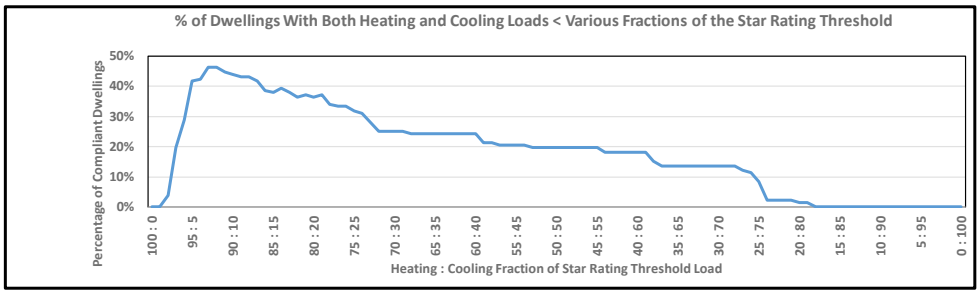
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	58	Albany 58
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

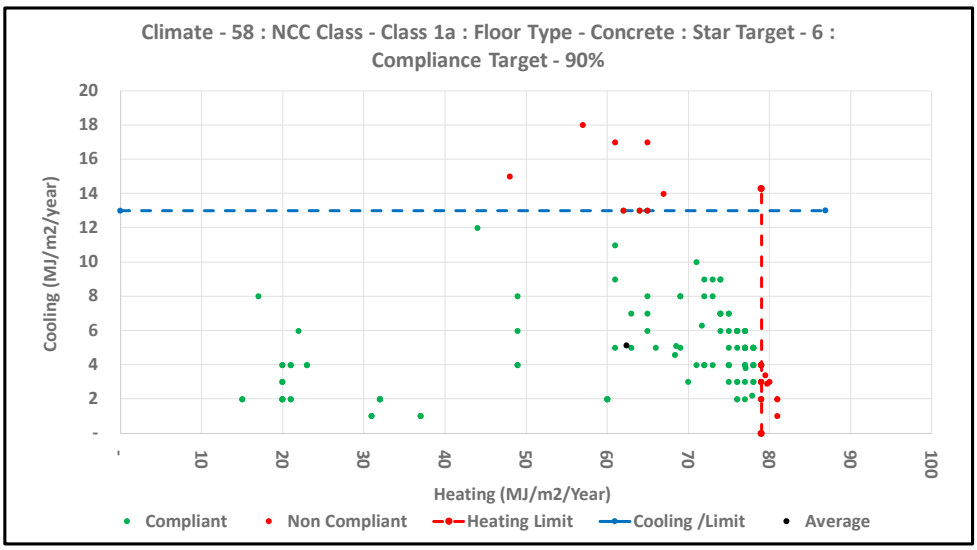
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	132	
Target Load	83.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	62.4	MJ/m2/Annum
Av. Cool Load	5.1	MJ/m2/Annum
Av. Total Load	67.5	MJ/m2/Annum
Av. % Heat	92.4%	%
Av. % Cool	7.6%	%
Av. Star Rating	6.7	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	79.0	MJ/m2/y	Cooling Limit	13.0	MJ/m2/y	Total Limit	83.0	MJ/m2/y
			5.6	Stars			6	Stars

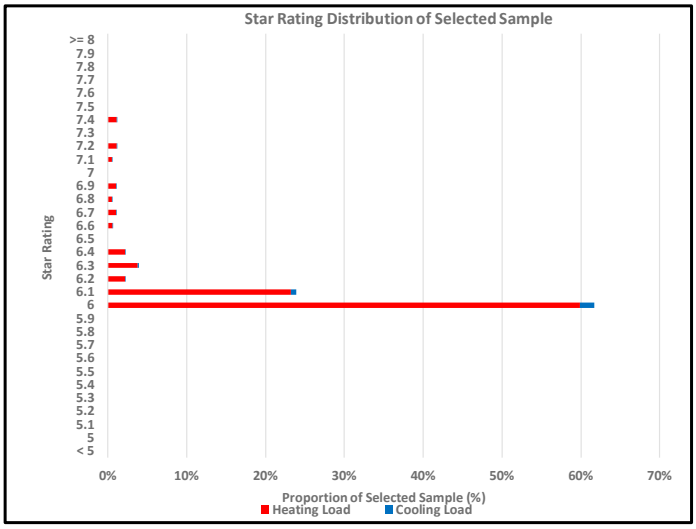
48

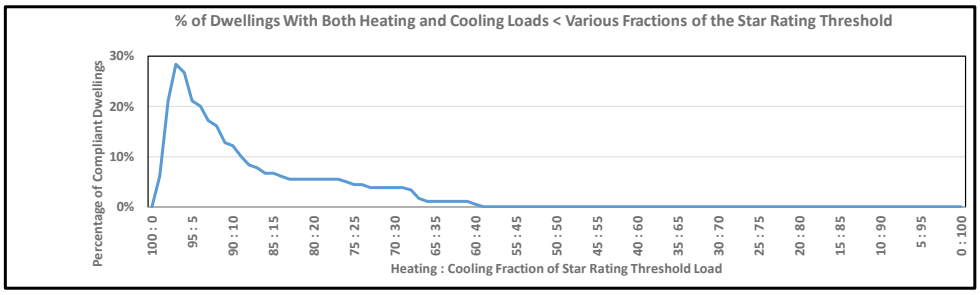
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	SA	
Climate Zone	59	Mt Lofty 59
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

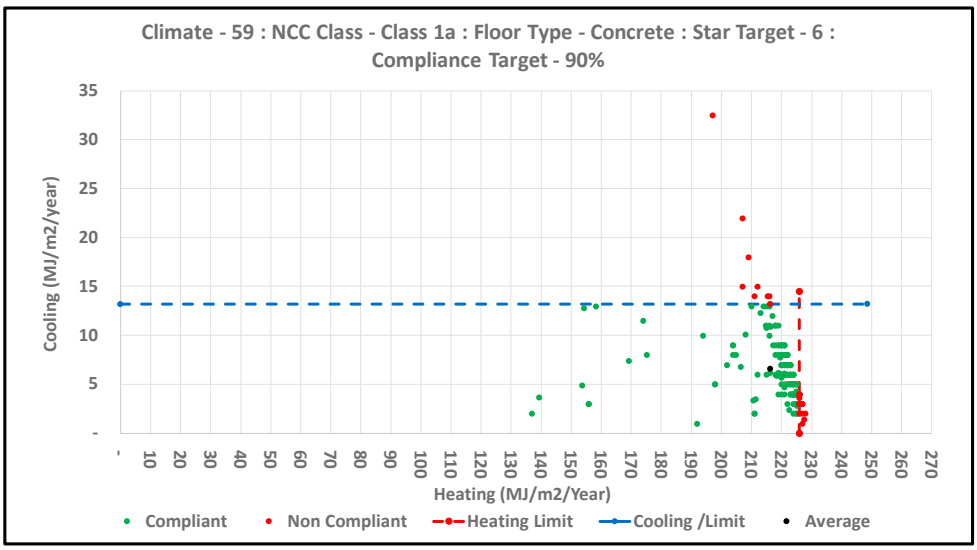
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	180	
Target Load	230.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	216.3	MJ/m2/Annum
Av. Cool Load	6.6	MJ/m2/Annum
Av. Total Load	222.9	MJ/m2/Annum
Av. % Heat	97.0%	%
Av. % Cool	3.0%	%
Av. Star Rating	6.1	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	226.0	MJ/m2/y	Cooling Limit	13.2	MJ/m2/y	Total Limit	230.0	MJ/m2/y
			5.8	Stars		6	Stars	

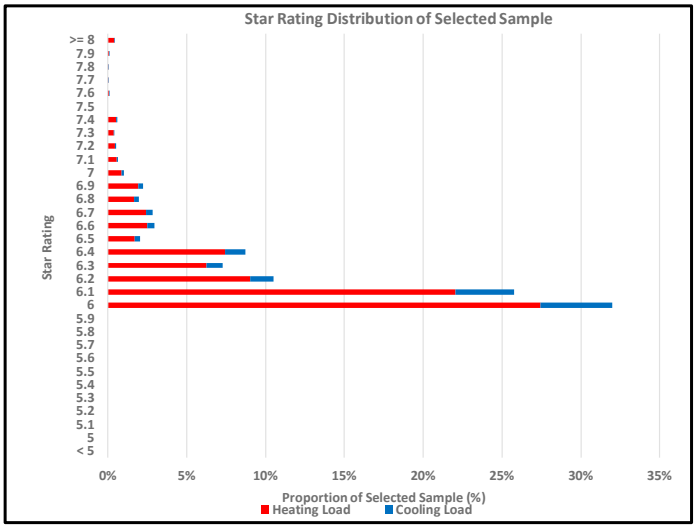
49

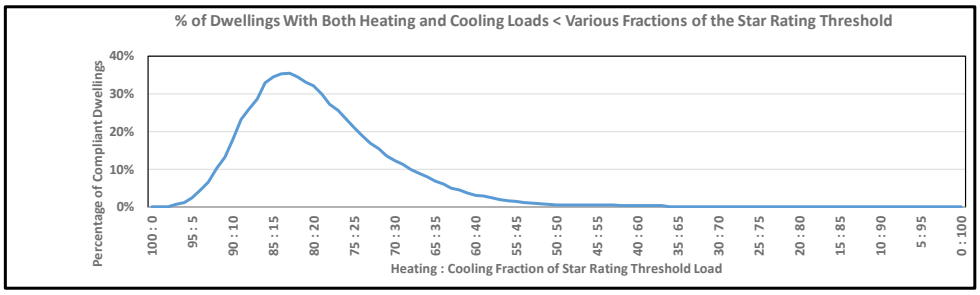
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	60	Tullamarine 60
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

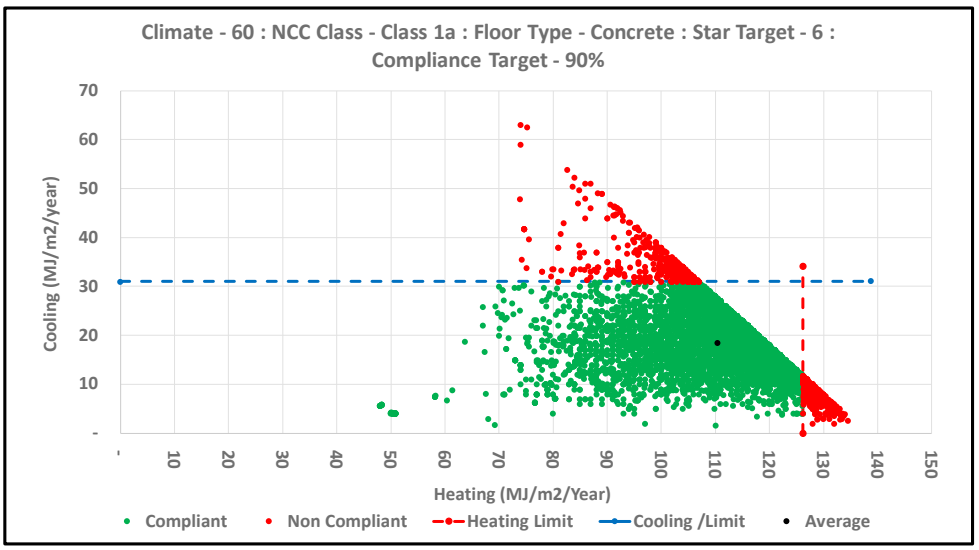
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	7551	
Target Load	138.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	110.4	MJ/m2/Annum
Av. Cool Load	18.5	MJ/m2/Annum
Av. Total Load	128.8	MJ/m2/Annum
Av. % Heat	85.7%	%
Av. % Cool	14.4%	%
Av. Star Rating	6.2	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	126.2	MJ/m2/y	Cooling Limit	31.0	MJ/m2/y	Total Limit	138.0	MJ/m2/y
			5.5	Stars			6	Stars

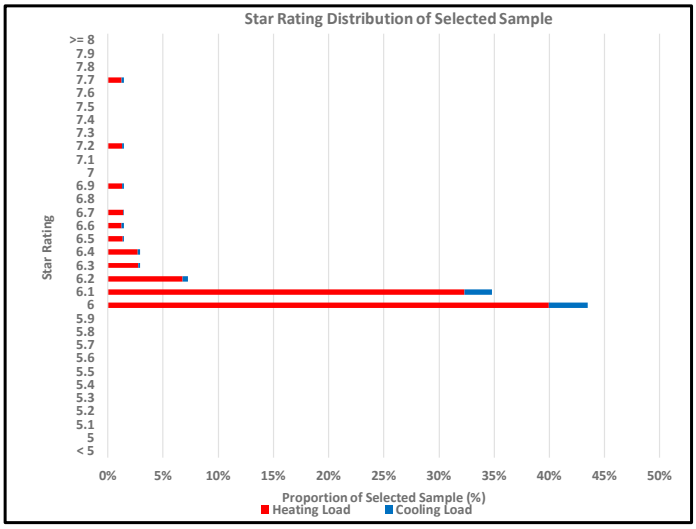
50

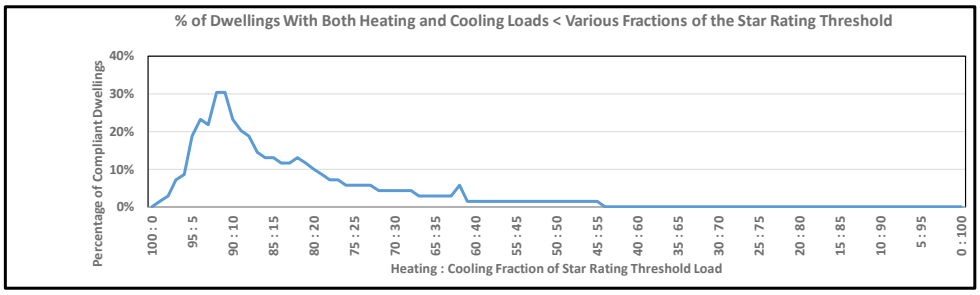
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	ALL	
Climate Zone	61	Mt Gambier 61
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

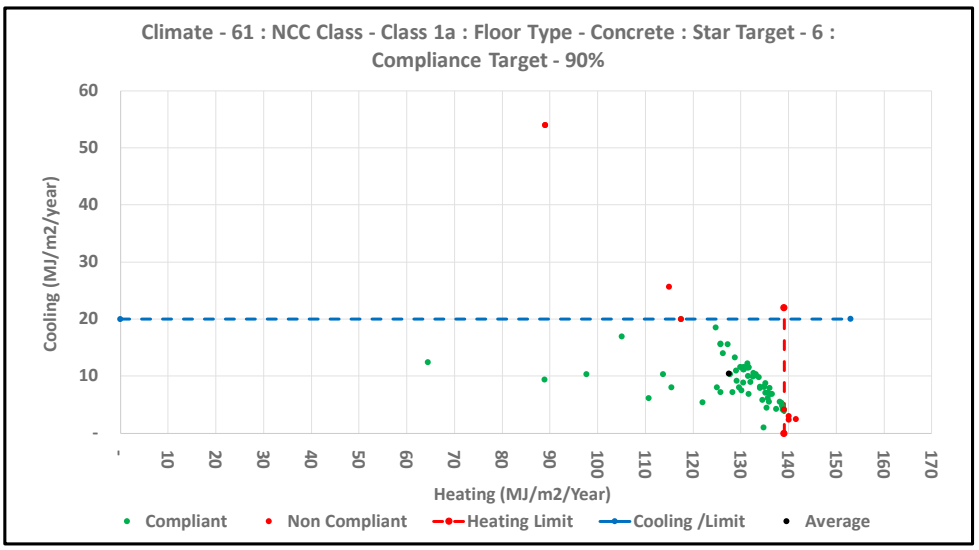
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	69	
Target Load	144.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	127.5	MJ/m2/Annum
Av. Cool Load	10.5	MJ/m2/Annum
Av. Total Load	138.1	MJ/m2/Annum
Av. % Heat	92.4%	%
Av. % Cool	7.6%	%
Av. Star Rating	6.2	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	139.1	MJ/m2/y	Cooling Limit	20.0	MJ/m2/y	Total Limit	144.0	MJ/m2/y
			5.6	Stars			6	Stars

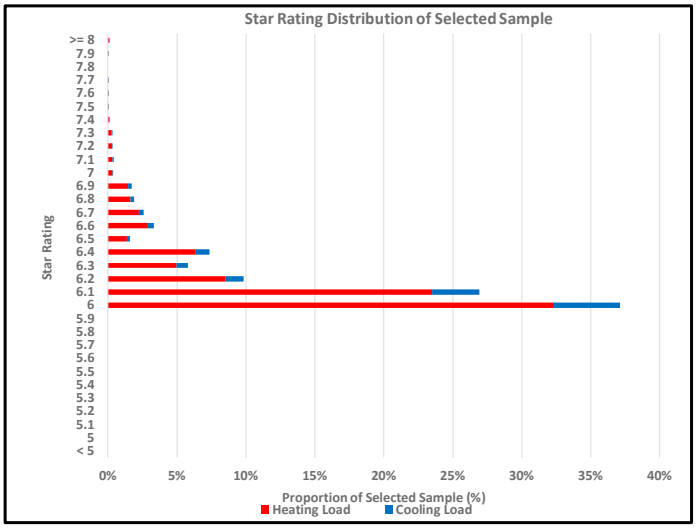
51

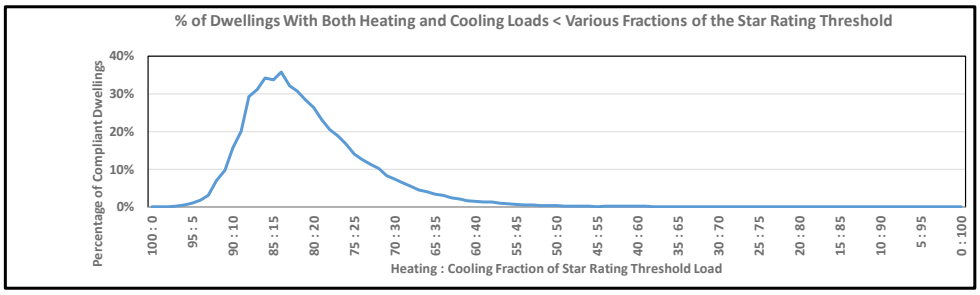
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	62	Moorabbin 62
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

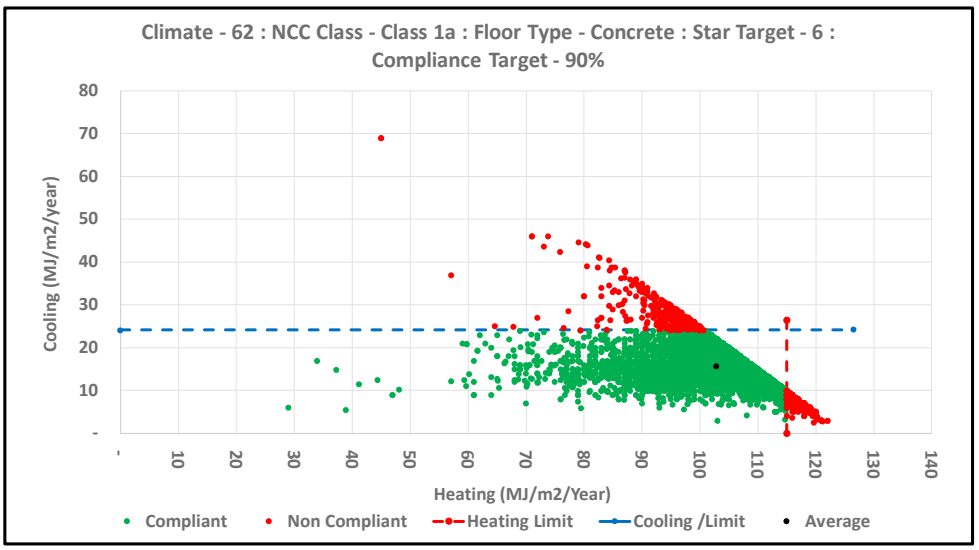
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	7110	
Target Load	125.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	102.8	MJ/m2/Annum
Av. Cool Load	15.7	MJ/m2/Annum
Av. Total Load	118.5	MJ/m2/Annum
Av. % Heat	86.8%	%
Av. % Cool	13.2%	%
Av. Star Rating	6.2	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	115.0	MJ/m2/y	Cooling Limit	24.1	MJ/m2/y	Total Limit	125.0	MJ/m2/y
			5.6	Stars		6	Stars	

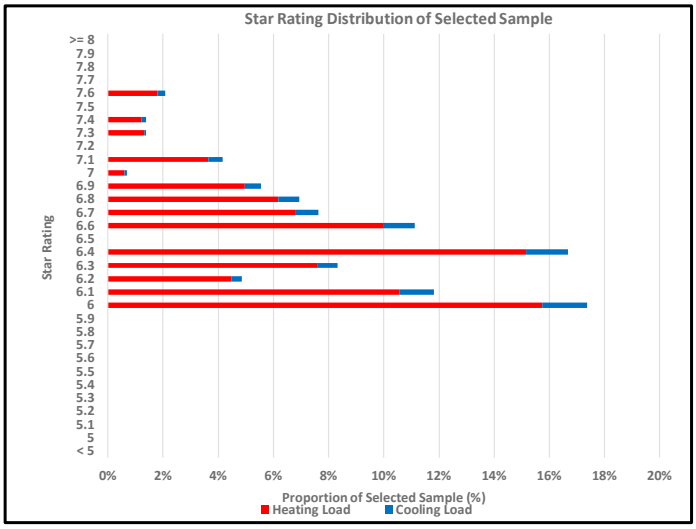
52

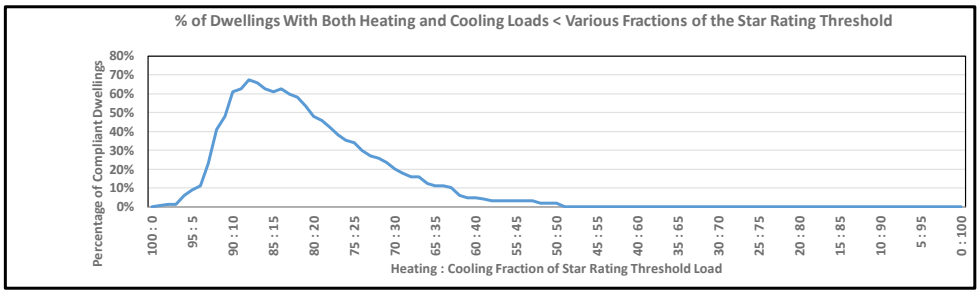
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	63	Warrnambool 63
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

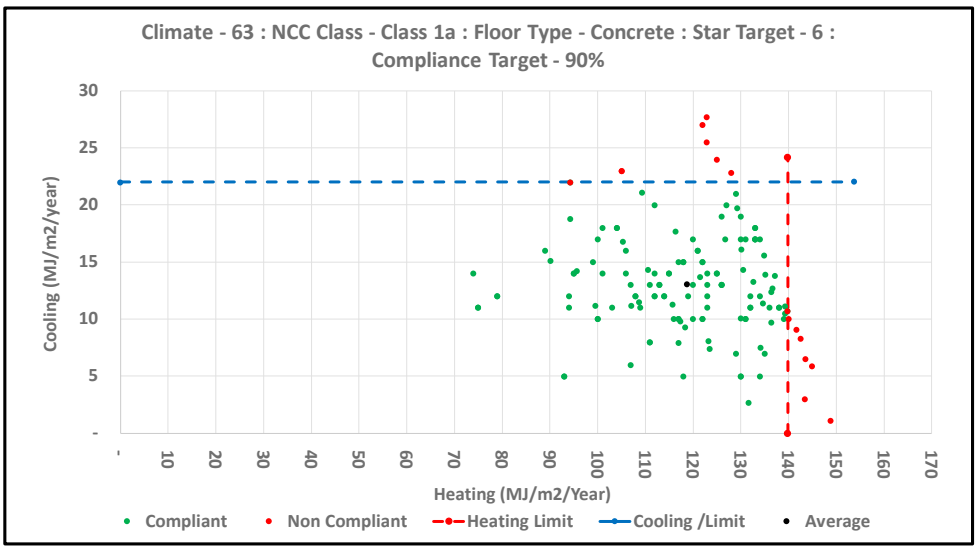
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	144	
Target Load	151.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	118.8	MJ/m2/Annum
Av. Cool Load	13.1	MJ/m2/Annum
Av. Total Load	131.9	MJ/m2/Annum
Av. % Heat	90.0%	%
Av. % Cool	9.9%	%
Av. Star Rating	6.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	139.8	MJ/m2/y	Cooling Limit	22.0	MJ/m2/y	Total Limit	151.0	MJ/m2/y
			5.7	Stars		6	Stars	

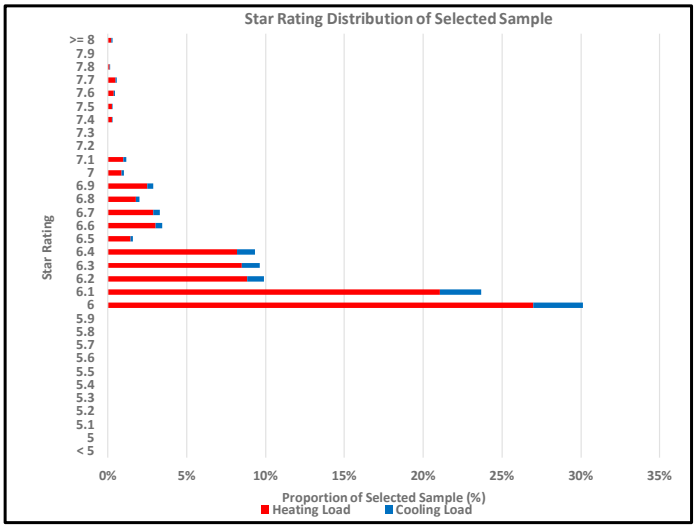
53

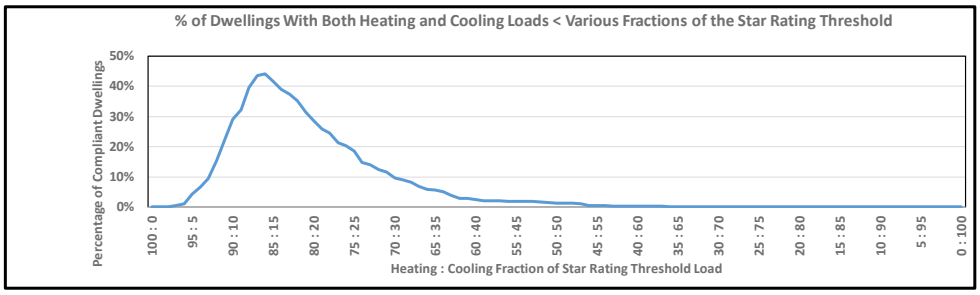
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	64	Cape Otway 64
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

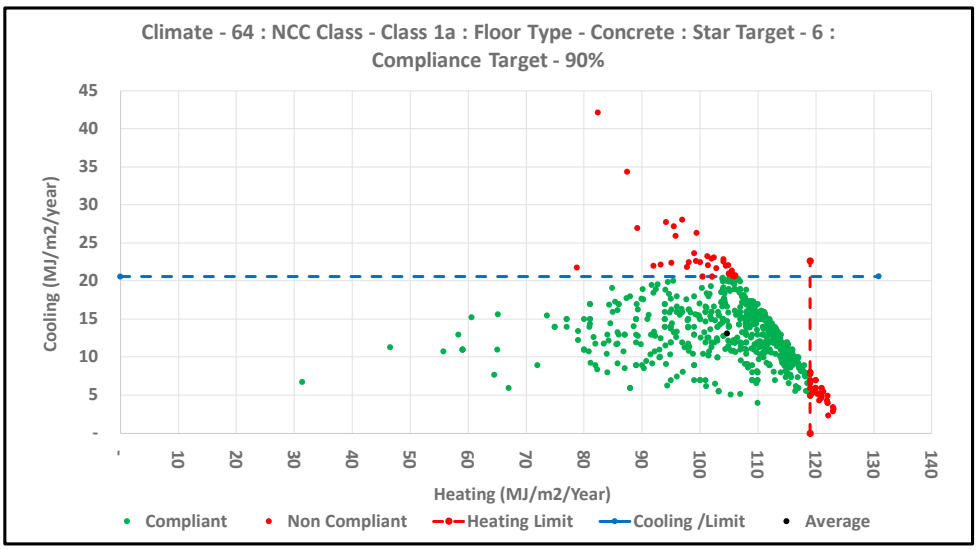
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	697	
Target Load	127.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	104.7	MJ/m2/Annum
Av. Cool Load	13.2	MJ/m2/Annum
Av. Total Load	117.9	MJ/m2/Annum
Av. % Heat	88.8%	%
Av. % Cool	11.2%	%
Av. Star Rating	6.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	119.0	MJ/m2/y	Cooling Limit	20.6	MJ/m2/y	Total Limit	127.0	MJ/m2/y
			5.6	Stars		6	Stars	

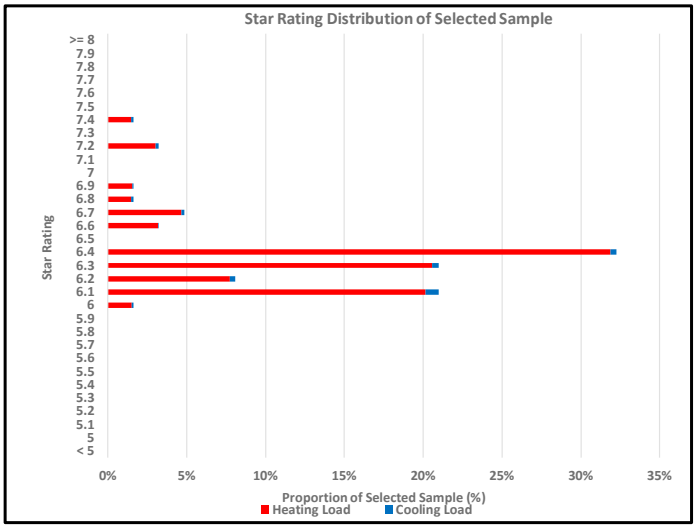
54

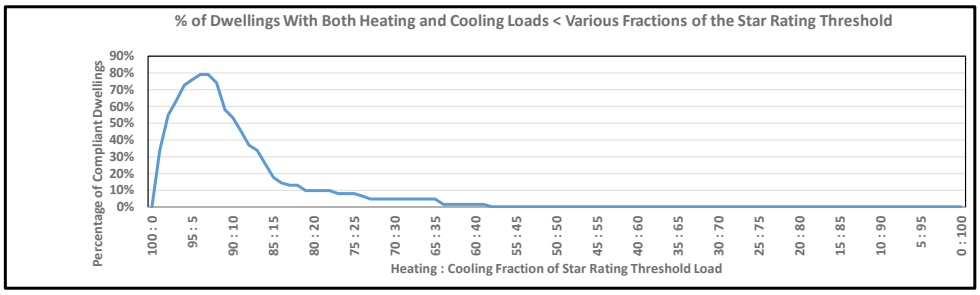
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	65	Orange 65
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

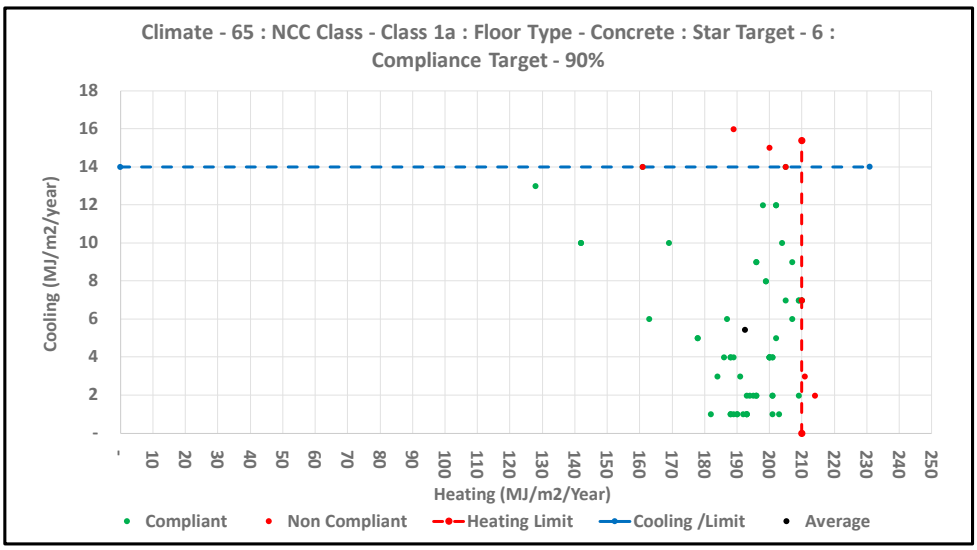
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	62	
Target Load	219.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	192.5	MJ/m2/Annum
Av. Cool Load	5.5	MJ/m2/Annum
Av. Total Load	198.0	MJ/m2/Annum
Av. % Heat	97.2%	%
Av. % Cool	2.8%	%
Av. Star Rating	6.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	210.0	MJ/m2/y	Cooling Limit	14.0	MJ/m2/y	Total Limit	219.0	MJ/m2/y
			5.9	Stars			6	Stars

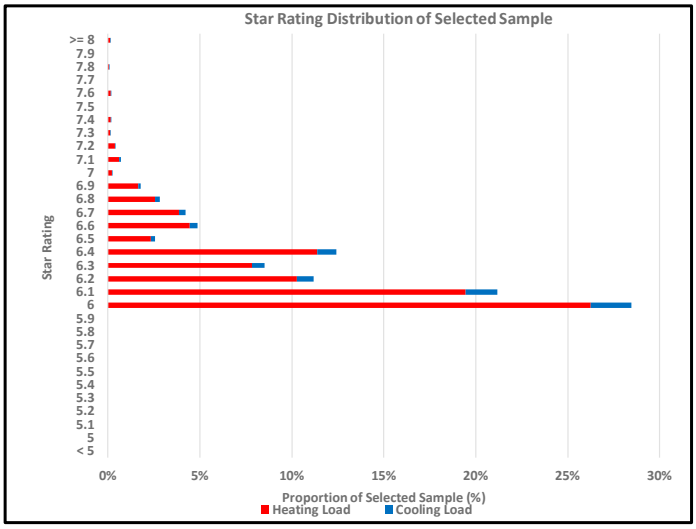
55

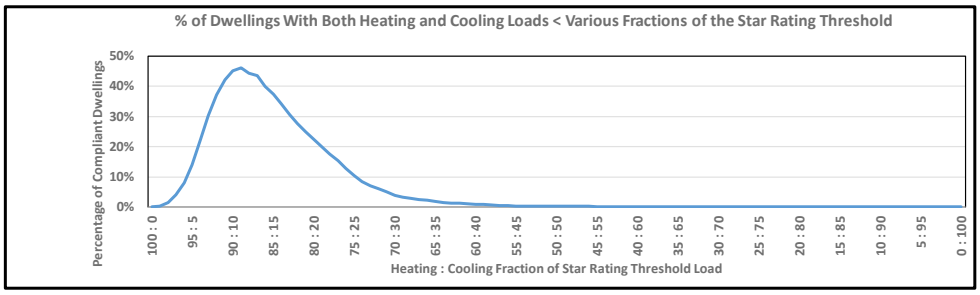
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	66	Ballarat 66
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

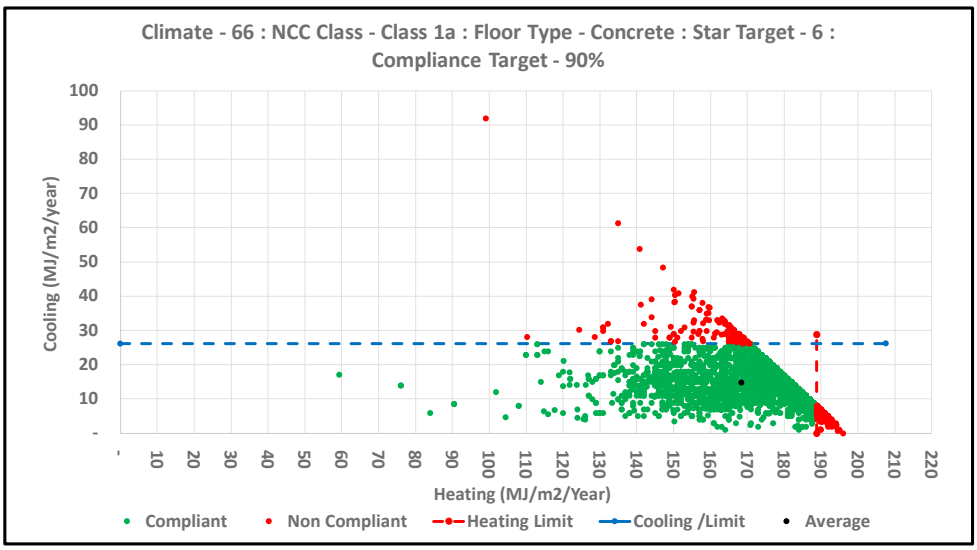
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	2584	
Target Load	197.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	168.4	MJ/m2/Annum
Av. Cool Load	14.9	MJ/m2/Annum
Av. Total Load	183.3	MJ/m2/Annum
Av. % Heat	91.9%	%
Av. % Cool	8.1%	%
Av. Star Rating	6.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	188.8	MJ/m2/y	Cooling Limit	26.2	MJ/m2/y	Total Limit	197.0	MJ/m2/y
			5.6	Stars		6	Stars	

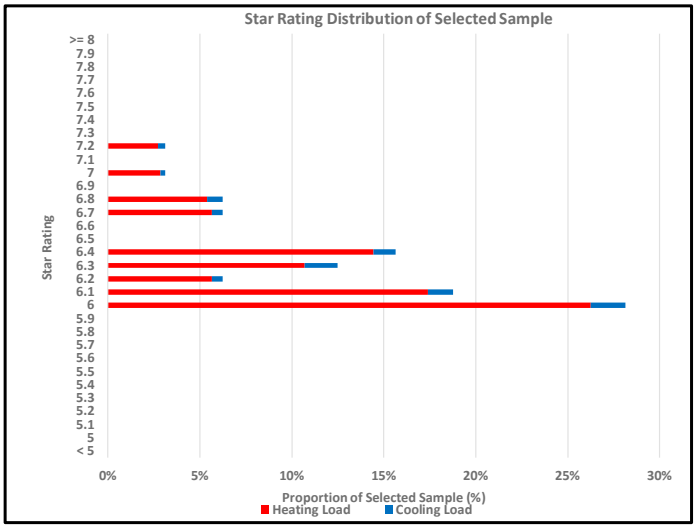
56

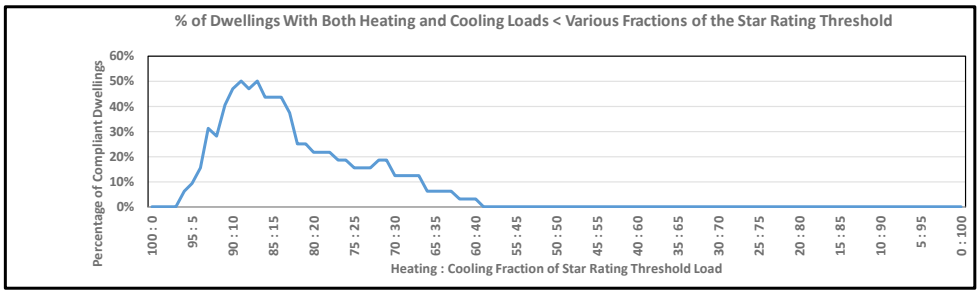
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	66	Ballarat 66
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

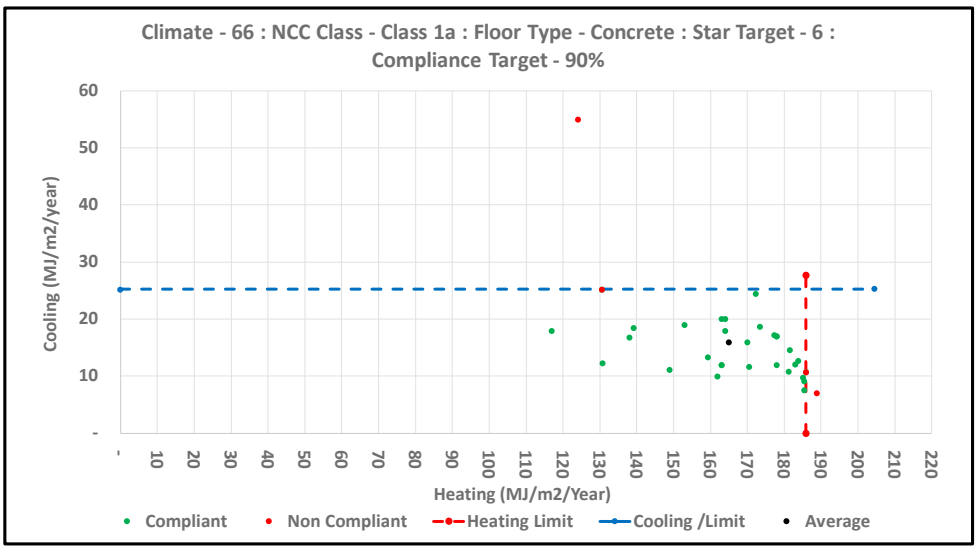
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	32	
Target Load	197.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	164.9	MJ/m2/Annum
Av. Cool Load	15.9	MJ/m2/Annum
Av. Total Load	180.9	MJ/m2/Annum
Av. % Heat	91.2%	%
Av. % Cool	8.8%	%
Av. Star Rating	6.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	185.9	MJ/m2/y	Cooling Limit	25.2	MJ/m2/y	Total Limit	197.0	MJ/m2/y
			5.7	Stars			6	Stars

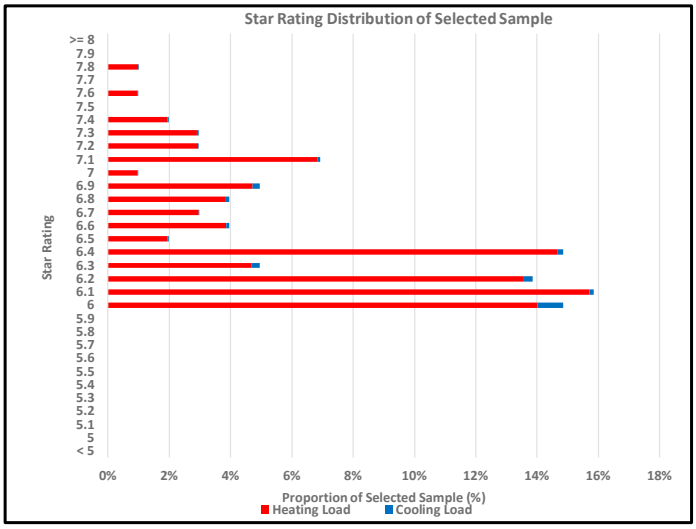
57

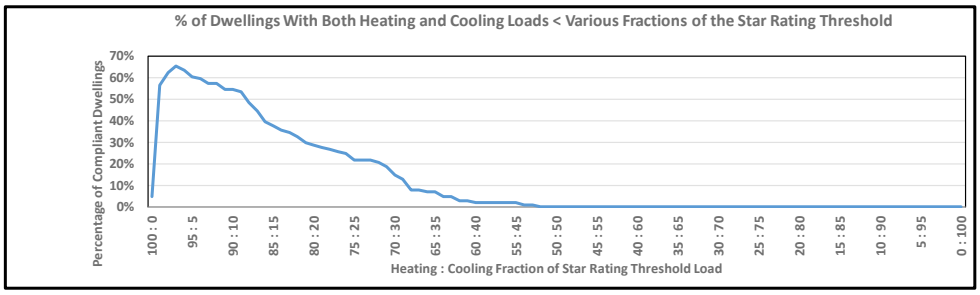
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	TAS	
Climate Zone	67	Low Head 67
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

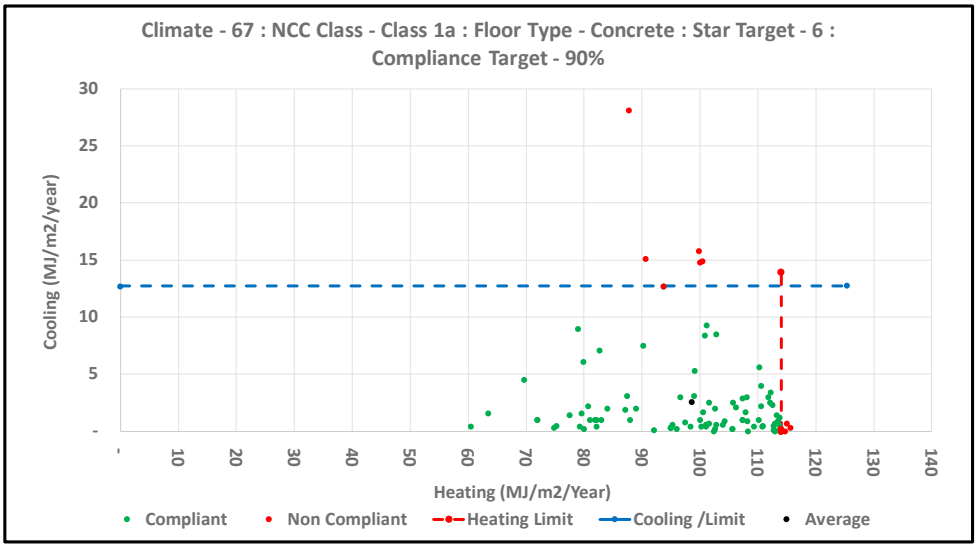
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	101	
Target Load	116.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	98.6	MJ/m2/Annum
Av. Cool Load	2.6	MJ/m2/Annum
Av. Total Load	101.2	MJ/m2/Annum
Av. % Heat	97.4%	%
Av. % Cool	2.6%	%
Av. Star Rating	6.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	114.0	MJ/m2/y	Cooling Limit	12.7	MJ/m2/y	Total Limit	116.0	MJ/m2/y
			5.6	Stars			6	Stars

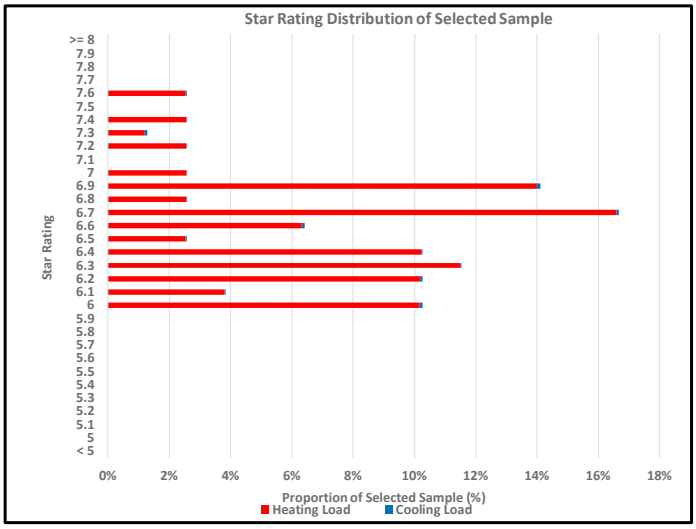
58

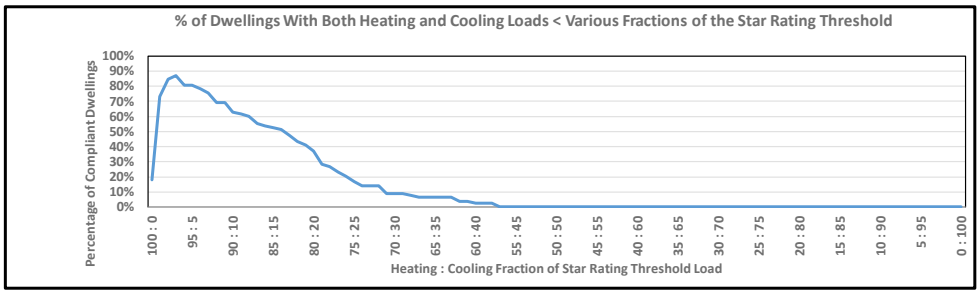
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	TAS	
Climate Zone	68	Launceston air68
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

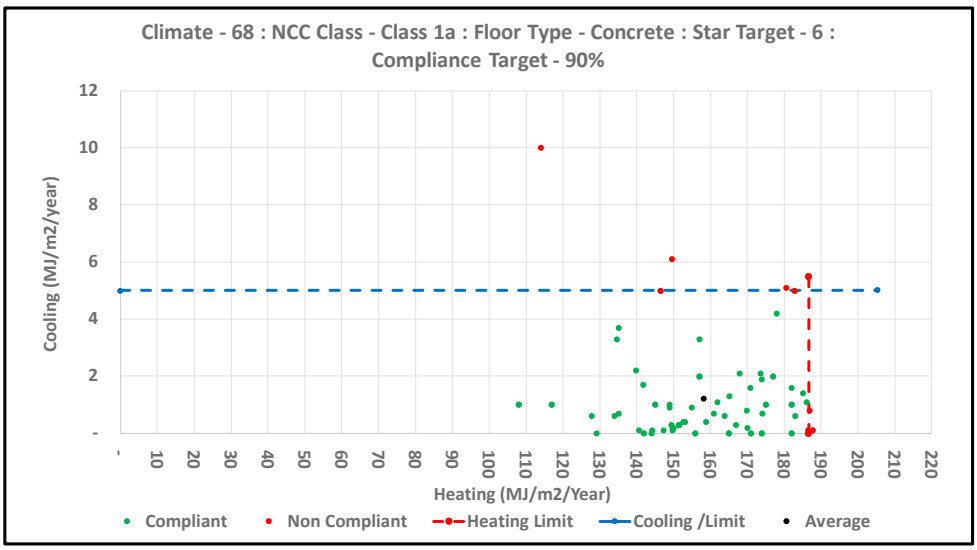
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	78	
Target Load	188.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	158.2	MJ/m2/Annum
Av. Cool Load	1.2	MJ/m2/Annum
Av. Total Load	159.4	MJ/m2/Annum
Av. % Heat	99.2%	%
Av. % Cool	0.8%	%
Av. Star Rating	6.6	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	186.6	MJ/m2/y	Cooling Limit	5.0	MJ/m2/y	Total Limit	188.0	MJ/m2/y
			5.9	Stars			6	Stars

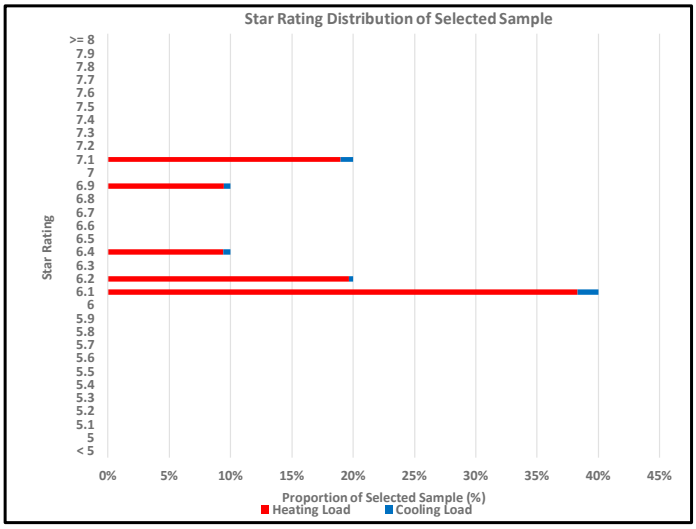
59

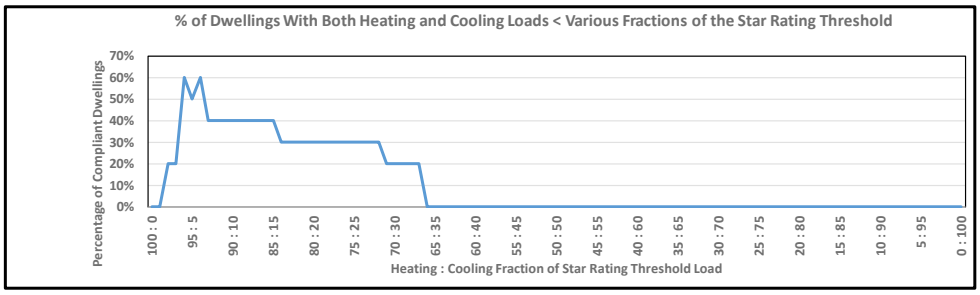
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	69	Thredbo 69
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

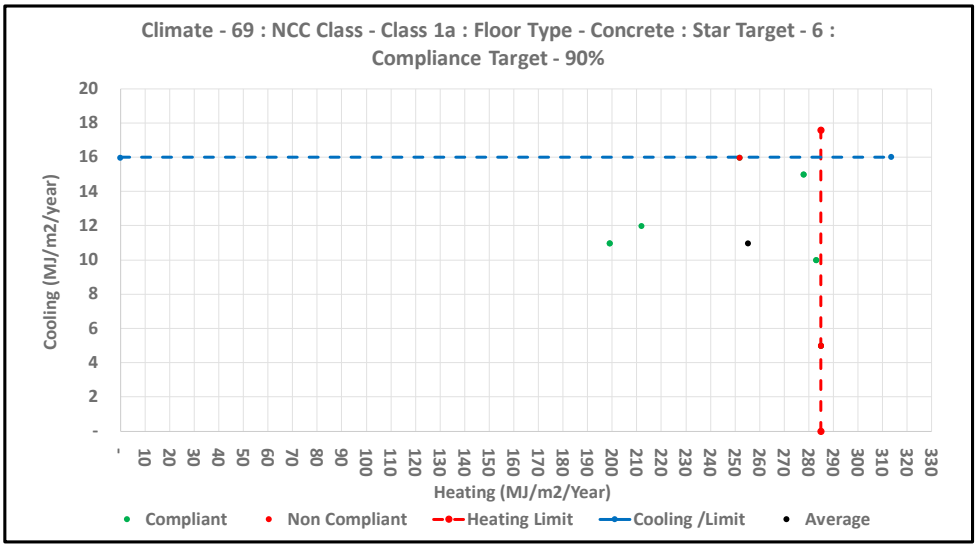
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	10	
Target Load	298.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	255.4	MJ/m2/Annum
Av. Cool Load	11.0	MJ/m2/Annum
Av. Total Load	266.4	MJ/m2/Annum
Av. % Heat	95.9%	%
Av. % Cool	4.1%	%
Av. Star Rating	6.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	285.0	MJ/m2/y	Cooling Limit	16.0	MJ/m2/y	Total Limit	298.0	MJ/m2/y
			5.9	Stars		6	Stars	

60

Class 1 Dwellings

Timber Floor

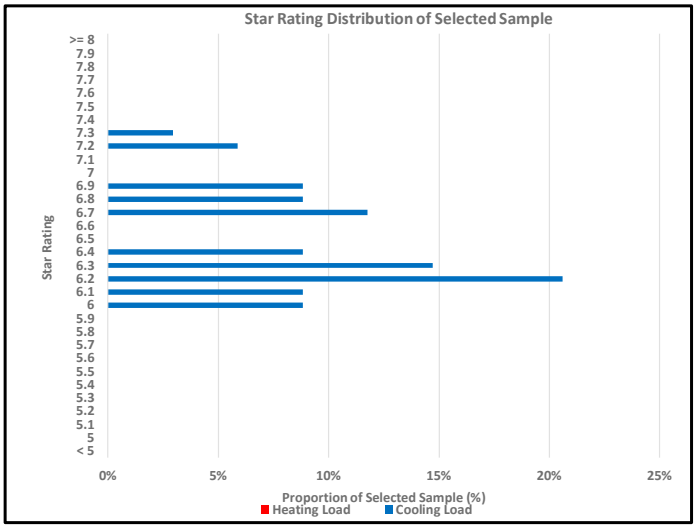
6 Star Standard

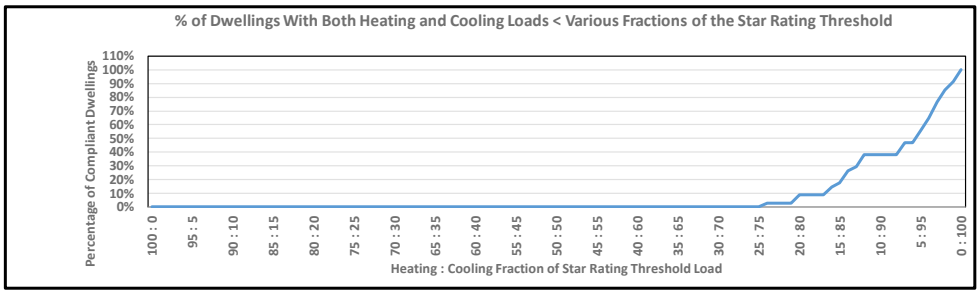
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NT	
Climate Zone	1	Darwin 1
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

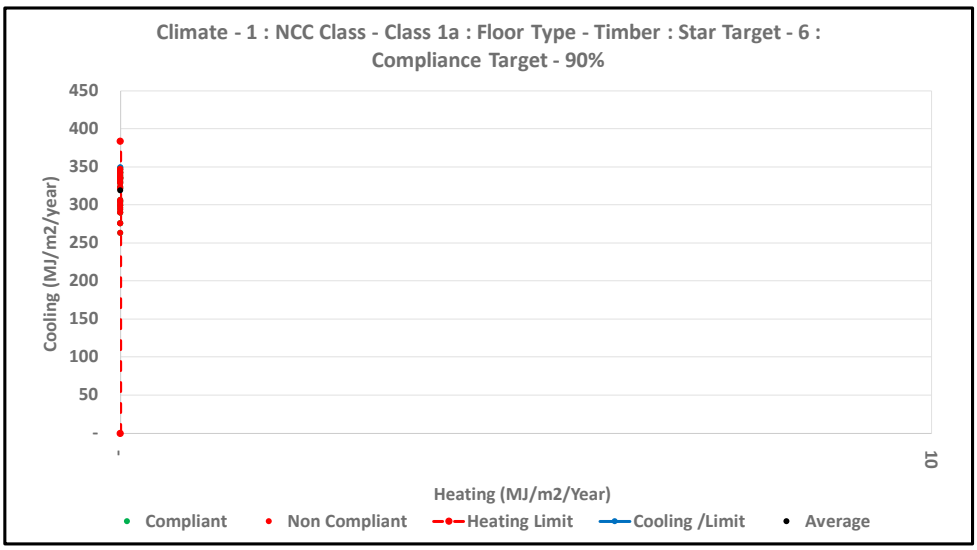
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	34	
Target Load	349.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	0.0	MJ/m2/Annum
Av. Cool Load	319.7	MJ/m2/Annum
Av. Total Load	319.7	MJ/m2/Annum
Av. % Heat	0.0%	%
Av. % Cool	100.0%	%
Av. Star Rating	6.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	0.0	MJ/m2/y	Cooling Limit	349.0	MJ/m2/y	Total Limit	349.0	MJ/m2/y
			5.9	Stars		6	Stars	

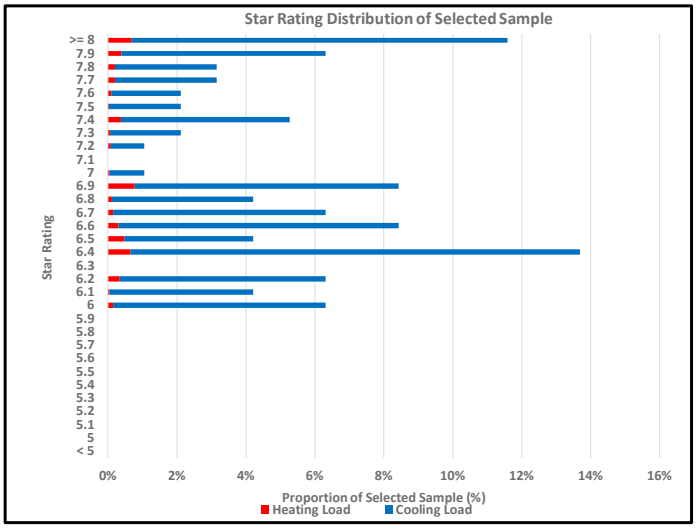
98

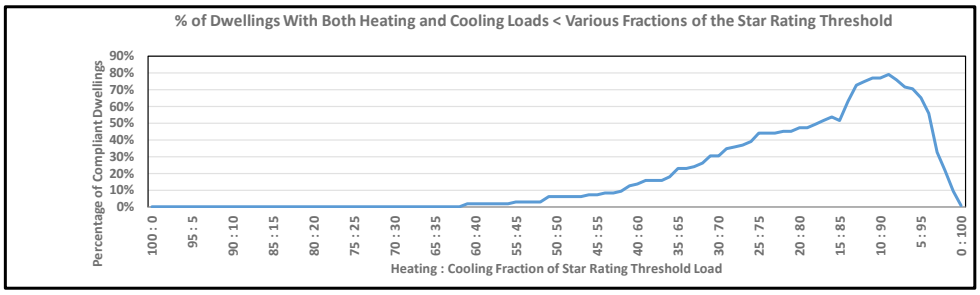
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	5	Townsville 5
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

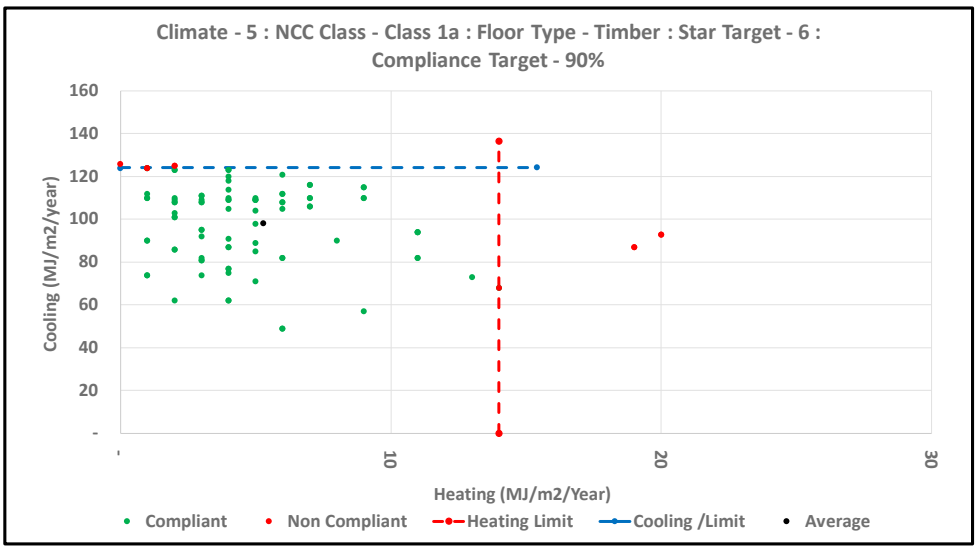
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	95	
Target Load	127.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	5.3	MJ/m2/Annum
Av. Cool Load	98.1	MJ/m2/Annum
Av. Total Load	103.4	MJ/m2/Annum
Av. % Heat	5.1%	%
Av. % Cool	94.9%	%
Av. Star Rating	7.0	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	14.0	MJ/m2/y	Cooling Limit	124.0	MJ/m2/y	Total Limit	127.0	MJ/m2/y
			5.5	Stars			6	Stars

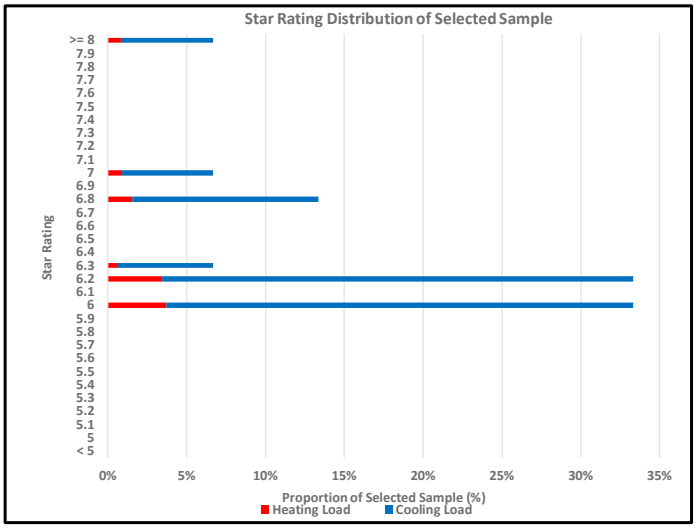
99

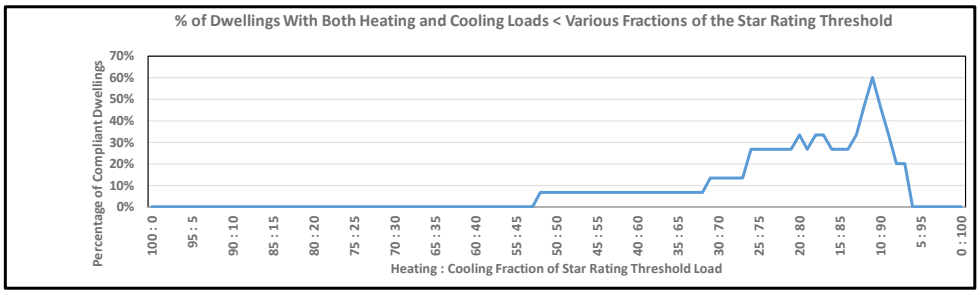
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	7	Rockhampton 7
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

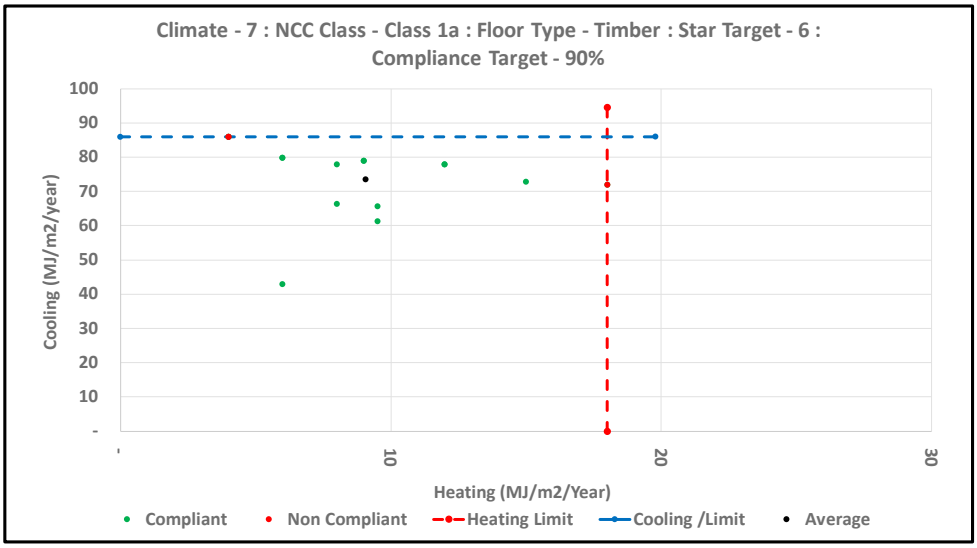
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	15	
Target Load	90.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	9.1	MJ/m2/Annum
Av. Cool Load	73.7	MJ/m2/Annum
Av. Total Load	82.8	MJ/m2/Annum
Av. % Heat	11.0%	%
Av. % Cool	89.2%	%
Av. Star Rating	6.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	18.0	MJ/m2/y	Cooling Limit	86.0	MJ/m2/y	Total Limit	90.0	MJ/m2/y
			5.2	Stars		6	Stars	

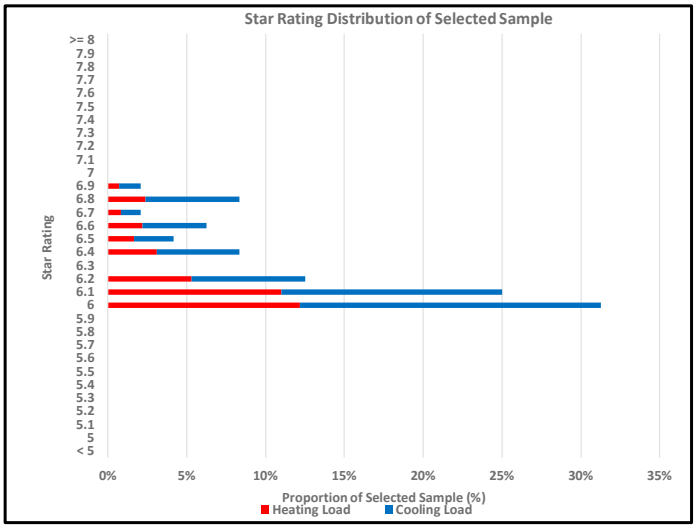
100

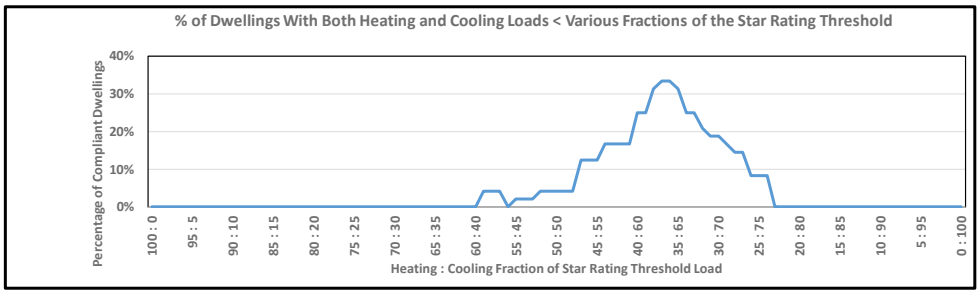
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	9	Amberley 9
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

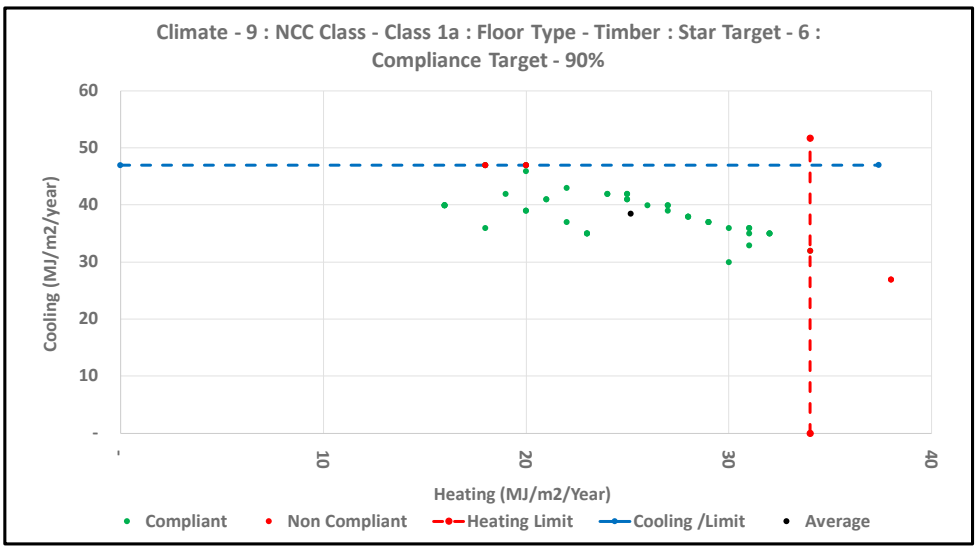
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	48	
Target Load	67.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	25.2	MJ/m2/Annum
Av. Cool Load	38.5	MJ/m2/Annum
Av. Total Load	63.7	MJ/m2/Annum
Av. % Heat	39.6%	%
Av. % Cool	60.5%	%
Av. Star Rating	6.2	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	34.0	MJ/m2/y	Cooling Limit	47.0	MJ/m2/y	Total Limit	67.0	MJ/m2/y
			5.1	Stars			6	Stars

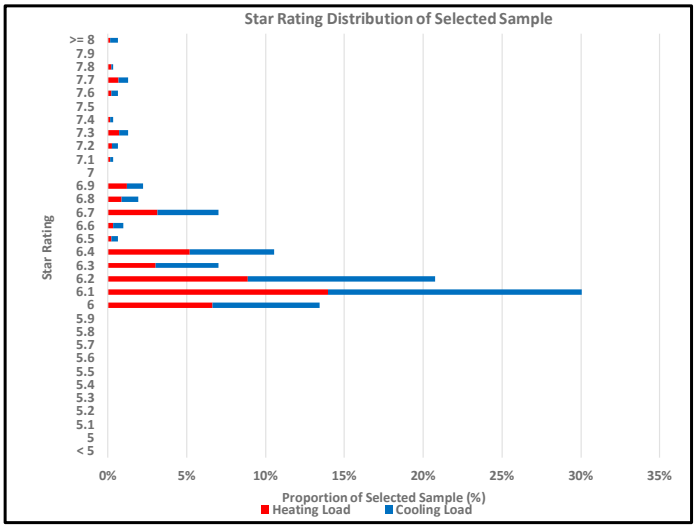
101

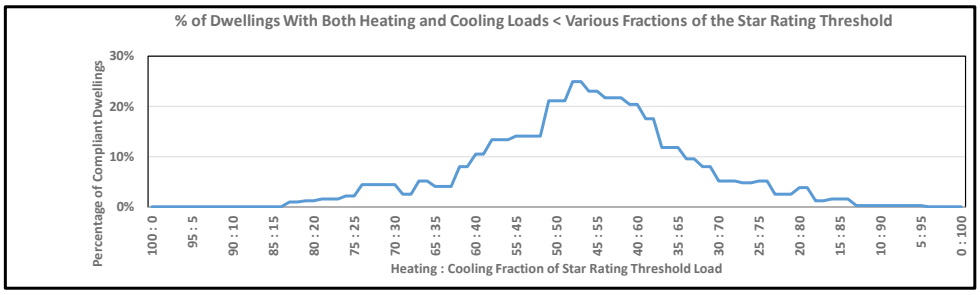
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	10	Brisbane 10
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

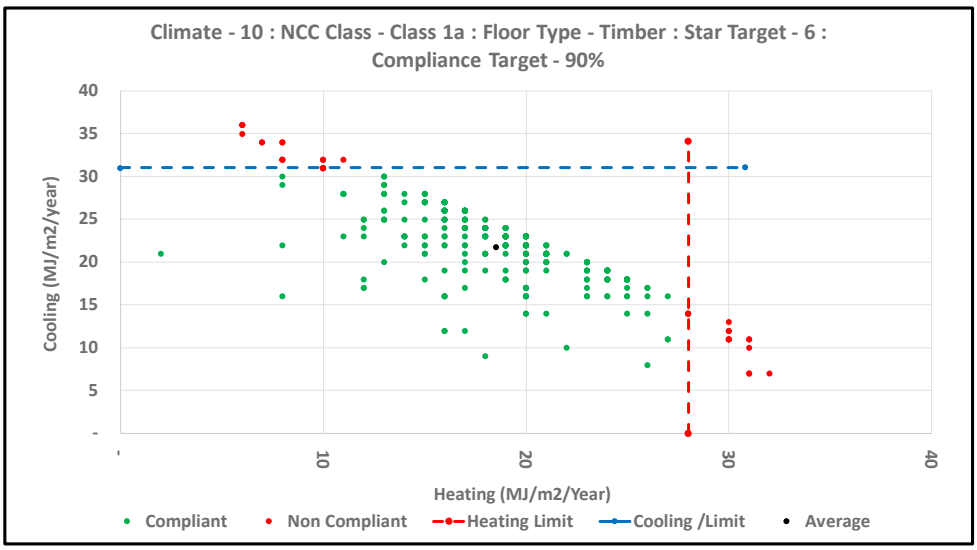
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	313	
Target Load	43.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	18.5	MJ/m2/Annum
Av. Cool Load	21.8	MJ/m2/Annum
Av. Total Load	40.3	MJ/m2/Annum
Av. % Heat	46.0%	%
Av. % Cool	54.1%	%
Av. Star Rating	6.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	28.0	MJ/m2/y	Cooling Limit	31.0	MJ/m2/y	Total Limit	43.0	MJ/m2/y
			4.6	Stars			6	Stars

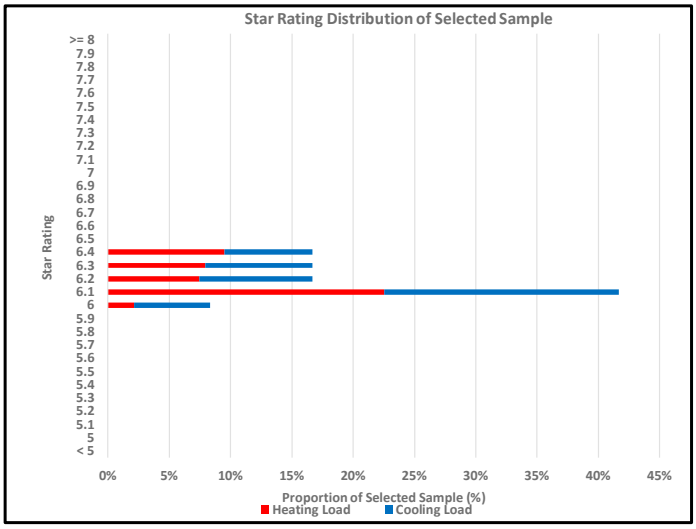
102

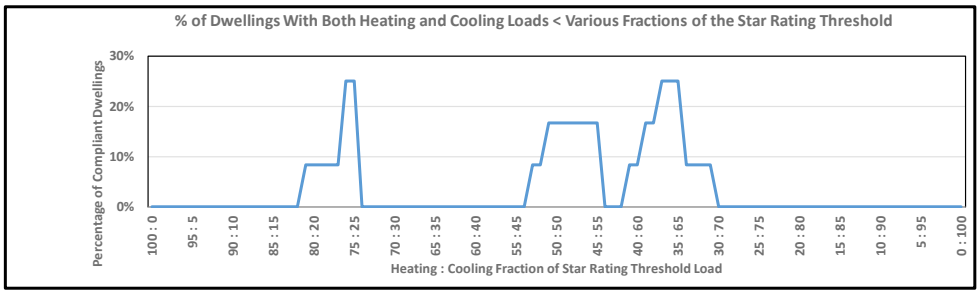
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	10	Brisbane 10
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

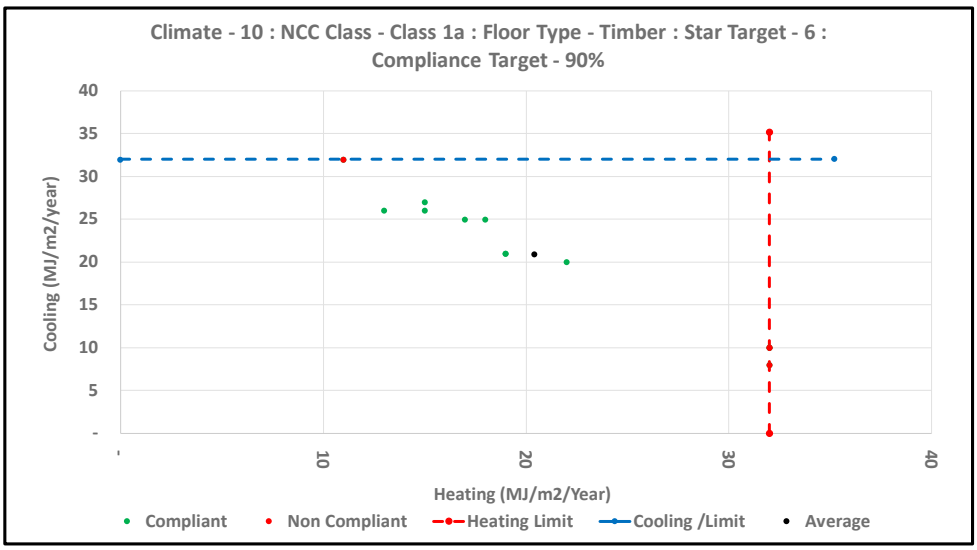
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	12	
Target Load	43.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	20.4	MJ/m2/Annum
Av. Cool Load	20.9	MJ/m2/Annum
Av. Total Load	41.3	MJ/m2/Annum
Av. % Heat	49.5%	%
Av. % Cool	50.7%	%
Av. Star Rating	6.2	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	32.0	MJ/m2/y	Cooling Limit	32.0	MJ/m2/y	Total Limit	43.0	MJ/m2/y
			4.3	Stars			6	Stars

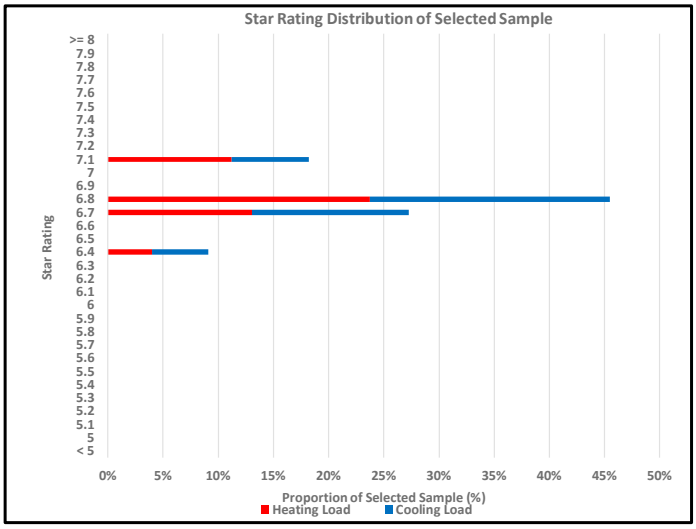
103

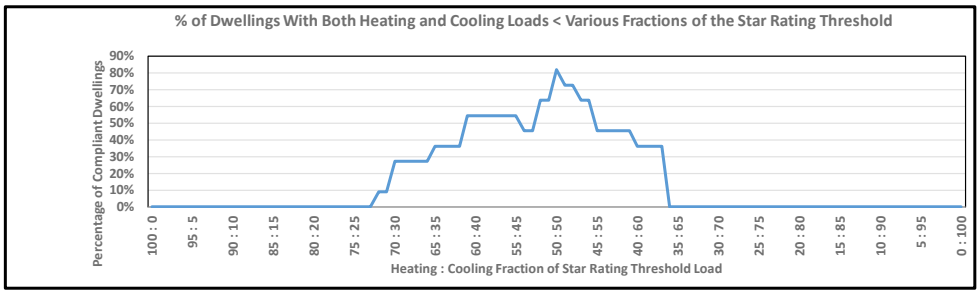
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	11	Coffs Harbour 11
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

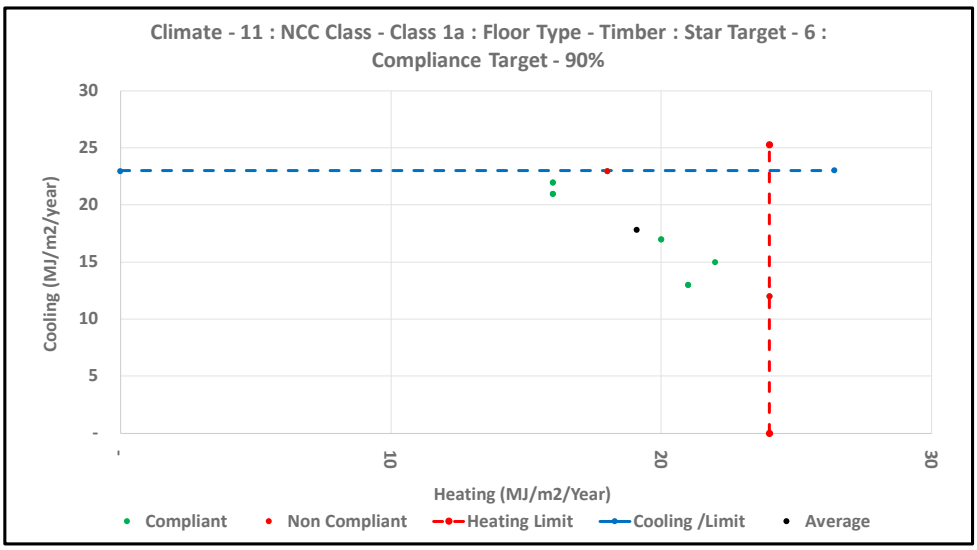
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	11	
Target Load	44.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	19.1	MJ/m2/Annum
Av. Cool Load	17.8	MJ/m2/Annum
Av. Total Load	36.9	MJ/m2/Annum
Av. % Heat	52.2%	%
Av. % Cool	48.8%	%
Av. Star Rating	6.8	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	24.0 MJ/m2/y	Cooling Limit	23.0 MJ/m2/y	Total Limit	44.0 MJ/m2/y
		5.6 Stars		6 Stars	

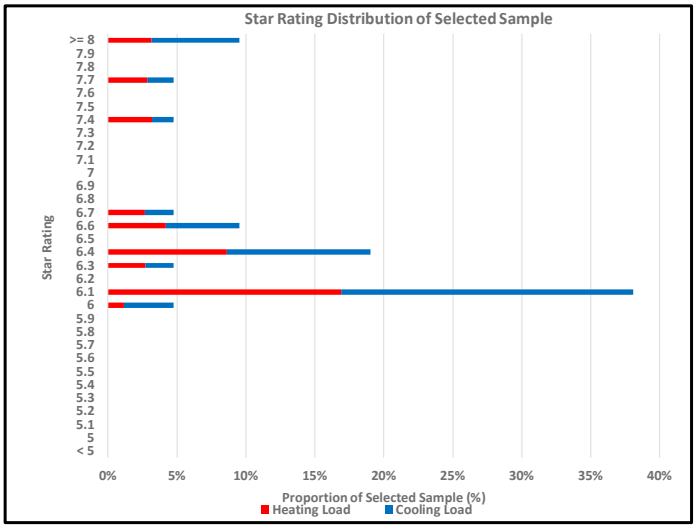
104

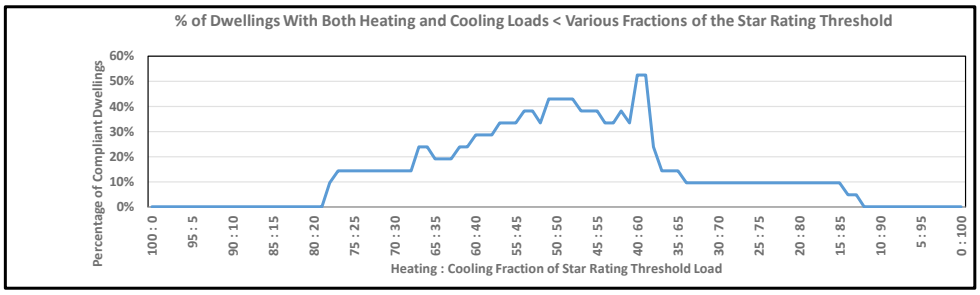
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	13	Perth 13
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

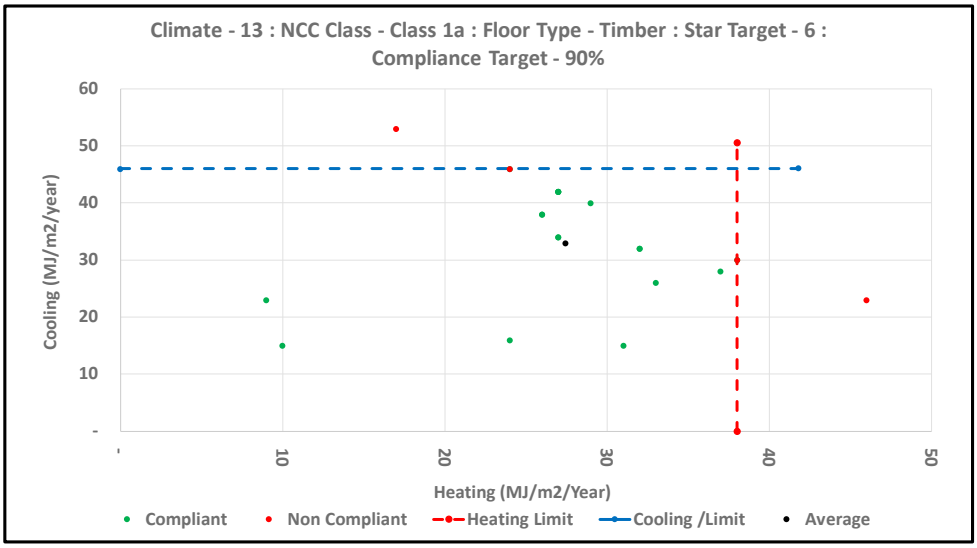
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	21	
Target Load	70.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	27.4	MJ/m2/Annum
Av. Cool Load	32.9	MJ/m2/Annum
Av. Total Load	60.3	MJ/m2/Annum
Av. % Heat	45.6%	%
Av. % Cool	54.7%	%
Av. Star Rating	6.6	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	38.0	MJ/m2/y	Cooling Limit	46.0	MJ/m2/y	Total Limit	70.0	MJ/m2/y
			5.2	Stars		6	Stars	

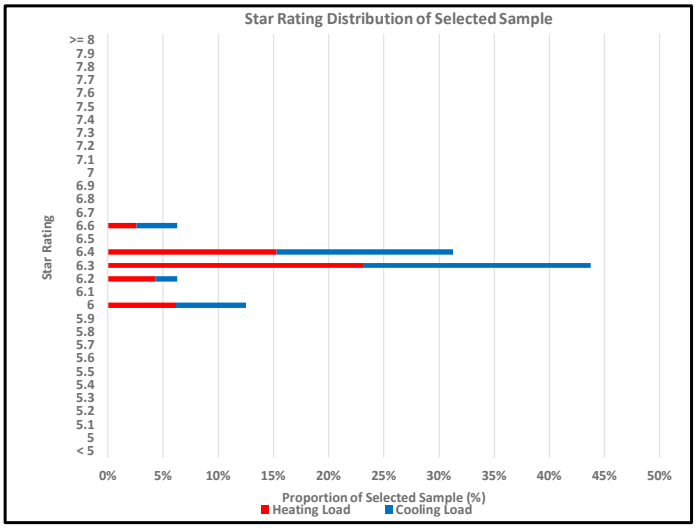
105

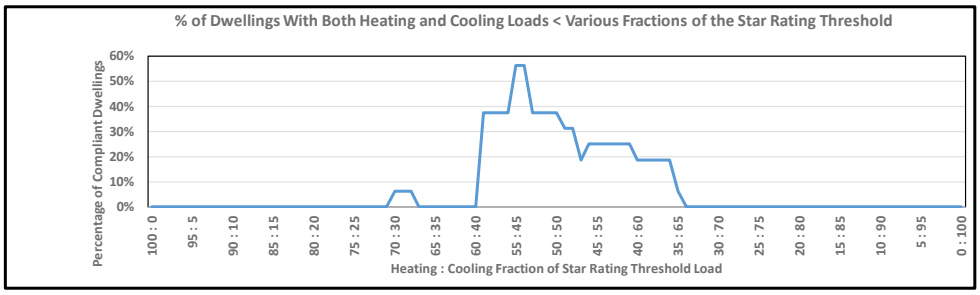
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	15	Williamtown 15
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

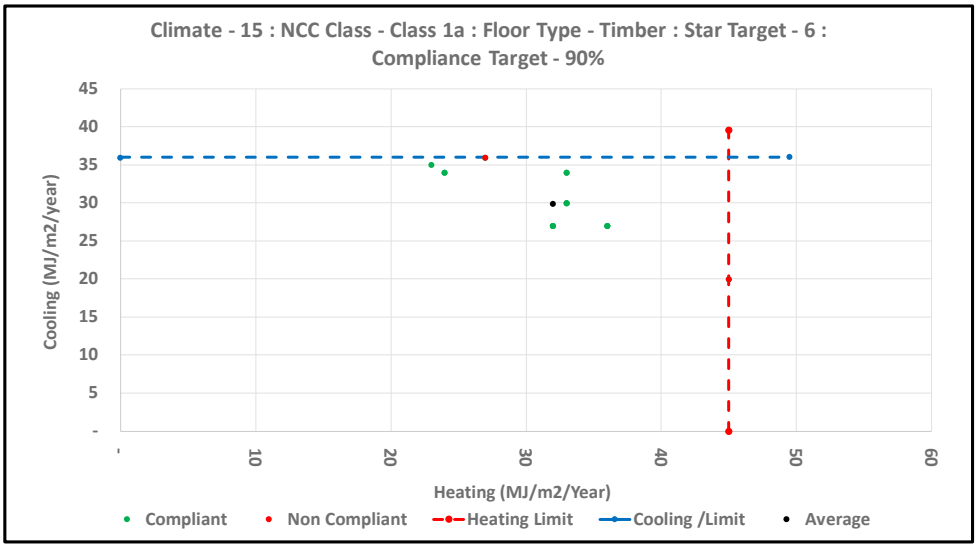
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	16	
Target Load	67.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	32.0	MJ/m2/Annum
Av. Cool Load	29.9	MJ/m2/Annum
Av. Total Load	61.9	MJ/m2/Annum
Av. % Heat	51.7%	%
Av. % Cool	48.3%	%
Av. Star Rating	6.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	45.0	MJ/m2/y	Cooling Limit	36.0	MJ/m2/y	Total Limit	67.0	MJ/m2/y
			5.2	Stars		6	Stars	

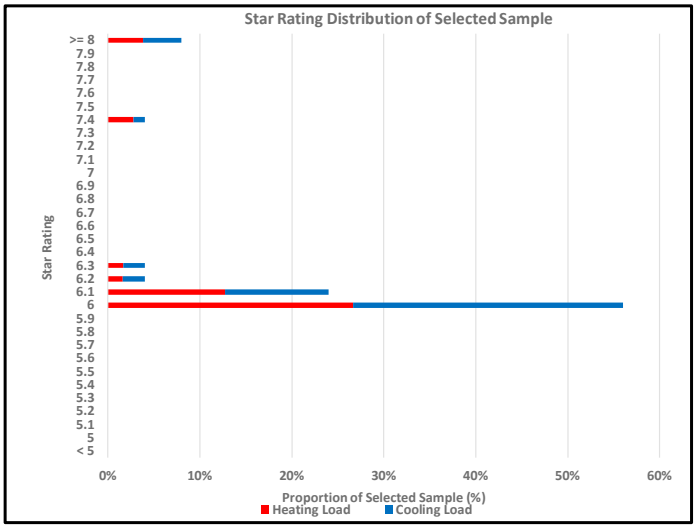
106

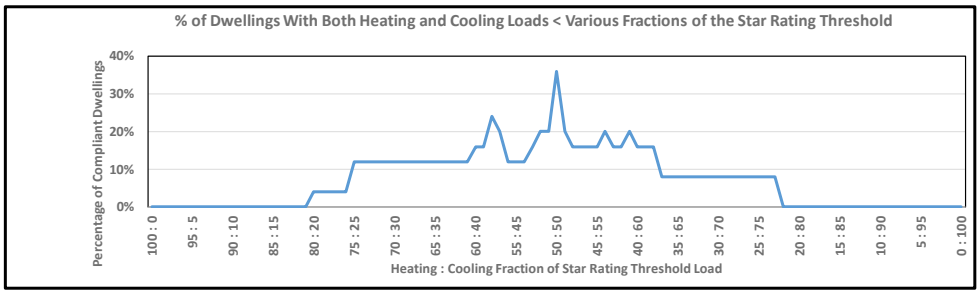
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	SA	
Climate Zone	16	Adelaide 16
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

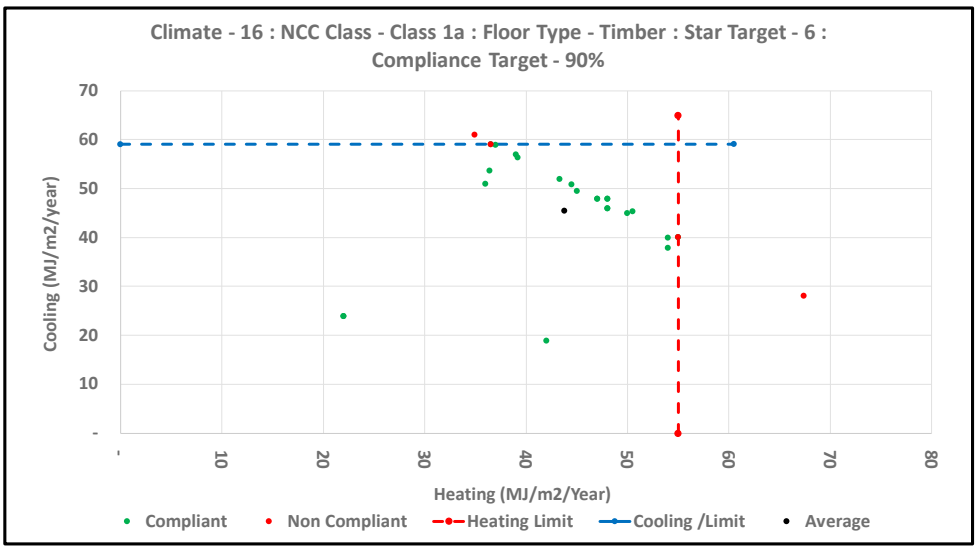
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	25	
Target Load	96.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	43.8	MJ/m2/Annum
Av. Cool Load	45.5	MJ/m2/Annum
Av. Total Load	89.3	MJ/m2/Annum
Av. % Heat	49.0%	%
Av. % Cool	50.9%	%
Av. Star Rating	6.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	55.0	MJ/m2/y	Cooling Limit	59.1	MJ/m2/y	Total Limit	96.0	MJ/m2/y
			5.3	Stars			6	Stars

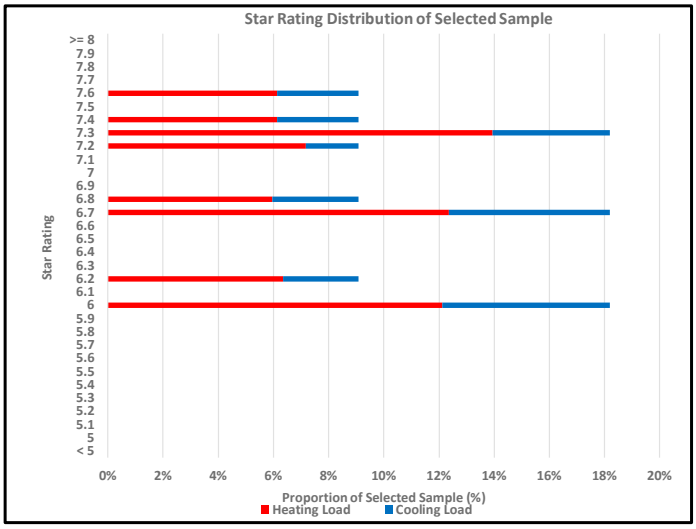
107

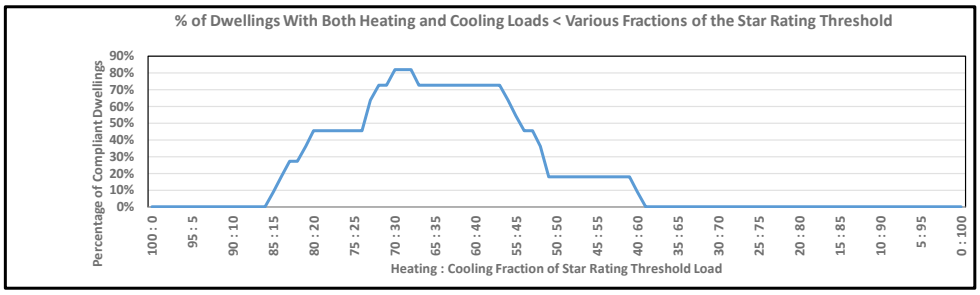
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	ALL	
Climate Zone	20	Wagga 20
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

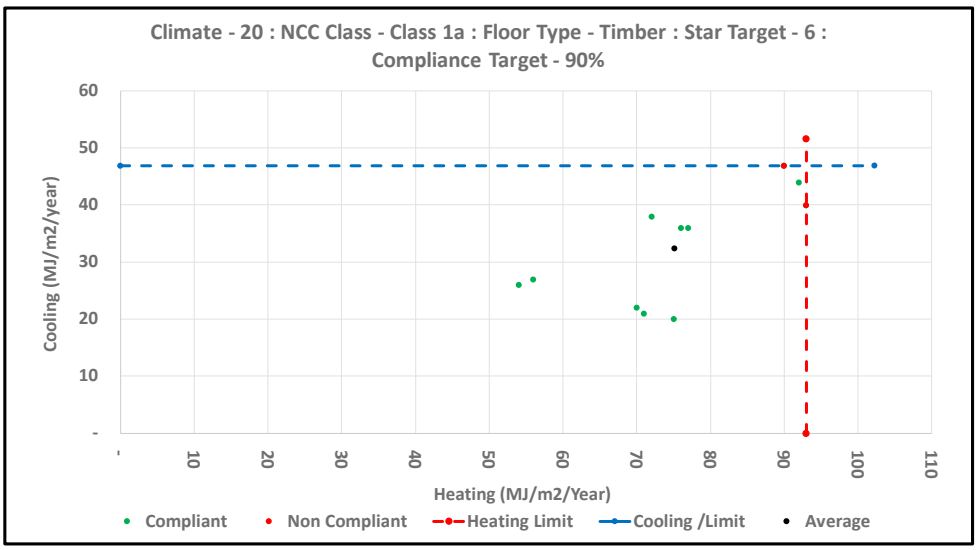
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	11	
Target Load	137.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	75.1	MJ/m2/Annum
Av. Cool Load	32.4	MJ/m2/Annum
Av. Total Load	107.5	MJ/m2/Annum
Av. % Heat	69.9%	%
Av. % Cool	30.2%	%
Av. Star Rating	6.8	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	93.0	MJ/m2/y	Cooling Limit	46.9	MJ/m2/y	Total Limit	137.0	MJ/m2/y
			5.9	Stars			6	Stars

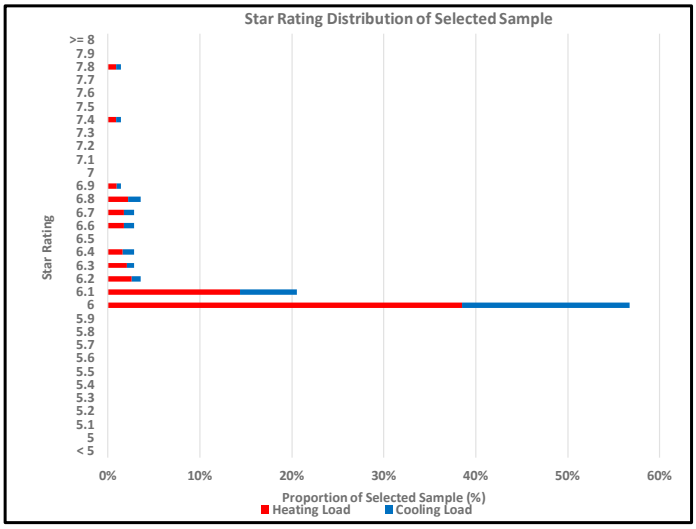
108

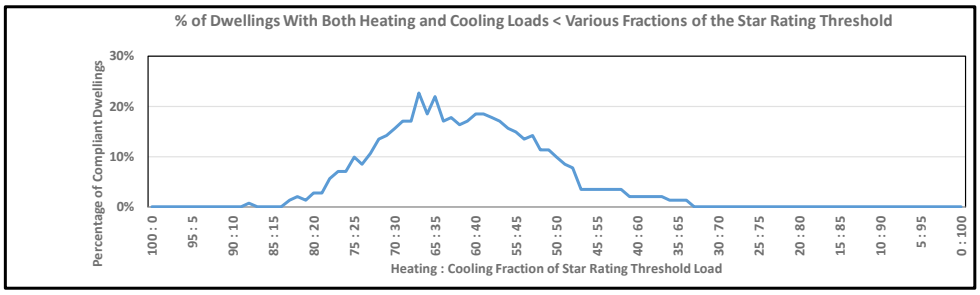
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	21	Melb 21
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

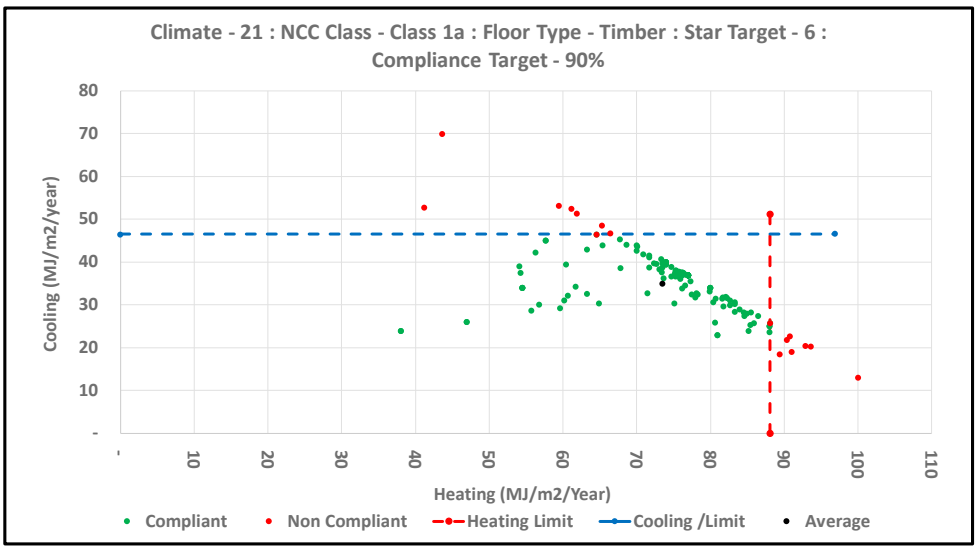
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	141	
Target Load	114.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	73.5	MJ/m2/Annum
Av. Cool Load	35.0	MJ/m2/Annum
Av. Total Load	108.5	MJ/m2/Annum
Av. % Heat	67.7%	%
Av. % Cool	32.2%	%
Av. Star Rating	6.2	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	88.1	MJ/m2/y	Cooling Limit	46.5	MJ/m2/y	Total Limit	114.0	MJ/m2/y
			5.3	Stars			6	Stars

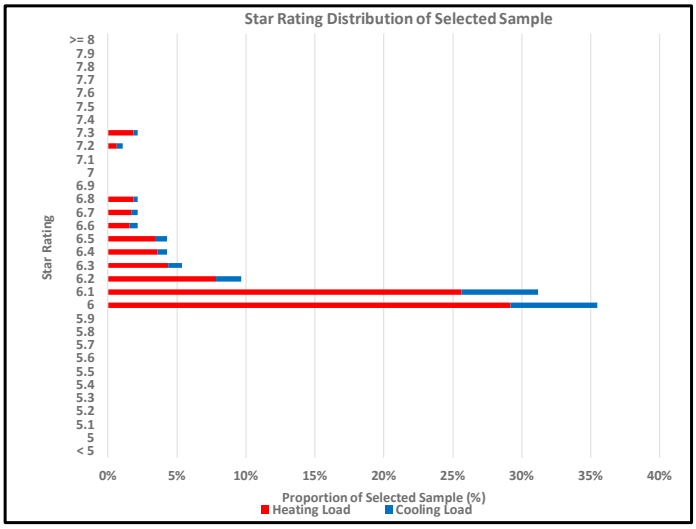
109

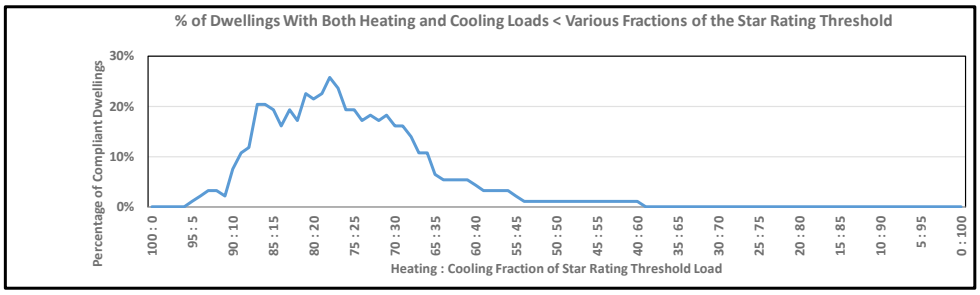
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	22	East Sale 22
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

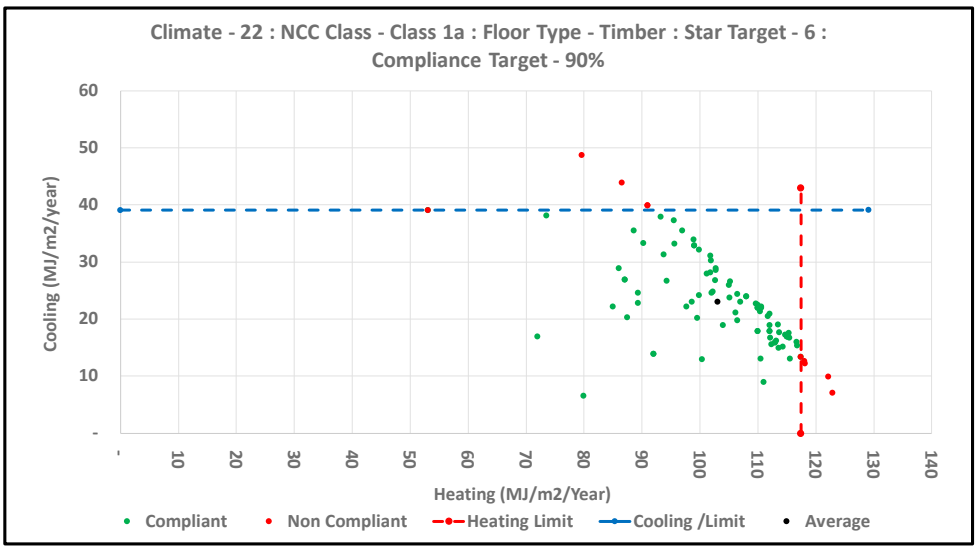
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	93	
Target Load	133.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	103.0	MJ/m2/Annum
Av. Cool Load	23.1	MJ/m2/Annum
Av. Total Load	126.1	MJ/m2/Annum
Av. % Heat	81.7%	%
Av. % Cool	18.3%	%
Av. Star Rating	6.2	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	117.4 MJ/m2/y	Cooling Limit	39.1 MJ/m2/y	Total Limit	133.0 MJ/m2/y
		5.4 Stars		6 Stars	

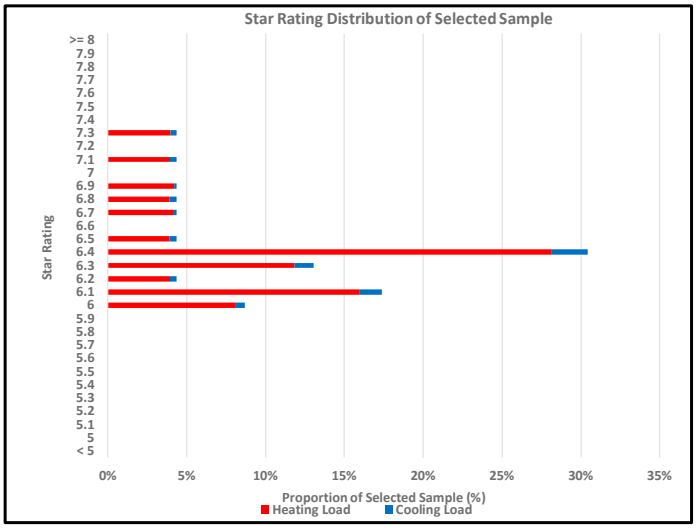
110

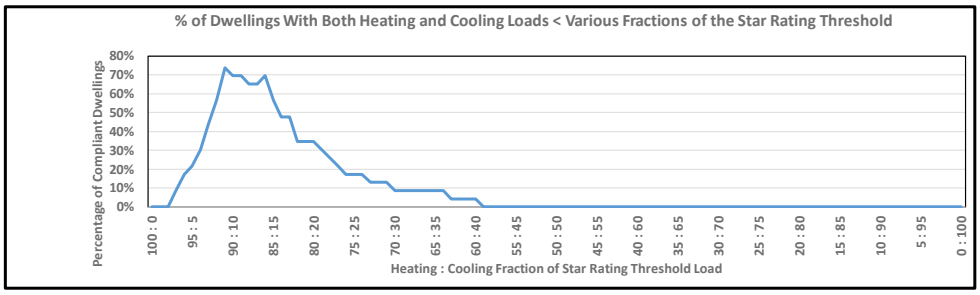
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	TAS	
Climate Zone	23	Launceston 23
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

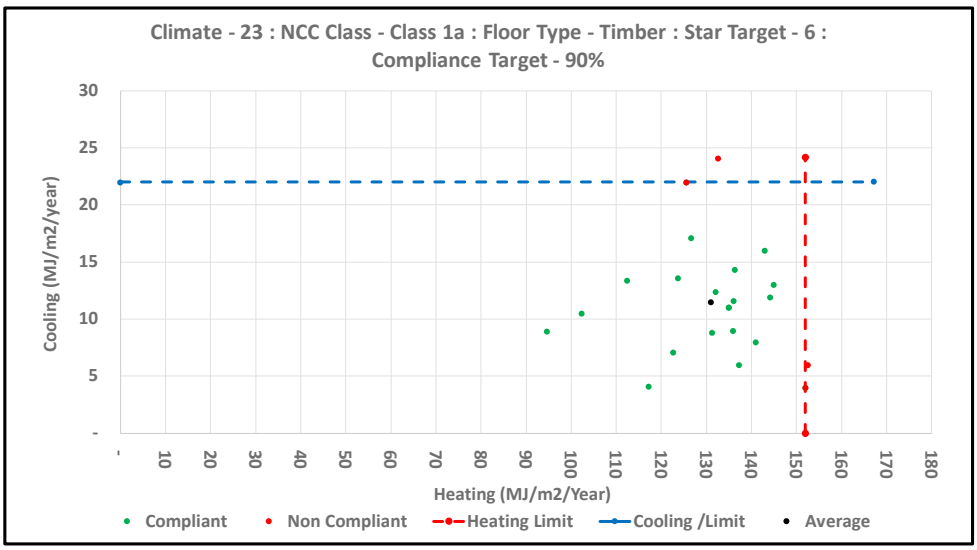
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	23	
Target Load	160.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	131.1	MJ/m2/Annum
Av. Cool Load	11.5	MJ/m2/Annum
Av. Total Load	142.5	MJ/m2/Annum
Av. % Heat	92.0%	%
Av. % Cool	8.0%	%
Av. Star Rating	6.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	152.0	MJ/m2/y	Cooling Limit	22.0	MJ/m2/y	Total Limit	160.0	MJ/m2/y
			5.6	Stars			6	Stars

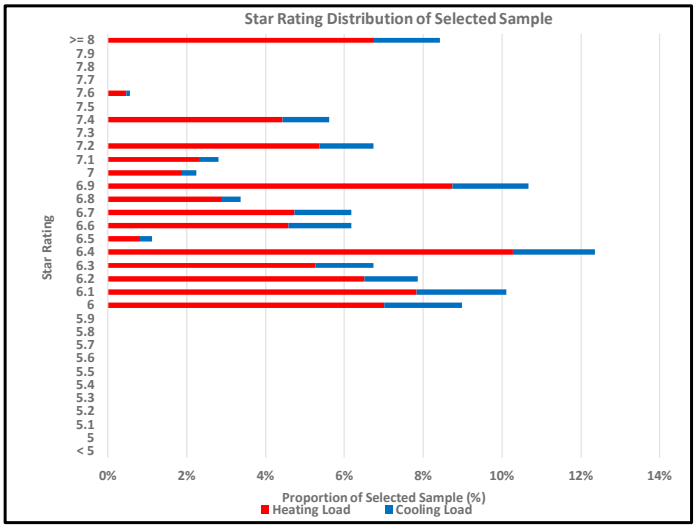
111

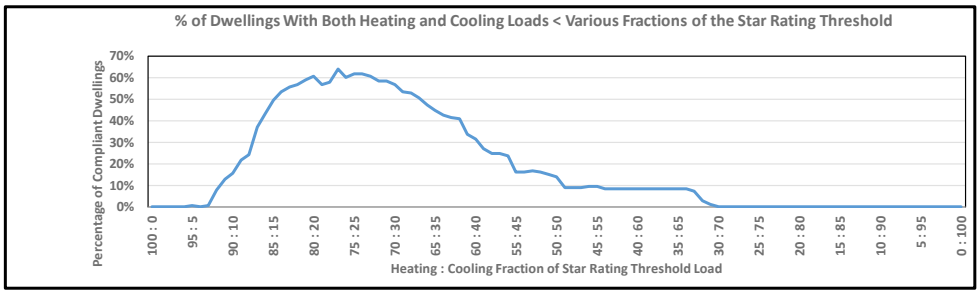
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	ACT	
Climate Zone	24	Canberra 24
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

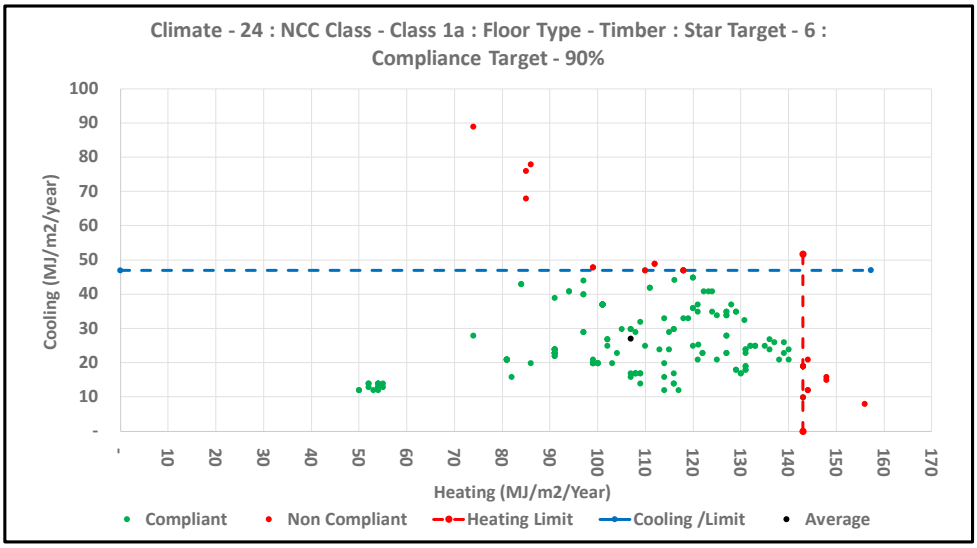
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	178	
Target Load	165.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	106.9	MJ/m2/Annum
Av. Cool Load	27.1	MJ/m2/Annum
Av. Total Load	134.0	MJ/m2/Annum
Av. % Heat	79.8%	%
Av. % Cool	20.2%	%
Av. Star Rating	6.7	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	143.0	MJ/m2/y	Cooling Limit	47.0	MJ/m2/y	Total Limit	165.0	MJ/m2/y
			5.4	Stars			6	Stars

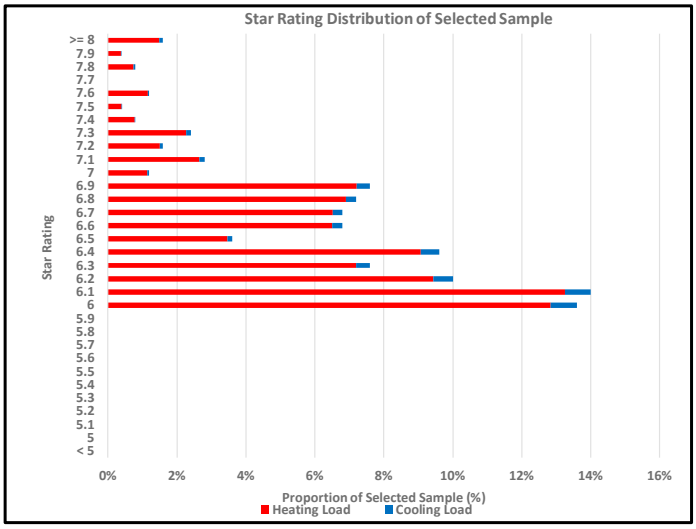
112

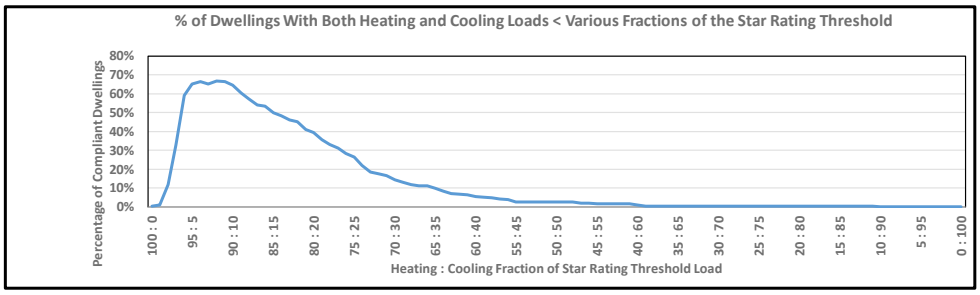
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	TAS	
Climate Zone	26	Hobart 26
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

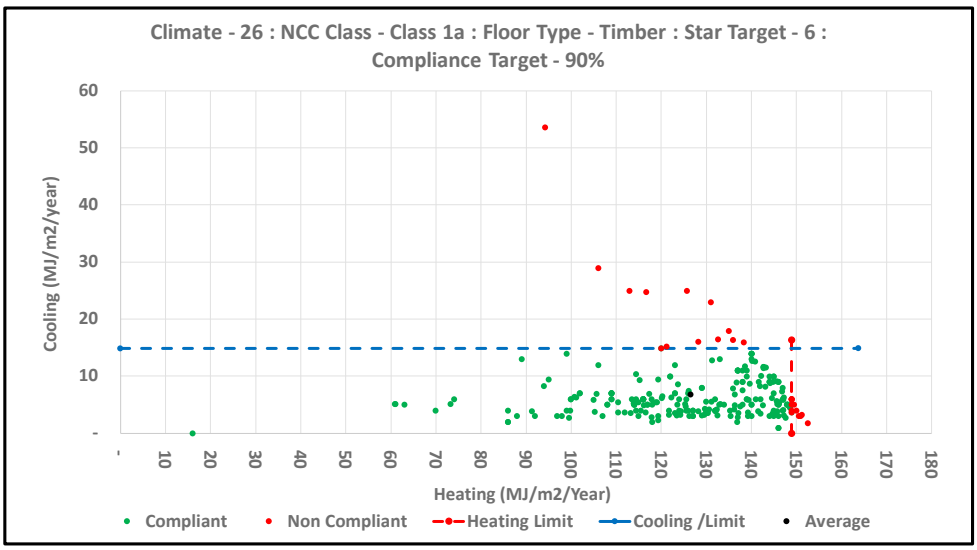
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	250	
Target Load	155.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	126.5	MJ/m2/Annum
Av. Cool Load	6.9	MJ/m2/Annum
Av. Total Load	133.4	MJ/m2/Annum
Av. % Heat	94.9%	%
Av. % Cool	5.1%	%
Av. Star Rating	6.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	148.9	MJ/m2/y	Cooling Limit	14.9	MJ/m2/y	Total Limit	155.0	MJ/m2/y
			5.8	Stars			6	Stars

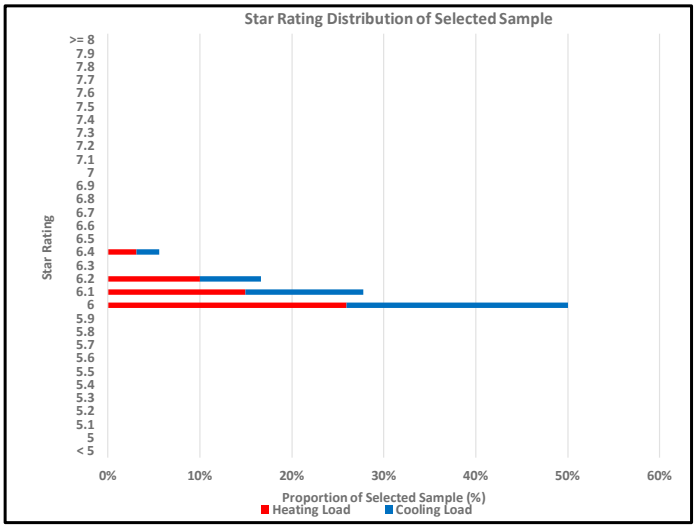
113

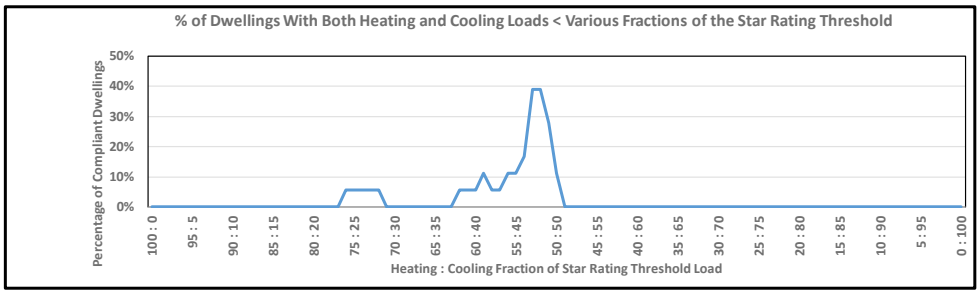
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	27	Mildura 27
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

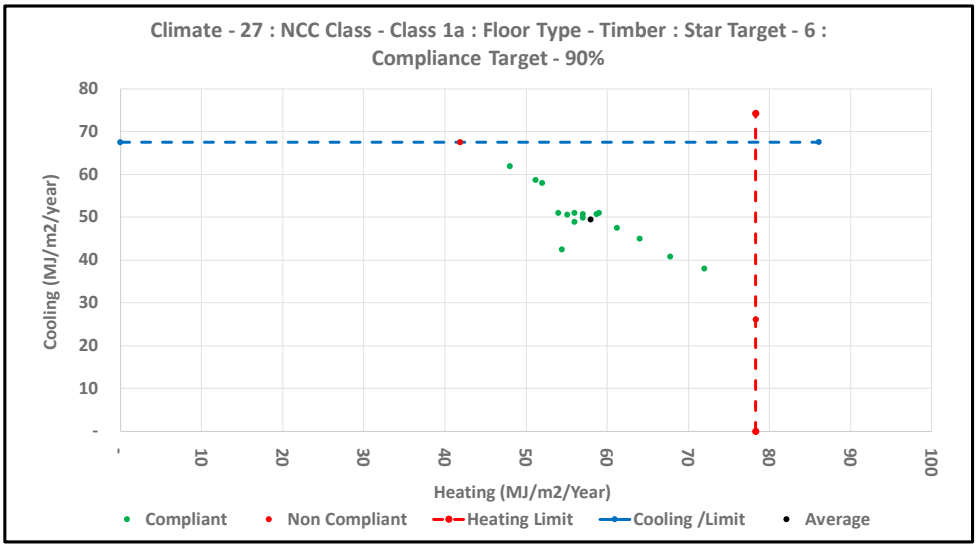
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	18	
Target Load	110.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	58.0	MJ/m2/Annum
Av. Cool Load	49.5	MJ/m2/Annum
Av. Total Load	107.5	MJ/m2/Annum
Av. % Heat	53.9%	%
Av. % Cool	46.0%	%
Av. Star Rating	6.1	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	78.3	MJ/m2/y	Cooling Limit	67.5	MJ/m2/y	Total Limit	110.0	MJ/m2/y
			4.9	Stars		6	Stars	

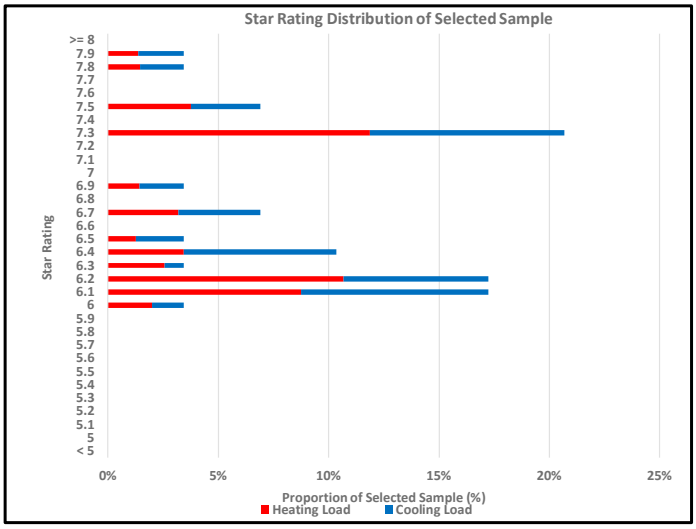
114

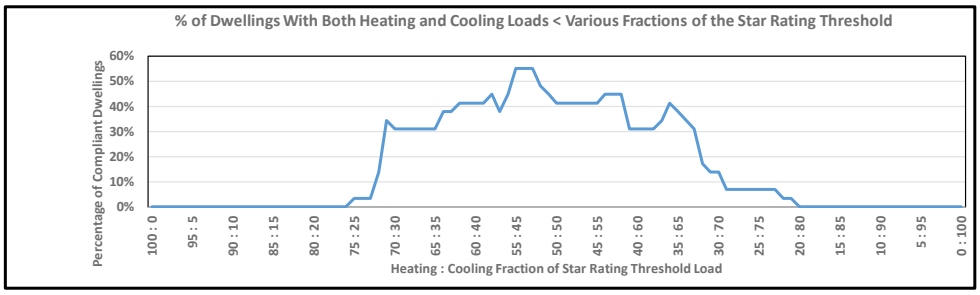
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	28	Richmond 28
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

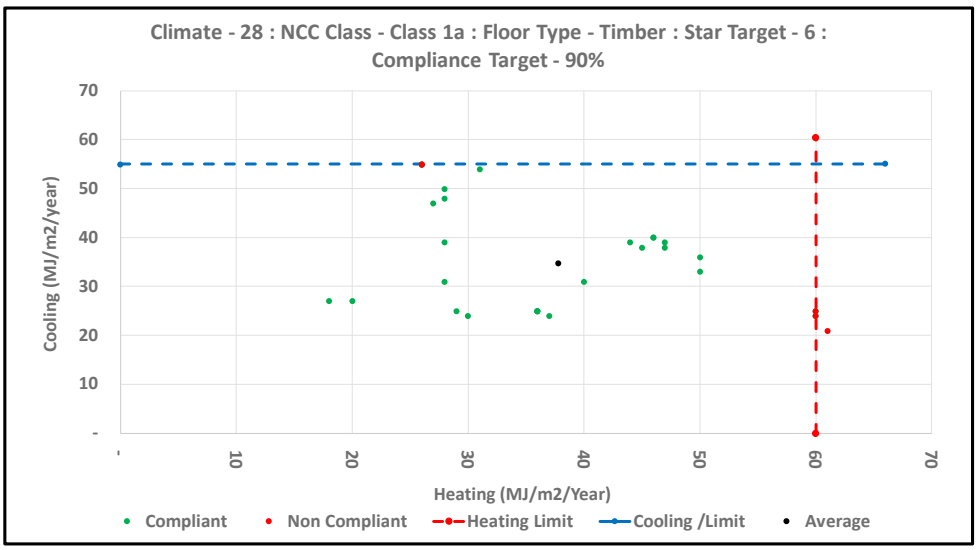
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	29	
Target Load	87.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	37.8	MJ/m2/Annum
Av. Cool Load	34.8	MJ/m2/Annum
Av. Total Load	72.6	MJ/m2/Annum
Av. % Heat	51.9%	%
Av. % Cool	47.8%	%
Av. Star Rating	6.7	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	60.0	MJ/m2/y	Cooling Limit	55.0	MJ/m2/y	Total Limit	87.0	MJ/m2/y
			4.8	Stars			6	Stars

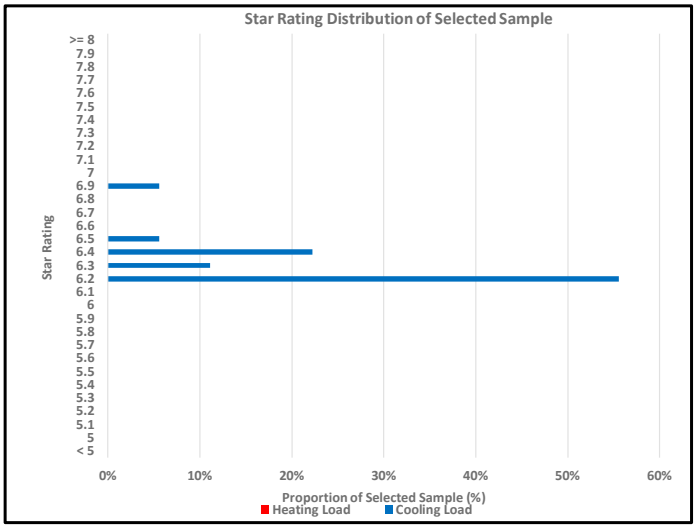
115

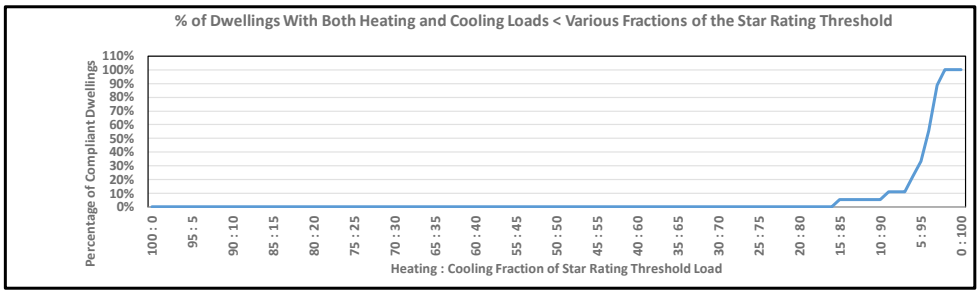
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	29	Weipa 29
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

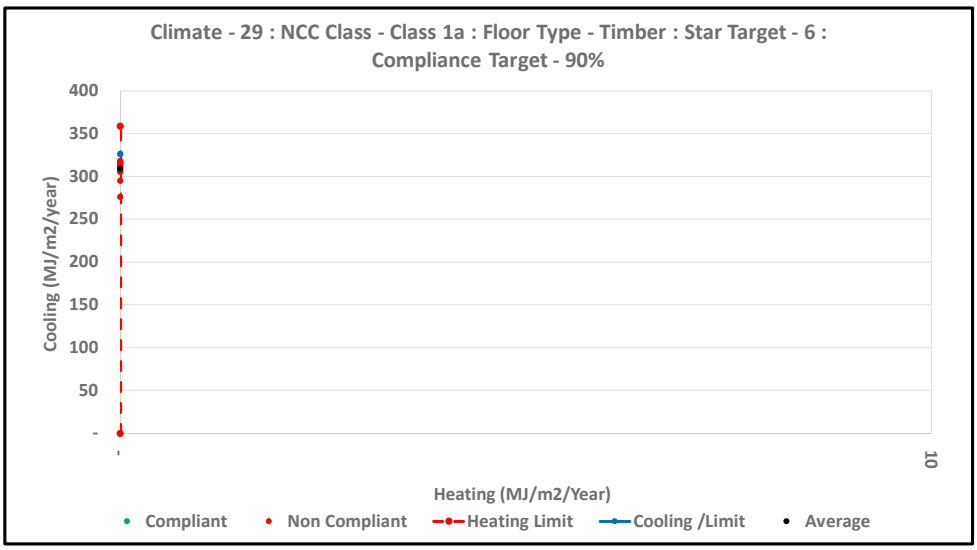
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	18	
Target Load	326.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	0.0	MJ/m2/Annum
Av. Cool Load	309.5	MJ/m2/Annum
Av. Total Load	309.5	MJ/m2/Annum
Av. % Heat	0.0%	%
Av. % Cool	100.0%	%
Av. Star Rating	6.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	0.0	MJ/m2/y	Cooling Limit	326.0	MJ/m2/y	Total Limit	326.0	MJ/m2/y
			5.9	Stars		6	Stars	

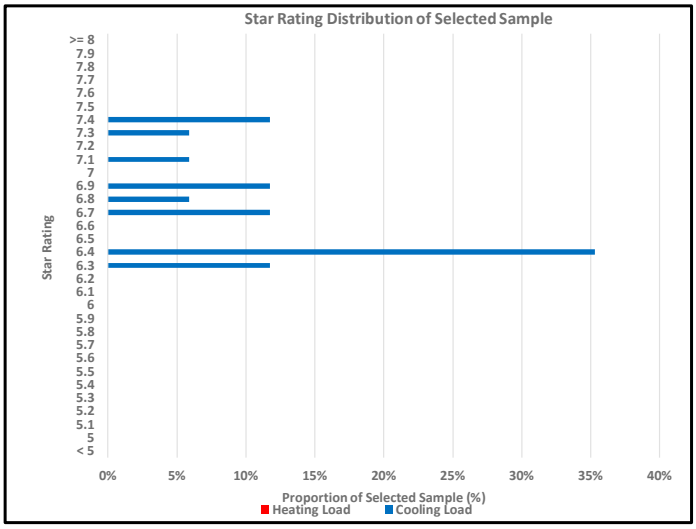
116

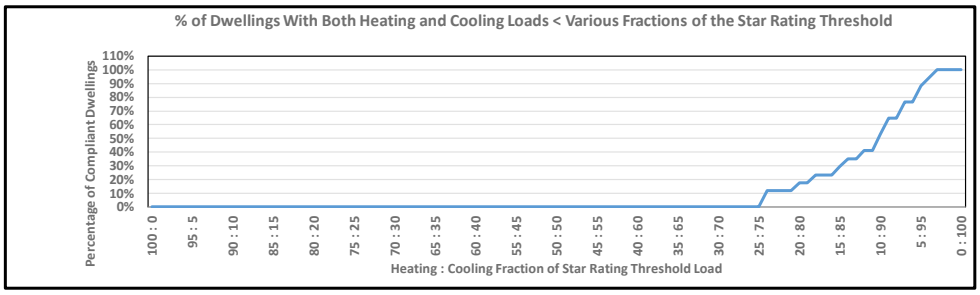
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	31	Willis Is 31
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

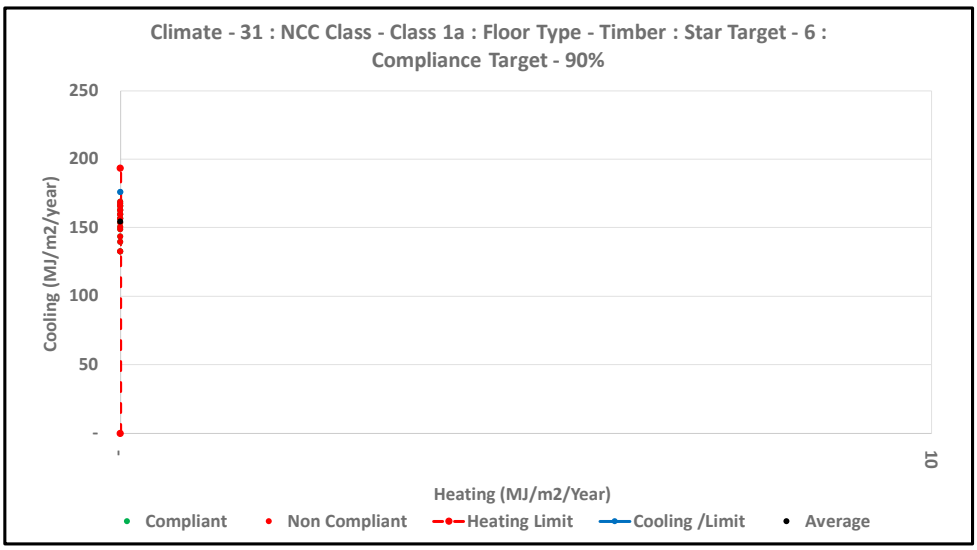
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	17	
Target Load	176.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	0.0	MJ/m2/Annum
Av. Cool Load	154.9	MJ/m2/Annum
Av. Total Load	154.9	MJ/m2/Annum
Av. % Heat	0.0%	%
Av. % Cool	100.0%	%
Av. Star Rating	6.7	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	0.0	MJ/m2/y	Cooling Limit	176.0	MJ/m2/y	Total Limit	176.0	MJ/m2/y
			5.9	Stars		6	Stars	

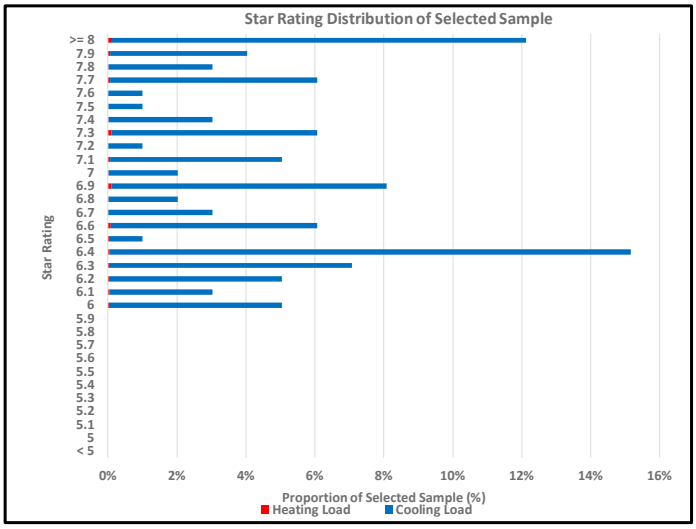
117

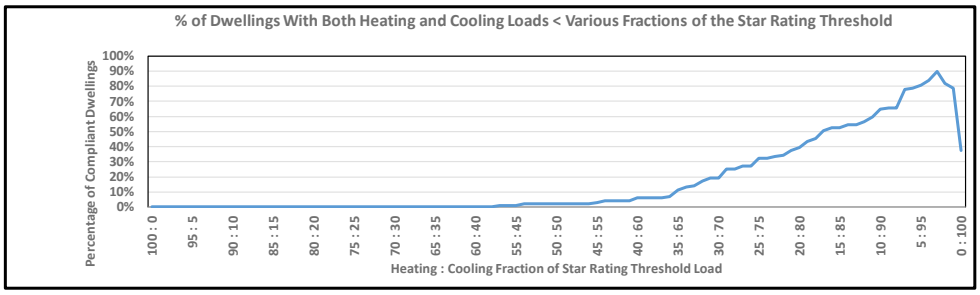
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	32	Cairns 32
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

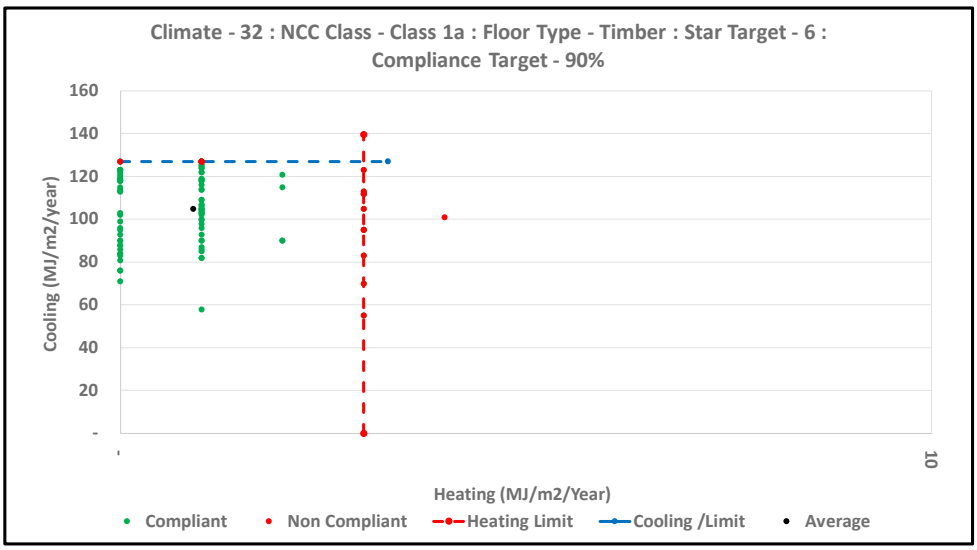
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	99	
Target Load	128.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	0.9	MJ/m2/Annum
Av. Cool Load	104.9	MJ/m2/Annum
Av. Total Load	105.8	MJ/m2/Annum
Av. % Heat	0.8%	%
Av. % Cool	99.1%	%
Av. Star Rating	7.0	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	3.0	MJ/m2/y	Cooling Limit	127.0	MJ/m2/y	Total Limit	128.0	MJ/m2/y
			5.9	Stars			6	Stars

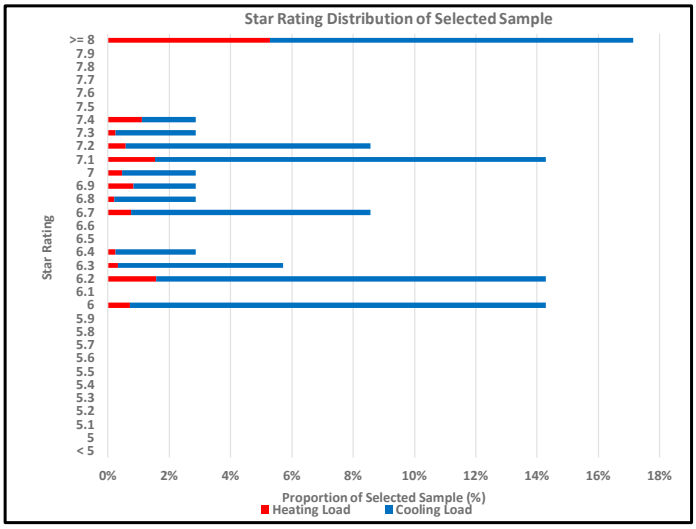
118

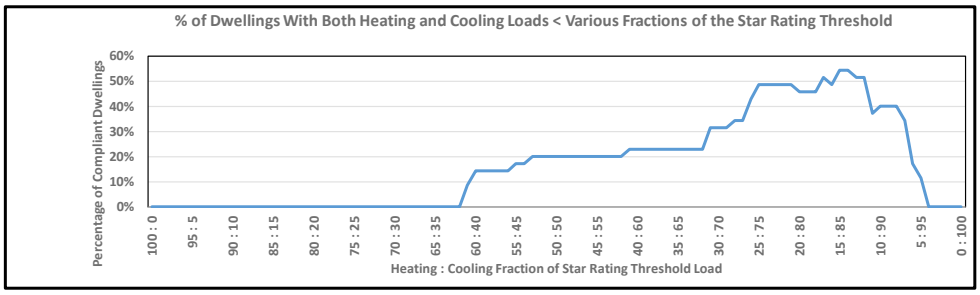
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	35	Mackay 35
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

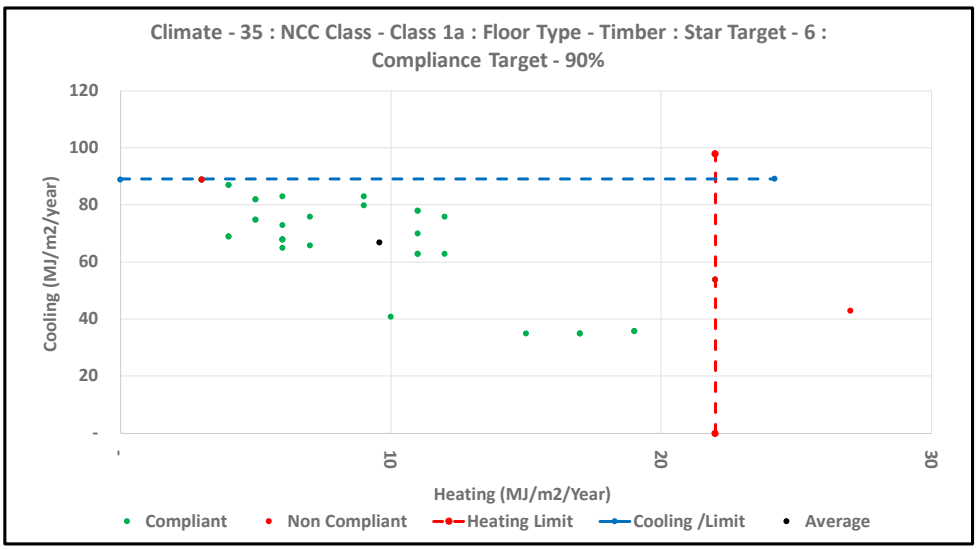
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	35	
Target Load	92.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	9.6	MJ/m2/Annum
Av. Cool Load	66.9	MJ/m2/Annum
Av. Total Load	76.4	MJ/m2/Annum
Av. % Heat	12.5%	%
Av. % Cool	87.3%	%
Av. Star Rating	7.0	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	22.0	MJ/m2/y	Cooling Limit	89.0	MJ/m2/y	Total Limit	92.0	MJ/m2/y
			5	Stars		6	Stars	

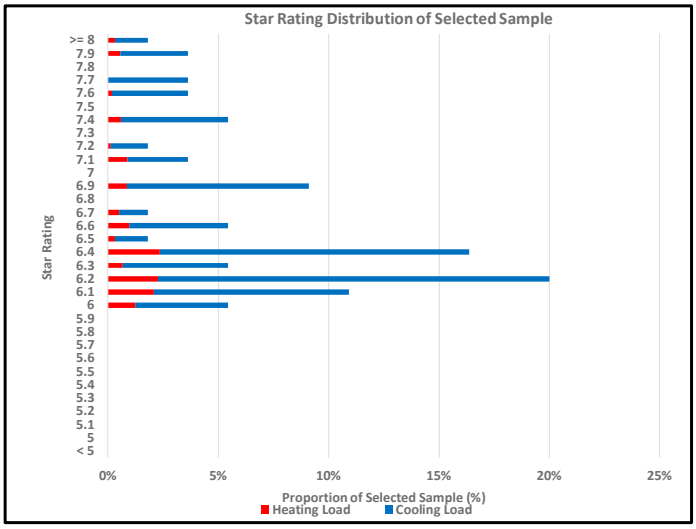
119

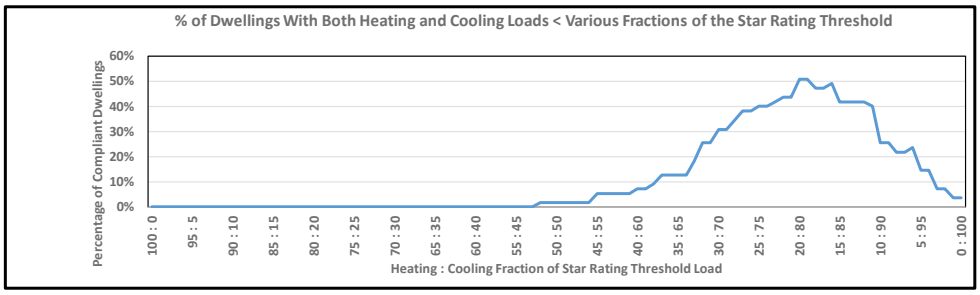
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	36	Gladstone 36
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

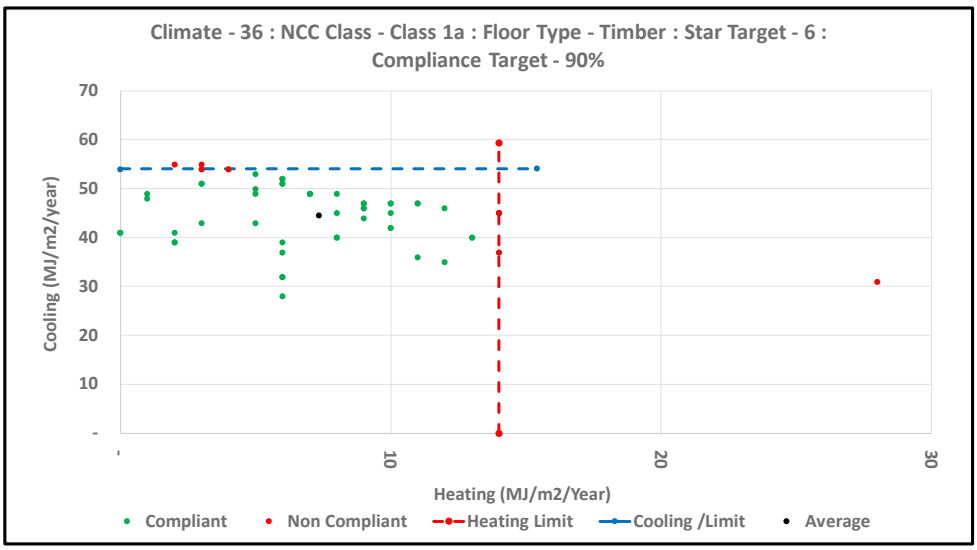
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	55	
Target Load	59.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	7.3	MJ/m2/Annum
Av. Cool Load	44.6	MJ/m2/Annum
Av. Total Load	51.9	MJ/m2/Annum
Av. % Heat	14.1%	%
Av. % Cool	85.7%	%
Av. Star Rating	6.6	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	14.0	MJ/m2/y	Cooling Limit	54.0	MJ/m2/y	Total Limit	59.0	MJ/m2/y
			5.3	Stars			6	Stars

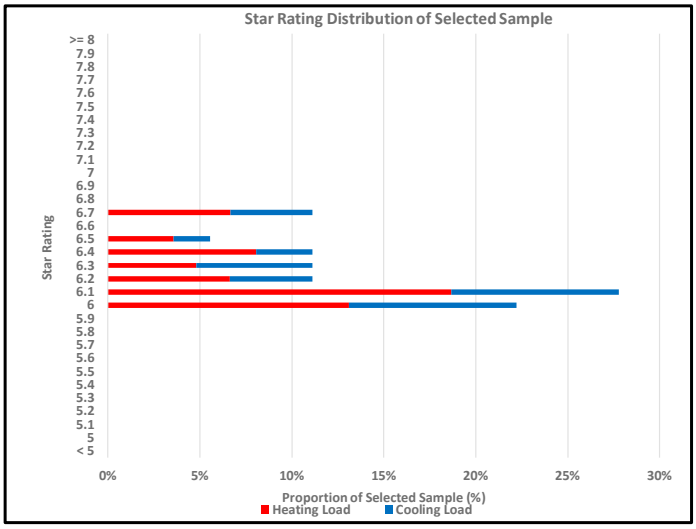
120

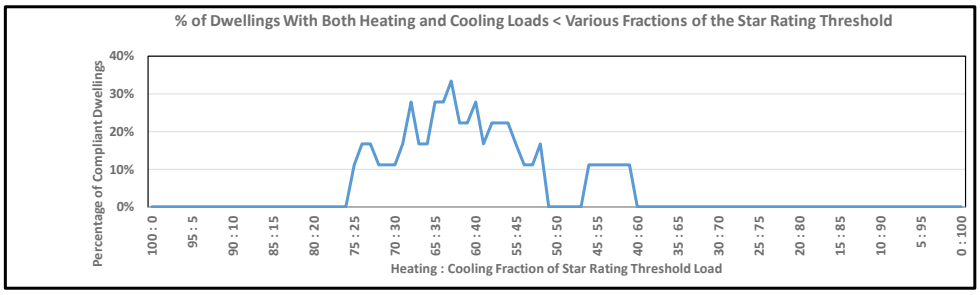
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	47	Bickley 47
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

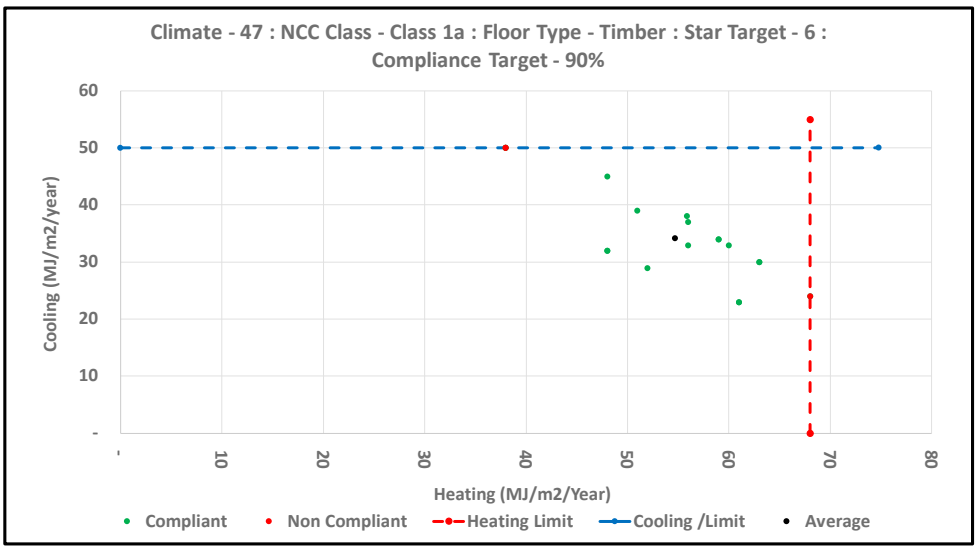
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	18	
Target Load	94.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	54.7	MJ/m2/Annum
Av. Cool Load	34.2	MJ/m2/Annum
Av. Total Load	88.9	MJ/m2/Annum
Av. % Heat	61.6%	%
Av. % Cool	38.5%	%
Av. Star Rating	6.2	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	68.0	MJ/m2/y	Cooling Limit	50.0	MJ/m2/y	Total Limit	94.0	MJ/m2/y
			5.1	Stars			6	Stars

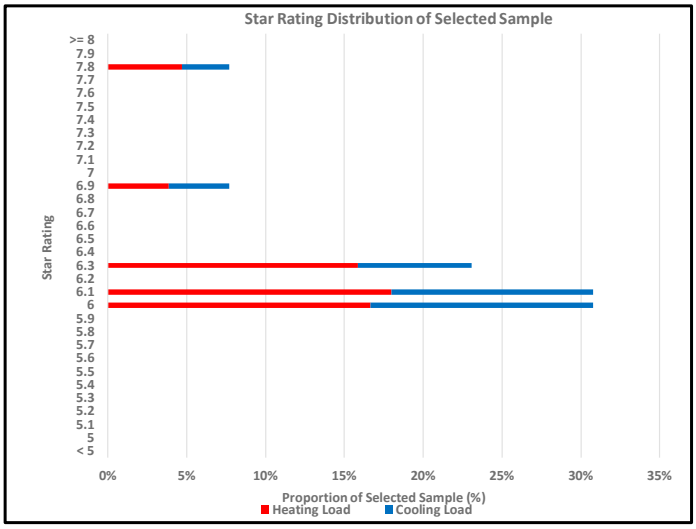
121

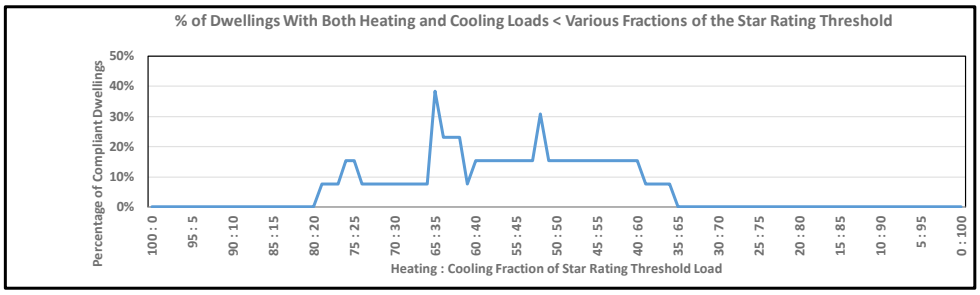
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	50	Oakley 50
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

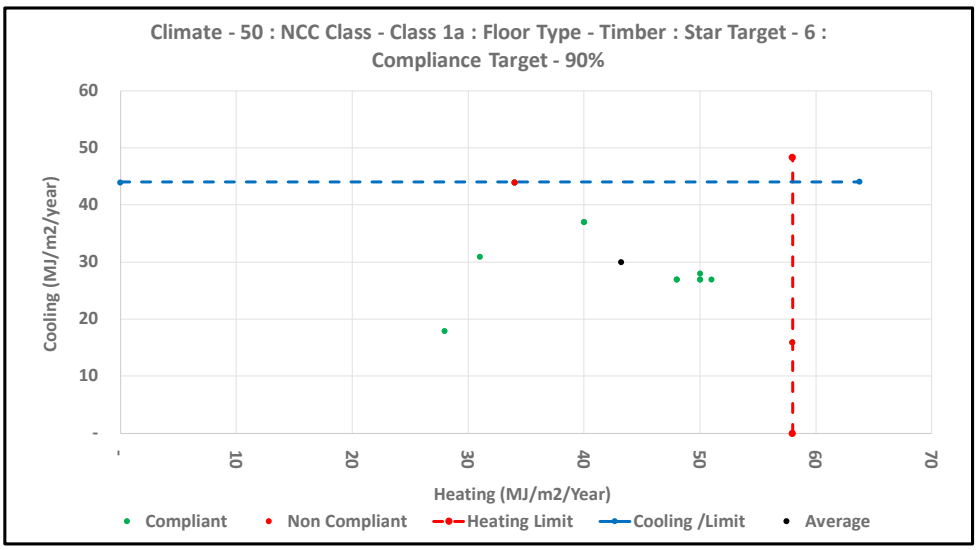
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	13	
Target Load	78.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	43.2	MJ/m2/Annum
Av. Cool Load	30.0	MJ/m2/Annum
Av. Total Load	73.2	MJ/m2/Annum
Av. % Heat	59.2%	%
Av. % Cool	41.1%	%
Av. Star Rating	6.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	58.0	MJ/m2/y	Cooling Limit	44.0	MJ/m2/y	Total Limit	78.0	MJ/m2/y
			4.8	Stars		6	Stars	

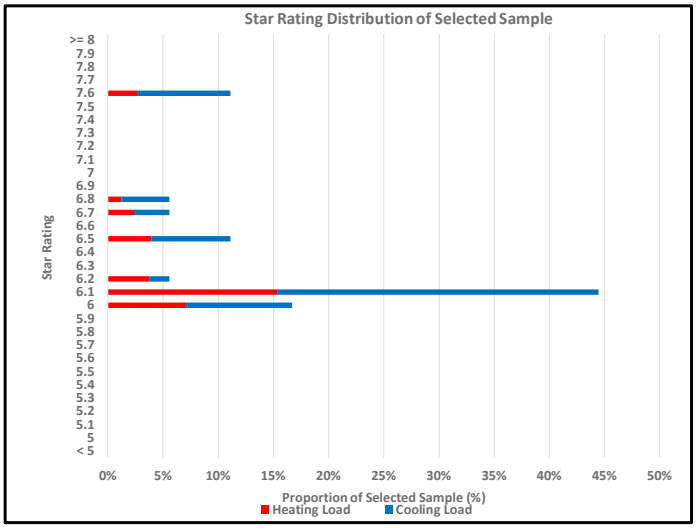
122

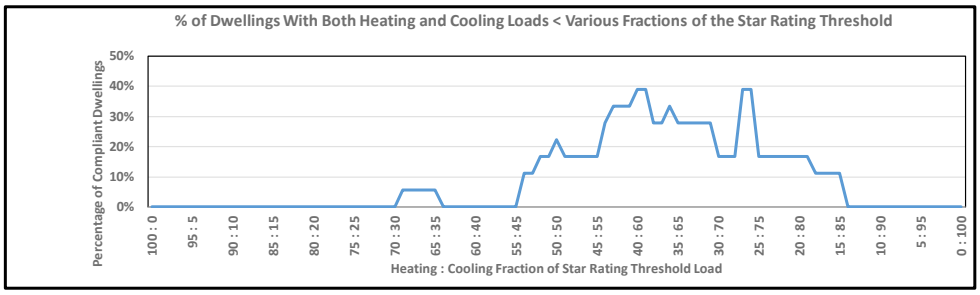
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	54	Mandurah 54
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

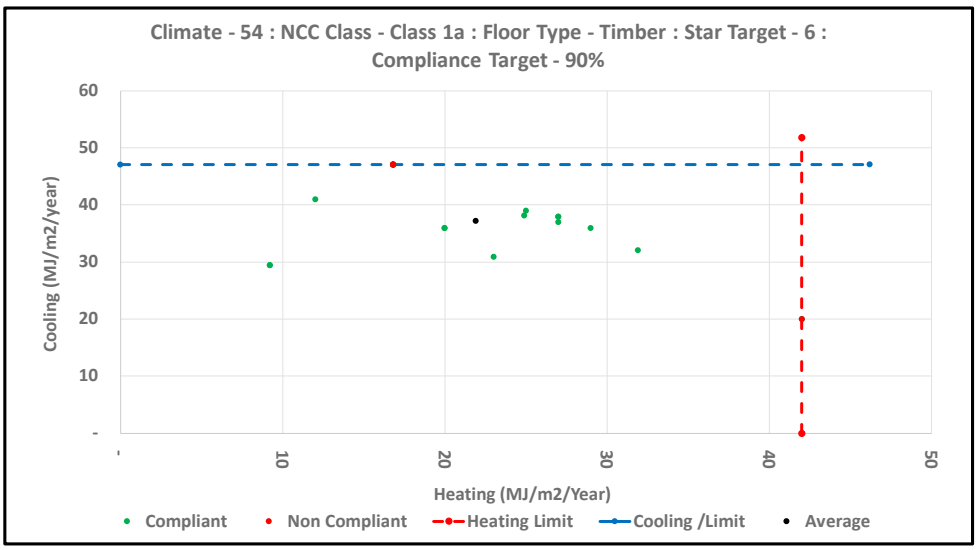
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	18	
Target Load	65.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	21.9	MJ/m2/Annum
Av. Cool Load	37.2	MJ/m2/Annum
Av. Total Load	59.1	MJ/m2/Annum
Av. % Heat	37.0%	%
Av. % Cool	62.8%	%
Av. Star Rating	6.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	42.0	MJ/m2/y	Cooling Limit	47.1	MJ/m2/y	Total Limit	65.0	MJ/m2/y
			4.6	Stars			6	Stars

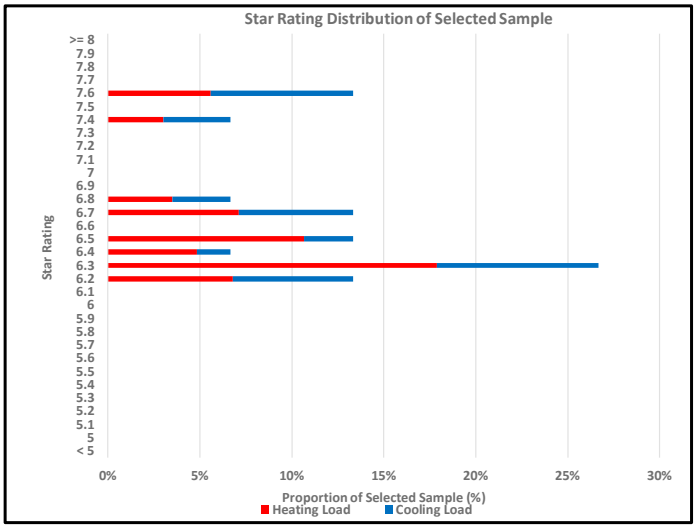
123

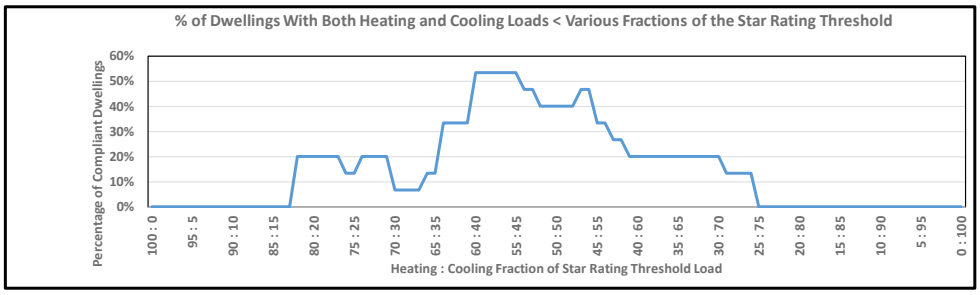
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	56	Mascot 56
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

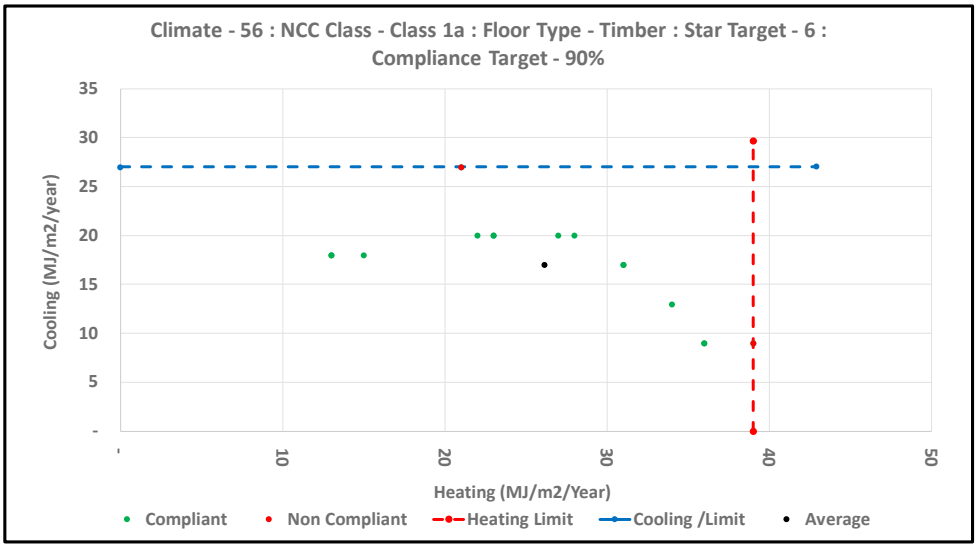
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	15	
Target Load	51.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	26.1	MJ/m2/Annum
Av. Cool Load	17.0	MJ/m2/Annum
Av. Total Load	43.1	MJ/m2/Annum
Av. % Heat	60.1%	%
Av. % Cool	39.1%	%
Av. Star Rating	6.7	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	39.0	MJ/m2/y	Cooling Limit	27.0	MJ/m2/y	Total Limit	51.0	MJ/m2/y
			4.9	Stars			6	Stars

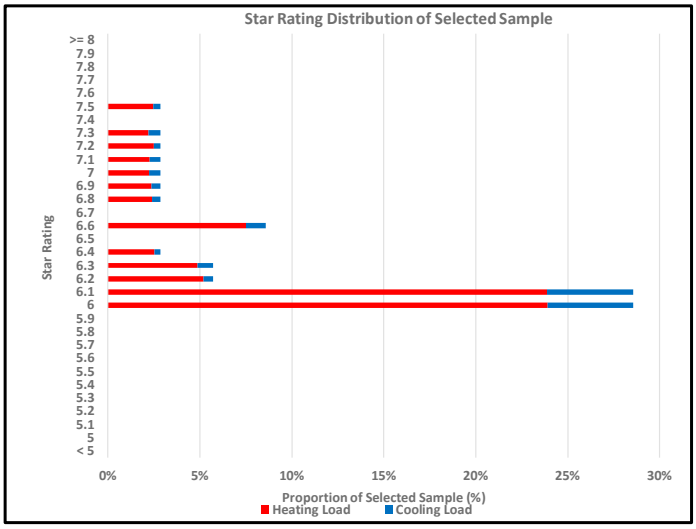
124

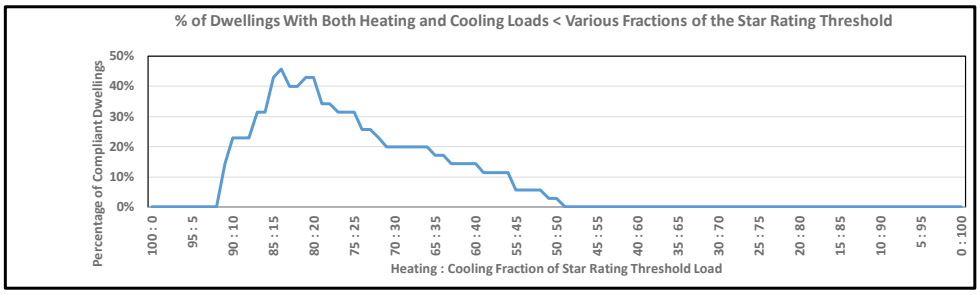
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	58	Albany 58
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

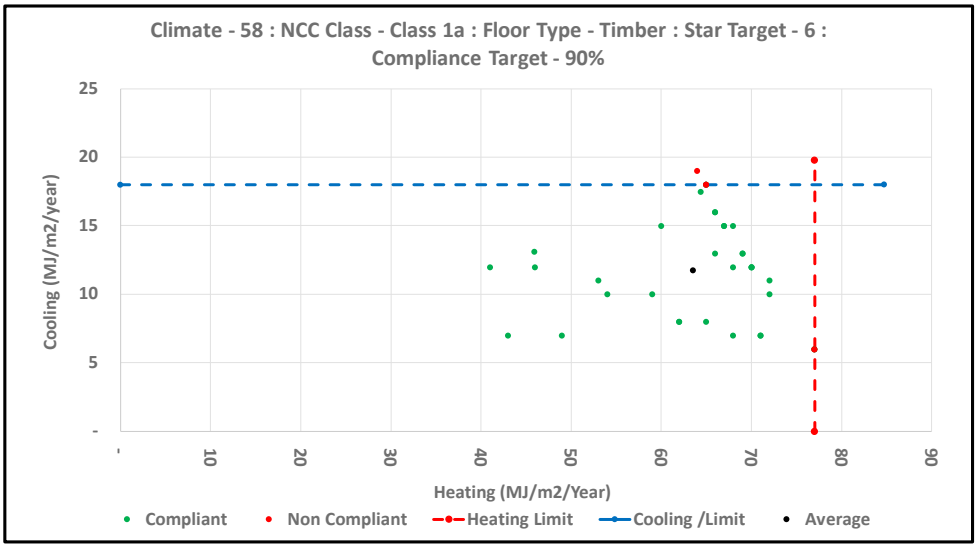
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	35	
Target Load	83.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	63.5	MJ/m2/Annum
Av. Cool Load	11.8	MJ/m2/Annum
Av. Total Load	75.3	MJ/m2/Annum
Av. % Heat	84.2%	%
Av. % Cool	15.6%	%
Av. Star Rating	6.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	77.0	MJ/m2/y	Cooling Limit	18.0	MJ/m2/y	Total Limit	83.0	MJ/m2/y
			5.4	Stars		6	Stars	

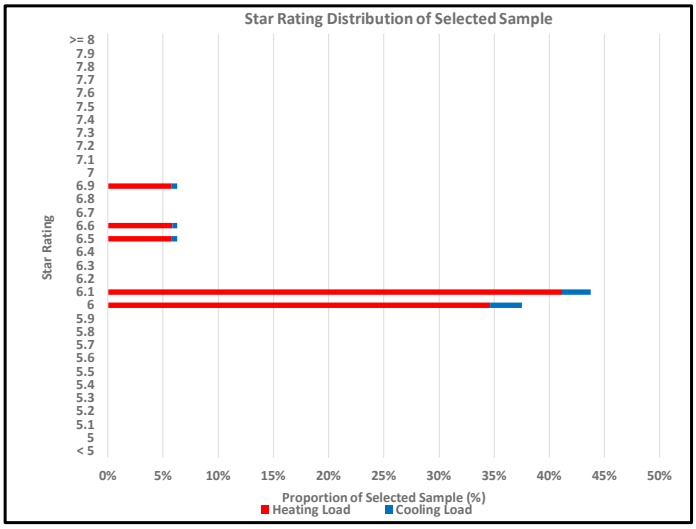
125

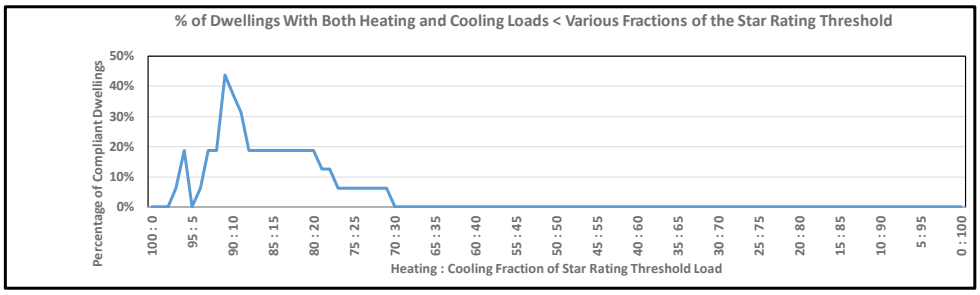
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	SA	
Climate Zone	59	Mt Lofty 59
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

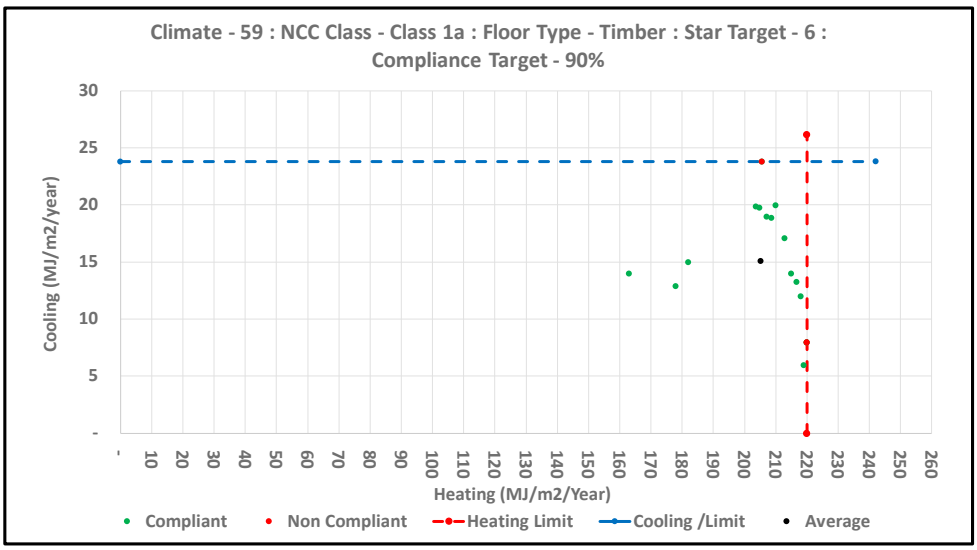
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	16	
Target Load	230.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	205.3	MJ/m2/Annum
Av. Cool Load	15.1	MJ/m2/Annum
Av. Total Load	220.4	MJ/m2/Annum
Av. % Heat	93.2%	%
Av. % Cool	6.9%	%
Av. Star Rating	6.2	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	220.0	MJ/m2/y	Cooling Limit	23.8	MJ/m2/y	Total Limit	230.0	MJ/m2/y
			5.7	Stars			6	Stars

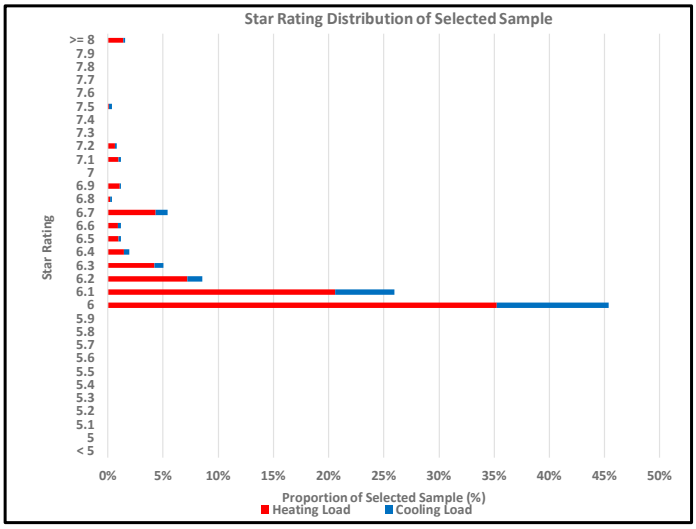
126

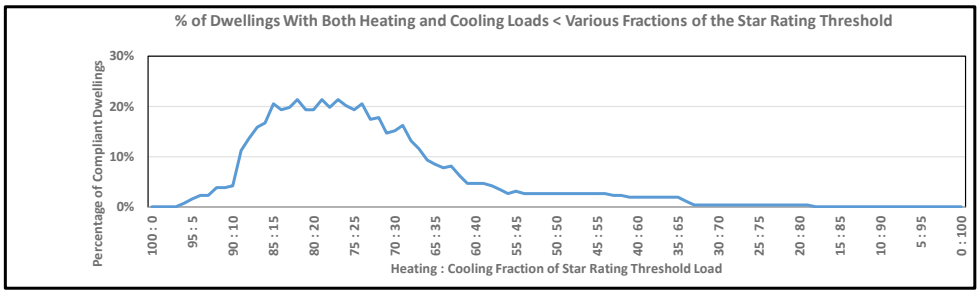
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	60	Tullamarine 60
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

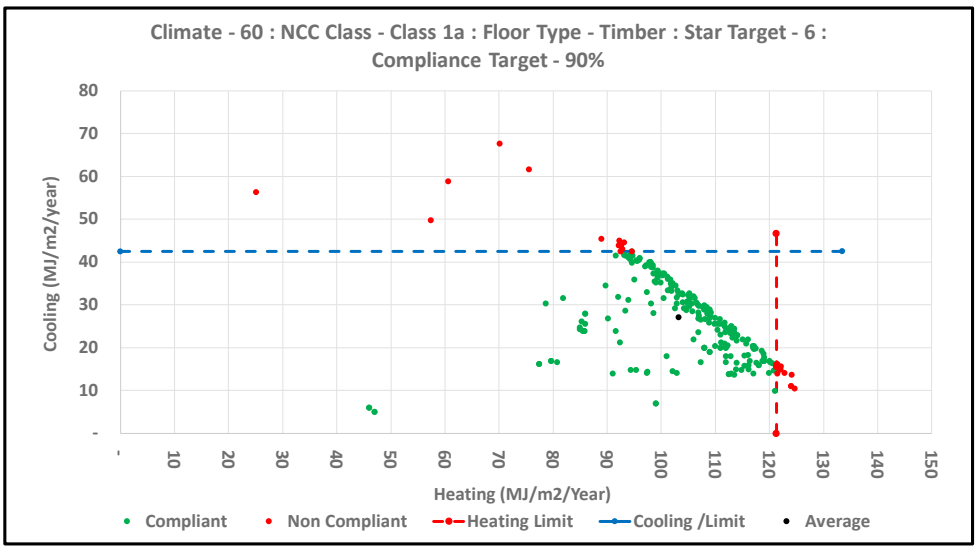
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	258	
Target Load	138.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	103.3	MJ/m2/Annum
Av. Cool Load	27.2	MJ/m2/Annum
Av. Total Load	130.4	MJ/m2/Annum
Av. % Heat	79.1%	%
Av. % Cool	20.8%	%
Av. Star Rating	6.2	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	121.3	MJ/m2/y	Cooling Limit	42.5	MJ/m2/y	Total Limit	138.0	MJ/m2/y
			5.3	Stars			6	Stars

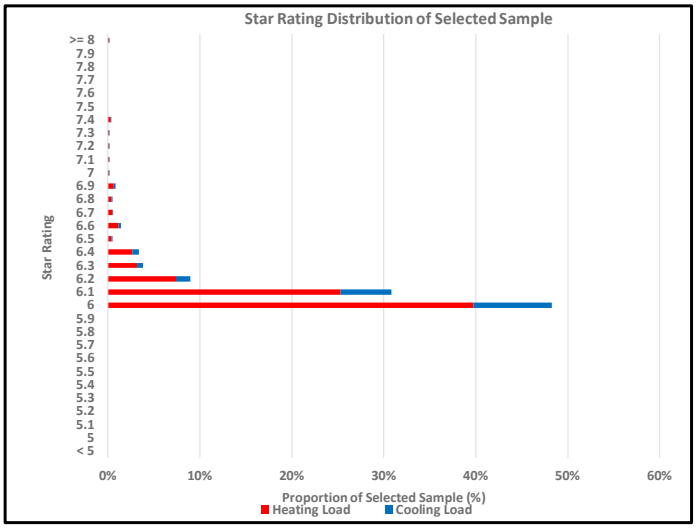
127

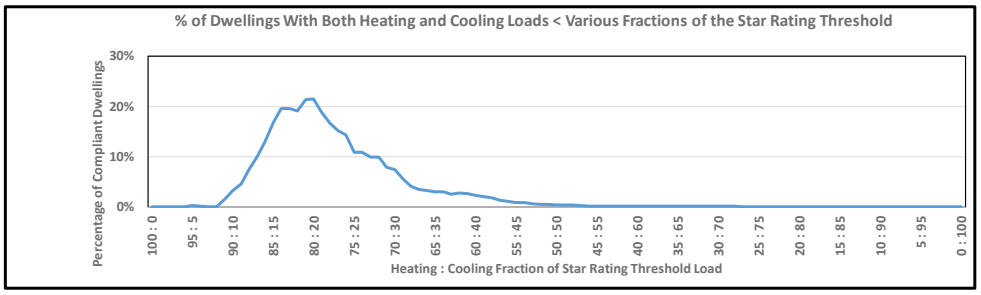
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	62	Moorabbin 62
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

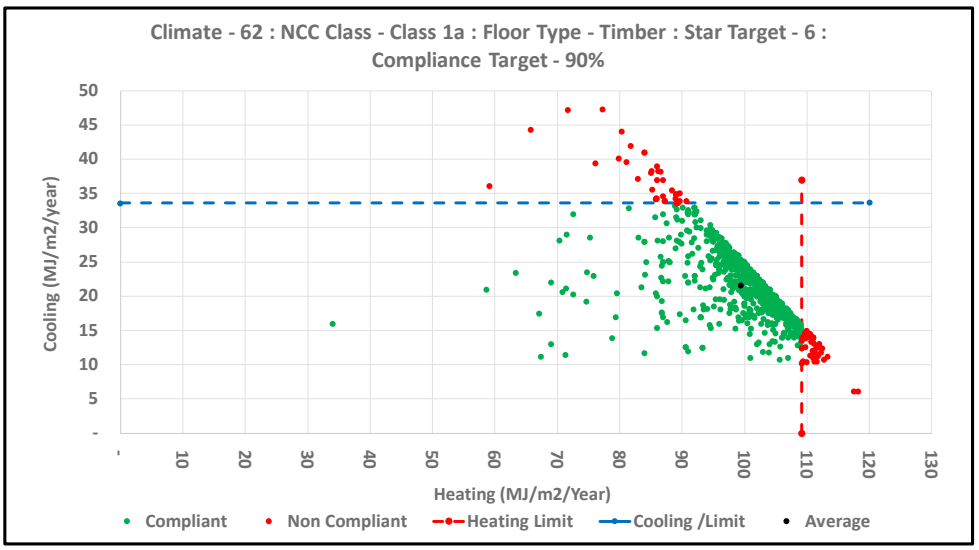
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	837	
Target Load	125.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	99.4	MJ/m2/Annum
Av. Cool Load	21.6	MJ/m2/Annum
Av. Total Load	121.0	MJ/m2/Annum
Av. % Heat	82.1%	%
Av. % Cool	17.9%	%
Av. Star Rating	6.1	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	109.2	MJ/m2/y	Cooling Limit	33.6	MJ/m2/y	Total Limit	125.0	MJ/m2/y
			5.5	Stars			6	Stars

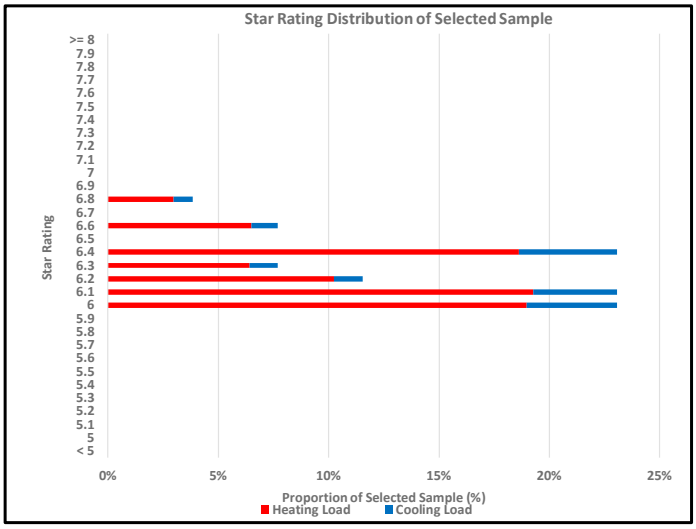
128

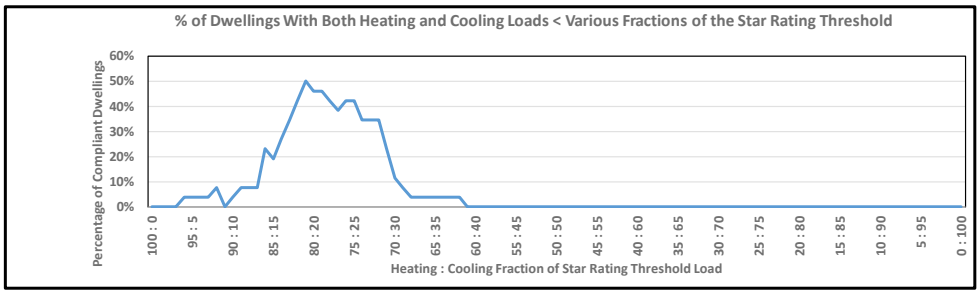
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	63	Warrnambool 63
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

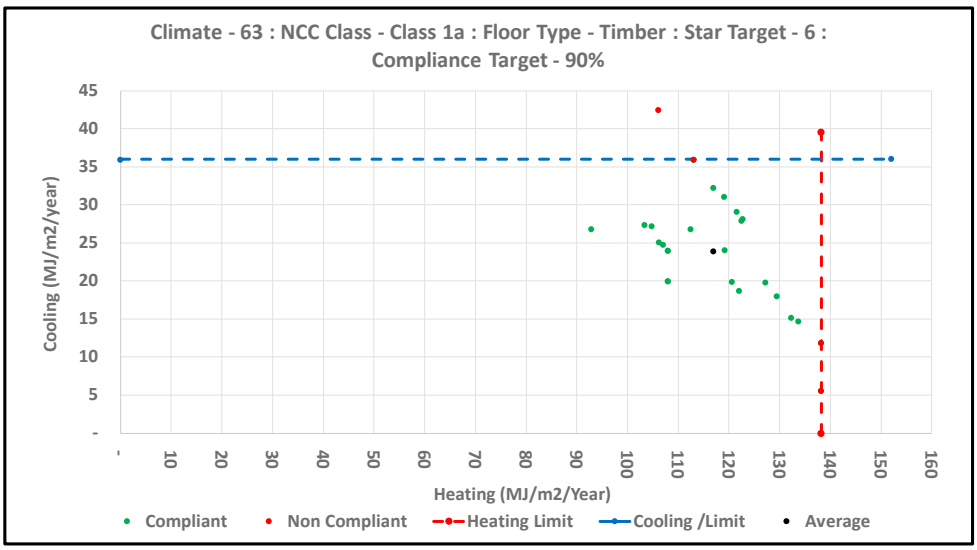
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	26	
Target Load	151.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	117.0	MJ/m2/Annum
Av. Cool Load	23.9	MJ/m2/Annum
Av. Total Load	140.9	MJ/m2/Annum
Av. % Heat	83.1%	%
Av. % Cool	17.0%	%
Av. Star Rating	6.2	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	138.2	MJ/m2/y	Cooling Limit	36.0	MJ/m2/y	Total Limit	151.0	MJ/m2/y
			5.4	Stars		6	Stars	

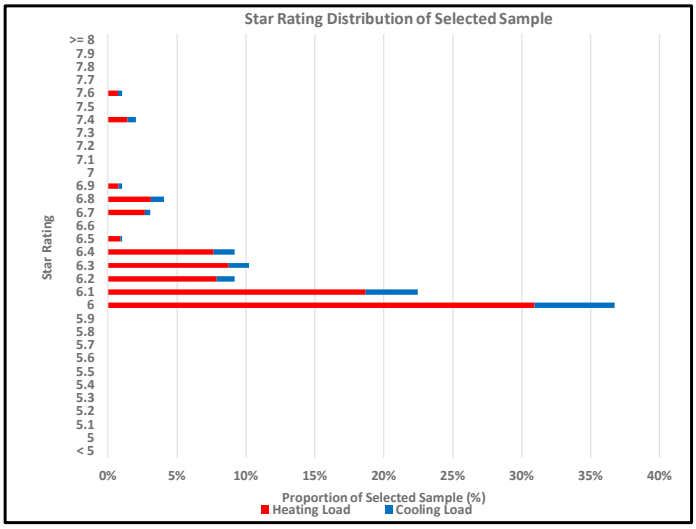
129

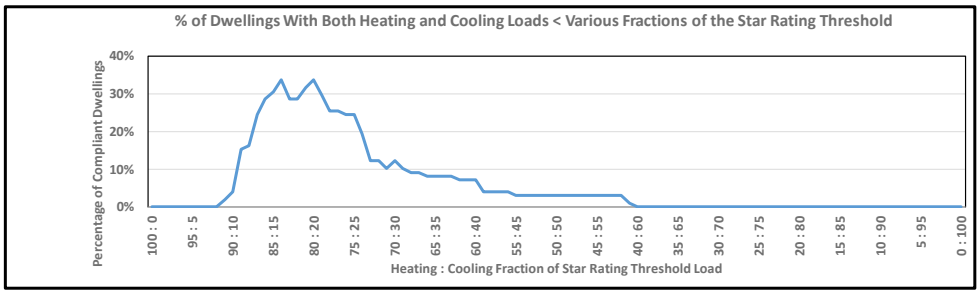
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	64	Cape Otway 64
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

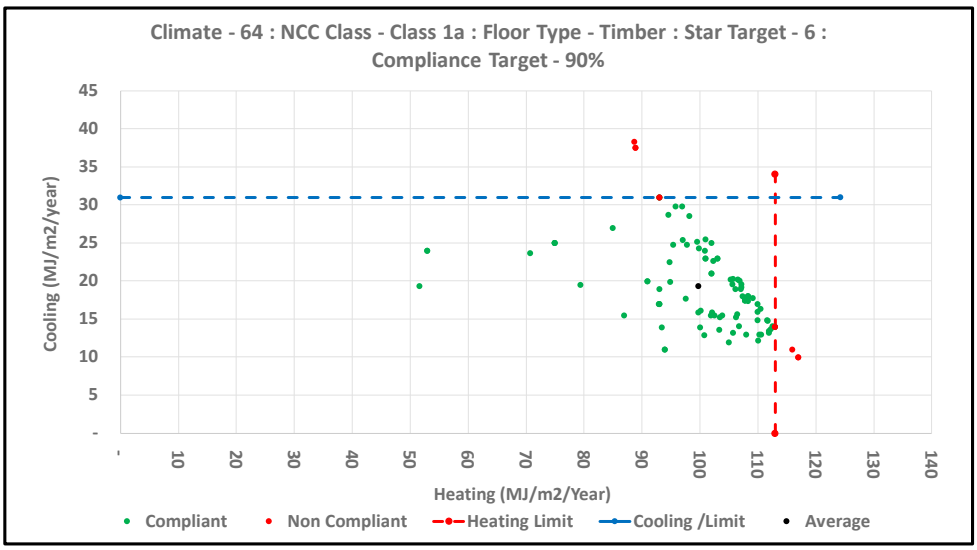
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	98	
Target Load	127.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	99.8	MJ/m2/Annum
Av. Cool Load	19.4	MJ/m2/Annum
Av. Total Load	119.2	MJ/m2/Annum
Av. % Heat	83.8%	%
Av. % Cool	16.3%	%
Av. Star Rating	6.2	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	113.0	MJ/m2/y	Cooling Limit	31.0	MJ/m2/y	Total Limit	127.0	MJ/m2/y
			5.5	Stars		6	Stars	

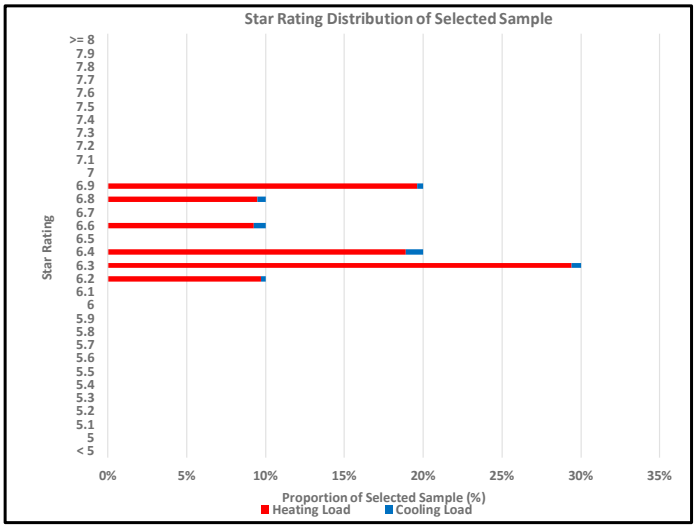
130

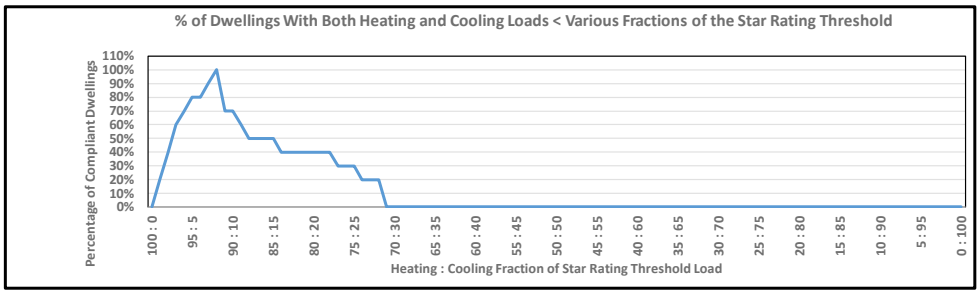
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	65	Orange 65
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

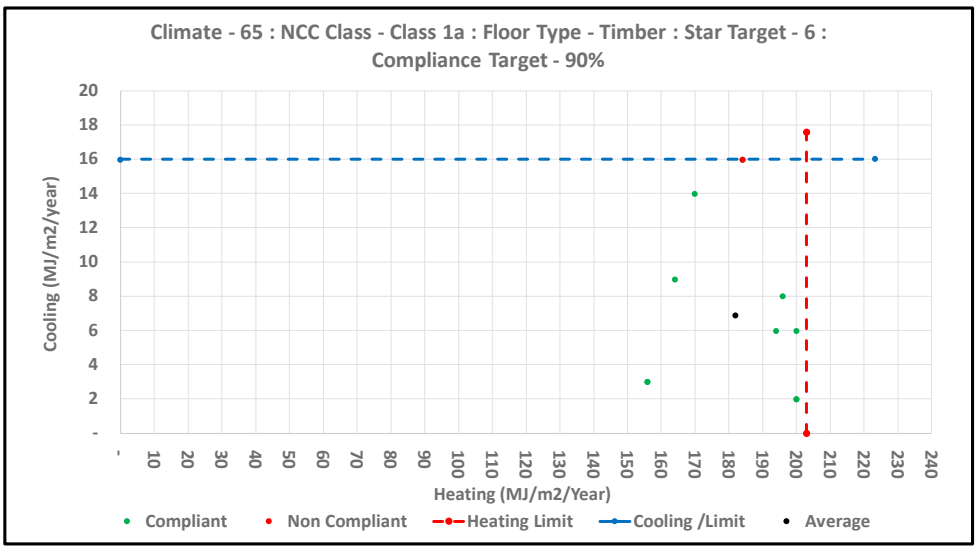
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	10	
Target Load	219.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	182.0	MJ/m2/Annum
Av. Cool Load	6.9	MJ/m2/Annum
Av. Total Load	188.9	MJ/m2/Annum
Av. % Heat	96.2%	%
Av. % Cool	3.6%	%
Av. Star Rating	6.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	203.0	MJ/m2/y	Cooling Limit	16.0	MJ/m2/y	Total Limit	219.0	MJ/m2/y
			5.9	Stars			6	Stars

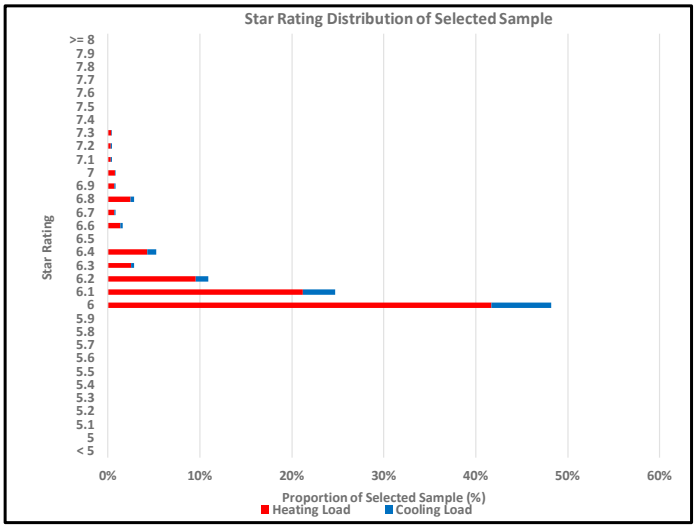
131

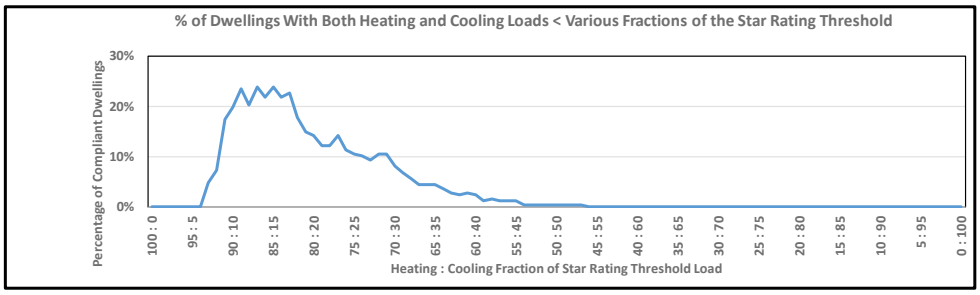
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	66	Ballarat 66
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

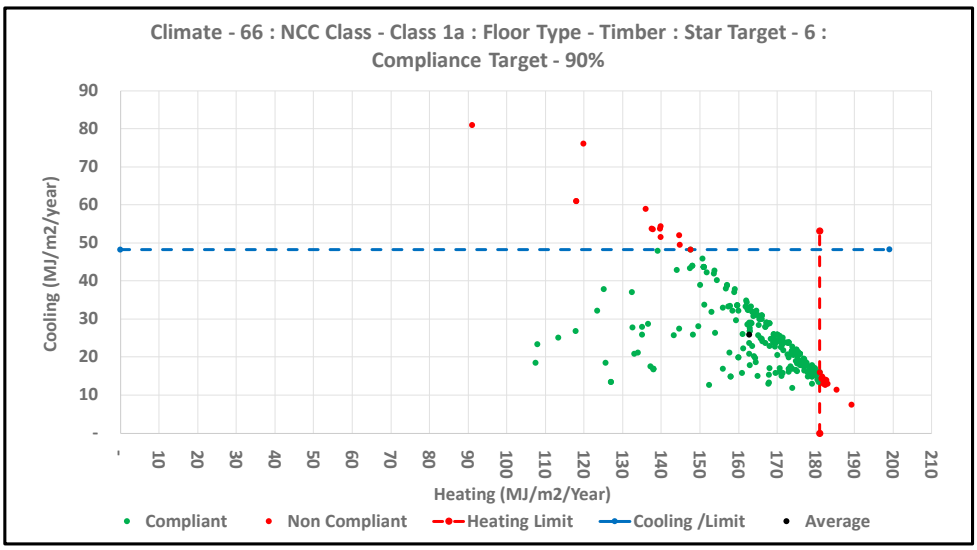
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	247	
Target Load	197.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	162.8	MJ/m2/Annum
Av. Cool Load	26.0	MJ/m2/Annum
Av. Total Load	188.9	MJ/m2/Annum
Av. % Heat	86.2%	%
Av. % Cool	13.8%	%
Av. Star Rating	6.1	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	181.0	MJ/m2/y	Cooling Limit	48.3	MJ/m2/y	Total Limit	197.0	MJ/m2/y
			5.4	Stars			6	Stars

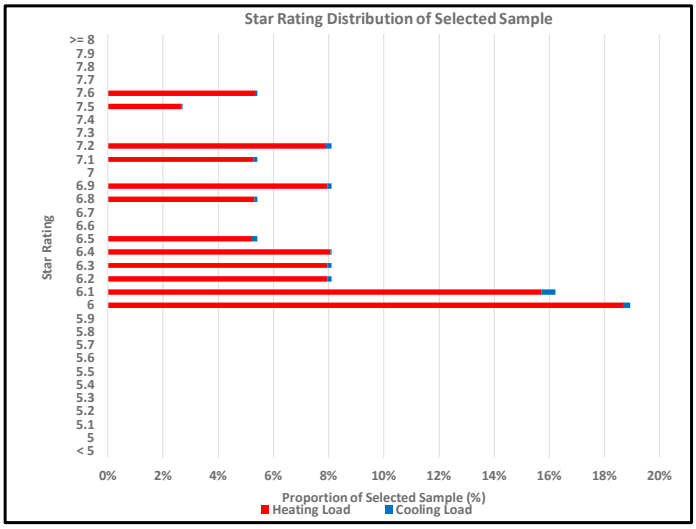
132

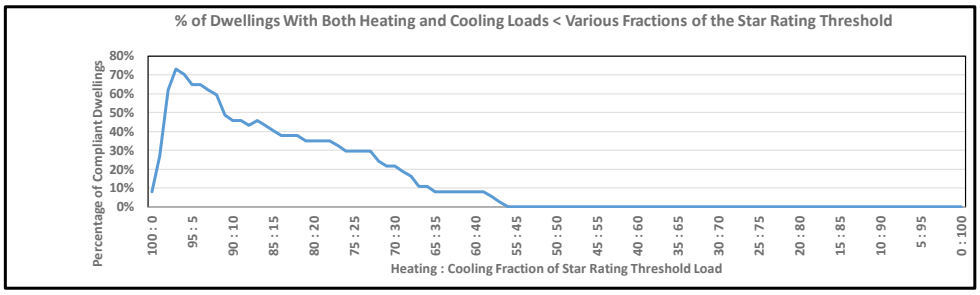
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	TAS	
Climate Zone	67	Low Head 67
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

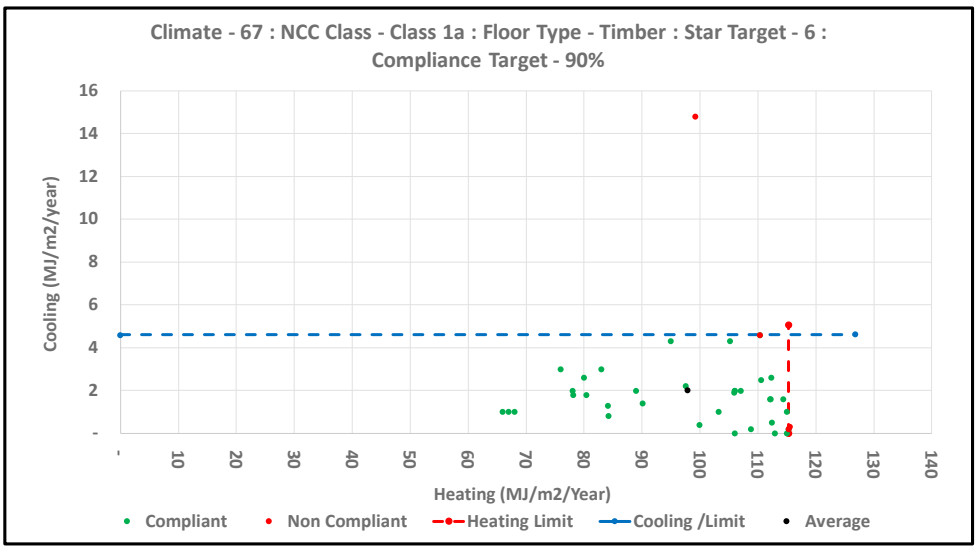
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	37	
Target Load	116.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	97.9	MJ/m2/Annum
Av. Cool Load	2.0	MJ/m2/Annum
Av. Total Load	99.9	MJ/m2/Annum
Av. % Heat	98.0%	%
Av. % Cool	2.0%	%
Av. Star Rating	6.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	115.3	MJ/m2/y	Cooling Limit	4.6	MJ/m2/y	Total Limit	116.0	MJ/m2/y
			5.8	Stars			6	Stars

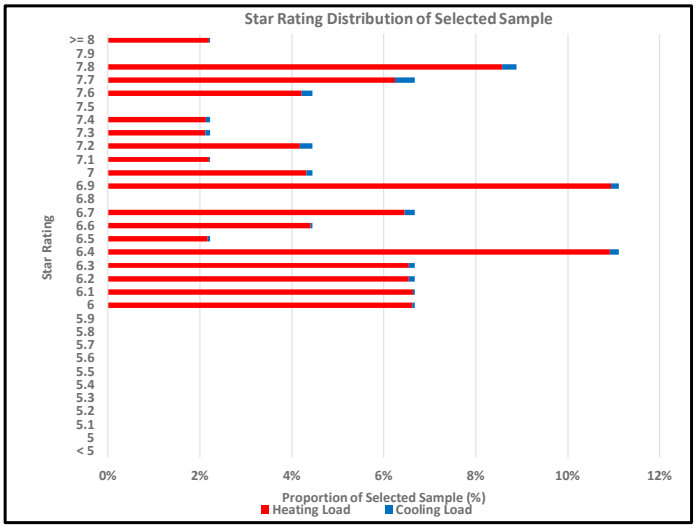
133

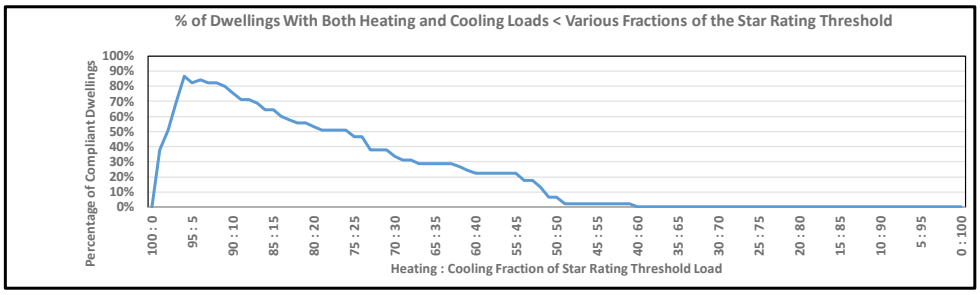
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	TAS	
Climate Zone	68	Launceston air68
NCC Class	Class 1a	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

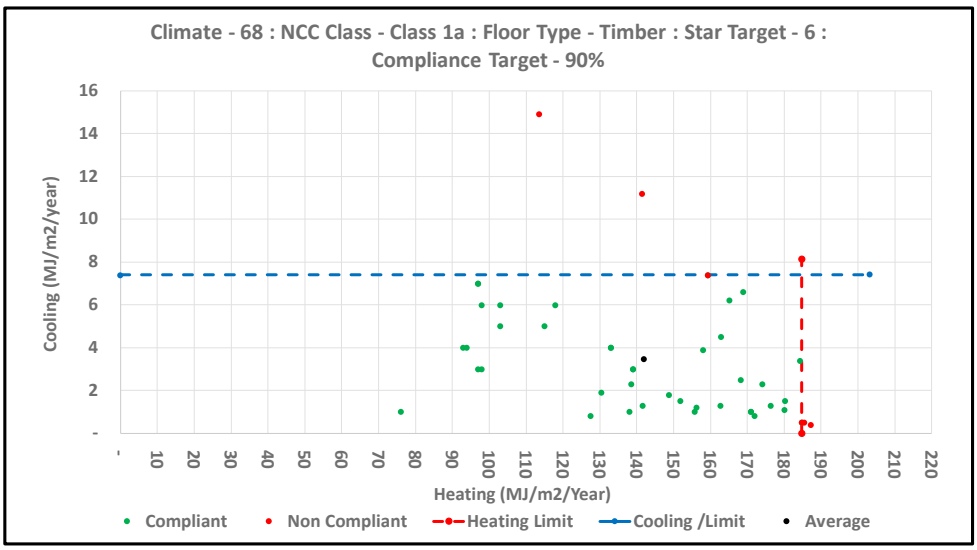
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	45	
Target Load	188.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	142.0	MJ/m2/Annum
Av. Cool Load	3.5	MJ/m2/Annum
Av. Total Load	145.4	MJ/m2/Annum
Av. % Heat	97.6%	%
Av. % Cool	2.4%	%
Av. Star Rating	6.8	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	184.8	MJ/m2/y	Cooling Limit	7.4	MJ/m2/y	Total Limit	188.0	MJ/m2/y
			5.9	Stars			6	Stars

134

Class 2 Dwellings

Concrete Floor

Average 6 Star Standard

And

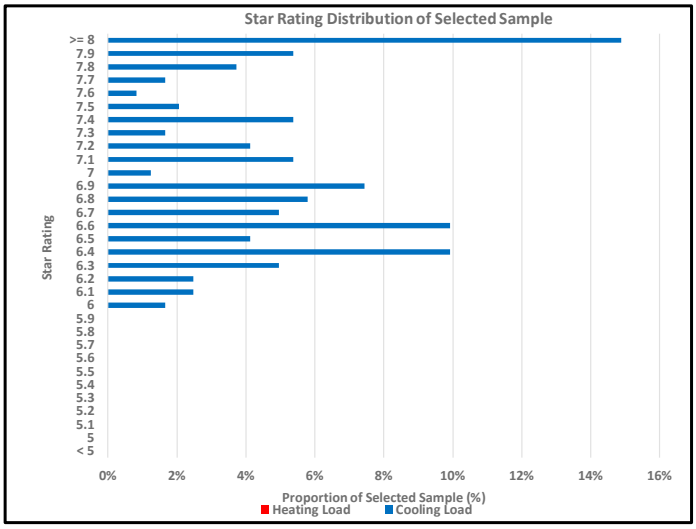
Minimum 5 Star Standard

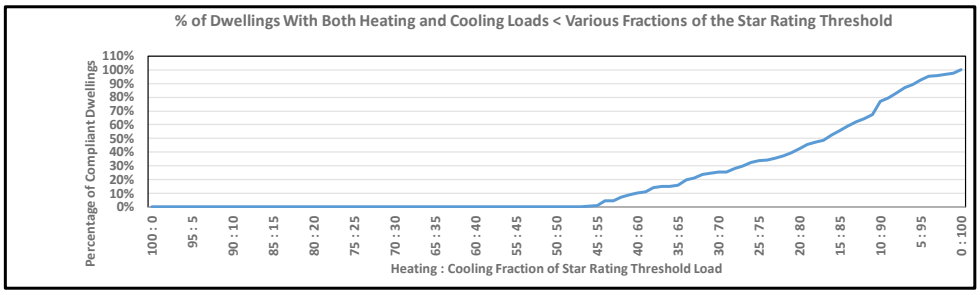
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NT	
Climate Zone	1	Darwin 1
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

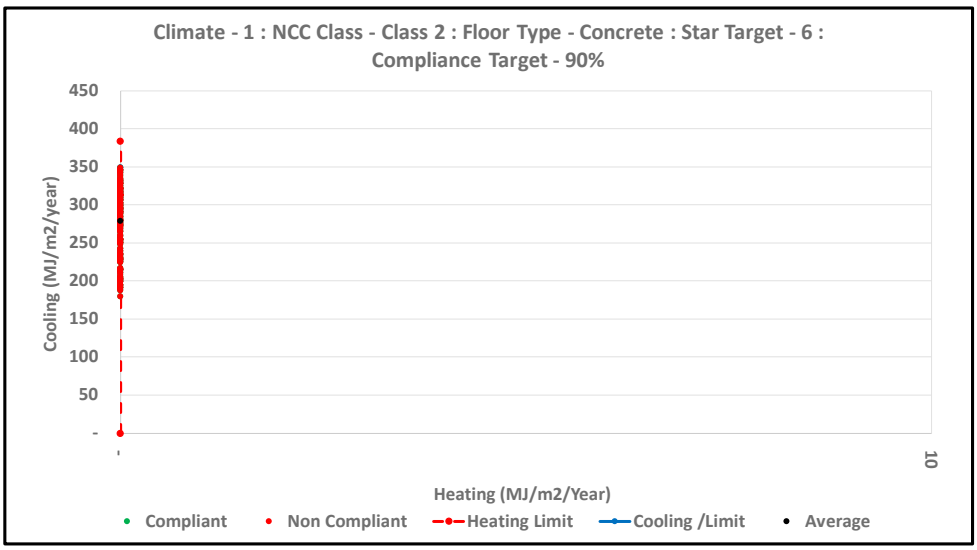
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	242	
Target Load	349.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	0.0	MJ/m2/Annum
Av. Cool Load	279.0	MJ/m2/Annum
Av. Total Load	279.0	MJ/m2/Annum
Av. % Heat	0.0%	%
Av. % Cool	100.0%	%
Av. Star Rating	7.1	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	0.0	MJ/m2/y	Cooling Limit	349.0	MJ/m2/y	Total Limit	349.0	MJ/m2/y
			5.9	Stars		6	Stars	

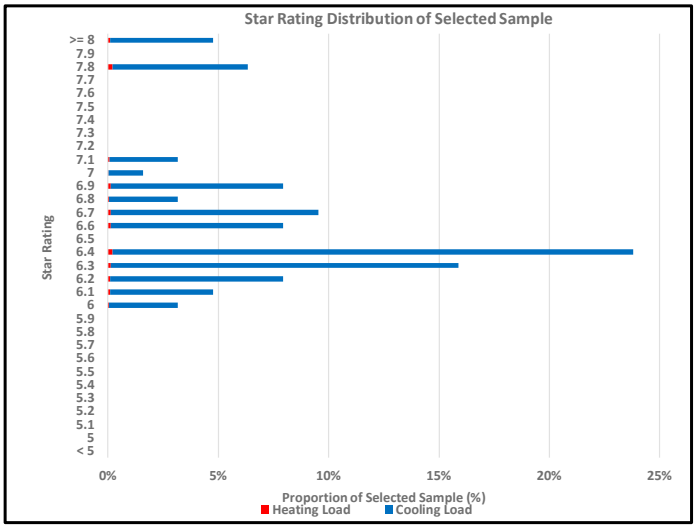
161

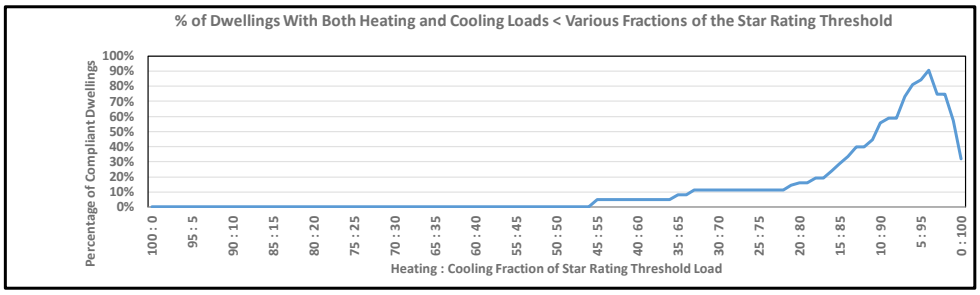
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	5	Townsville 5
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

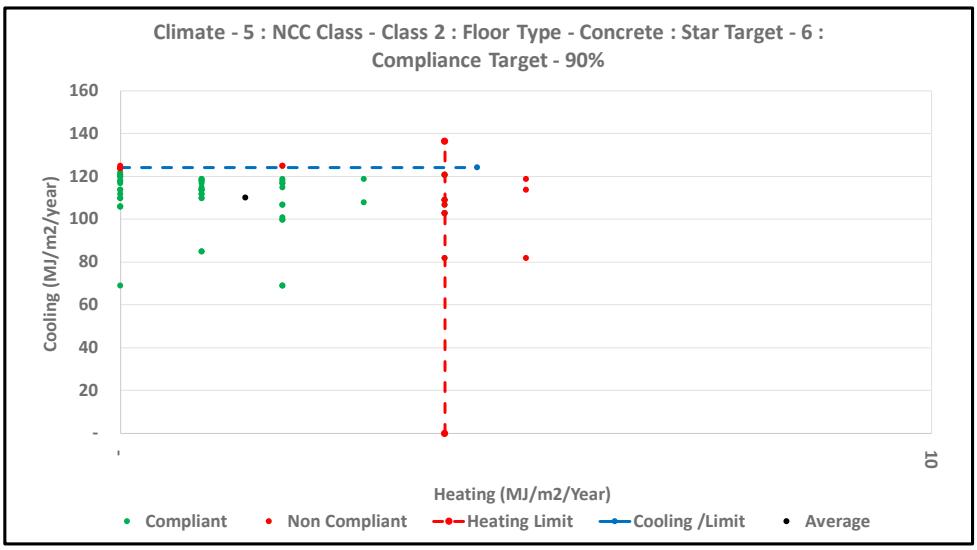
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	63	
Target Load	127.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	1.5	MJ/m2/Annum
Av. Cool Load	110.1	MJ/m2/Annum
Av. Total Load	111.7	MJ/m2/Annum
Av. % Heat	1.4%	%
Av. % Cool	98.7%	%
Av. Star Rating	6.7	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	4.0	MJ/m2/y	Cooling Limit	124.0	MJ/m2/y	Total Limit	127.0	MJ/m2/y
			5.9	Stars			6	Stars

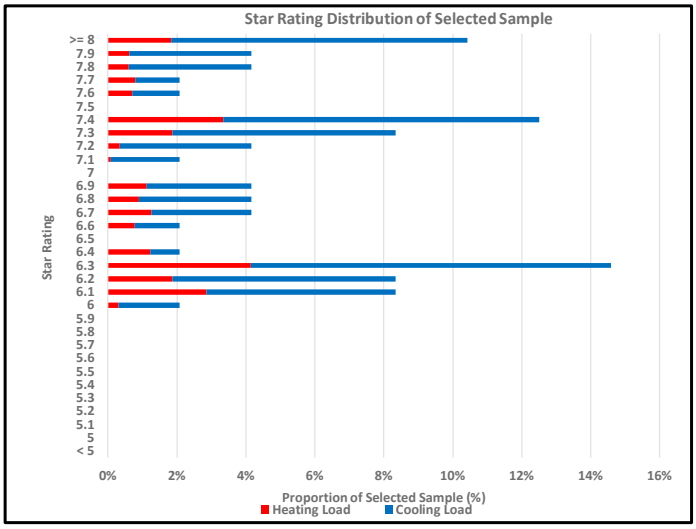
162

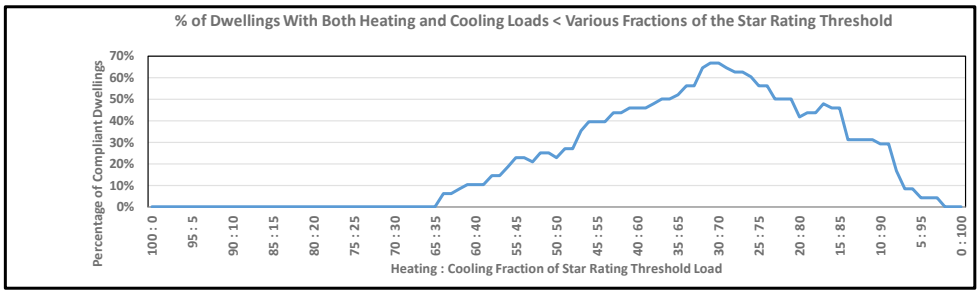
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	9	Amberley 9
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

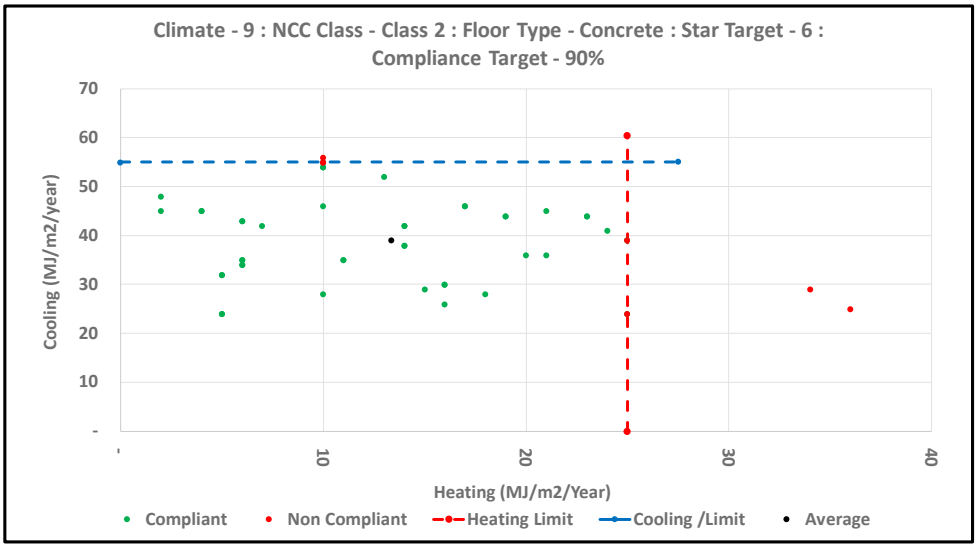
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	48	
Target Load	67.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	13.4	MJ/m2/Annum
Av. Cool Load	39.1	MJ/m2/Annum
Av. Total Load	52.5	MJ/m2/Annum
Av. % Heat	25.5%	%
Av. % Cool	74.5%	%
Av. Star Rating	7.0	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	25.0	MJ/m2/y	Cooling Limit	55.0	MJ/m2/y	Total Limit	67.0	MJ/m2/y
			5.2	Stars			6	Stars

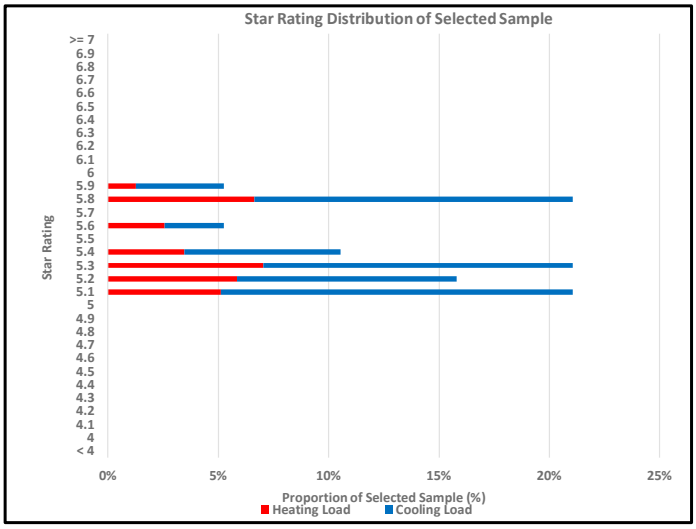
163

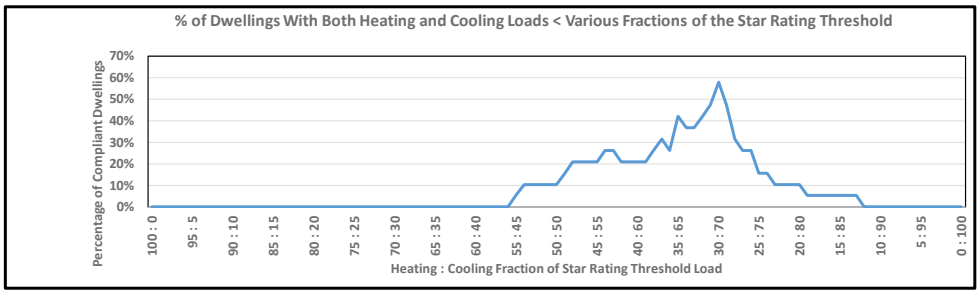
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	9	Amberley 9
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

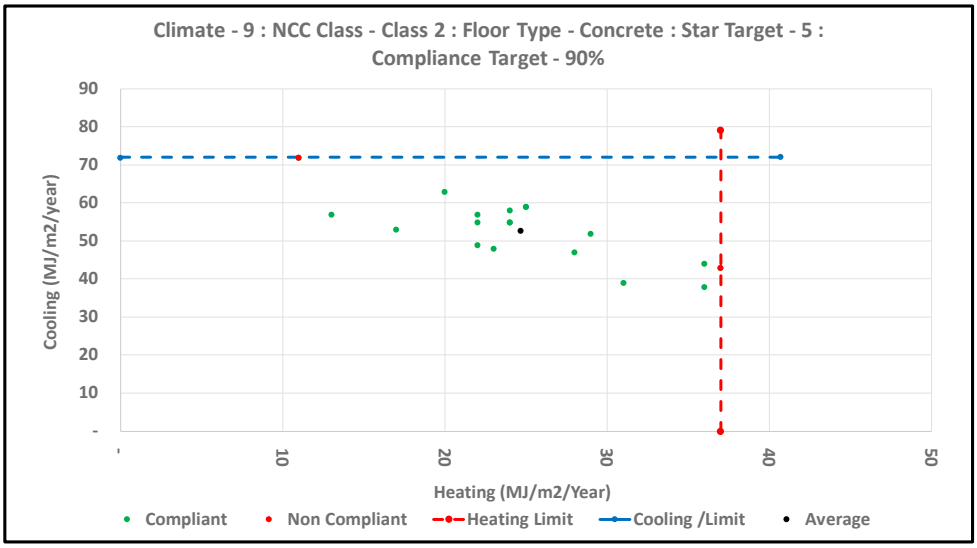
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	19	
Target Load	85.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	24.7	MJ/m2/Annum
Av. Cool Load	52.8	MJ/m2/Annum
Av. Total Load	77.5	MJ/m2/Annum
Av. % Heat	31.7%	%
Av. % Cool	67.9%	%
Av. Star Rating	5.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	37.0	MJ/m2/y	Cooling Limit	72.0	MJ/m2/y	Total Limit	85.0	MJ/m2/y
			4.1	Stars			5	Stars

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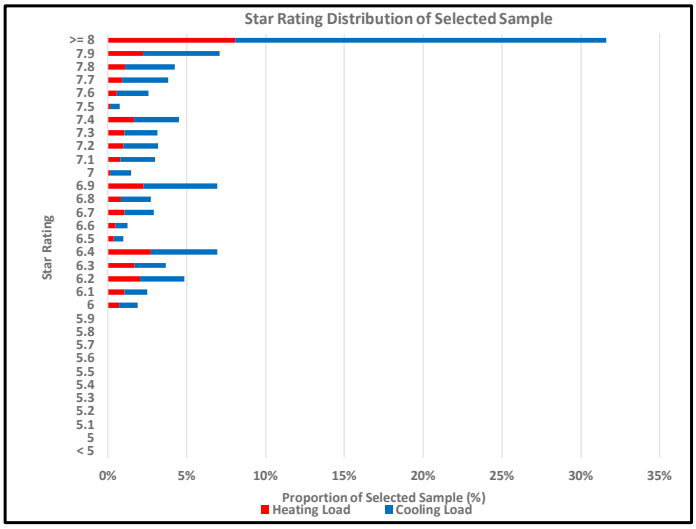
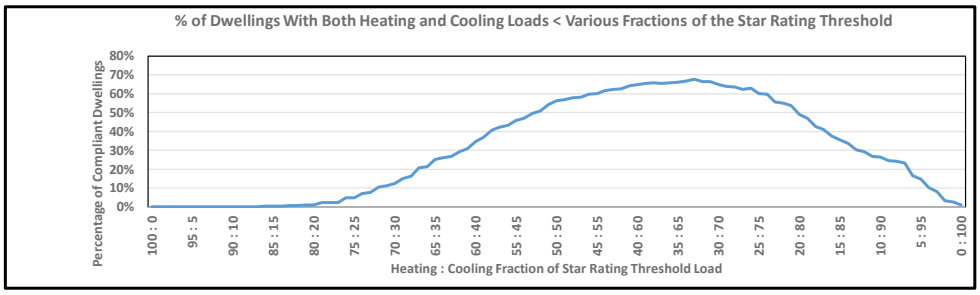
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	10	Brisbane 10
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

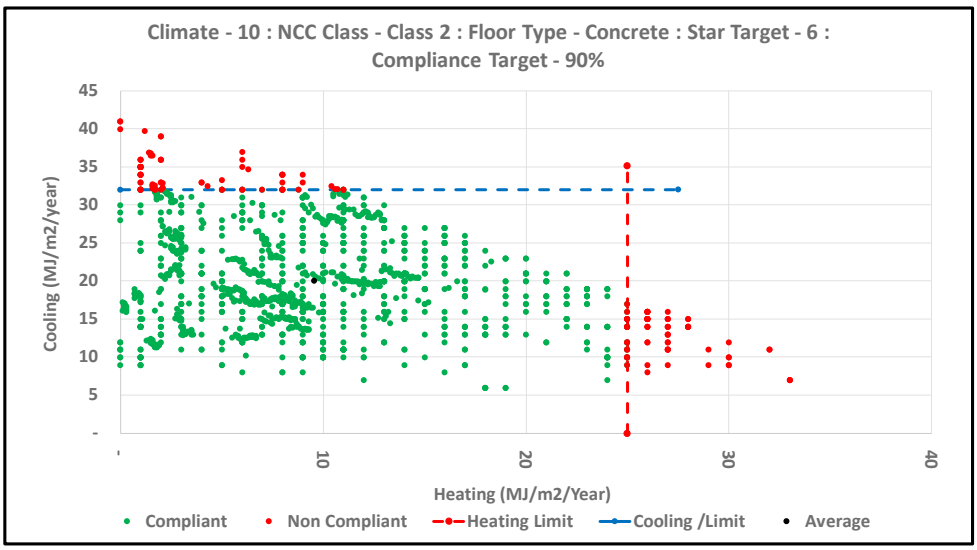
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	1440	
Target Load	43.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	9.6	MJ/m2/Annum
Av. Cool Load	20.1	MJ/m2/Annum
Av. Total Load	29.6	MJ/m2/Annum
Av. % Heat	32.3%	%
Av. % Cool	67.8%	%
Av. Star Rating	7.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	25.0	MJ/m2/y	Cooling Limit	32.0	MJ/m2/y	Total Limit	43.0	MJ/m2/y
			4.8	Stars			6	Stars

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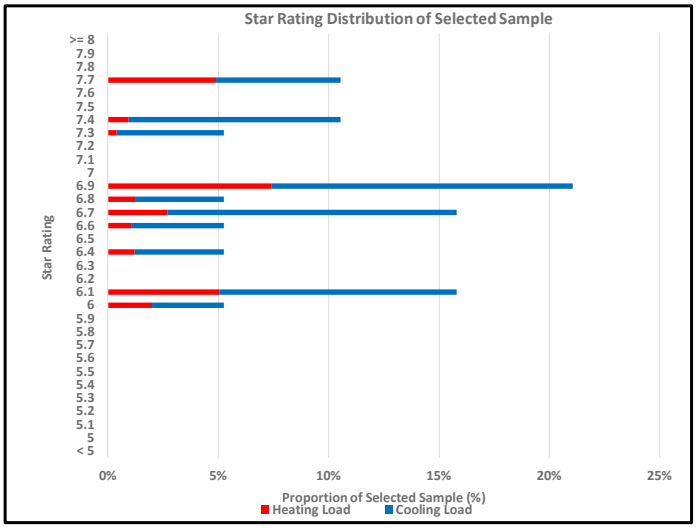
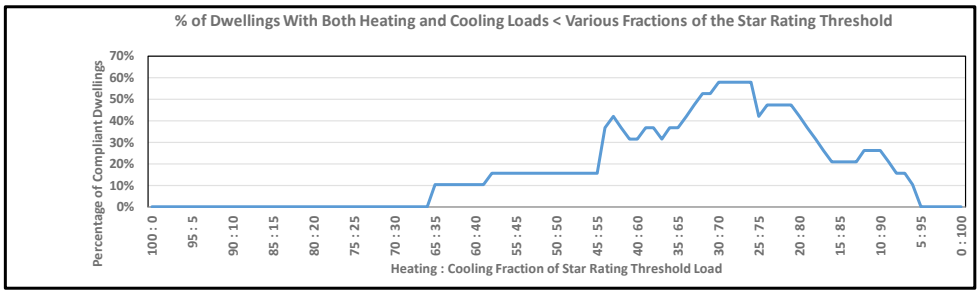
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	10	Brisbane 10
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

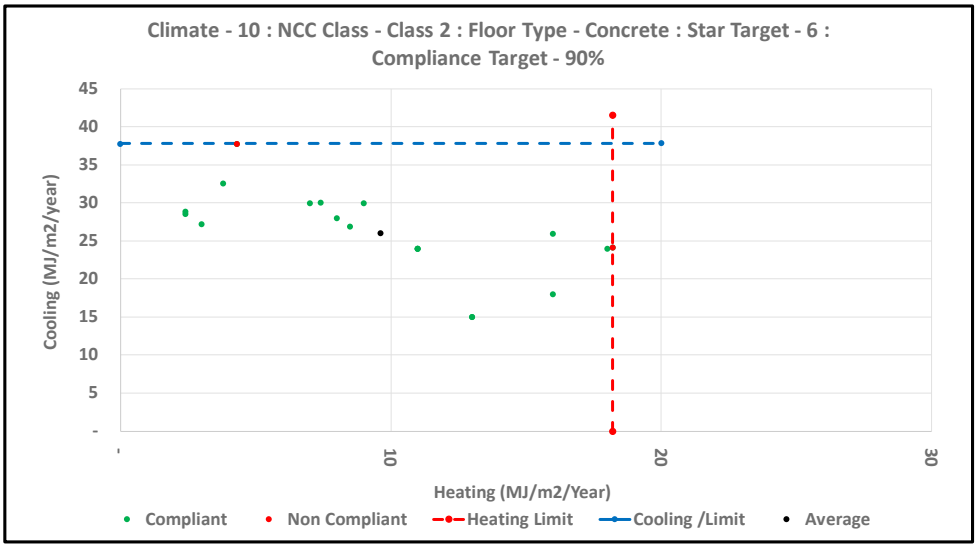
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	19	
Target Load	43.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	9.6	MJ/m2/Annum
Av. Cool Load	26.0	MJ/m2/Annum
Av. Total Load	35.6	MJ/m2/Annum
Av. % Heat	26.9%	%
Av. % Cool	72.7%	%
Av. Star Rating	6.8	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	18.2	MJ/m2/y	Cooling Limit	37.8	MJ/m2/y	Total Limit	43.0	MJ/m2/y
			4.8	Stars			6	Stars

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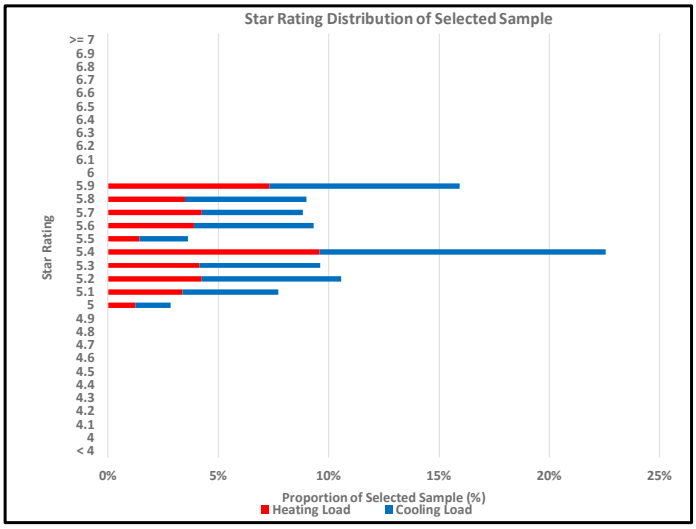
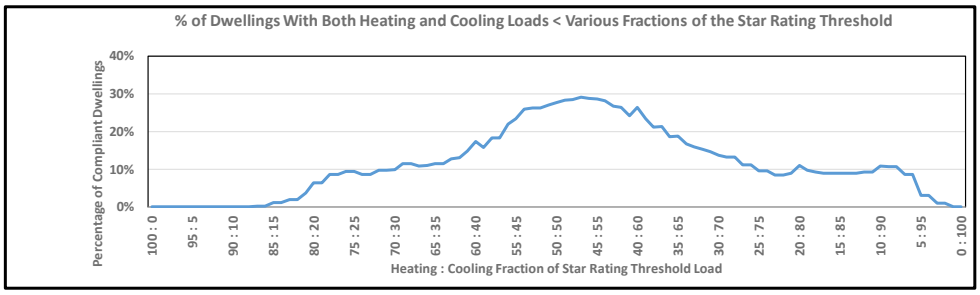
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	10	Brisbane 10
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

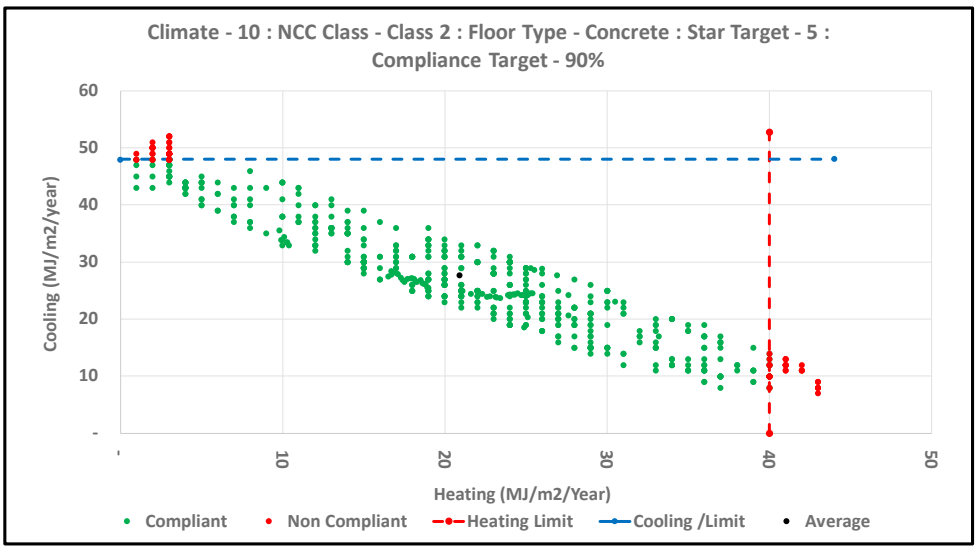
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	634	
Target Load	55.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	20.9	MJ/m2/Annum
Av. Cool Load	27.8	MJ/m2/Annum
Av. Total Load	48.6	MJ/m2/Annum
Av. % Heat	43.0%	%
Av. % Cool	57.1%	%
Av. Star Rating	5.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	40.0	MJ/m2/y	Cooling Limit	48.0	MJ/m2/y	Total Limit	55.0	MJ/m2/y
			3.3	Stars			5	Stars

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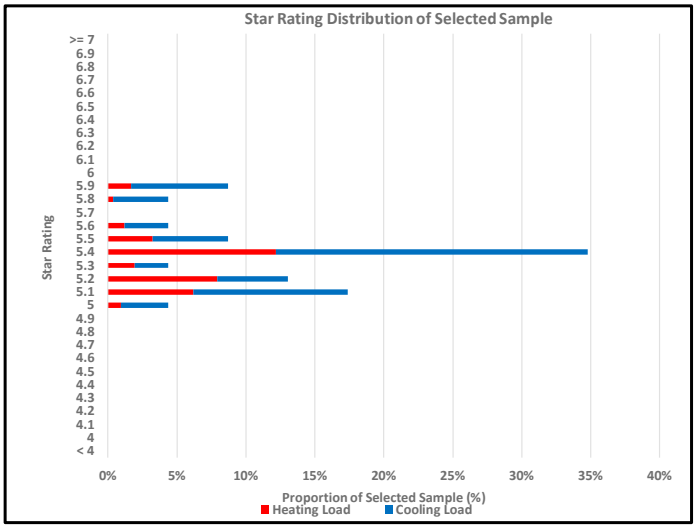
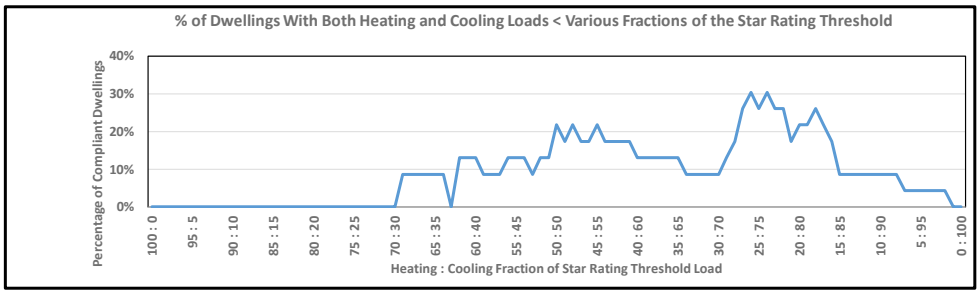
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	10	Brisbane 10
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

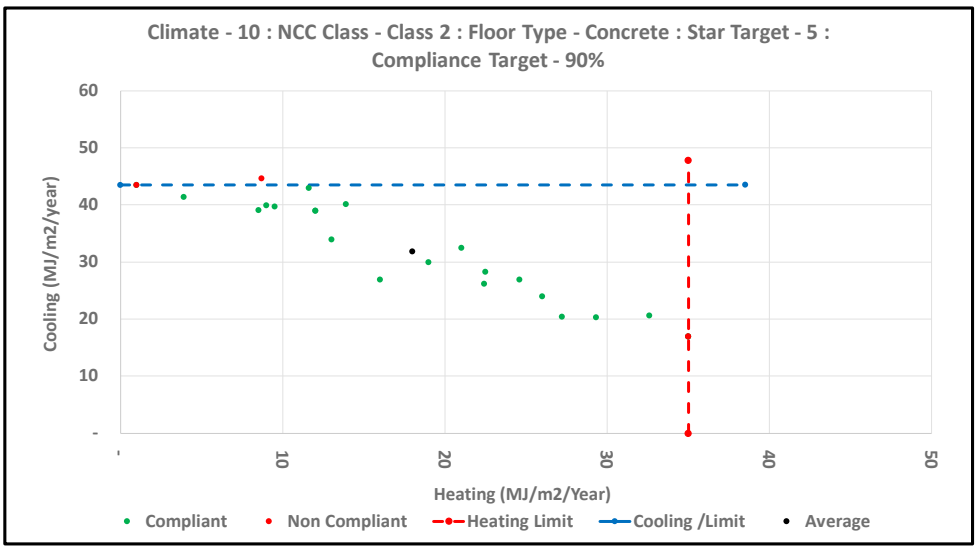
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	23	
Target Load	55.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	18.0	MJ/m2/Annum
Av. Cool Load	31.9	MJ/m2/Annum
Av. Total Load	49.9	MJ/m2/Annum
Av. % Heat	36.0%	%
Av. % Cool	64.0%	%
Av. Star Rating	5.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	35.0	MJ/m2/y	Cooling Limit	43.5	MJ/m2/y	Total Limit	55.0	MJ/m2/y
			3.6	Stars			5	Stars

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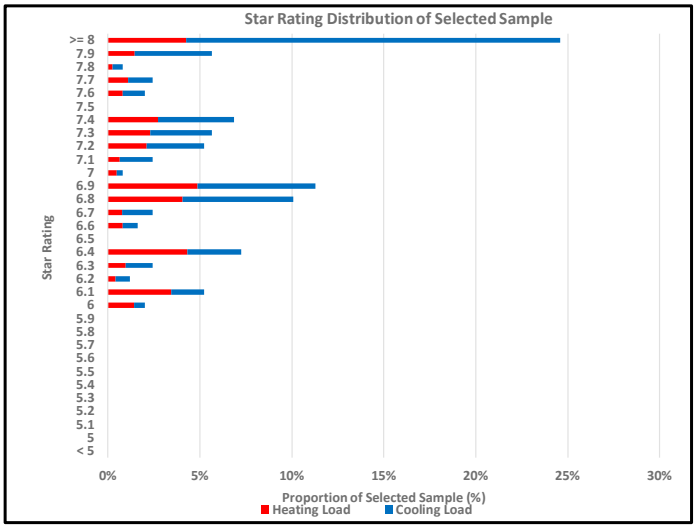
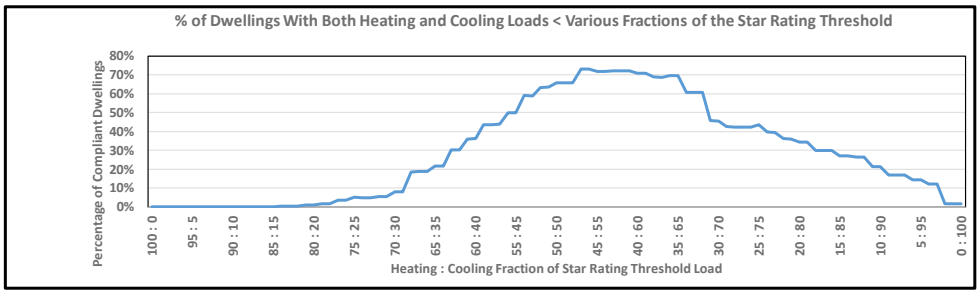
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	11	Coffs Harbour 11
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

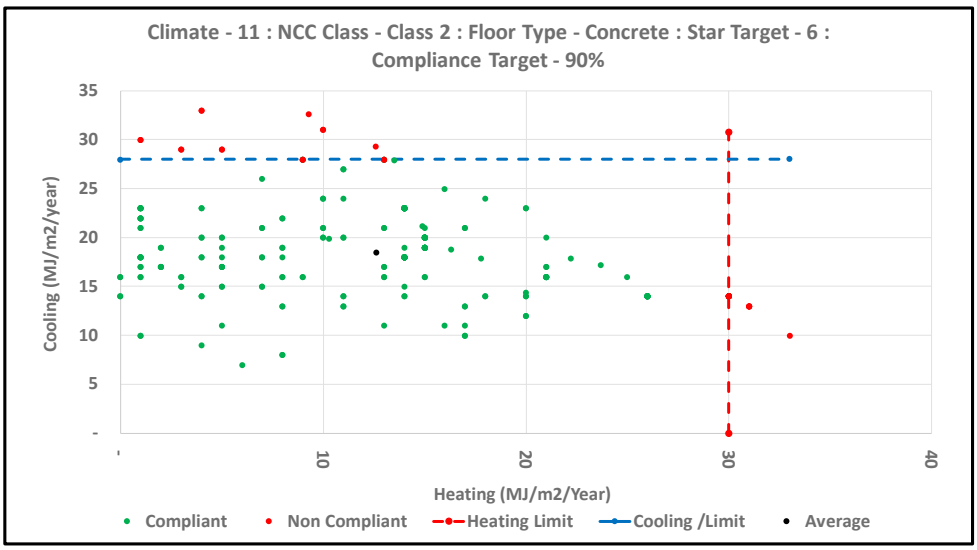
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	248	
Target Load	44.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	12.6	MJ/m2/Annum
Av. Cool Load	18.5	MJ/m2/Annum
Av. Total Load	31.1	MJ/m2/Annum
Av. % Heat	40.5%	%
Av. % Cool	59.3%	%
Av. Star Rating	7.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	30.0	MJ/m2/y	Cooling Limit	28.0	MJ/m2/y	Total Limit	44.0	MJ/m2/y
			4.8	Stars			6	Stars

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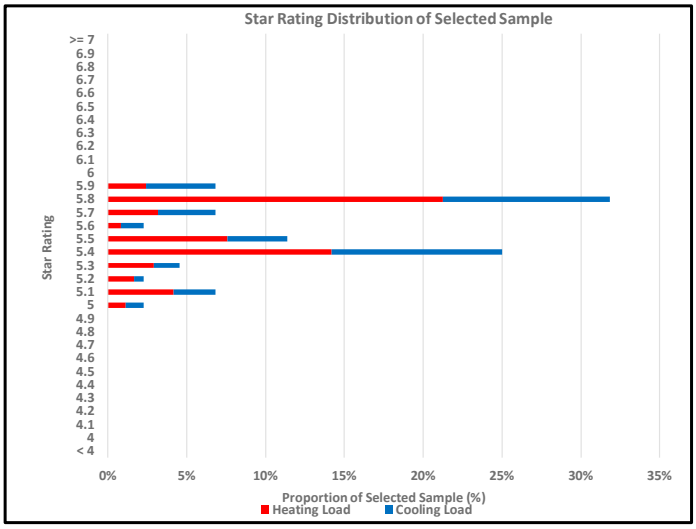
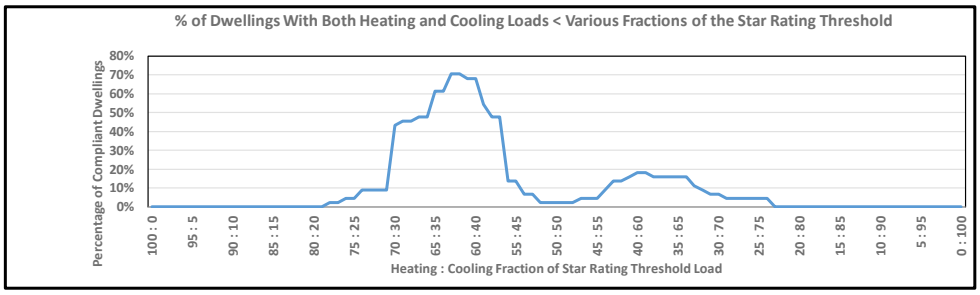
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	11	Coffs Harbour 11
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

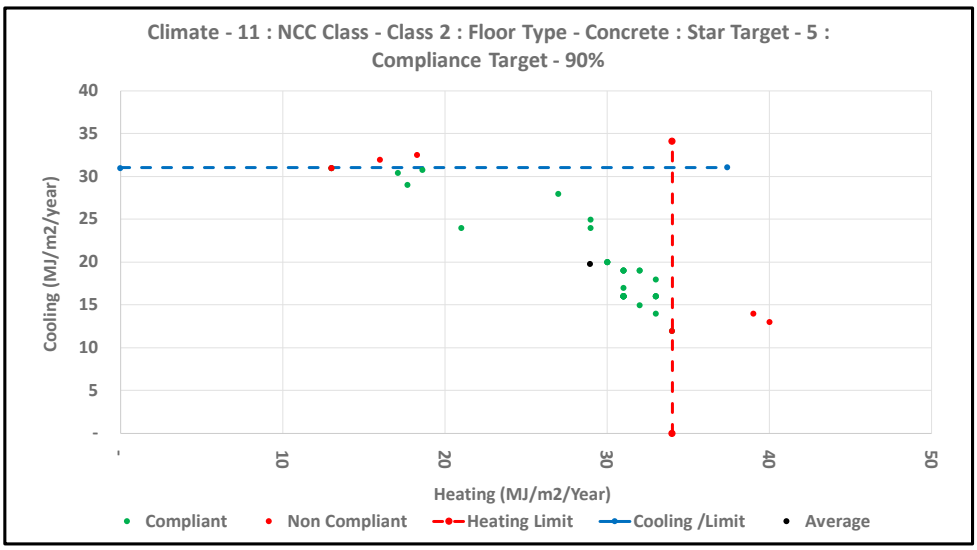
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	44	
Target Load	55.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	28.9	MJ/m2/Annum
Av. Cool Load	19.8	MJ/m2/Annum
Av. Total Load	48.7	MJ/m2/Annum
Av. % Heat	59.4%	%
Av. % Cool	40.6%	%
Av. Star Rating	5.6	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	34.0	MJ/m2/y	Cooling Limit	31.0	MJ/m2/y	Total Limit	55.0	MJ/m2/y
			4.3	Stars			5	Stars

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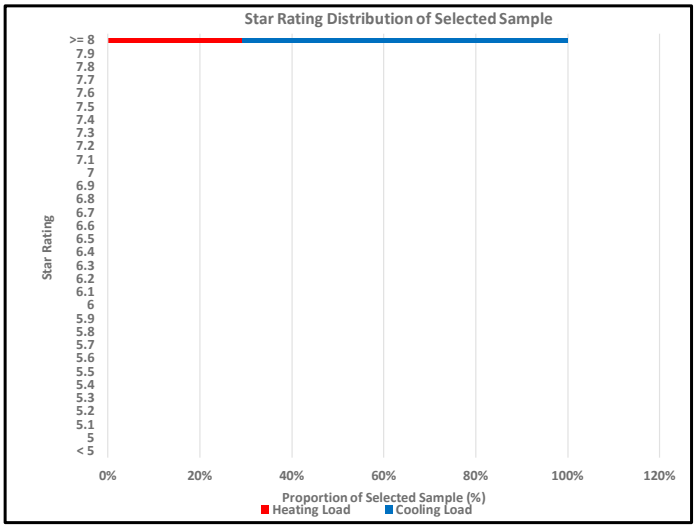
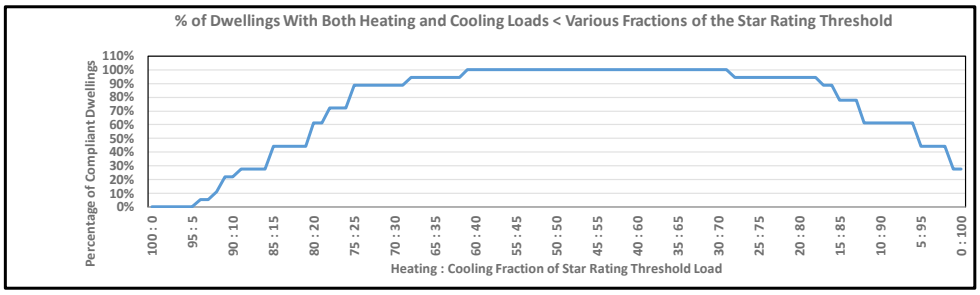
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	12	Geraldton 12
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

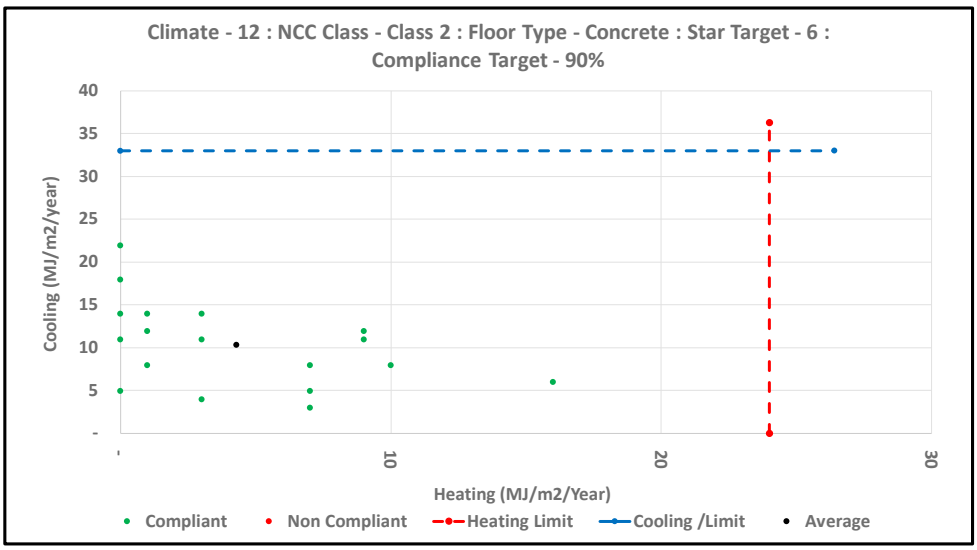
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	18	
Target Load	57.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	4.3	MJ/m2/Annum
Av. Cool Load	10.3	MJ/m2/Annum
Av. Total Load	14.6	MJ/m2/Annum
Av. % Heat	29.1%	%
Av. % Cool	70.2%	%
Av. Star Rating	9.1	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	24.0	MJ/m2/y	Cooling Limit	33.0	MJ/m2/y	Total Limit	57.0	MJ/m2/y
			5.9	Stars			6	Stars

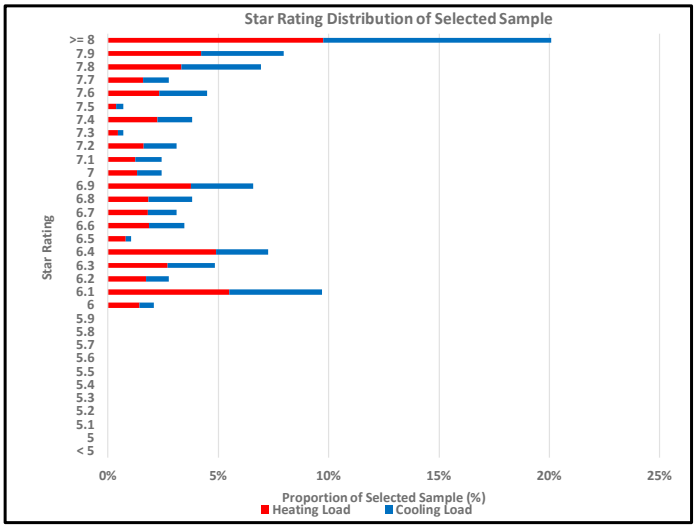
171

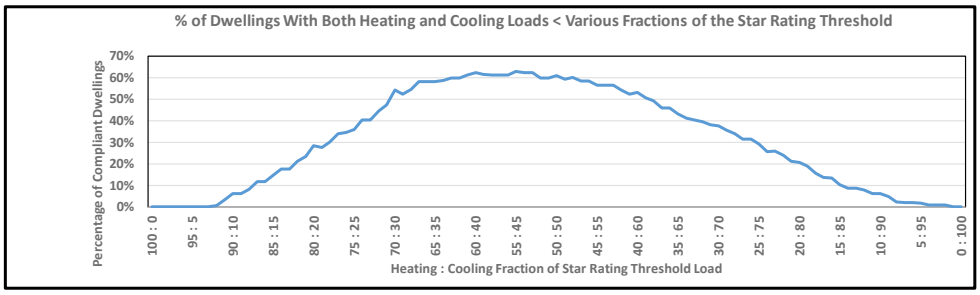
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	13	Perth 13
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

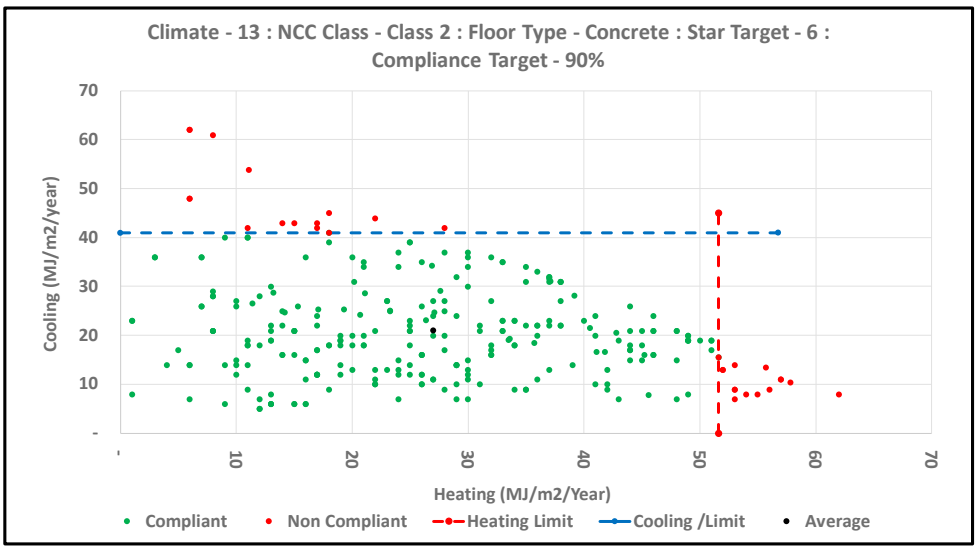
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	289	
Target Load	70.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	27.0	MJ/m2/Annum
Av. Cool Load	21.0	MJ/m2/Annum
Av. Total Load	48.0	MJ/m2/Annum
Av. % Heat	56.2%	%
Av. % Cool	43.8%	%
Av. Star Rating	7.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	51.6	MJ/m2/y	Cooling Limit	41.0	MJ/m2/y	Total Limit	70.0	MJ/m2/y
			4.8	Stars		6	Stars	

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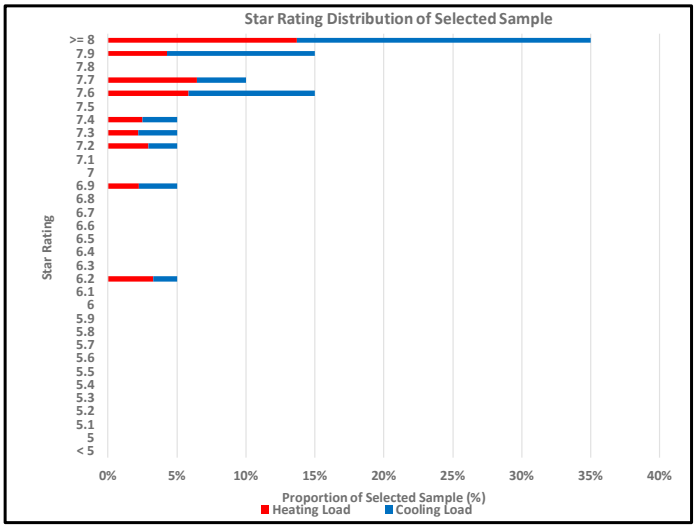
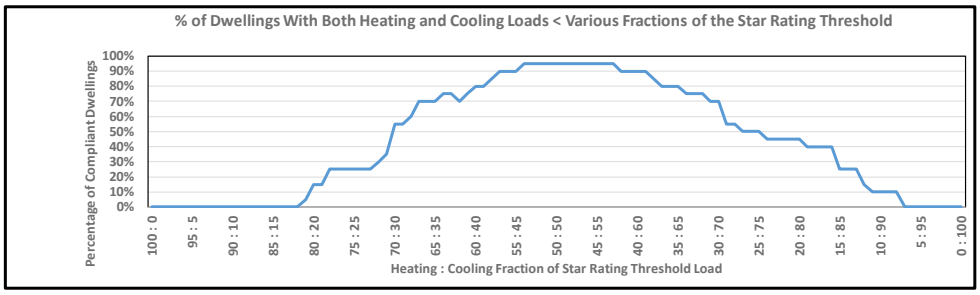
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	13	Perth 13
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

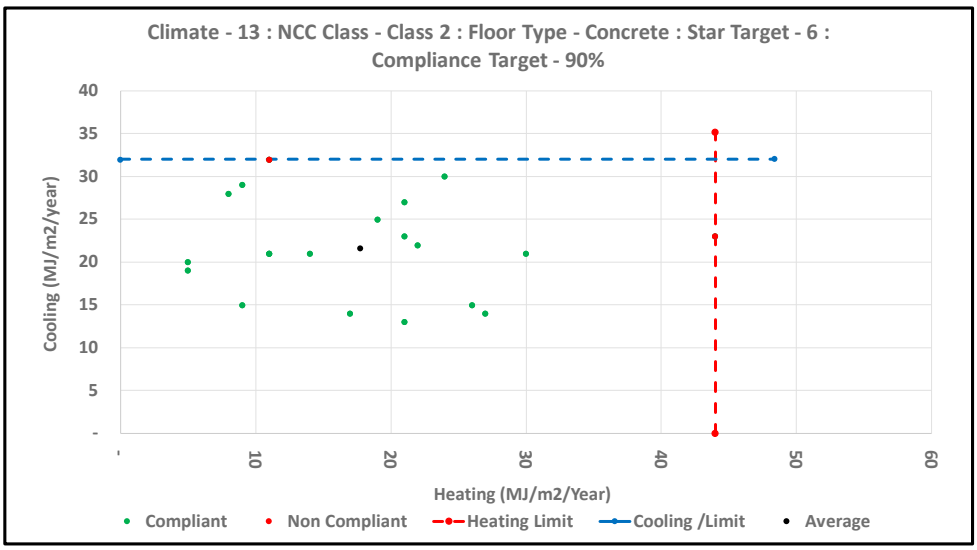
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	40	
Target Load	70.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	17.8	MJ/m2/Annum
Av. Cool Load	21.7	MJ/m2/Annum
Av. Total Load	39.4	MJ/m2/Annum
Av. % Heat	45.0%	%
Av. % Cool	54.9%	%
Av. Star Rating	7.8	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	44.0	MJ/m2/y	Cooling Limit	32.0	MJ/m2/y	Total Limit	70.0	MJ/m2/y
			5.6	Stars		6	Stars	

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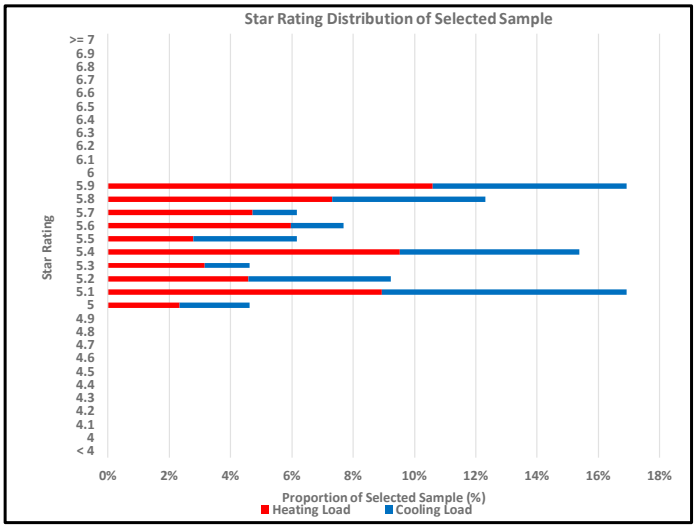
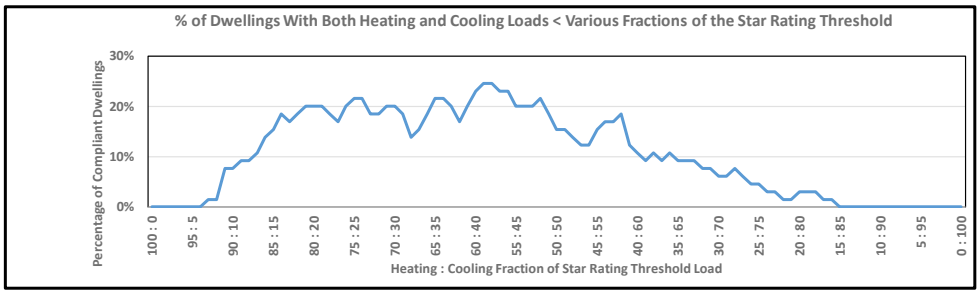
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	13	Perth 13
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

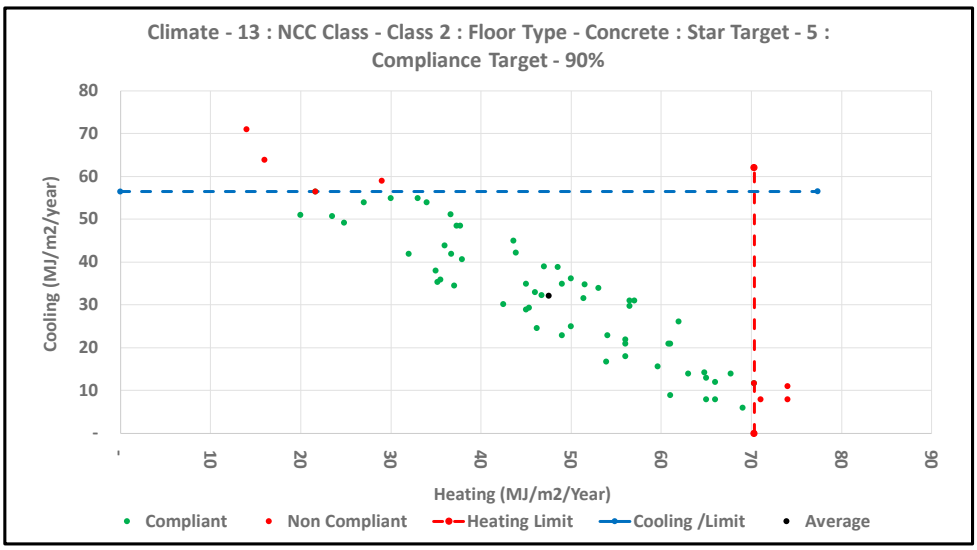
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	65	
Target Load	89.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	47.5	MJ/m2/Annum
Av. Cool Load	32.2	MJ/m2/Annum
Av. Total Load	79.7	MJ/m2/Annum
Av. % Heat	59.7%	%
Av. % Cool	40.4%	%
Av. Star Rating	5.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	70.3	MJ/m2/y	Cooling Limit	56.5	MJ/m2/y	Total Limit	89.0	MJ/m2/y
			3.8	Stars			5	Stars

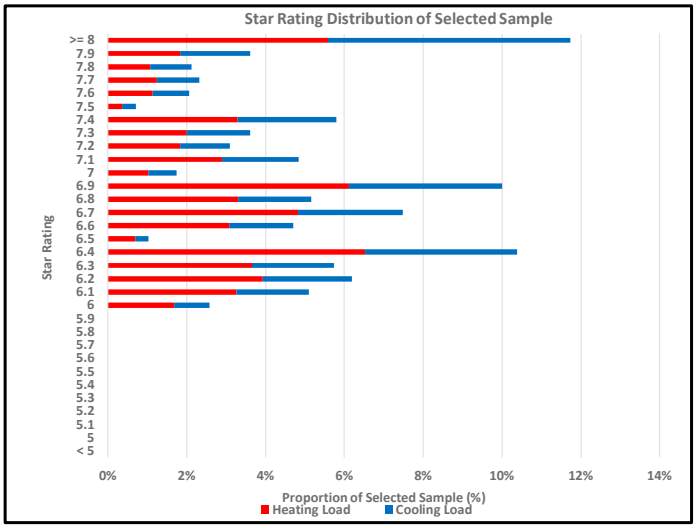
174

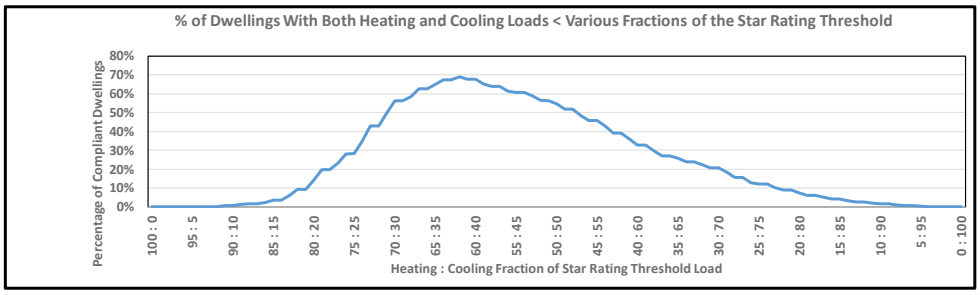
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	15	Williamtown 15
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

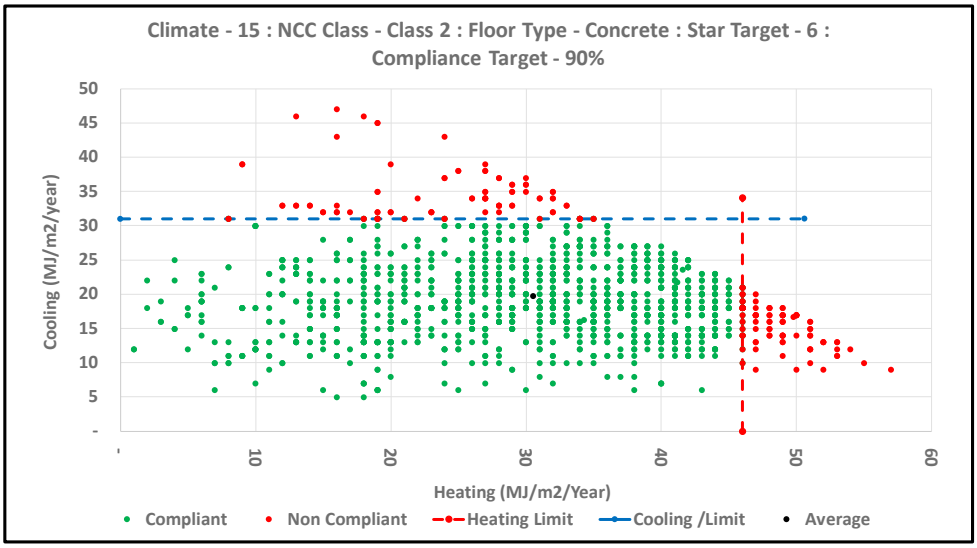
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	1551	
Target Load	67.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	30.5	MJ/m2/Annum
Av. Cool Load	19.8	MJ/m2/Annum
Av. Total Load	50.3	MJ/m2/Annum
Av. % Heat	60.6%	%
Av. % Cool	39.3%	%
Av. Star Rating	7.0	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	46.0	MJ/m2/y	Cooling Limit	31.0	MJ/m2/y	Total Limit	67.0	MJ/m2/y
			5.4	Stars			6	Stars

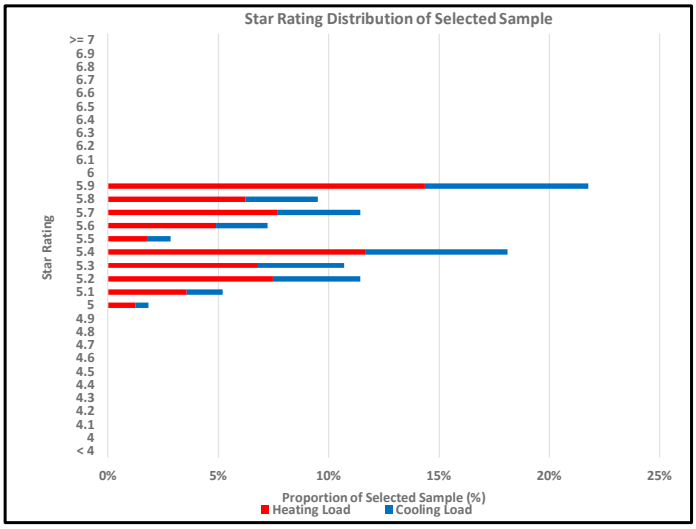
175

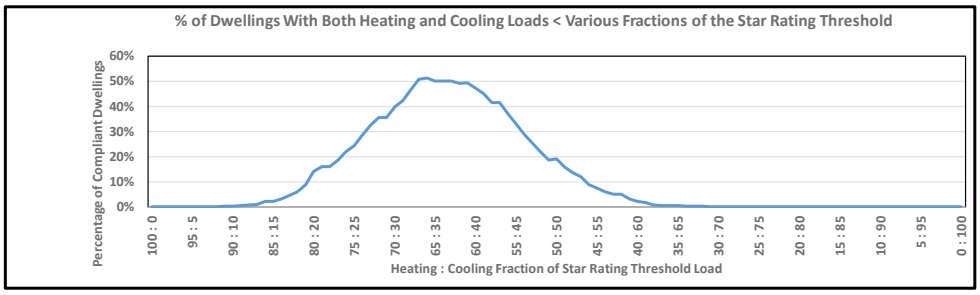
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	15	Williamtown 15
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

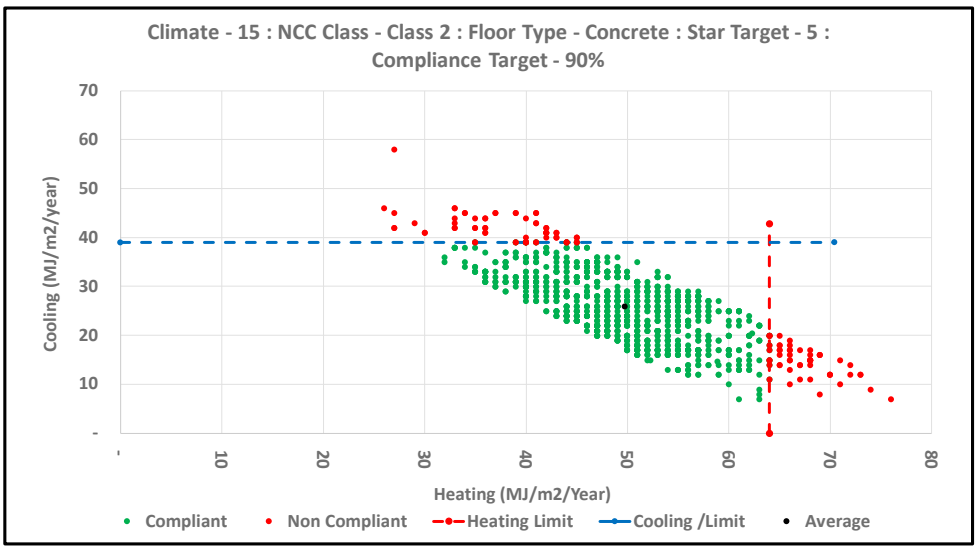
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	1094	
Target Load	86.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	49.7	MJ/m2/Annum
Av. Cool Load	26.0	MJ/m2/Annum
Av. Total Load	75.7	MJ/m2/Annum
Av. % Heat	65.7%	%
Av. % Cool	34.3%	%
Av. Star Rating	5.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	64.0	MJ/m2/y	Cooling Limit	39.0	MJ/m2/y	Total Limit	86.0	MJ/m2/y
			4.3	Stars			5	Stars

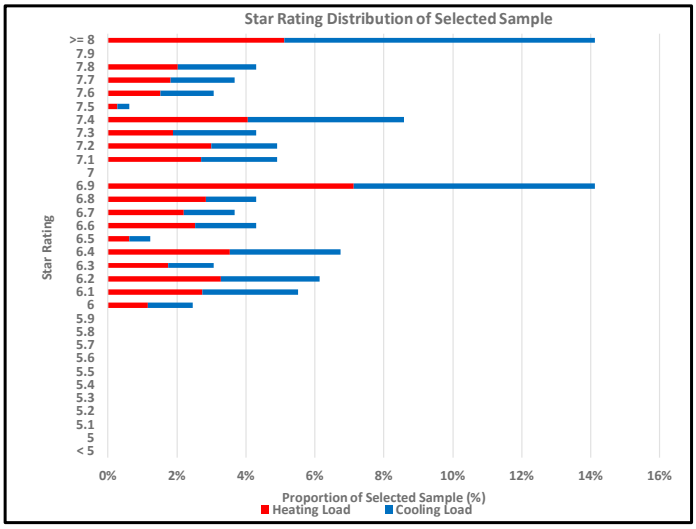
176

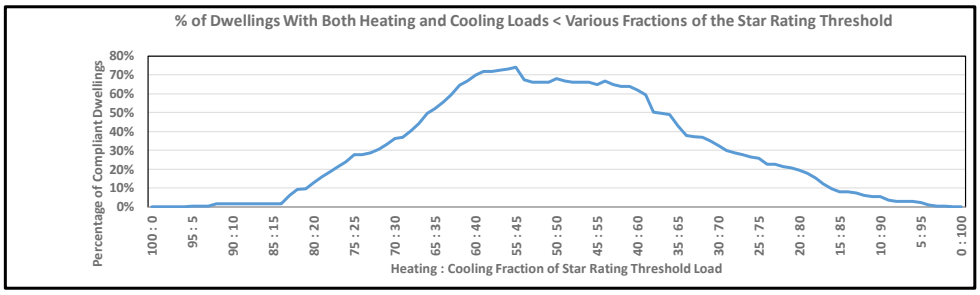
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	SA	
Climate Zone	16	Adelaide 16
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

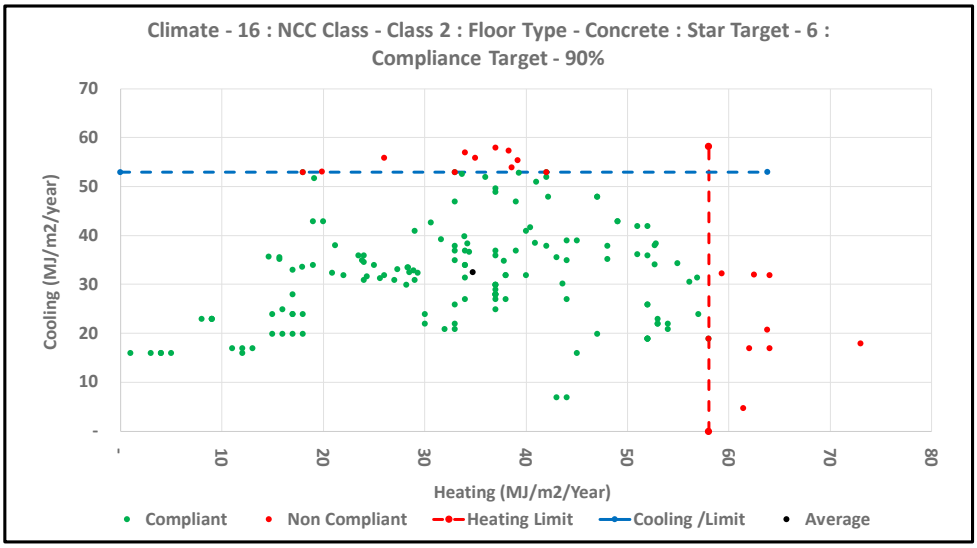
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	163	
Target Load	96.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	34.7	MJ/m2/Annum
Av. Cool Load	32.5	MJ/m2/Annum
Av. Total Load	67.3	MJ/m2/Annum
Av. % Heat	51.6%	%
Av. % Cool	48.3%	%
Av. Star Rating	7.1	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	58.0	MJ/m2/y	Cooling Limit	53.0	MJ/m2/y	Total Limit	96.0	MJ/m2/y
			5.4	Stars			6	Stars

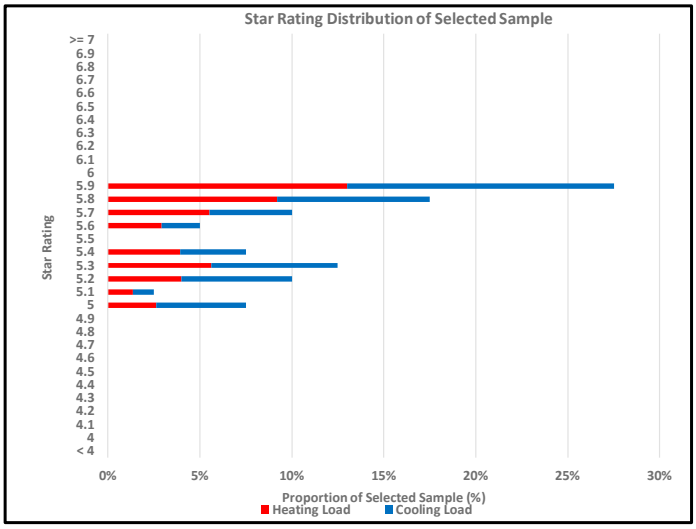
177

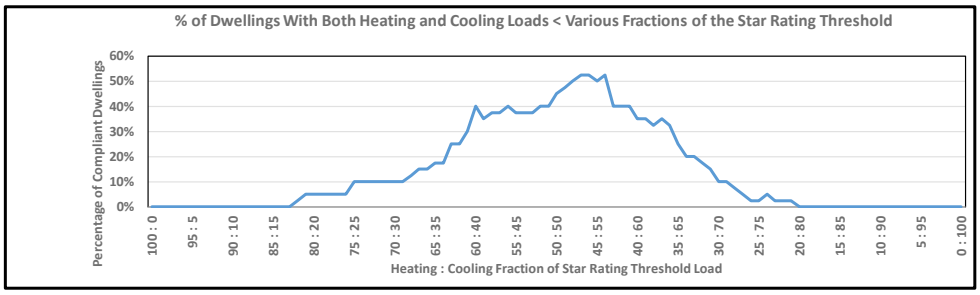
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	SA	
Climate Zone	16	Adelaide 16
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

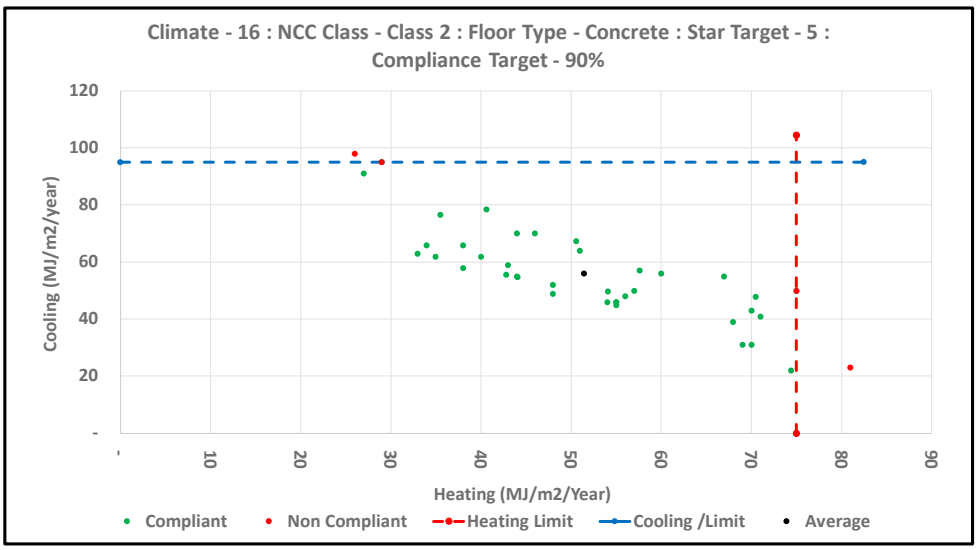
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	40	
Target Load	125.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	51.4	MJ/m2/Annum
Av. Cool Load	56.0	MJ/m2/Annum
Av. Total Load	107.4	MJ/m2/Annum
Av. % Heat	47.8%	%
Av. % Cool	52.1%	%
Av. Star Rating	5.6	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	75.0	MJ/m2/y	Cooling Limit	95.0	MJ/m2/y	Total Limit	125.0	MJ/m2/y
			3.8	Stars			5	Stars

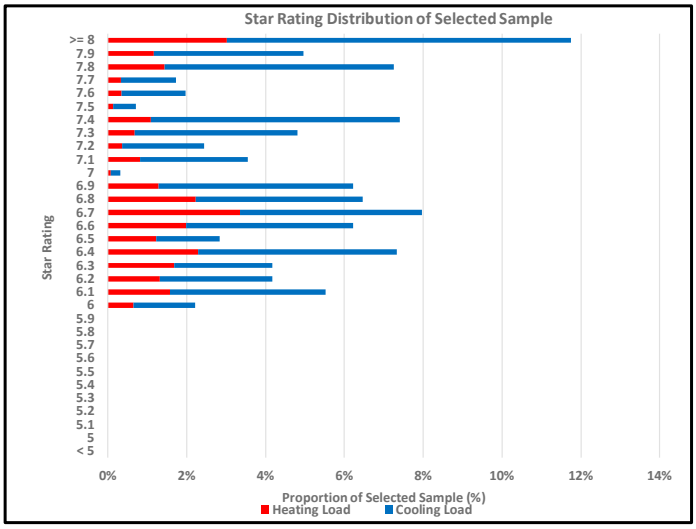
178

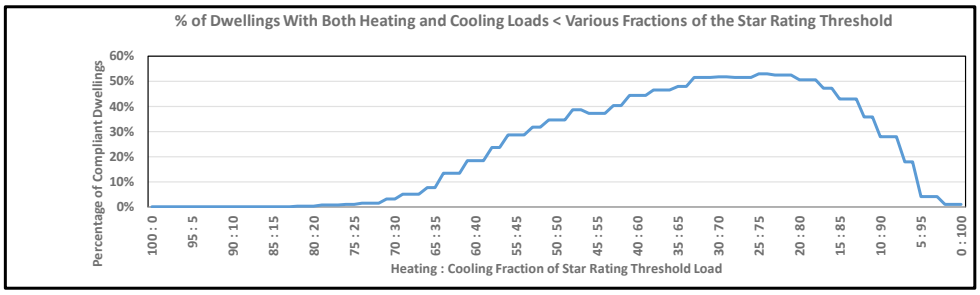
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	17	Sydney E 17
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

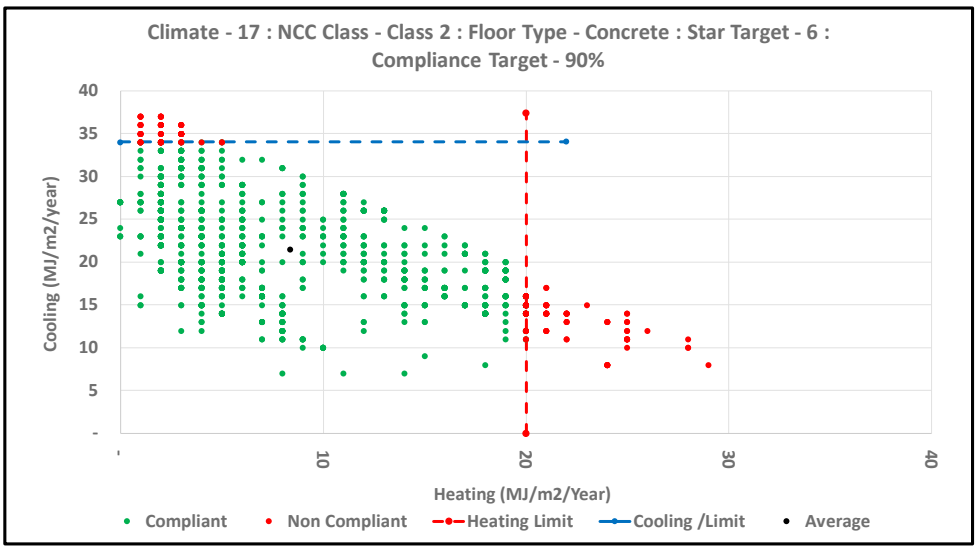
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	1269	
Target Load	39.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	8.4	MJ/m2/Annum
Av. Cool Load	21.5	MJ/m2/Annum
Av. Total Load	29.9	MJ/m2/Annum
Av. % Heat	28.0%	%
Av. % Cool	72.0%	%
Av. Star Rating	7.1	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	20.0	MJ/m2/y	Cooling Limit	34.0	MJ/m2/y	Total Limit	39.0	MJ/m2/y
			4.7	Stars			6	Stars

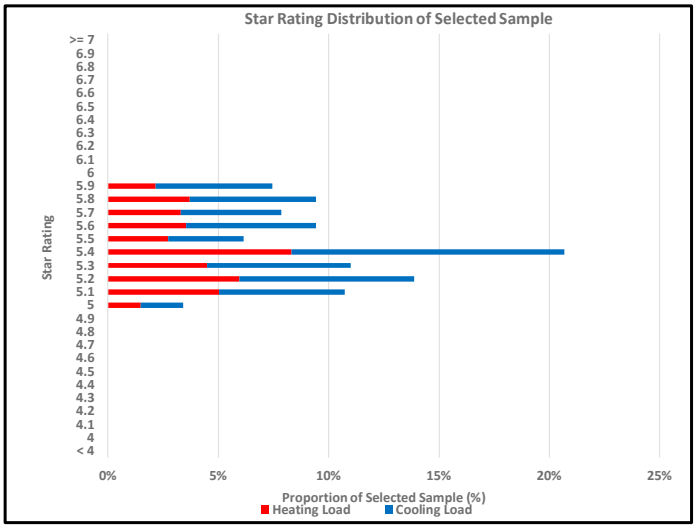
179

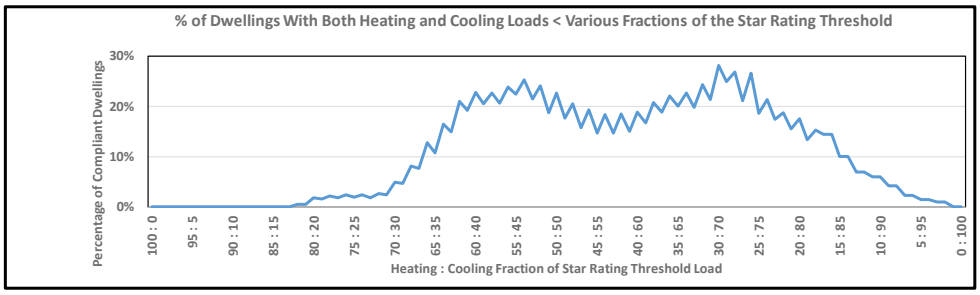
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	17	Sydney E 17
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

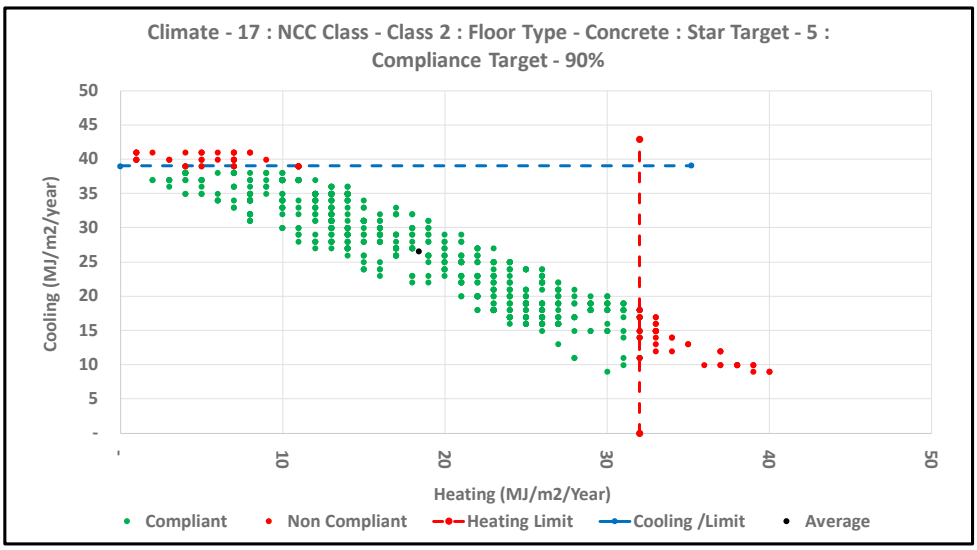
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	764	
Target Load	50.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	18.4	MJ/m2/Annum
Av. Cool Load	26.6	MJ/m2/Annum
Av. Total Load	45.0	MJ/m2/Annum
Av. % Heat	40.9%	%
Av. % Cool	59.1%	%
Av. Star Rating	5.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	32.0	MJ/m2/y	Cooling Limit	39.0	MJ/m2/y	Total Limit	50.0	MJ/m2/y
			3.8	Stars			5	Stars

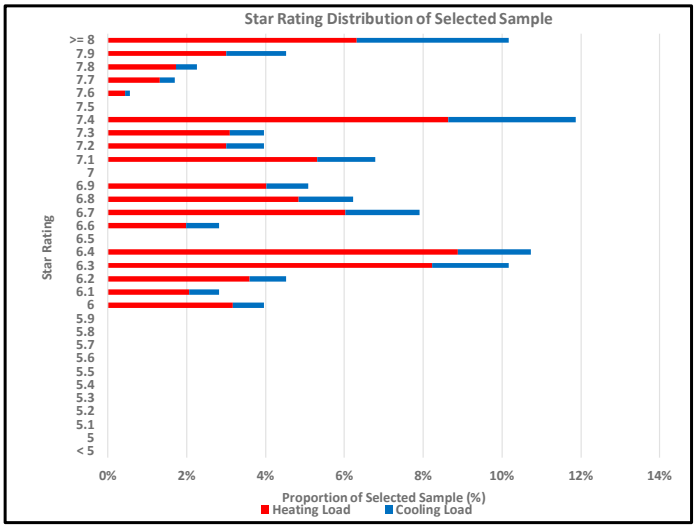
180

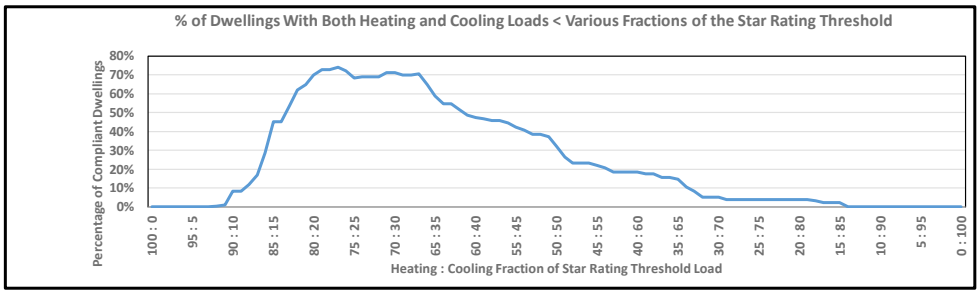
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	18	Nowra 18
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

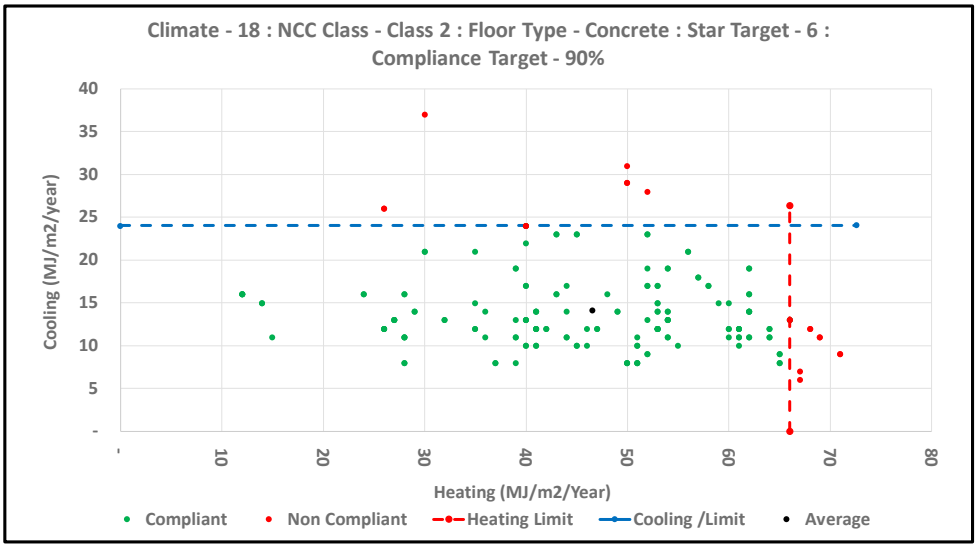
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	177	
Target Load	81.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	46.5	MJ/m2/Annum
Av. Cool Load	14.1	MJ/m2/Annum
Av. Total Load	60.6	MJ/m2/Annum
Av. % Heat	76.7%	%
Av. % Cool	23.3%	%
Av. Star Rating	7.0	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	66.0	MJ/m2/y	Cooling Limit	24.0	MJ/m2/y	Total Limit	81.0	MJ/m2/y
			5.5	Stars			6	Stars

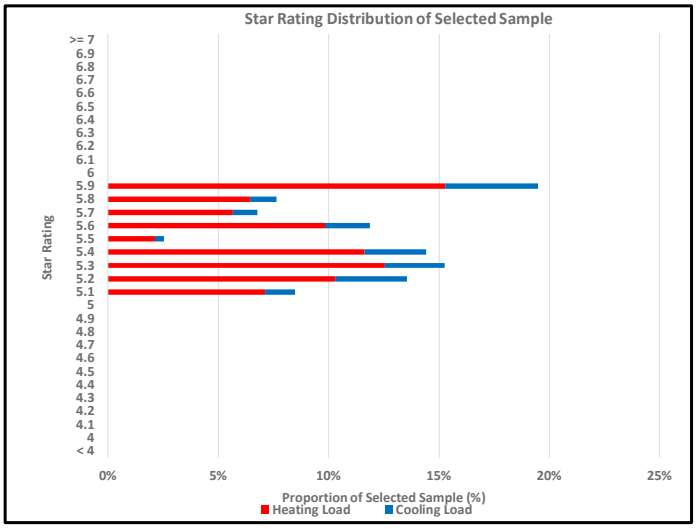
181

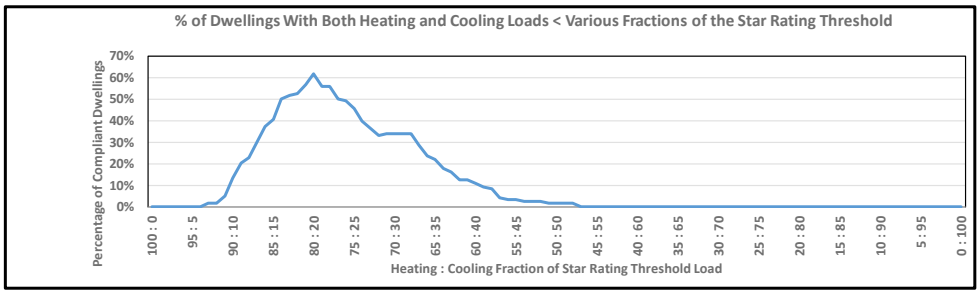
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	18	Nowra 18
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

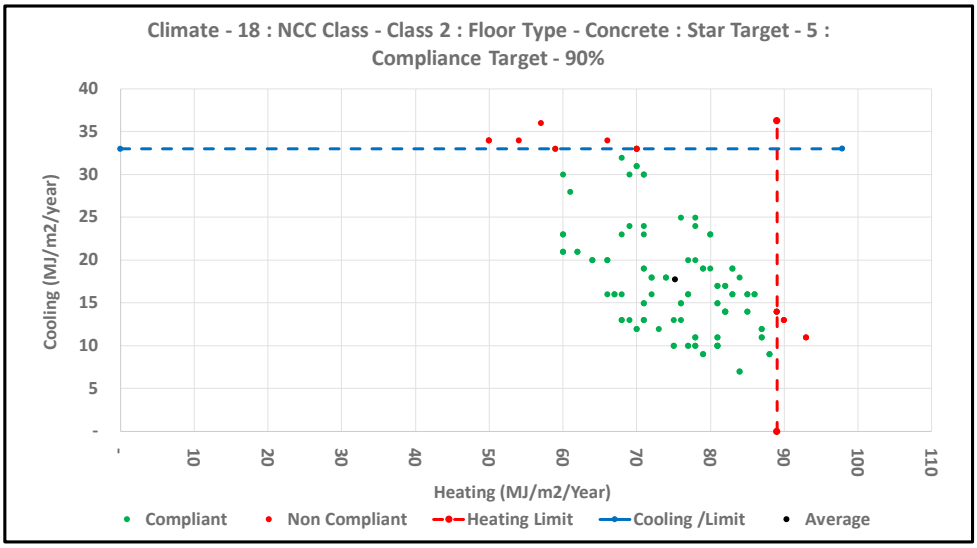
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	118	
Target Load	105.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	75.2	MJ/m2/Annum
Av. Cool Load	17.7	MJ/m2/Annum
Av. Total Load	93.0	MJ/m2/Annum
Av. % Heat	81.0%	%
Av. % Cool	19.1%	%
Av. Star Rating	5.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	89.0	MJ/m2/y	Cooling Limit	33.0	MJ/m2/y	Total Limit	105.0	MJ/m2/y
			4.4	Stars			5	Stars

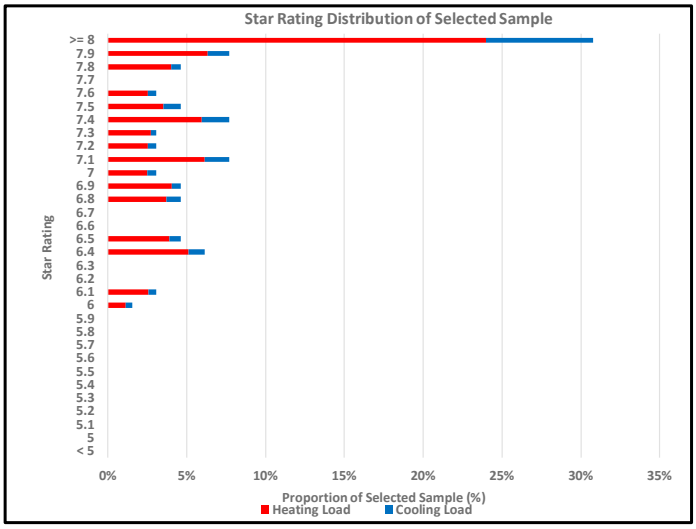
182

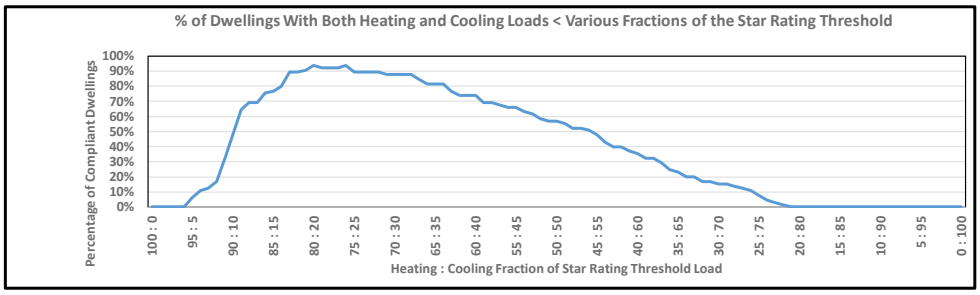
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	20	Wagga 20
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

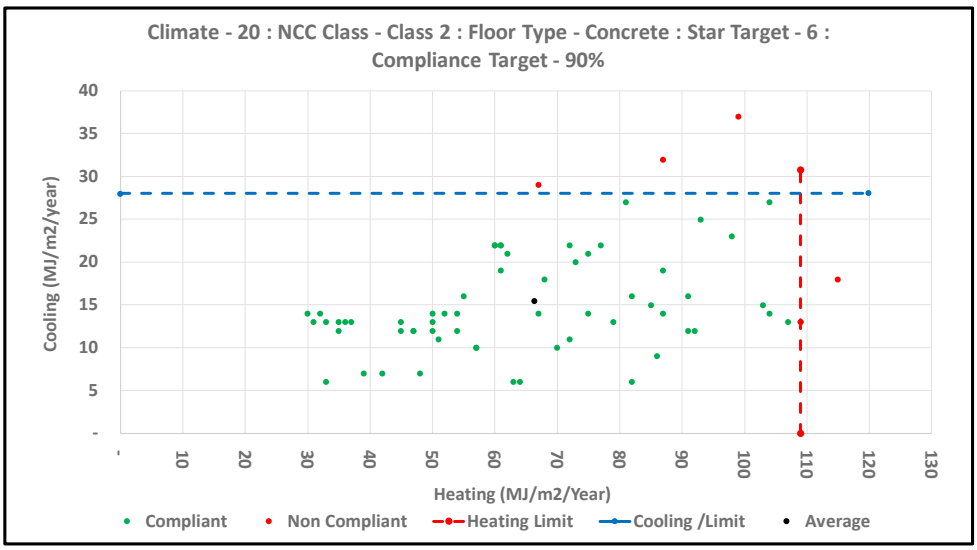
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	65	
Target Load	137.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	66.4	MJ/m2/Annum
Av. Cool Load	15.4	MJ/m2/Annum
Av. Total Load	81.8	MJ/m2/Annum
Av. % Heat	81.1%	%
Av. % Cool	18.9%	%
Av. Star Rating	7.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	109.0	MJ/m2/y	Cooling Limit	28.0	MJ/m2/y	Total Limit	137.0	MJ/m2/y
			5.9	Stars			6	Stars

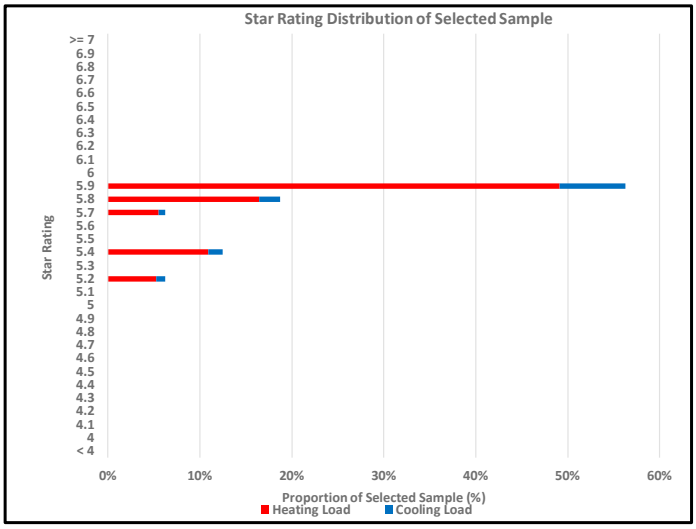
183

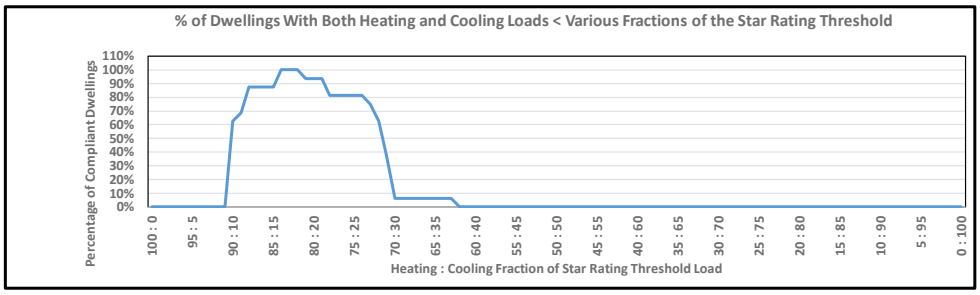
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	20	Wagga 20
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

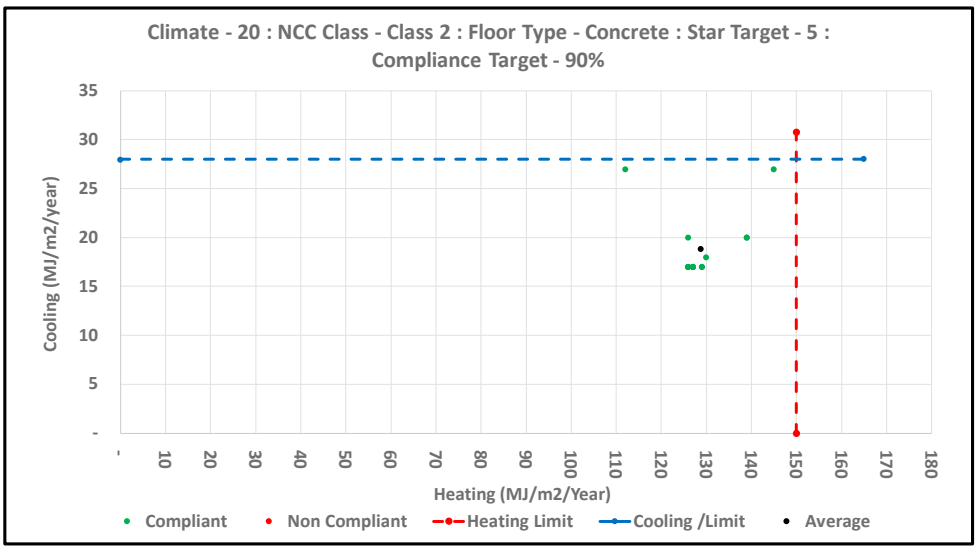
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	16	
Target Load	178.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	128.8	MJ/m2/Annum
Av. Cool Load	18.9	MJ/m2/Annum
Av. Total Load	147.7	MJ/m2/Annum
Av. % Heat	87.3%	%
Av. % Cool	12.8%	%
Av. Star Rating	5.8	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	150.0	MJ/m2/y	Cooling Limit	28.0	MJ/m2/y	Total Limit	178.0	MJ/m2/y
			4.9	Stars			5	Stars

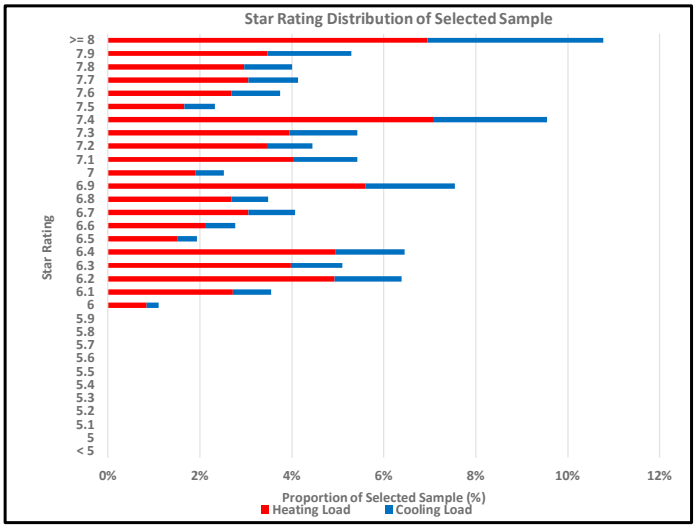
184

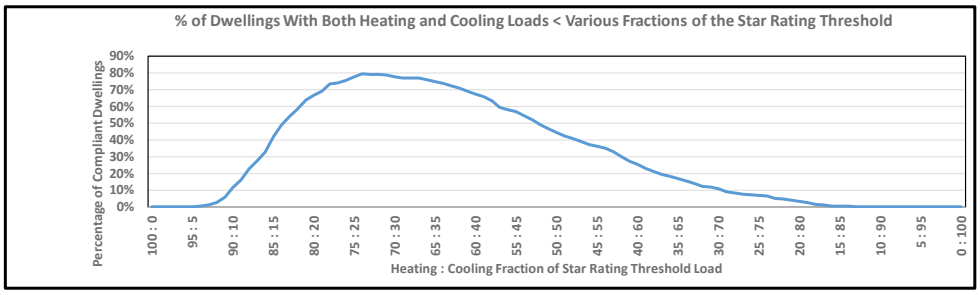
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	21	Melb 21
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

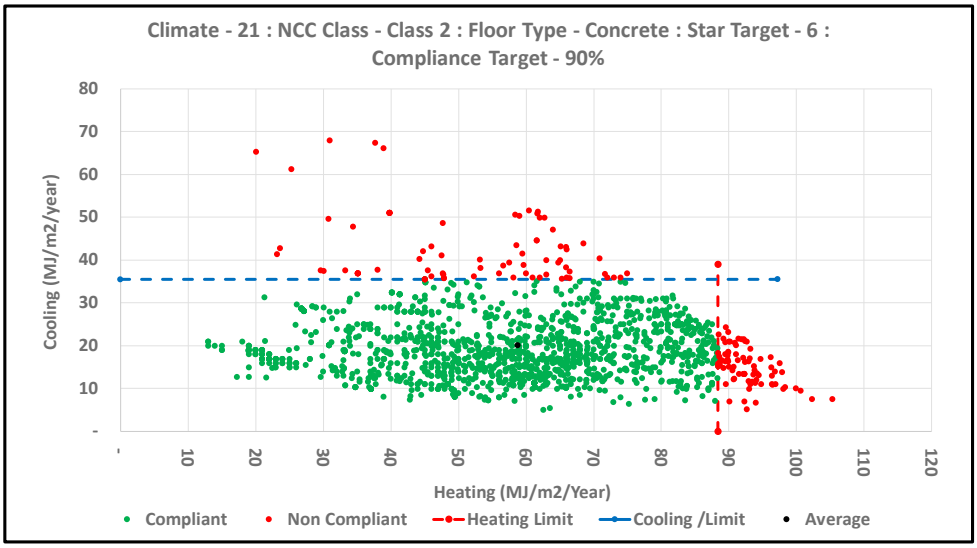
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	1550	
Target Load	114.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	58.8	MJ/m2/Annum
Av. Cool Load	20.1	MJ/m2/Annum
Av. Total Load	78.9	MJ/m2/Annum
Av. % Heat	74.5%	%
Av. % Cool	25.5%	%
Av. Star Rating	7.1	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	88.4	MJ/m2/y	Cooling Limit	35.5	MJ/m2/y	Total Limit	114.0	MJ/m2/y
			5.7	Stars			6	Stars

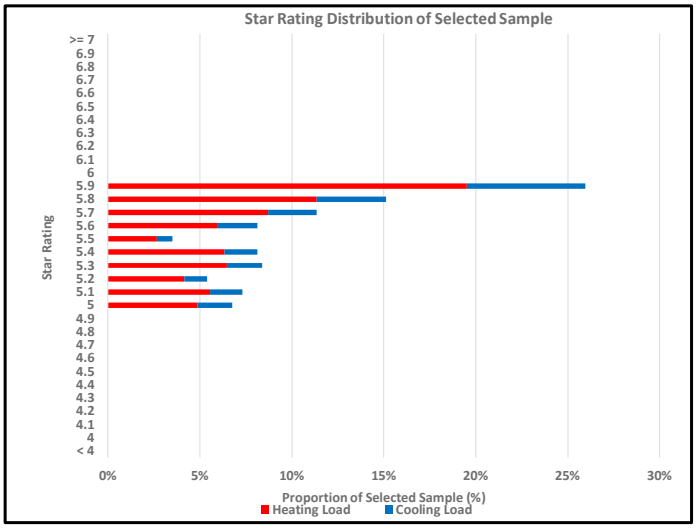
185

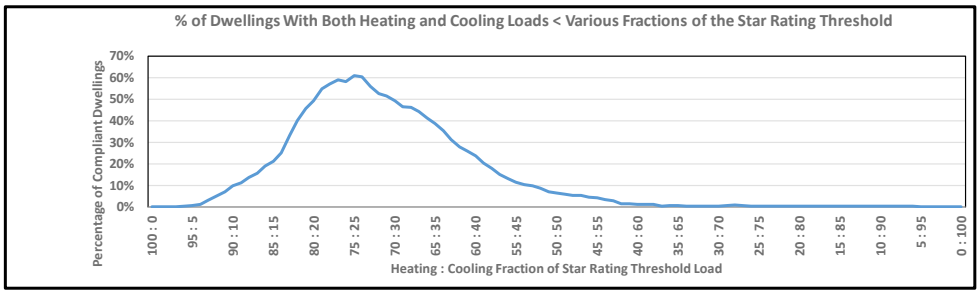
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	21	Melb 21
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

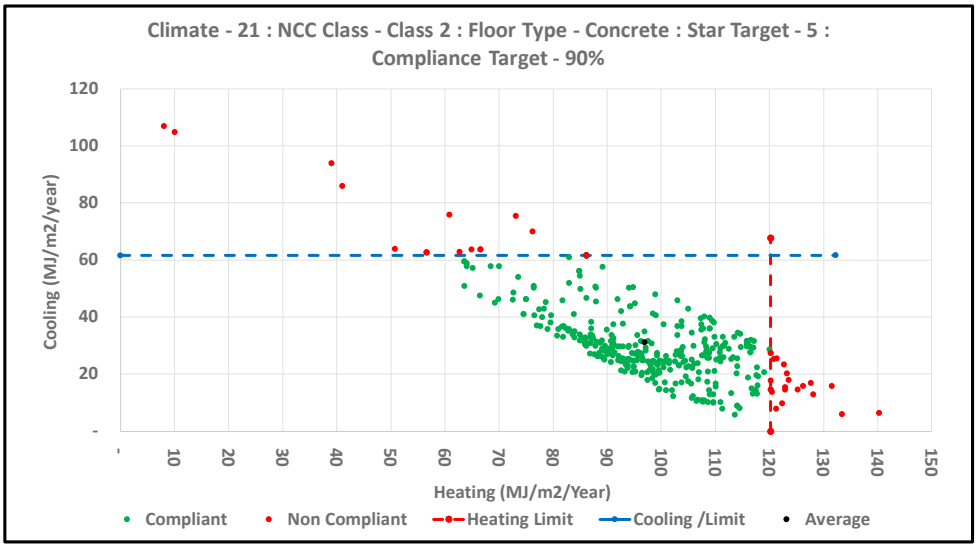
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	370	
Target Load	149.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	96.9	MJ/m2/Annum
Av. Cool Load	31.3	MJ/m2/Annum
Av. Total Load	128.2	MJ/m2/Annum
Av. % Heat	75.6%	%
Av. % Cool	24.4%	%
Av. Star Rating	5.6	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	120.2	MJ/m2/y	Cooling Limit	61.6	MJ/m2/y	Total Limit	149.0	MJ/m2/y
			4.3	Stars			5	Stars

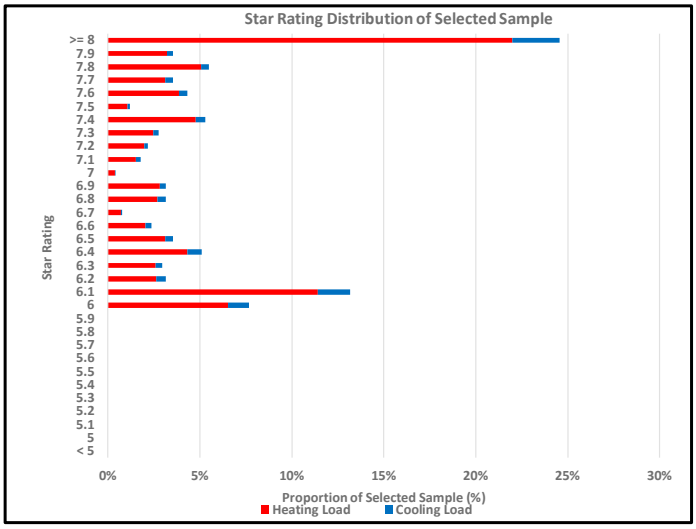
186

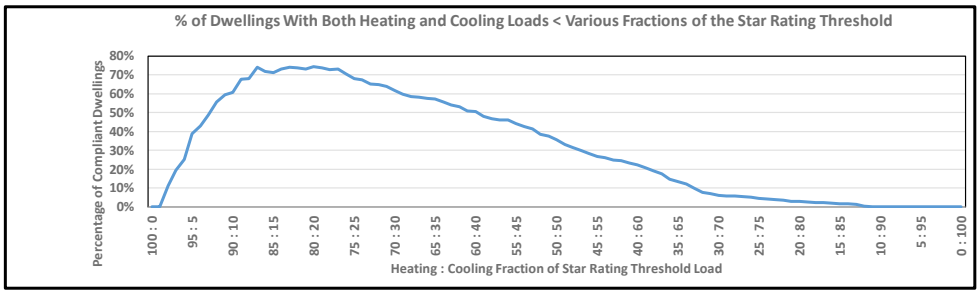
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	ACT	
Climate Zone	24	Canberra 24
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

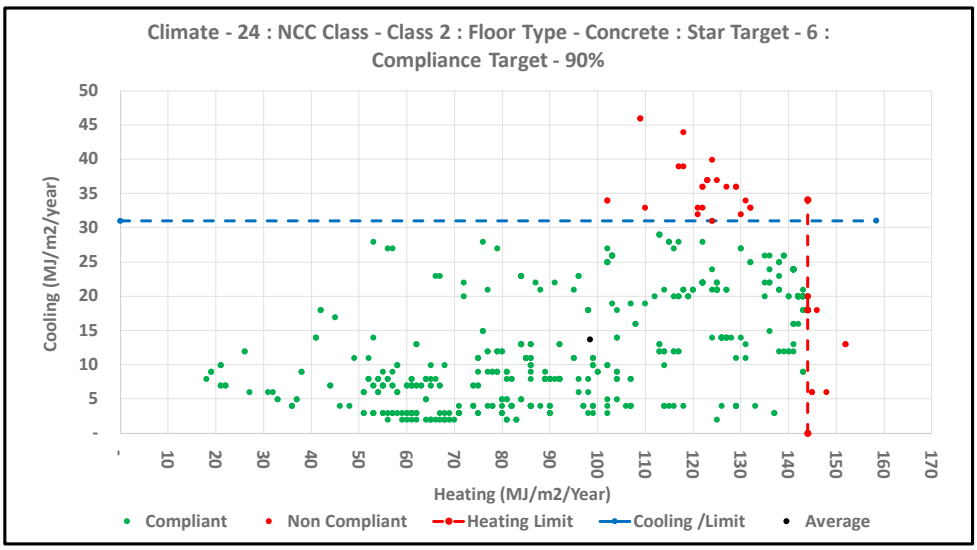
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	509	
Target Load	165.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	98.4	MJ/m2/Annum
Av. Cool Load	13.7	MJ/m2/Annum
Av. Total Load	112.1	MJ/m2/Annum
Av. % Heat	87.8%	%
Av. % Cool	12.3%	%
Av. Star Rating	7.2	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	144.0	MJ/m2/y	Cooling Limit	31.0	MJ/m2/y	Total Limit	165.0	MJ/m2/y
			5.7	Stars			6	Stars

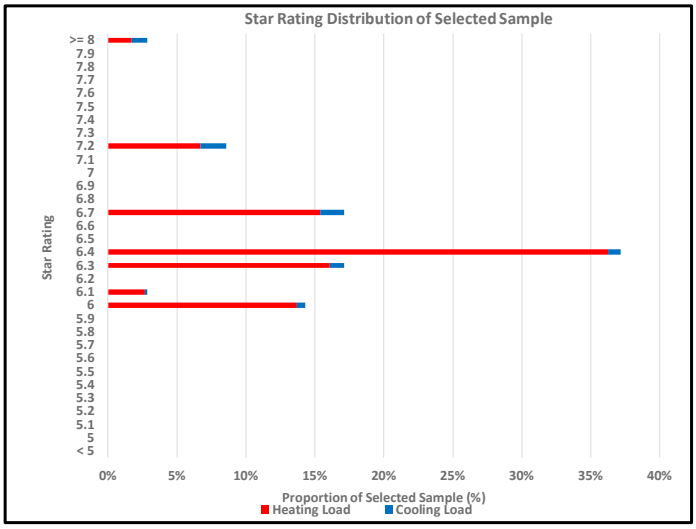
187

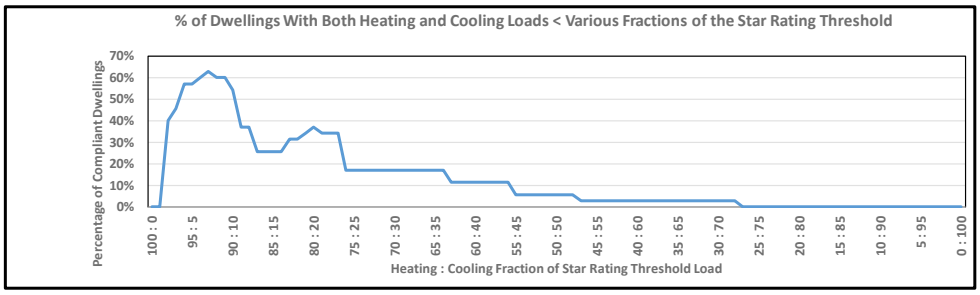
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	24	Canberra 24
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

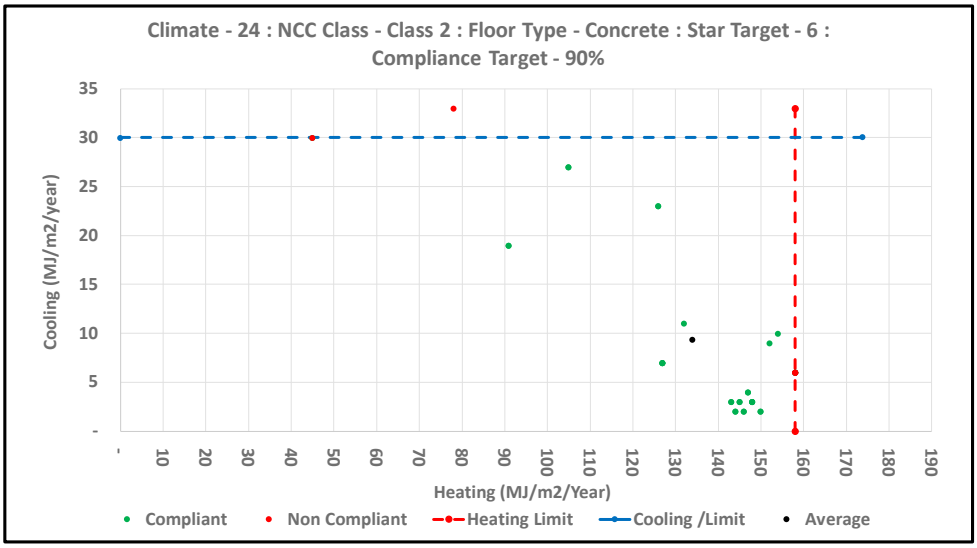
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	35	
Target Load	165.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	133.9	MJ/m2/Annum
Av. Cool Load	9.3	MJ/m2/Annum
Av. Total Load	143.3	MJ/m2/Annum
Av. % Heat	93.6%	%
Av. % Cool	6.5%	%
Av. Star Rating	6.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	158.0	MJ/m2/y	Cooling Limit	30.0	MJ/m2/y	Total Limit	165.0	MJ/m2/y
			5.5	Stars			6	Stars

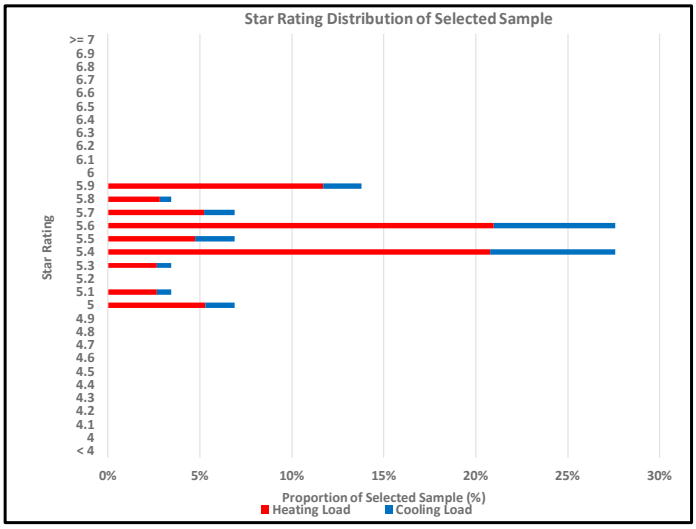
188

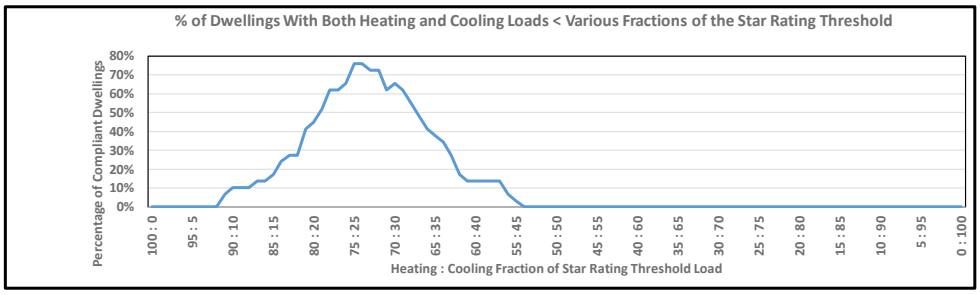
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	ACT	
Climate Zone	24	Canberra 24
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

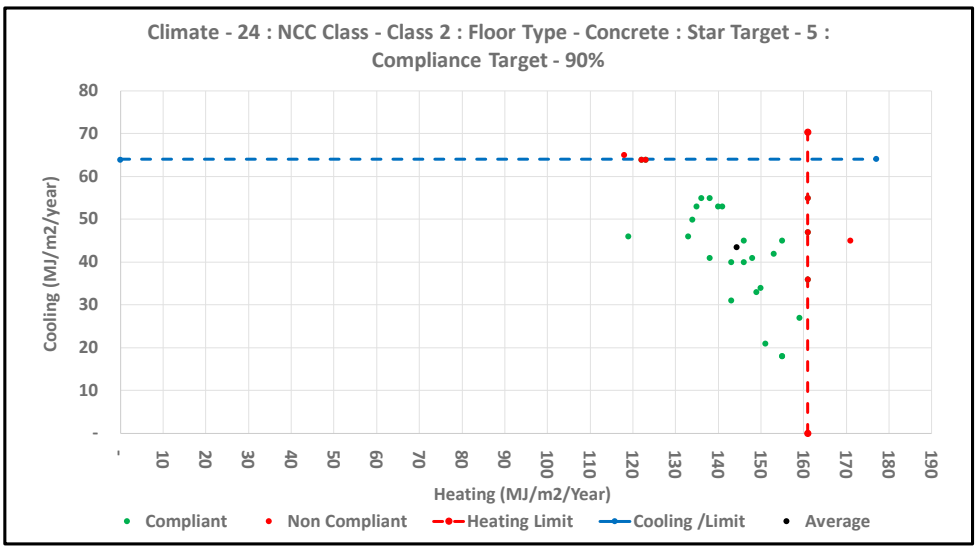
* 50% = 50% of cooling and 50% heating outliers excluded

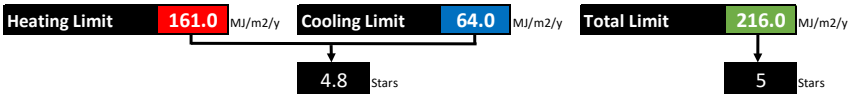
Selected Sample Statistics		
Sample Size	29	
Target Load	216.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	144.3	MJ/m2/Annum
Av. Cool Load	43.6	MJ/m2/Annum
Av. Total Load	187.8	MJ/m2/Annum
Av. % Heat	76.8%	%
Av. % Cool	23.2%	%
Av. Star Rating	5.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome





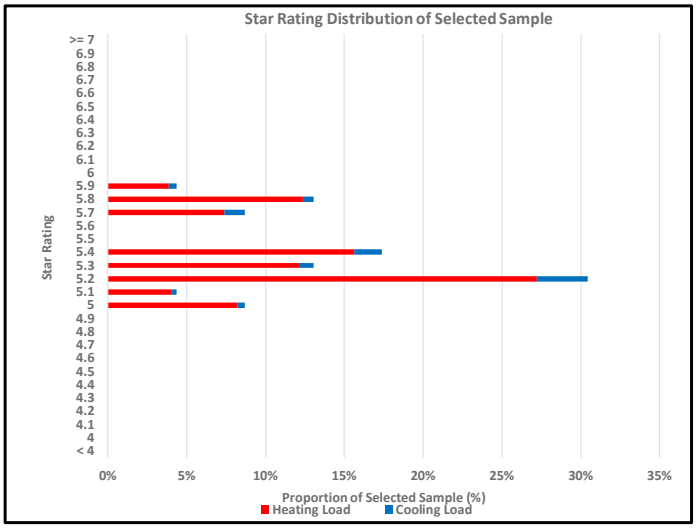
189

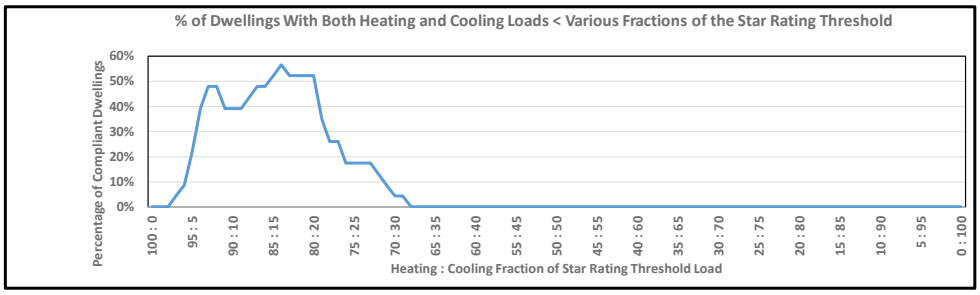
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	24	Canberra 24
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

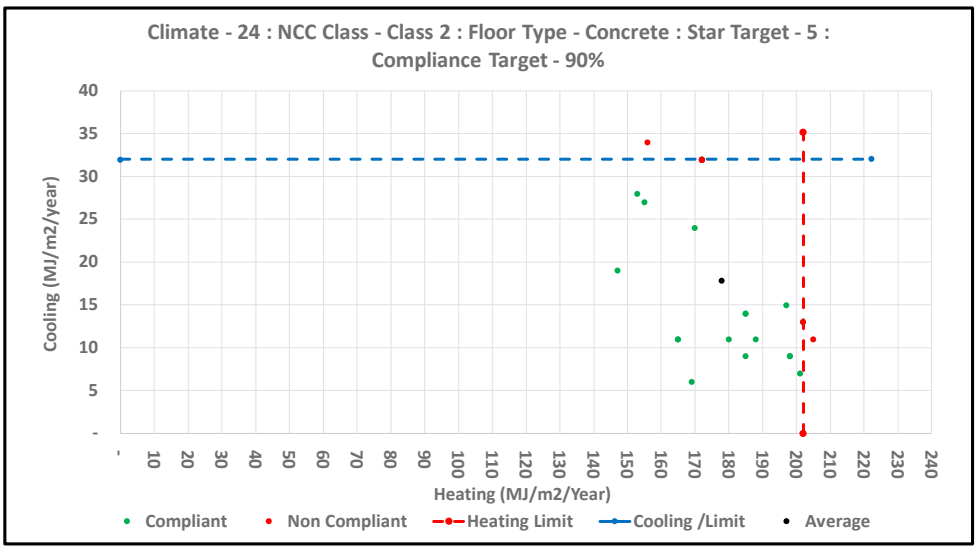
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	23	
Target Load	216.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	177.9	MJ/m2/Annum
Av. Cool Load	17.9	MJ/m2/Annum
Av. Total Load	195.8	MJ/m2/Annum
Av. % Heat	90.9%	%
Av. % Cool	9.1%	%
Av. Star Rating	5.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	202.0	MJ/m2/y	Cooling Limit	32.0	MJ/m2/y	Total Limit	216.0	MJ/m2/y
			4.7	Stars			5	Stars

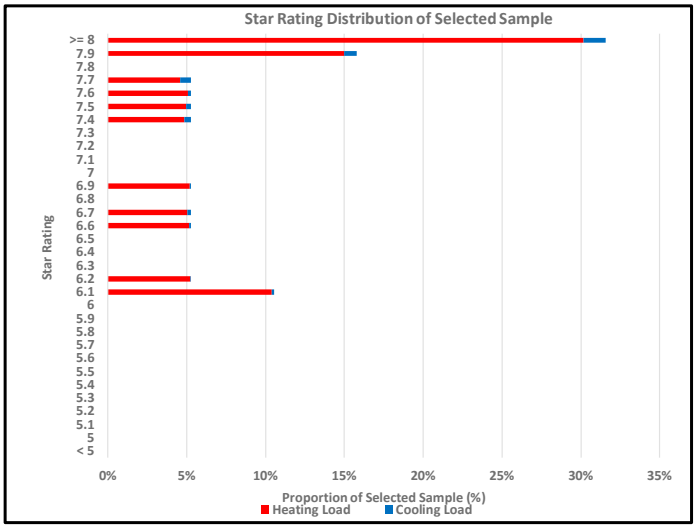
190

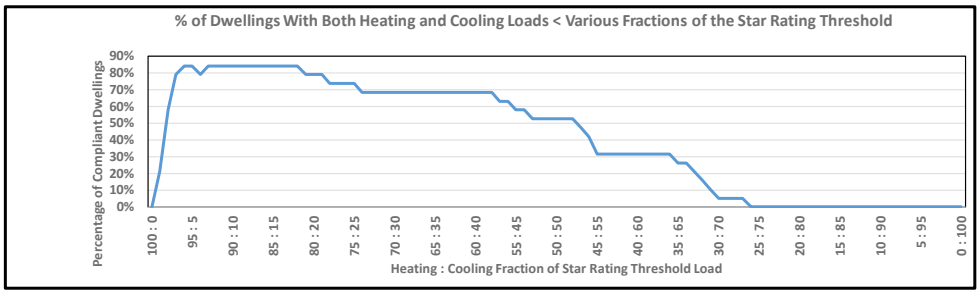
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	TAS	
Climate Zone	26	Hobart 26
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

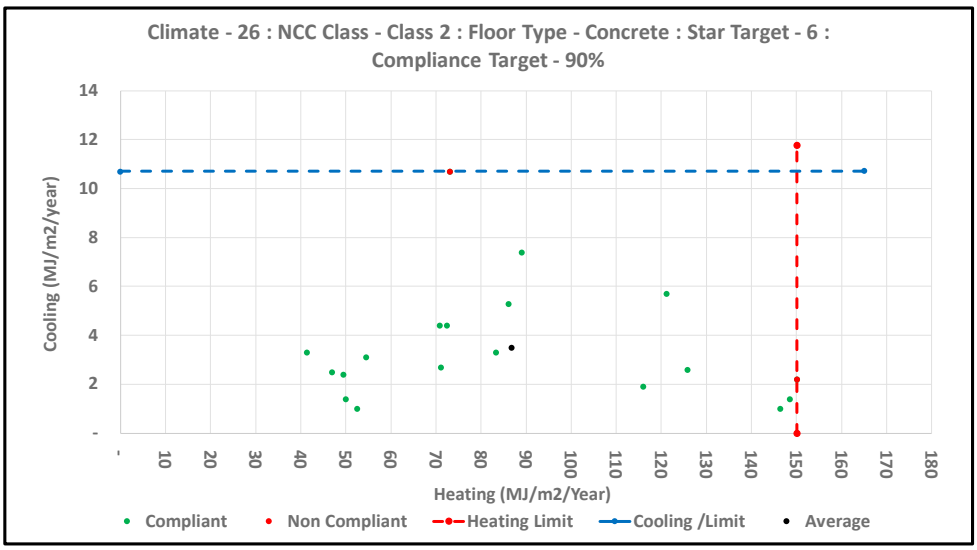
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	19	
Target Load	155.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	86.8	MJ/m2/Annum
Av. Cool Load	3.5	MJ/m2/Annum
Av. Total Load	90.3	MJ/m2/Annum
Av. % Heat	96.1%	%
Av. % Cool	3.9%	%
Av. Star Rating	7.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	150.1	MJ/m2/y	Cooling Limit	10.7	MJ/m2/y	Total Limit	155.0	MJ/m2/y
			5.8	Stars			6	Stars

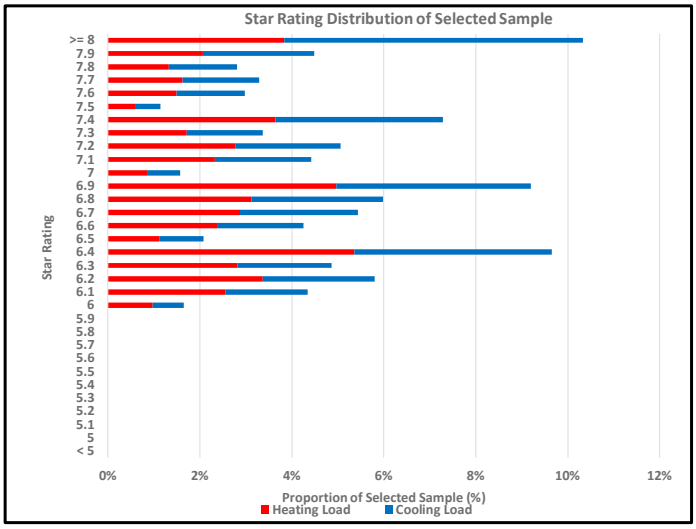
191

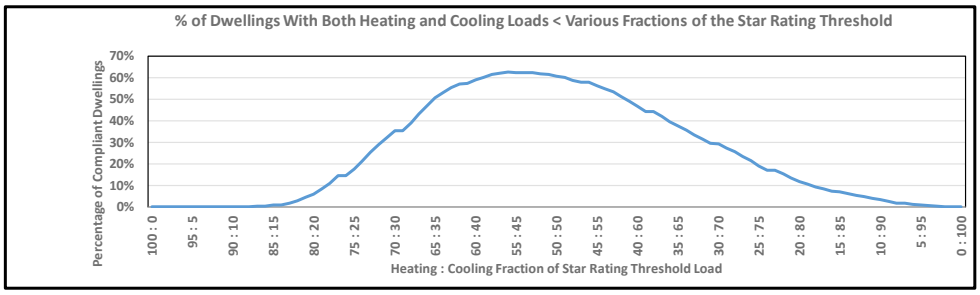
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	28	Richmond 28
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

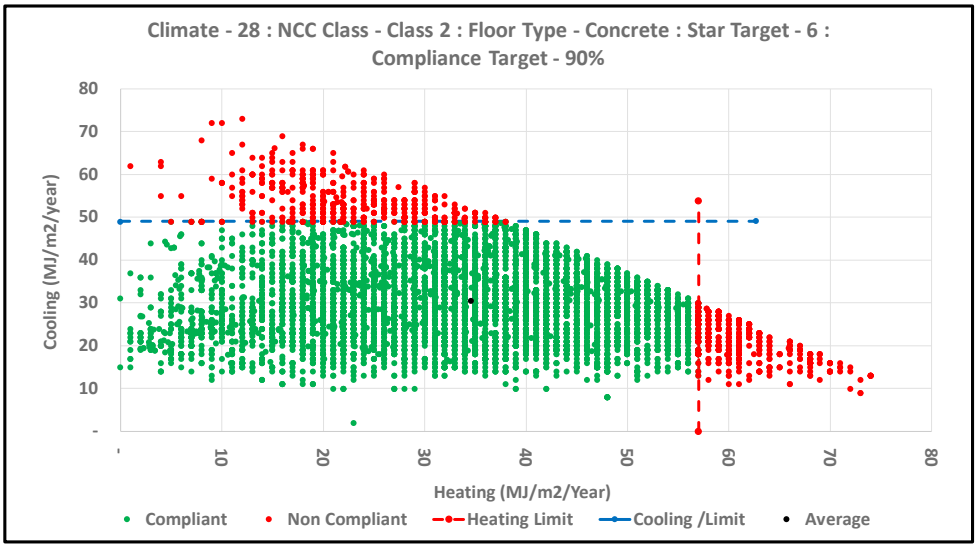
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	9261	
Target Load	87.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	34.6	MJ/m2/Annum
Av. Cool Load	30.5	MJ/m2/Annum
Av. Total Load	65.1	MJ/m2/Annum
Av. % Heat	53.1%	%
Av. % Cool	46.9%	%
Av. Star Rating	7.1	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	57.0	MJ/m2/y	Cooling Limit	49.0	MJ/m2/y	Total Limit	87.0	MJ/m2/y
			5.2	Stars			6	Stars

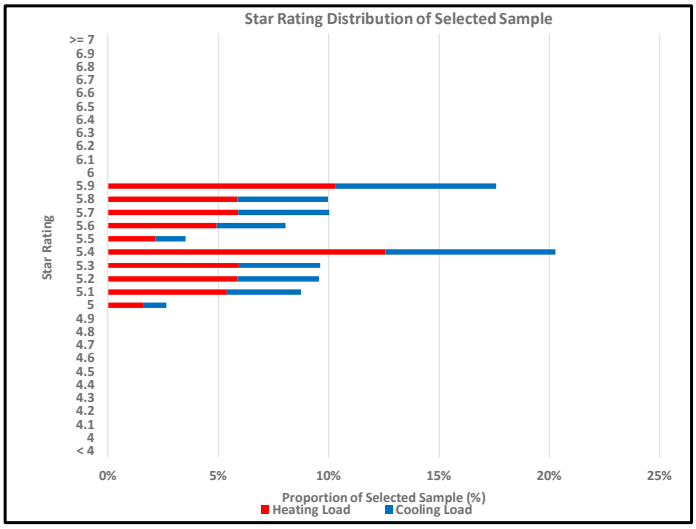
192

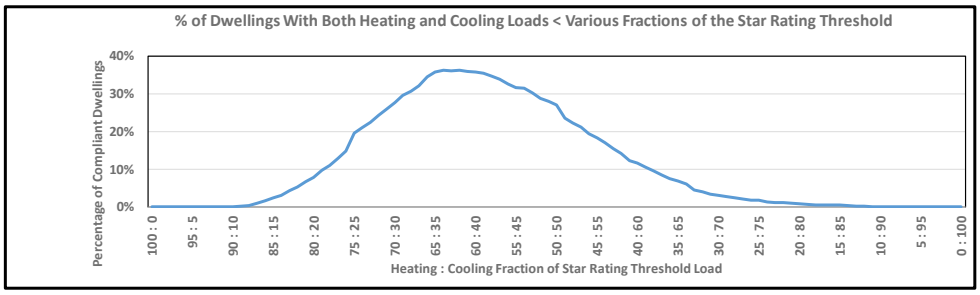
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	28	Richmond 28
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

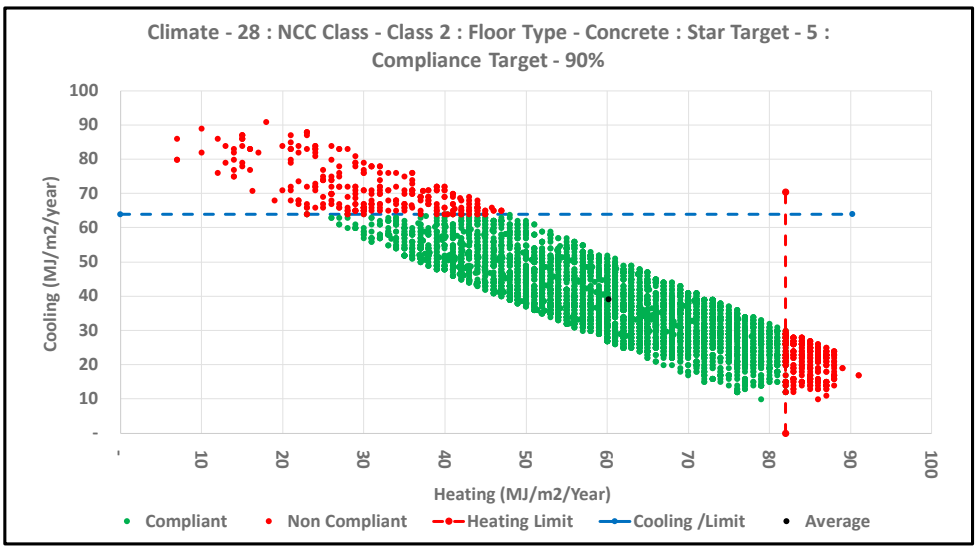
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	5810	
Target Load	112.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	60.2	MJ/m2/Annum
Av. Cool Load	39.1	MJ/m2/Annum
Av. Total Load	99.3	MJ/m2/Annum
Av. % Heat	60.6%	%
Av. % Cool	39.4%	%
Av. Star Rating	5.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	82.0	MJ/m2/y	Cooling Limit	64.0	MJ/m2/y	Total Limit	112.0	MJ/m2/y
			3.9	Stars			5	Stars

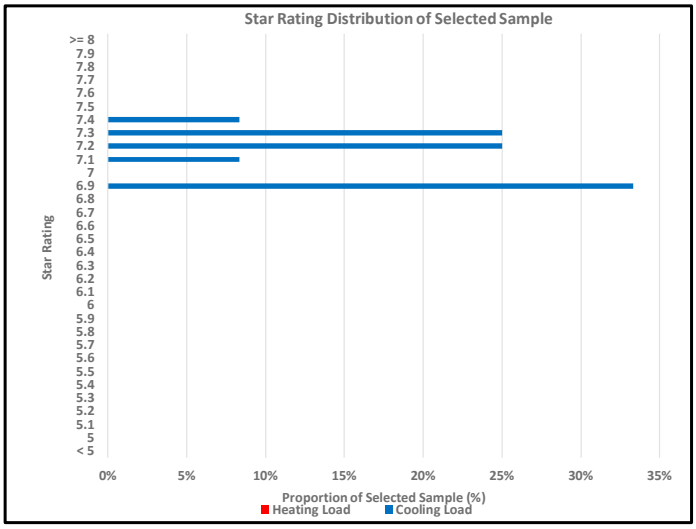
193

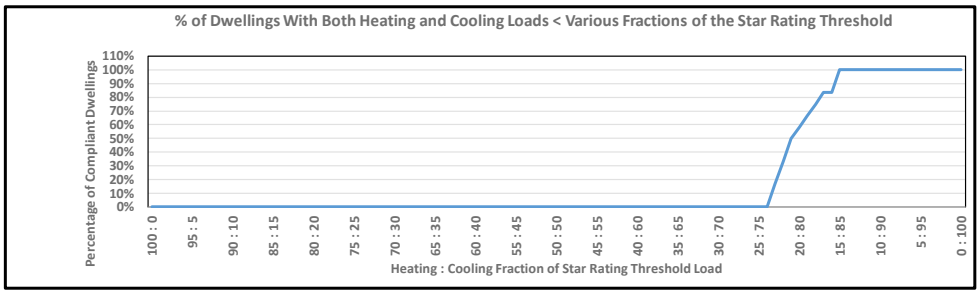
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	29	Weipa 29
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

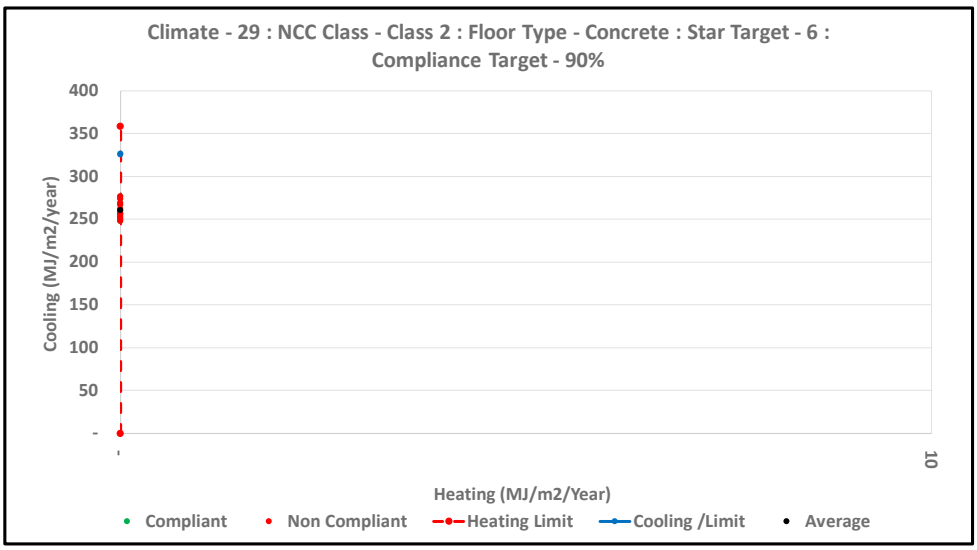
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	12	
Target Load	326.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	0.0	MJ/m2/Annum
Av. Cool Load	260.6	MJ/m2/Annum
Av. Total Load	260.6	MJ/m2/Annum
Av. % Heat	0.0%	%
Av. % Cool	100.0%	%
Av. Star Rating	7.1	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	0.0	MJ/m2/y	Cooling Limit	326.0	MJ/m2/y	Total Limit	326.0	MJ/m2/y
			5.9	Stars		6	Stars	

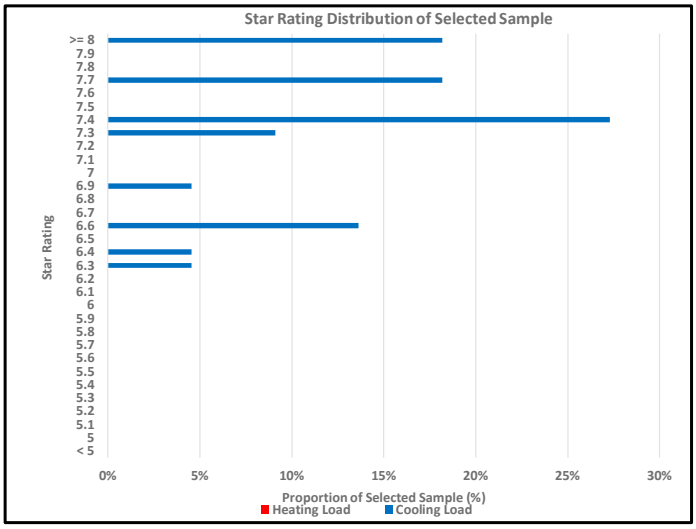
194

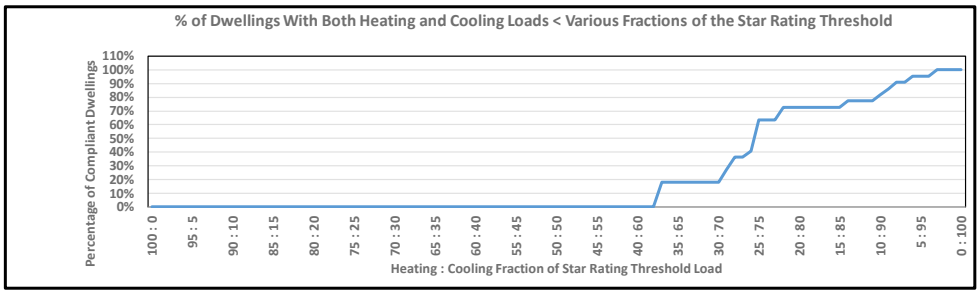
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	32	Cairns 32
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

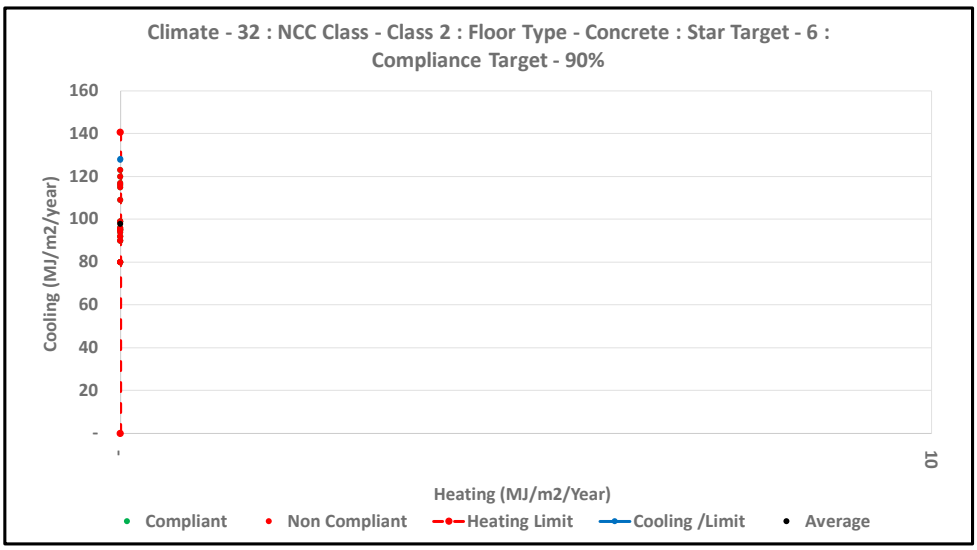
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	22	
Target Load	128.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	0.0	MJ/m2/Annum
Av. Cool Load	97.9	MJ/m2/Annum
Av. Total Load	97.9	MJ/m2/Annum
Av. % Heat	0.0%	%
Av. % Cool	100.0%	%
Av. Star Rating	7.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	0.0	MJ/m2/y	Cooling Limit	128.0	MJ/m2/y	Total Limit	128.0	MJ/m2/y
			5.9	Stars			6	Stars

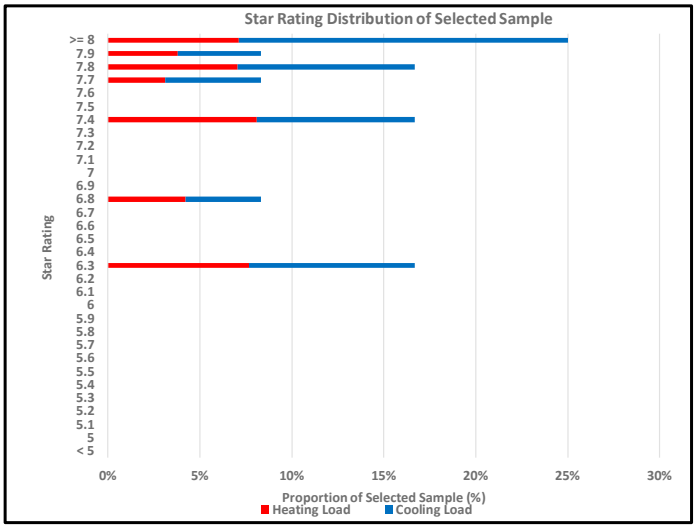
195

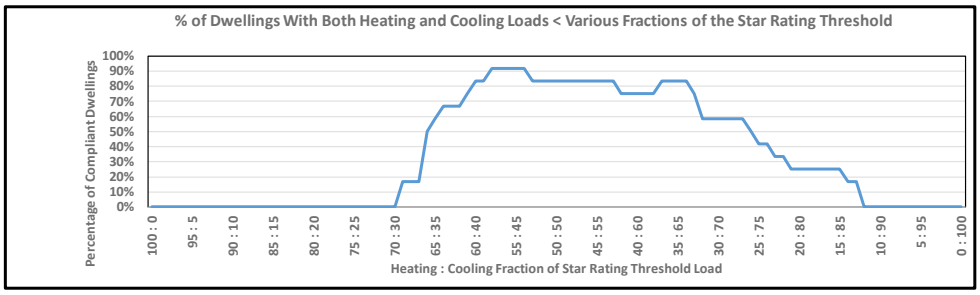
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	QLD	
Climate Zone	50	Oakley 50
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

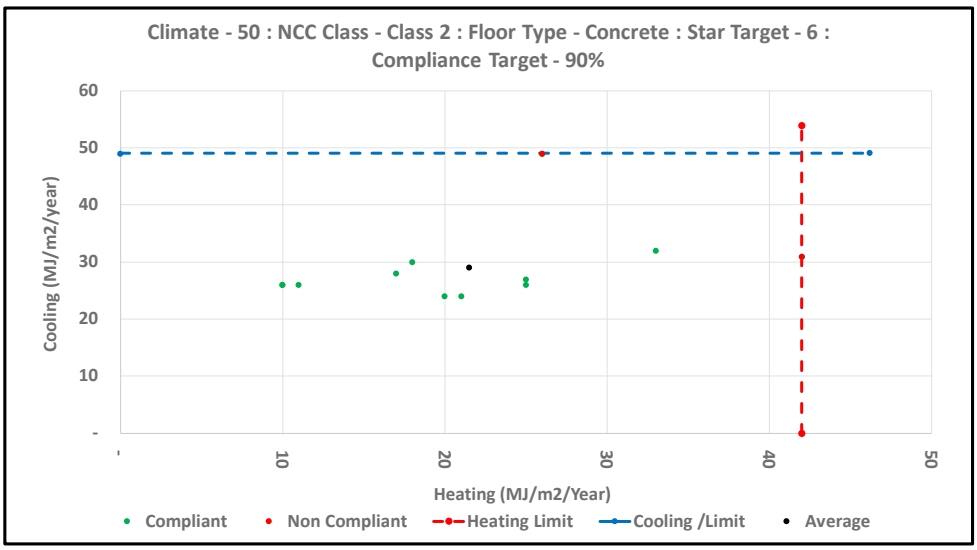
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	12	
Target Load	78.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	21.5	MJ/m2/Annum
Av. Cool Load	29.1	MJ/m2/Annum
Av. Total Load	50.6	MJ/m2/Annum
Av. % Heat	42.6%	%
Av. % Cool	57.6%	%
Av. Star Rating	7.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	42.0	MJ/m2/y	Cooling Limit	49.0	MJ/m2/y	Total Limit	78.0	MJ/m2/y
			5.2	Stars			6	Stars

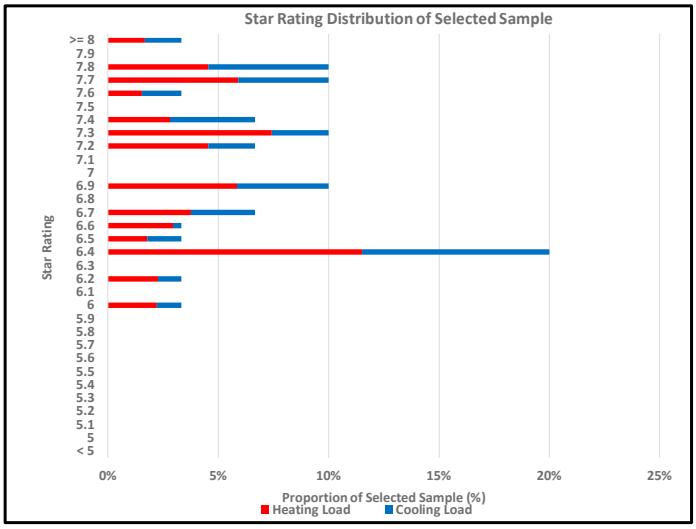
196

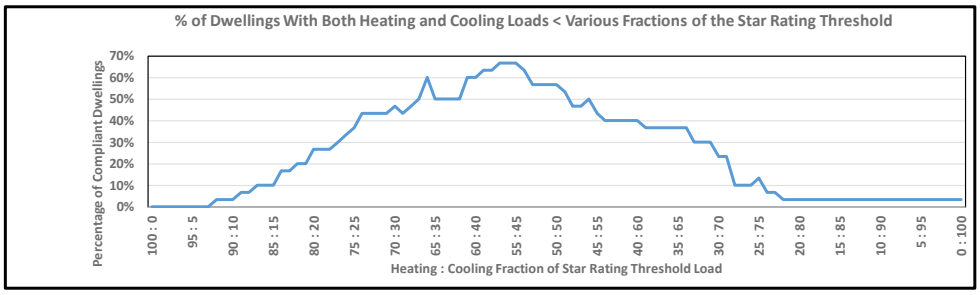
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	52	Swanbourne 52
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

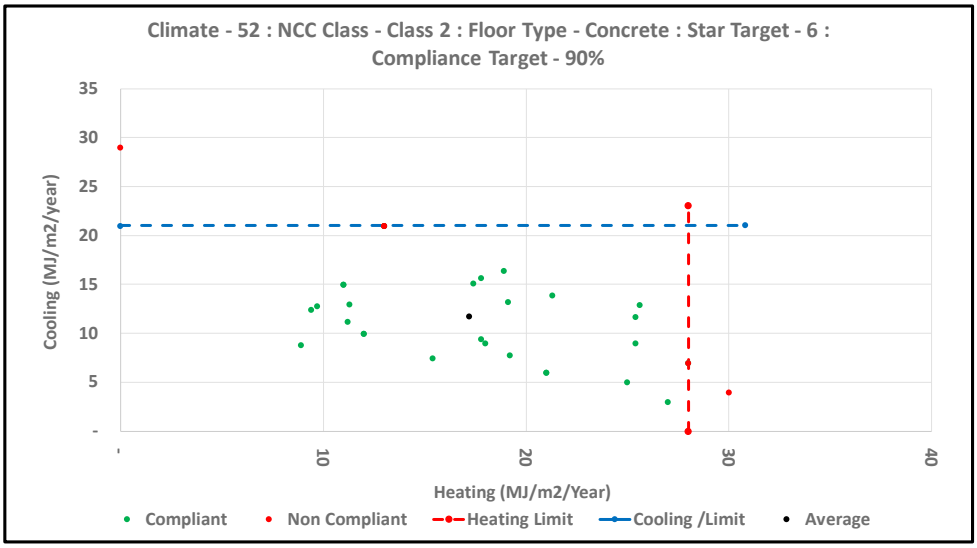
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	30	
Target Load	39.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	17.2	MJ/m2/Annum
Av. Cool Load	11.7	MJ/m2/Annum
Av. Total Load	28.9	MJ/m2/Annum
Av. % Heat	59.2%	%
Av. % Cool	40.4%	%
Av. Star Rating	7.0	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	28.0	MJ/m2/y	Cooling Limit	21.0	MJ/m2/y	Total Limit	39.0	MJ/m2/y
			5.1	Stars			6	Stars

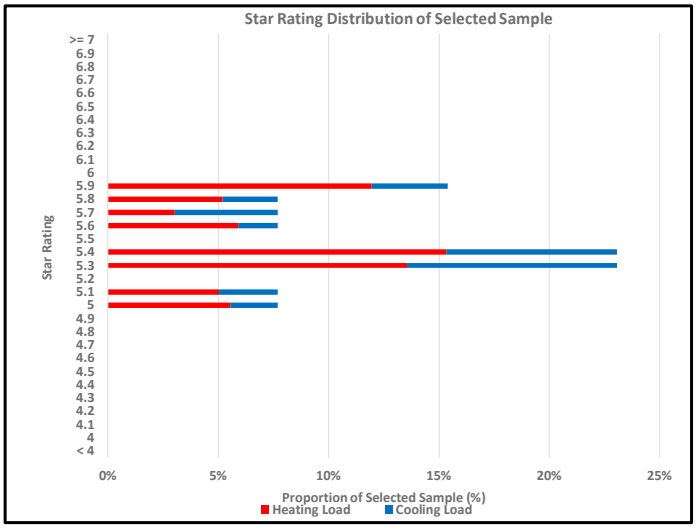
197

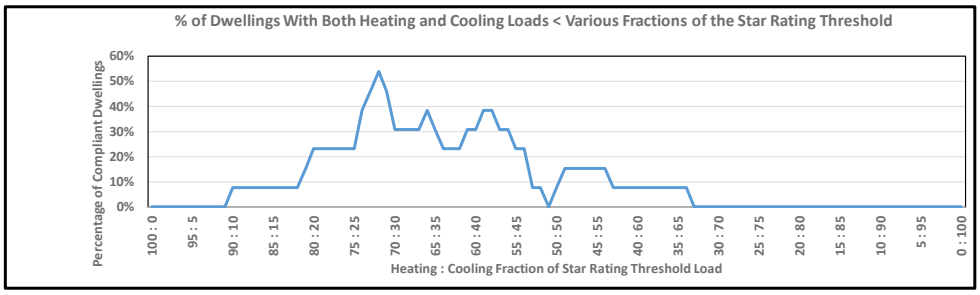
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	52	Swanbourne 52
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

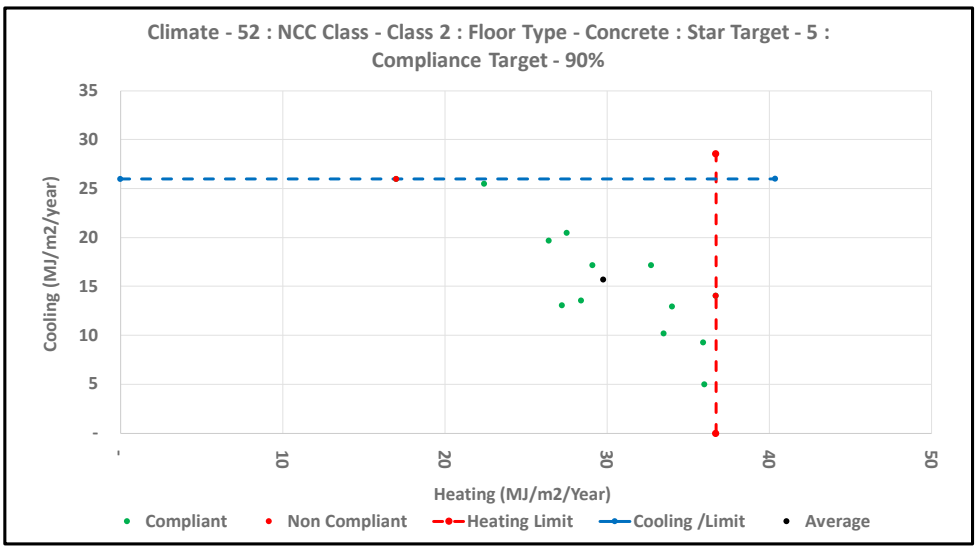
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	13	
Target Load	51.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	29.8	MJ/m2/Annum
Av. Cool Load	15.7	MJ/m2/Annum
Av. Total Load	45.5	MJ/m2/Annum
Av. % Heat	65.3%	%
Av. % Cool	34.5%	%
Av. Star Rating	5.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	36.7	MJ/m2/y	Cooling Limit	26.0	MJ/m2/y	Total Limit	51.0	MJ/m2/y
			4.3	Stars			5	Stars

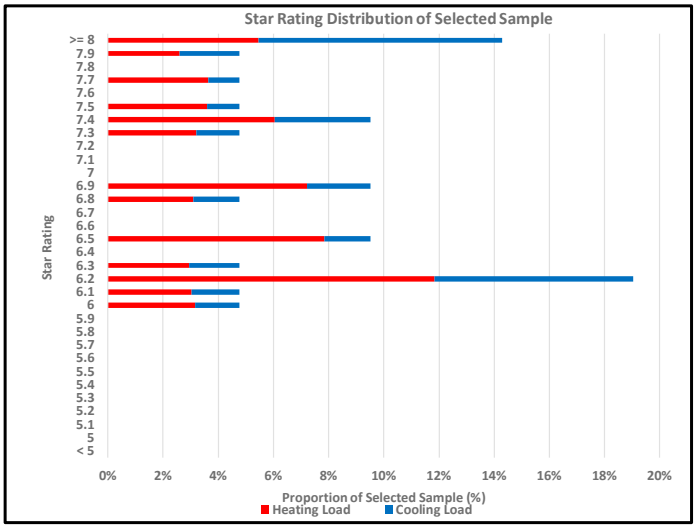
198

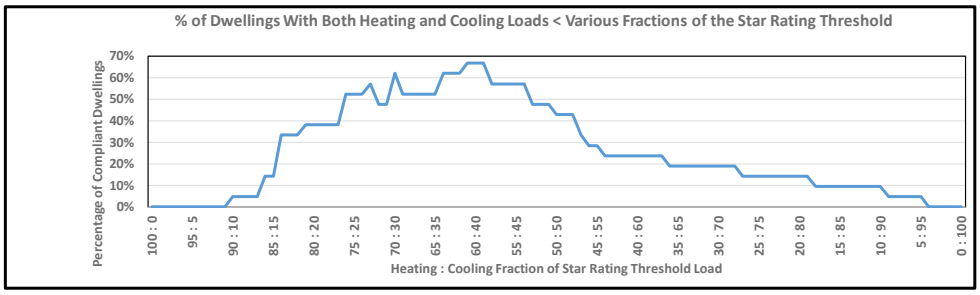
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	WA	
Climate Zone	54	Mandurah 54
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

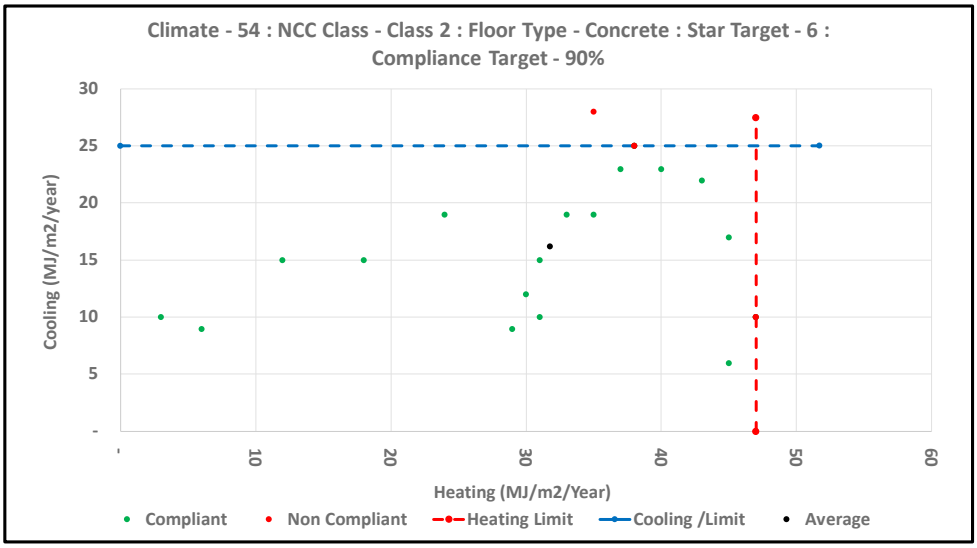
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	21	
Target Load	65.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	31.8	MJ/m2/Annum
Av. Cool Load	16.2	MJ/m2/Annum
Av. Total Load	48.0	MJ/m2/Annum
Av. % Heat	66.3%	%
Av. % Cool	33.9%	%
Av. Star Rating	7.1	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	47.0	MJ/m2/y	Cooling Limit	25.0	MJ/m2/y	Total Limit	65.0	MJ/m2/y
			5.5	Stars			6	Stars

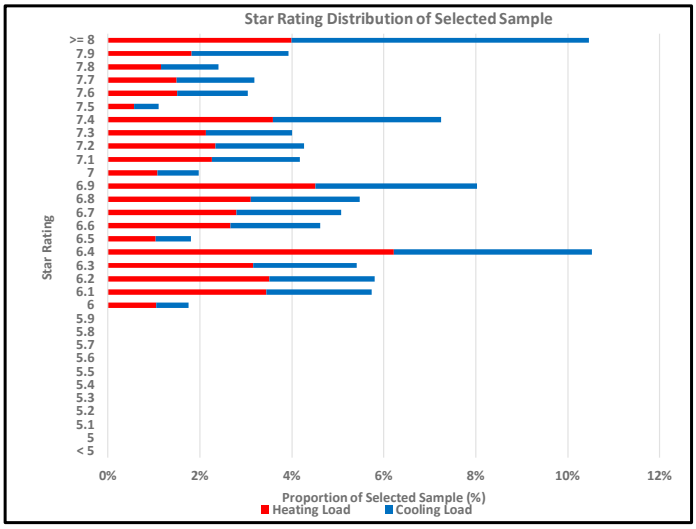
199

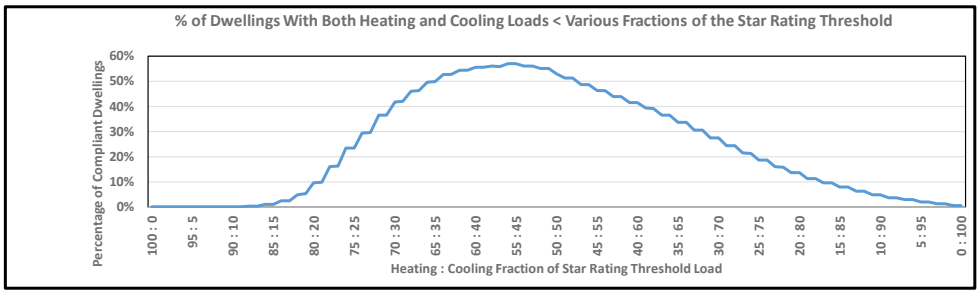
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	56	Mascot 56
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

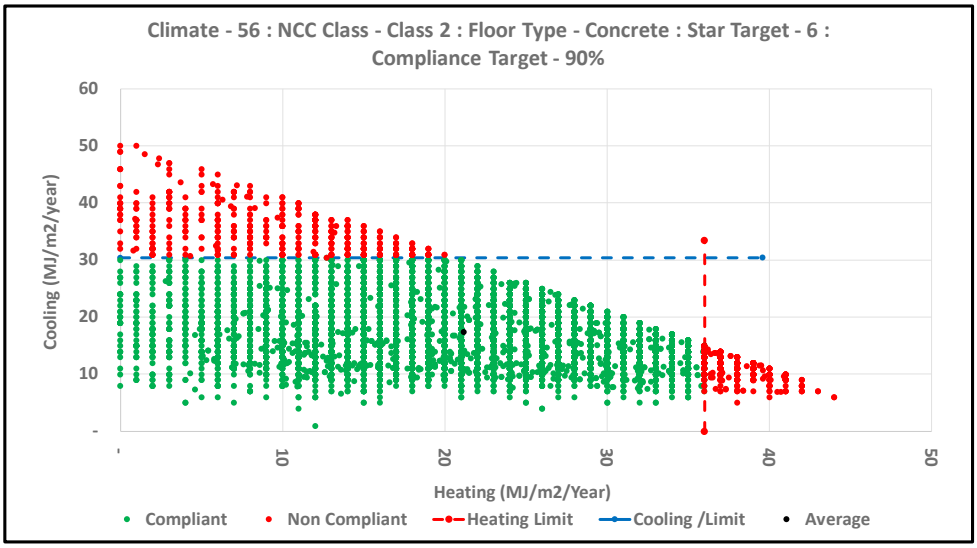
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	10000	
Target Load	51.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	21.1	MJ/m2/Annum
Av. Cool Load	17.4	MJ/m2/Annum
Av. Total Load	38.5	MJ/m2/Annum
Av. % Heat	54.9%	%
Av. % Cool	45.1%	%
Av. Star Rating	7.0	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	36.0	MJ/m2/y	Cooling Limit	30.4	MJ/m2/y	Total Limit	51.0	MJ/m2/y
			4.9	Stars			6	Stars

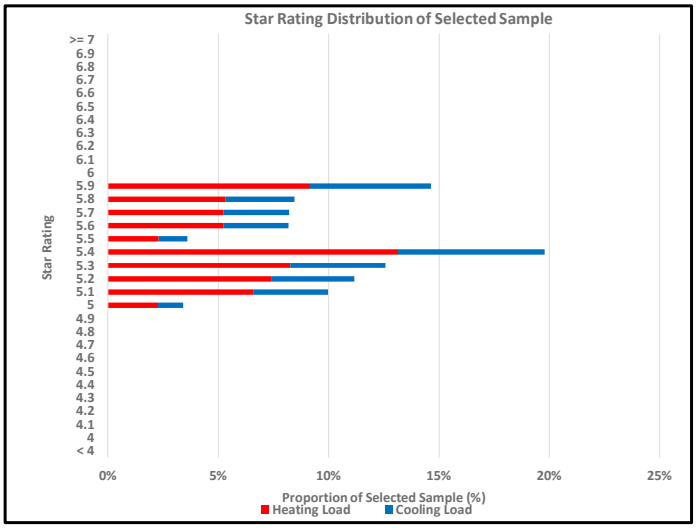
200

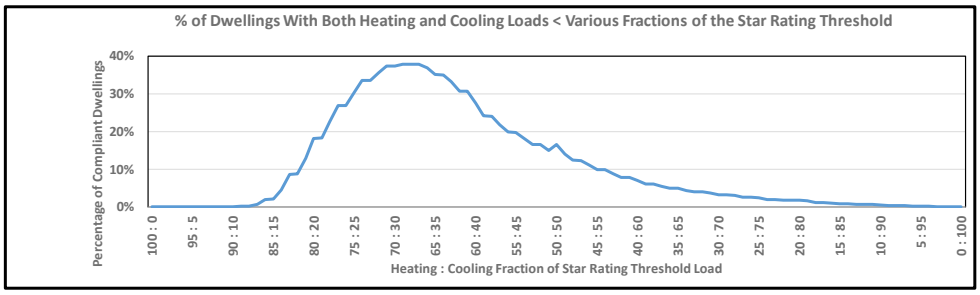
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	56	Mascot 56
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

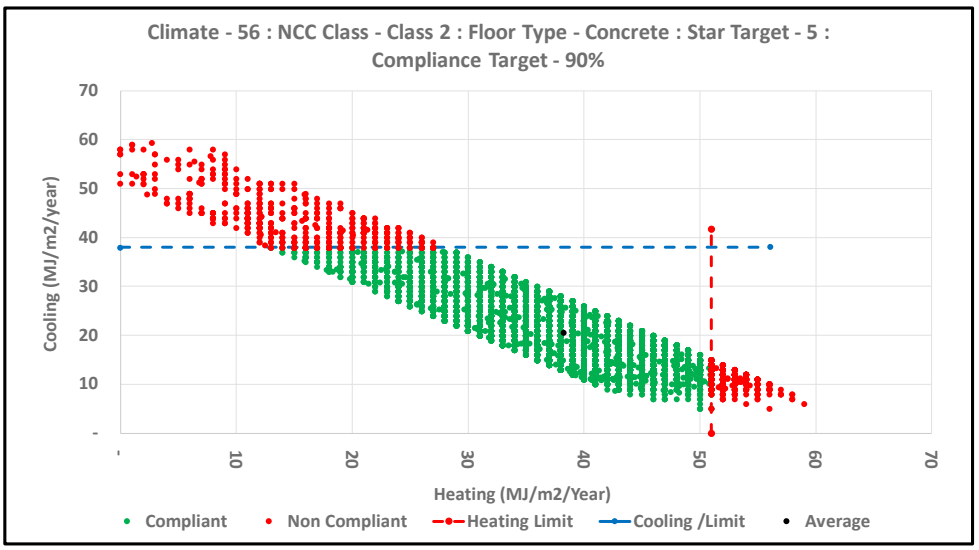
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	10000	
Target Load	66.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	38.3	MJ/m2/Annum
Av. Cool Load	20.6	MJ/m2/Annum
Av. Total Load	58.9	MJ/m2/Annum
Av. % Heat	65.0%	%
Av. % Cool	35.0%	%
Av. Star Rating	5.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	51.0	MJ/m2/y	Cooling Limit	38.0	MJ/m2/y	Total Limit	66.0	MJ/m2/y
			3.9	Stars			5	Stars

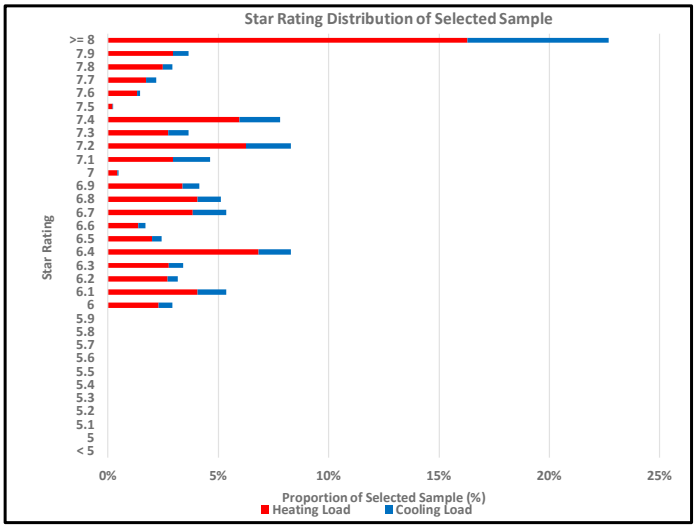
201

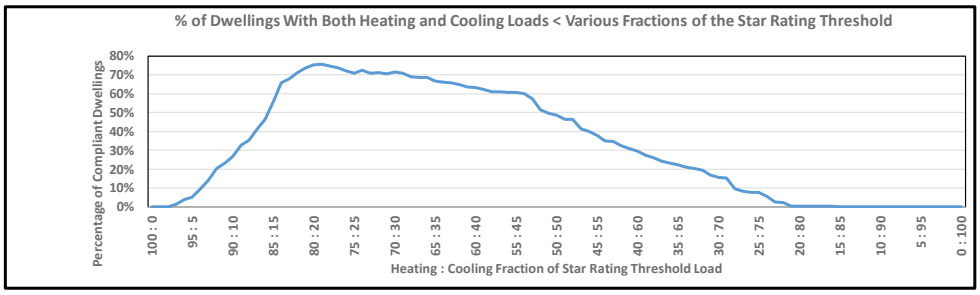
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	60	Tullamarine 60
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

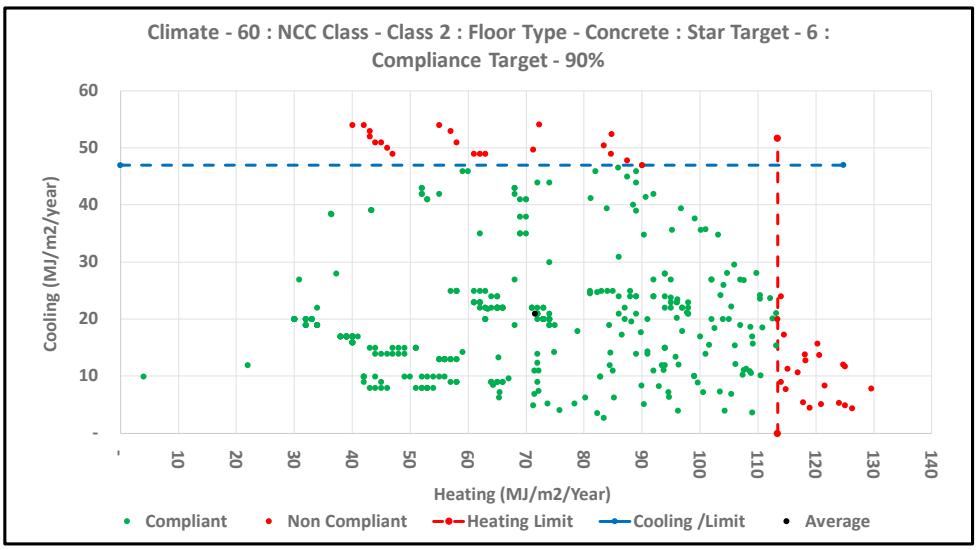
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	410	
Target Load	138.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	71.6	MJ/m2/Annum
Av. Cool Load	21.0	MJ/m2/Annum
Av. Total Load	92.6	MJ/m2/Annum
Av. % Heat	77.3%	%
Av. % Cool	22.7%	%
Av. Star Rating	7.2	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	113.4	MJ/m2/y	Cooling Limit	47.0	MJ/m2/y	Total Limit	138.0	MJ/m2/y
			5.4	Stars			6	Stars

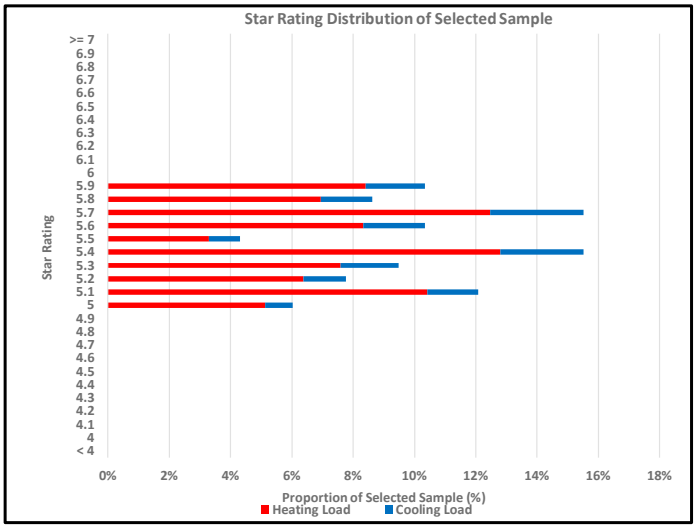
202

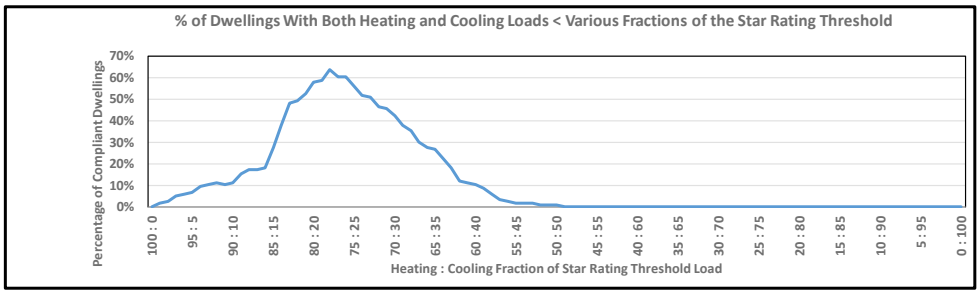
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	60	Tullamarine 60
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

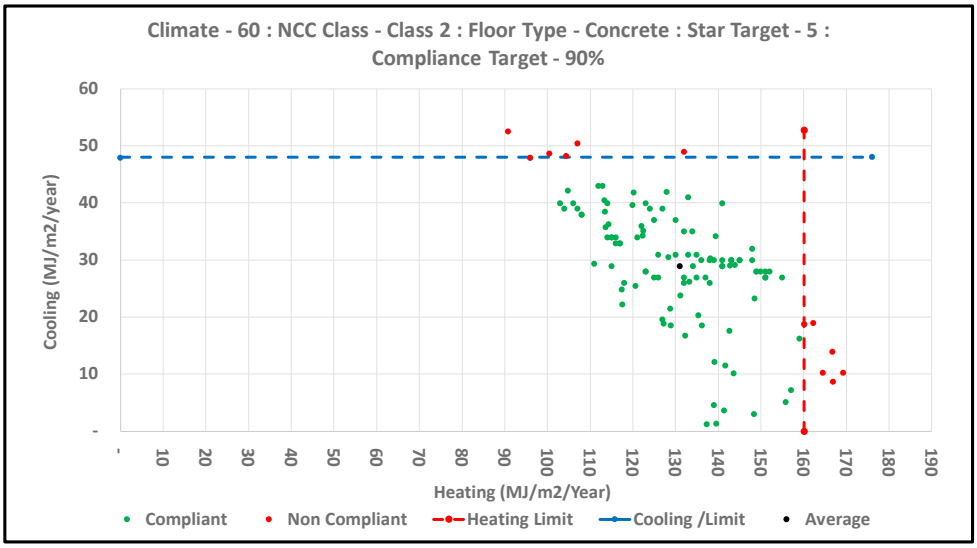
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	116	
Target Load	182.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	131.0	MJ/m2/Annum
Av. Cool Load	29.0	MJ/m2/Annum
Av. Total Load	160.0	MJ/m2/Annum
Av. % Heat	81.9%	%
Av. % Cool	18.1%	%
Av. Star Rating	5.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	160.1	MJ/m2/y	Cooling Limit	48.0	MJ/m2/y	Total Limit	182.0	MJ/m2/y
			4.5	Stars		5	Stars	

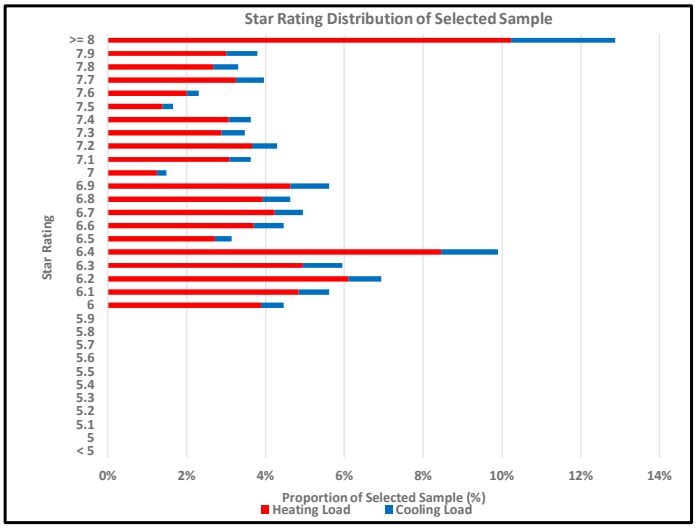
203

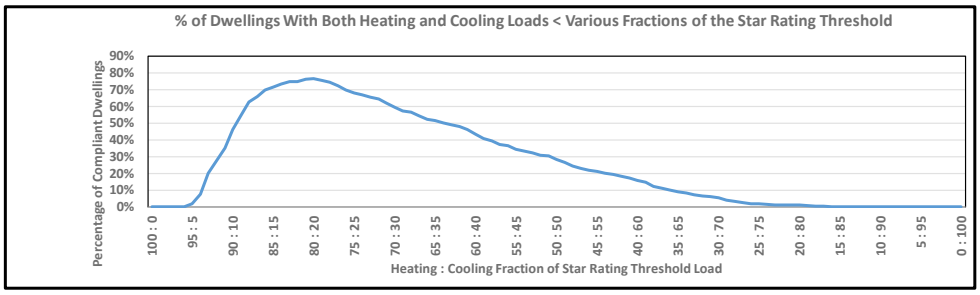
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	62	Moorabbin 62
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

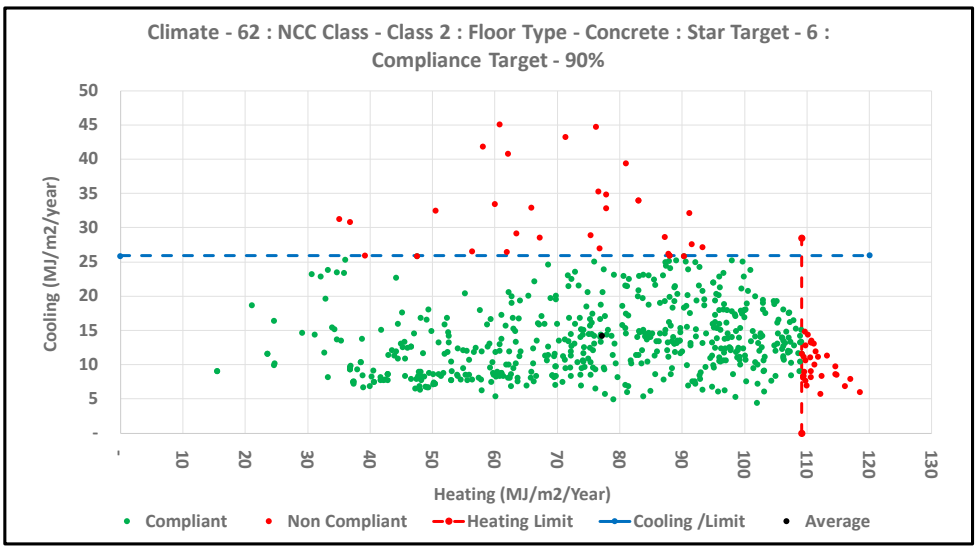
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	606	
Target Load	125.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	77.1	MJ/m2/Annum
Av. Cool Load	14.3	MJ/m2/Annum
Av. Total Load	91.4	MJ/m2/Annum
Av. % Heat	84.4%	%
Av. % Cool	15.6%	%
Av. Star Rating	7.0	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	109.2	MJ/m2/y	Cooling Limit	25.9	MJ/m2/y	Total Limit	125.0	MJ/m2/y
			5.7	Stars			6	Stars

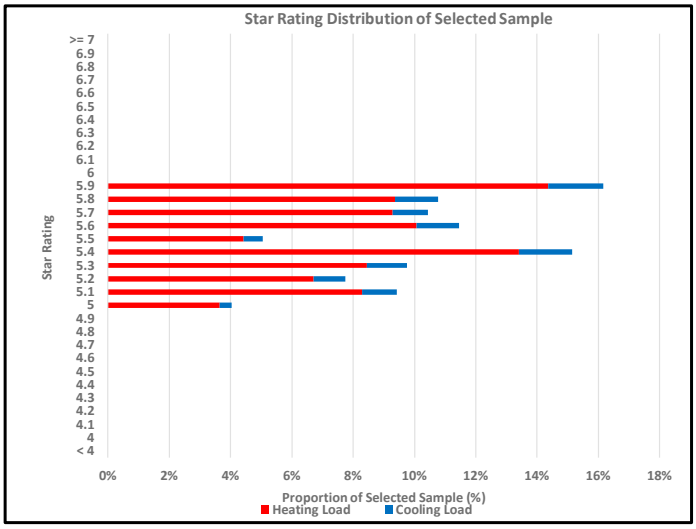
204

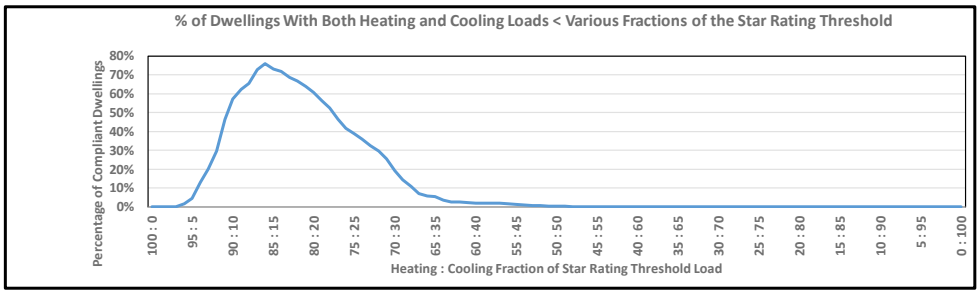
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	62	Moorabbin 62
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

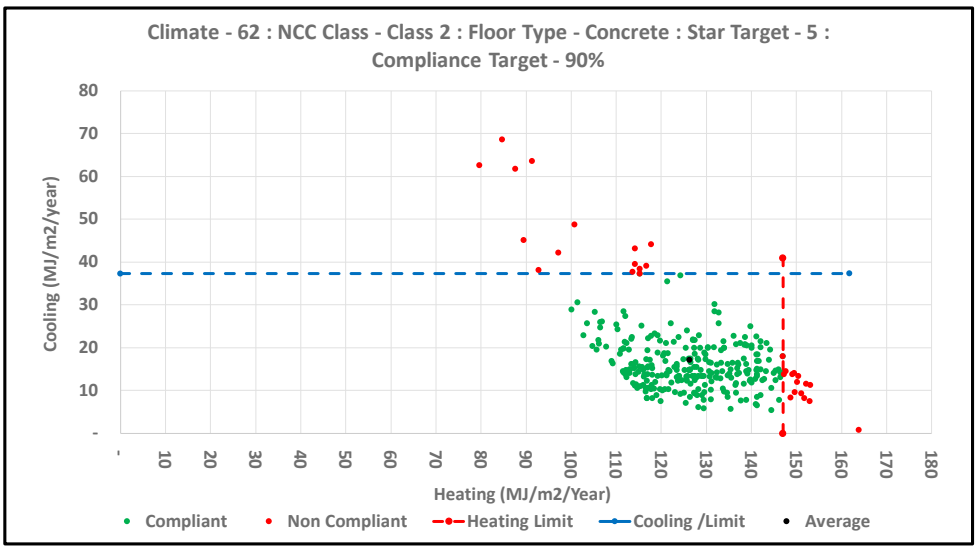
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	297	
Target Load	165.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	126.3	MJ/m2/Annum
Av. Cool Load	17.2	MJ/m2/Annum
Av. Total Load	143.5	MJ/m2/Annum
Av. % Heat	88.0%	%
Av. % Cool	12.0%	%
Av. Star Rating	5.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	147.0	MJ/m2/y	Cooling Limit	37.3	MJ/m2/y	Total Limit	165.0	MJ/m2/y
			4.6	Stars			5	Stars

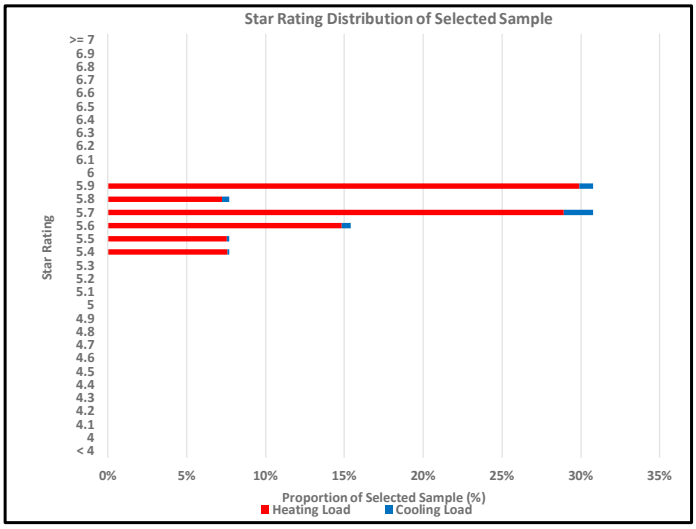
205

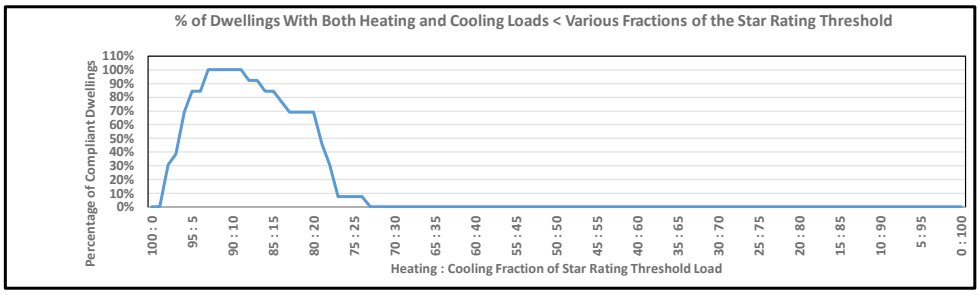
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	69	Thredbo 69
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Concrete	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

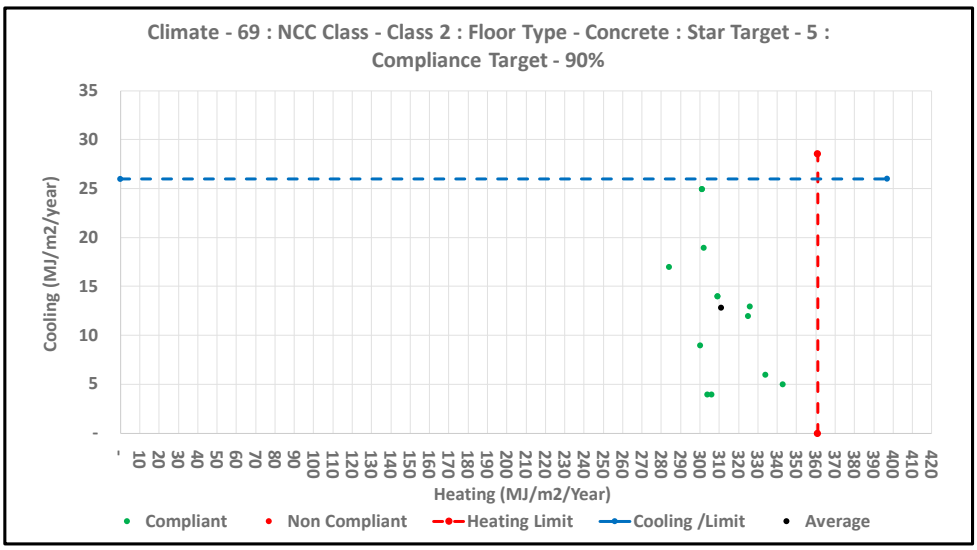
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	13	
Target Load	387.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	311.1	MJ/m2/Annum
Av. Cool Load	12.8	MJ/m2/Annum
Av. Total Load	323.9	MJ/m2/Annum
Av. % Heat	96.0%	%
Av. % Cool	4.0%	%
Av. Star Rating	5.7	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	361.0	MJ/m2/y	Cooling Limit	26.0	MJ/m2/y	Total Limit	387.0	MJ/m2/y
			4.9	Stars		5	Stars	

206

Class 2 Dwellings

Timber Floor

Average 6 Star Standard

And

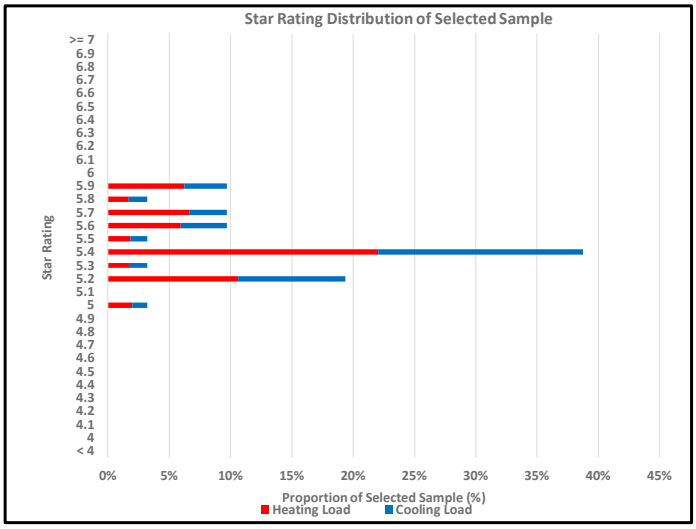
Minimum 5 Star Standard

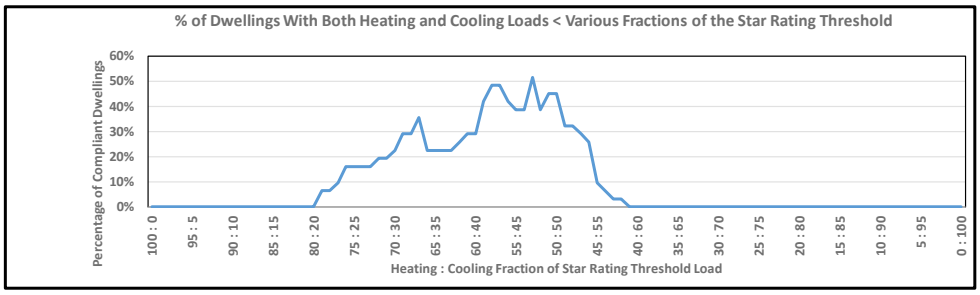
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	15	Williamtown 15
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

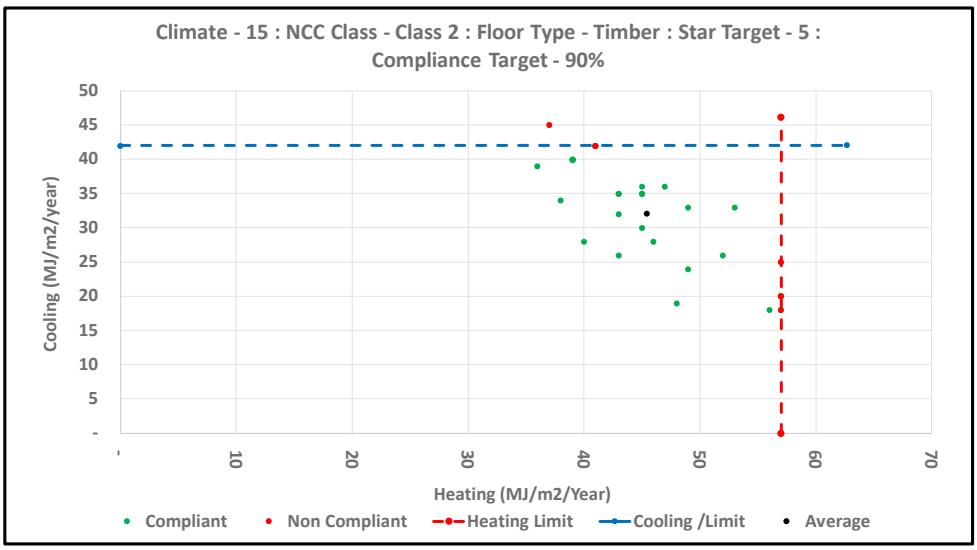
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	31	
Target Load	86.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	45.4	MJ/m2/Annum
Av. Cool Load	32.1	MJ/m2/Annum
Av. Total Load	77.5	MJ/m2/Annum
Av. % Heat	58.6%	%
Av. % Cool	41.4%	%
Av. Star Rating	5.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



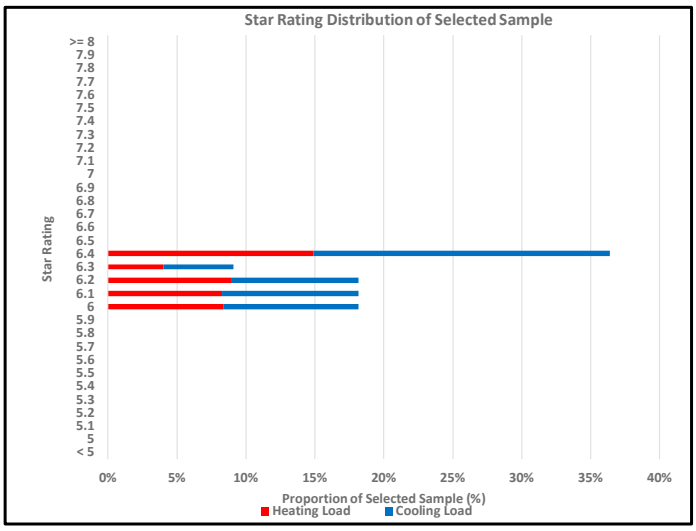
Heating Limit	57.0	MJ/m2/y	Cooling Limit	42.0	MJ/m2/y	Total Limit	86.0	MJ/m2/y
			4.4	Stars			5	Stars

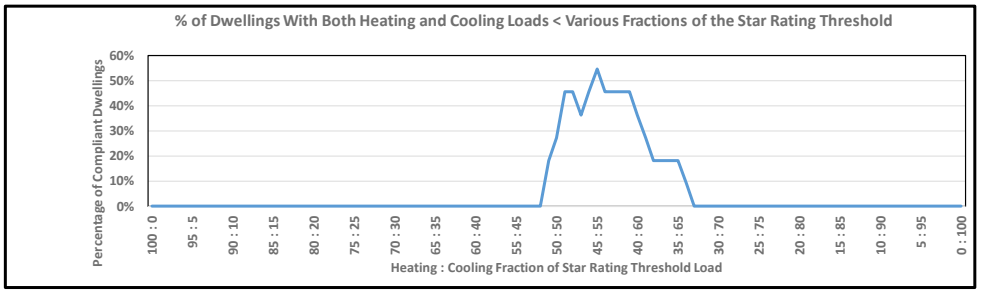
207

Settings		
GENERAL - Sample Selection		
State	SA	
Climate Zone	16	Adelaide 16
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

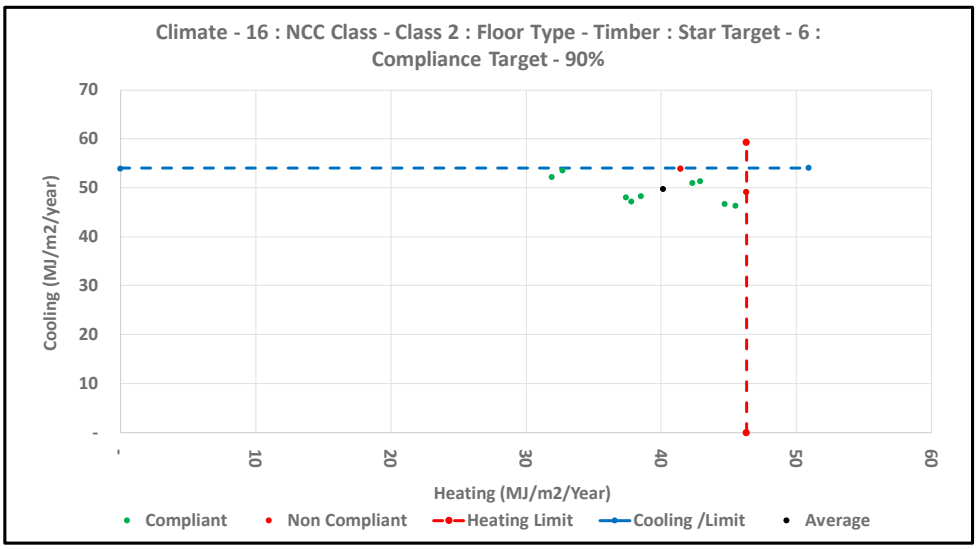
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	11	
Target Load	96.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	40.1	MJ/m2/Annum
Av. Cool Load	49.9	MJ/m2/Annum
Av. Total Load	90.0	MJ/m2/Annum
Av. % Heat	44.6%	%
Av. % Cool	55.4%	%
Av. Star Rating	6.2	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	46.3	MJ/m2/y	Cooling Limit	54.0	MJ/m2/y	Total Limit	96.0	MJ/m2/y
			5.8	Stars			6	Stars

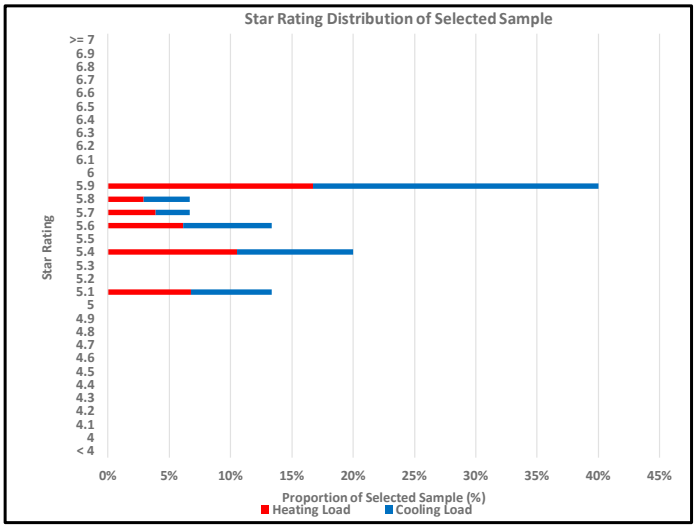
208

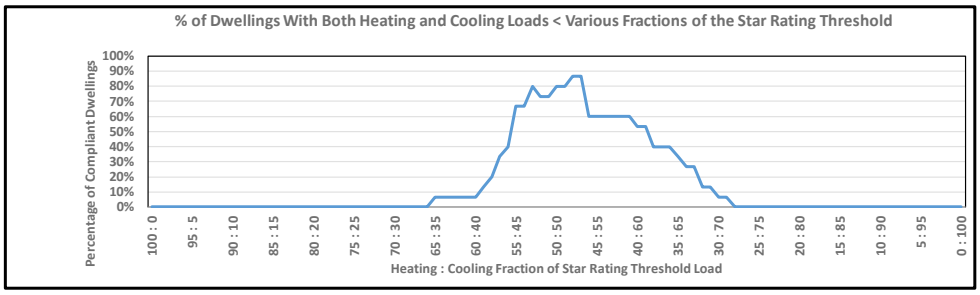
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	SA	
Climate Zone	16	Adelaide 16
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

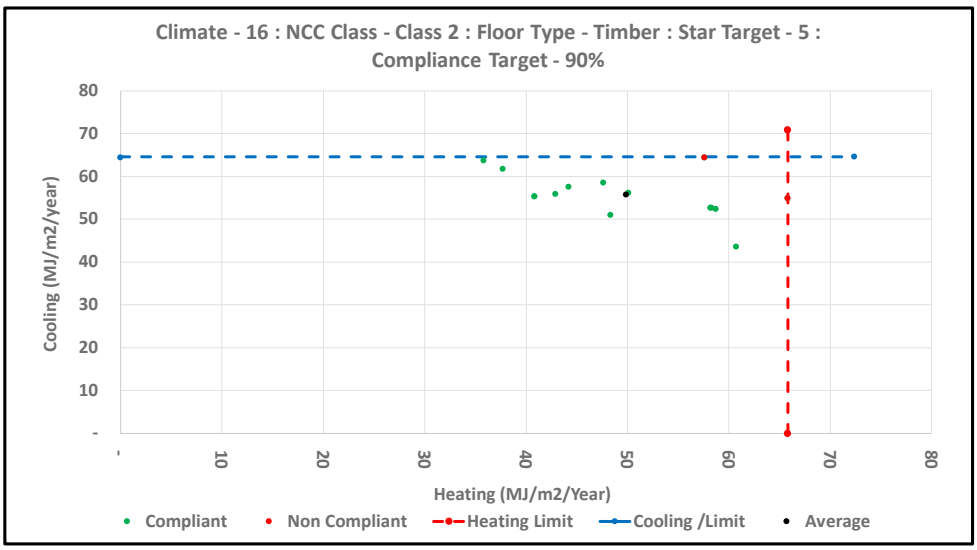
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	15	
Target Load	125.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	49.8	MJ/m2/Annum
Av. Cool Load	55.8	MJ/m2/Annum
Av. Total Load	105.6	MJ/m2/Annum
Av. % Heat	47.2%	%
Av. % Cool	52.8%	%
Av. Star Rating	5.6	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	65.8	MJ/m2/y	Cooling Limit	64.5	MJ/m2/y	Total Limit	125.0	MJ/m2/y
			4.8	Stars			5	Stars

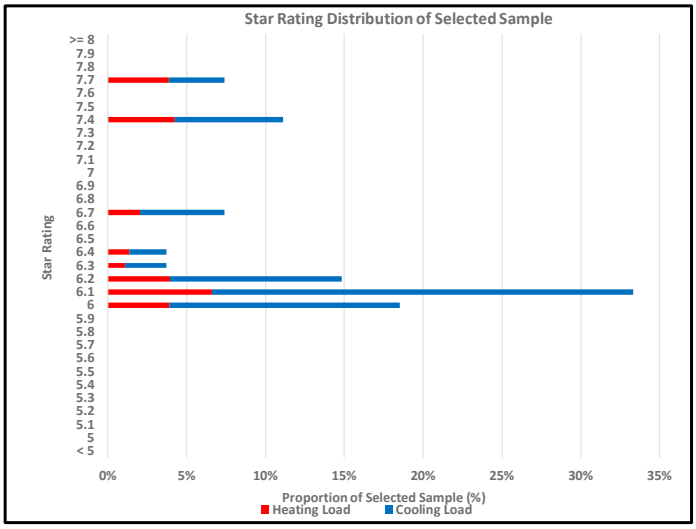
209

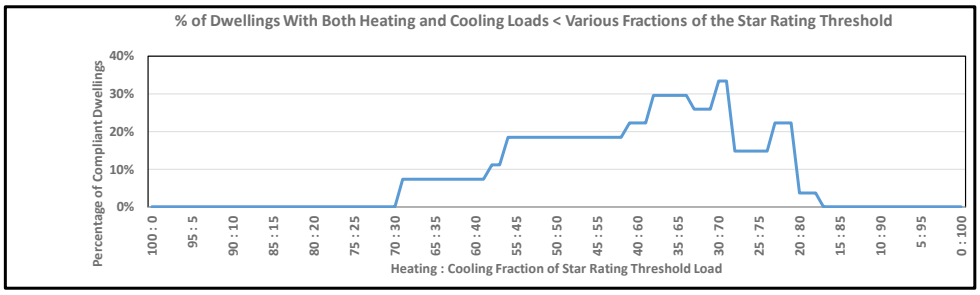
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	17	Sydney E 17
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

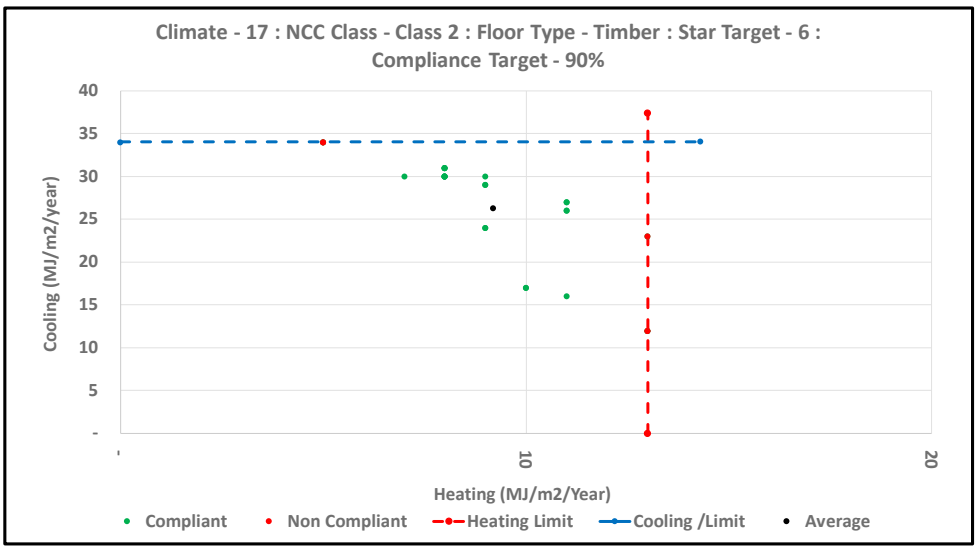
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	27	
Target Load	39.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	9.2	MJ/m2/Annum
Av. Cool Load	26.3	MJ/m2/Annum
Av. Total Load	35.5	MJ/m2/Annum
Av. % Heat	25.9%	%
Av. % Cool	74.2%	%
Av. Star Rating	6.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	13.0	MJ/m2/y	Cooling Limit	34.0	MJ/m2/y	Total Limit	39.0	MJ/m2/y
			5.2	Stars			6	Stars

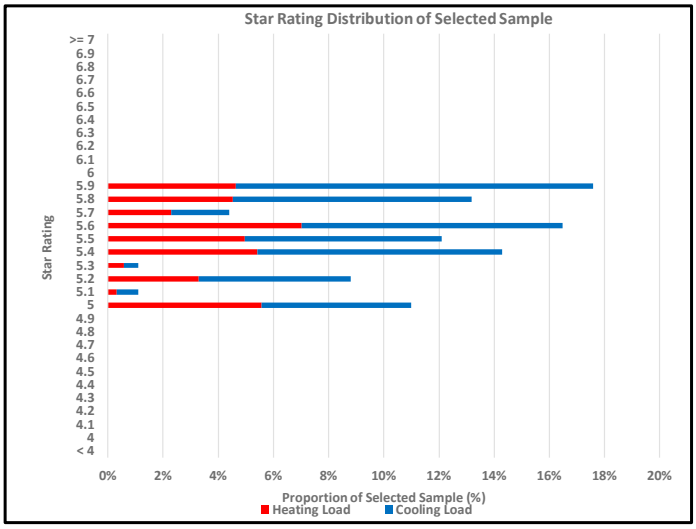
210

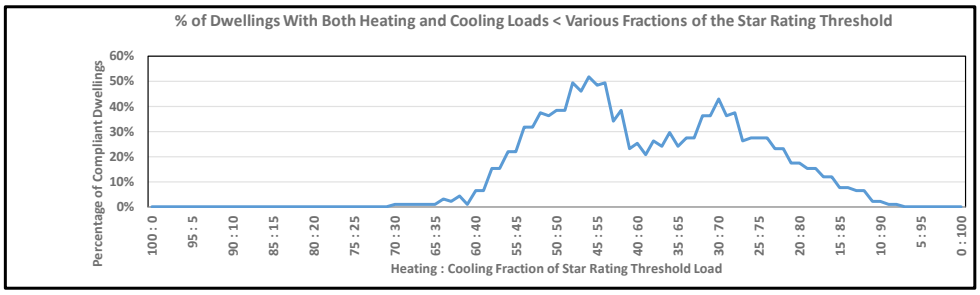
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	17	Sydney E 17
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

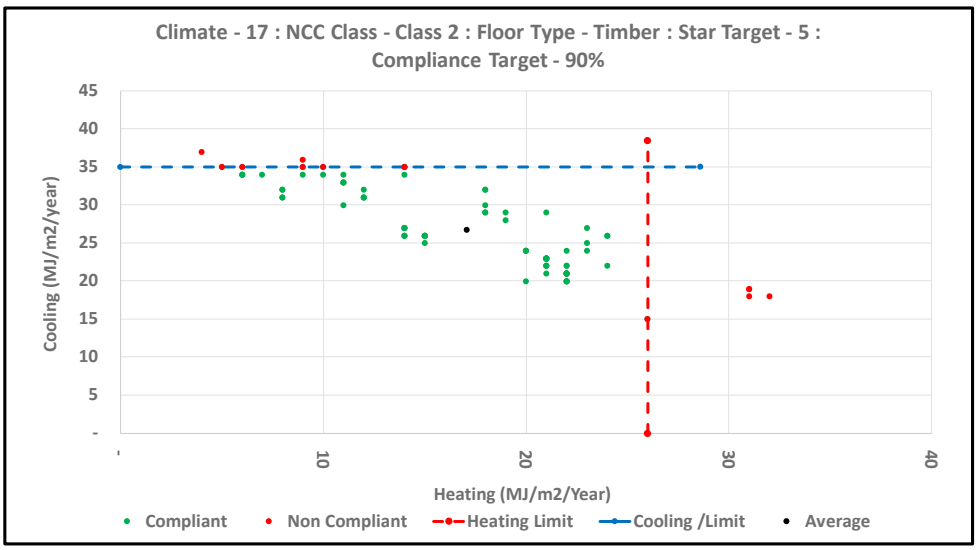
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	91	
Target Load	50.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	17.1	MJ/m2/Annum
Av. Cool Load	26.7	MJ/m2/Annum
Av. Total Load	43.8	MJ/m2/Annum
Av. % Heat	39.0%	%
Av. % Cool	61.1%	%
Av. Star Rating	5.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	26.0	MJ/m2/y	Cooling Limit	35.0	MJ/m2/y	Total Limit	50.0	MJ/m2/y
			4.3	Stars			5	Stars

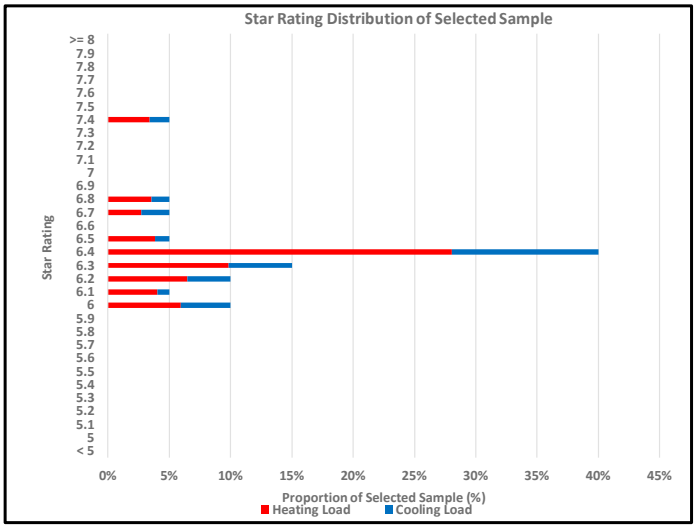
211

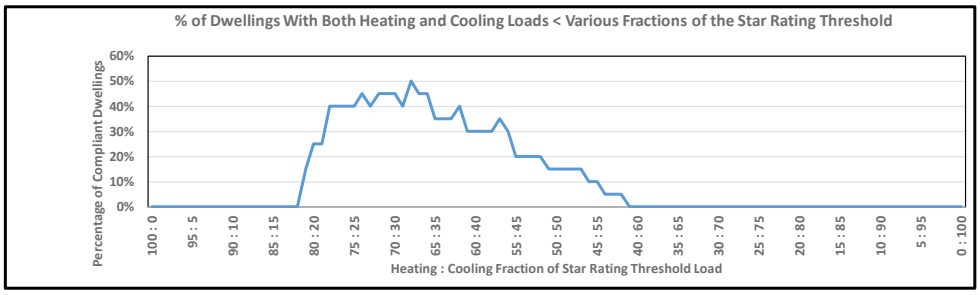
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	21	Melb 21
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

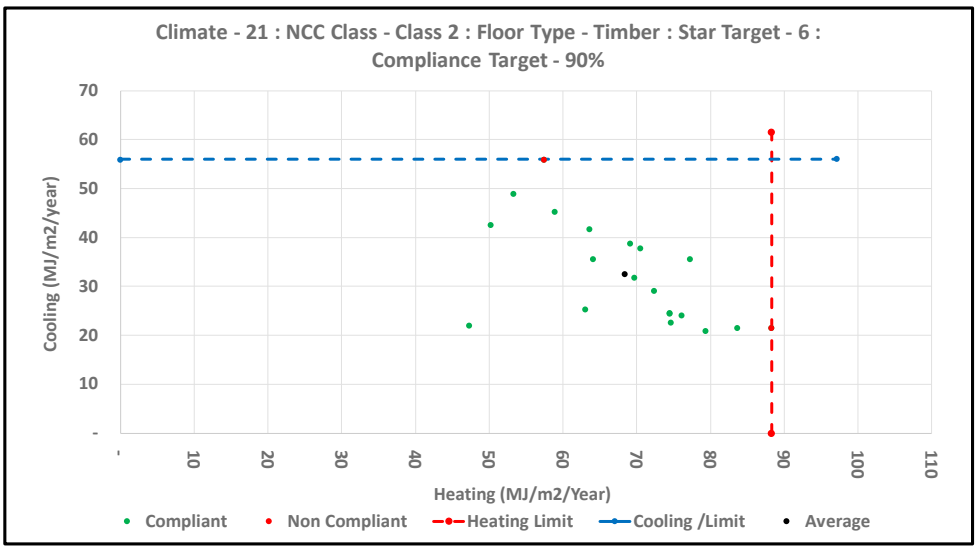
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	20	
Target Load	114.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	68.4	MJ/m2/Annum
Av. Cool Load	32.5	MJ/m2/Annum
Av. Total Load	100.9	MJ/m2/Annum
Av. % Heat	67.8%	%
Av. % Cool	32.2%	%
Av. Star Rating	6.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	88.3	MJ/m2/y	Cooling Limit	56.0	MJ/m2/y	Total Limit	114.0	MJ/m2/y
			5.1	Stars			6	Stars

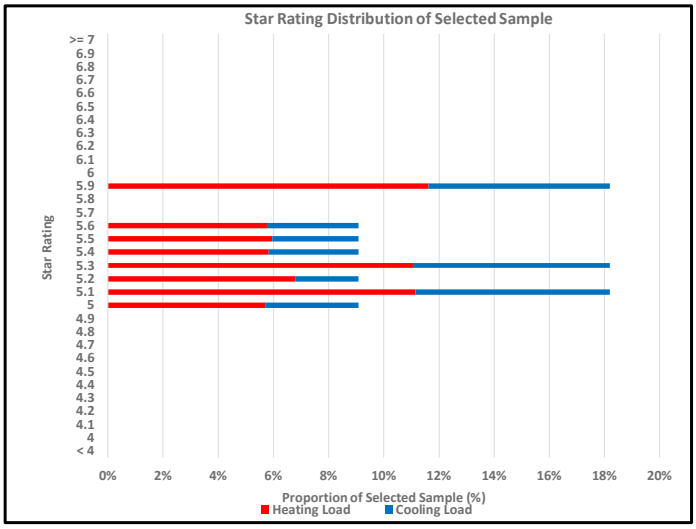
212

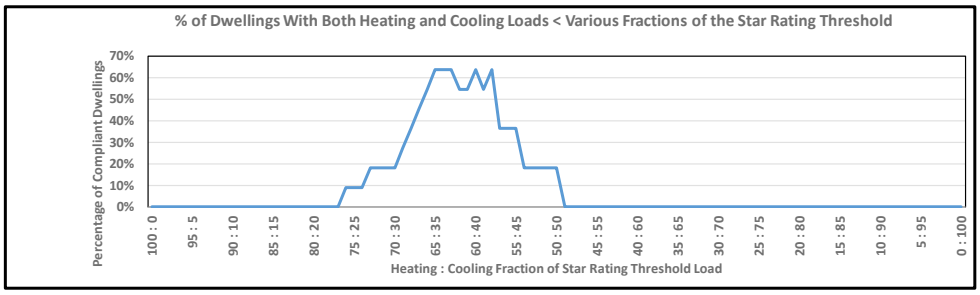
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	21	Melb 21
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

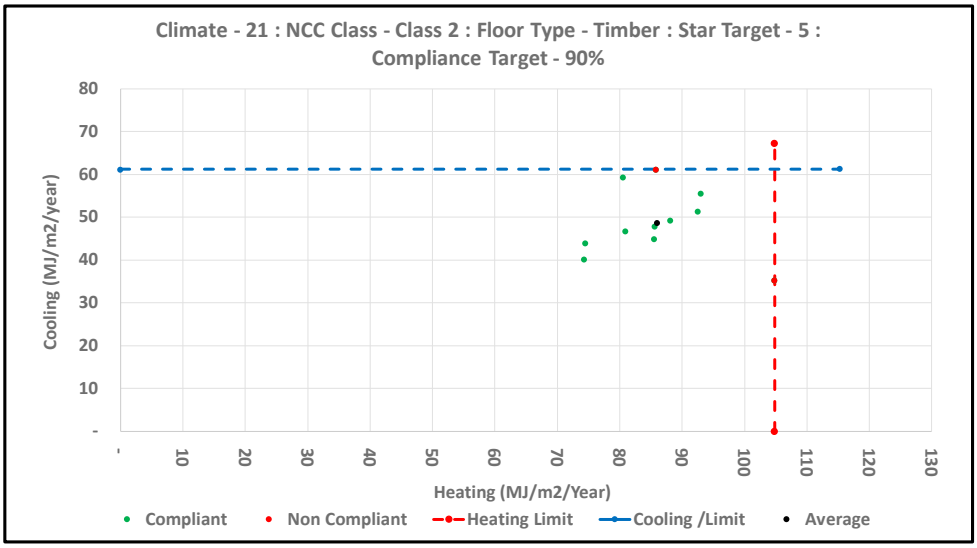
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	11	
Target Load	149.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	86.0	MJ/m2/Annum
Av. Cool Load	48.7	MJ/m2/Annum
Av. Total Load	134.6	MJ/m2/Annum
Av. % Heat	63.8%	%
Av. % Cool	36.2%	%
Av. Star Rating	5.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	104.8	MJ/m2/y	Cooling Limit	61.2	MJ/m2/y	Total Limit	149.0	MJ/m2/y
			4.6	Stars			5	Stars

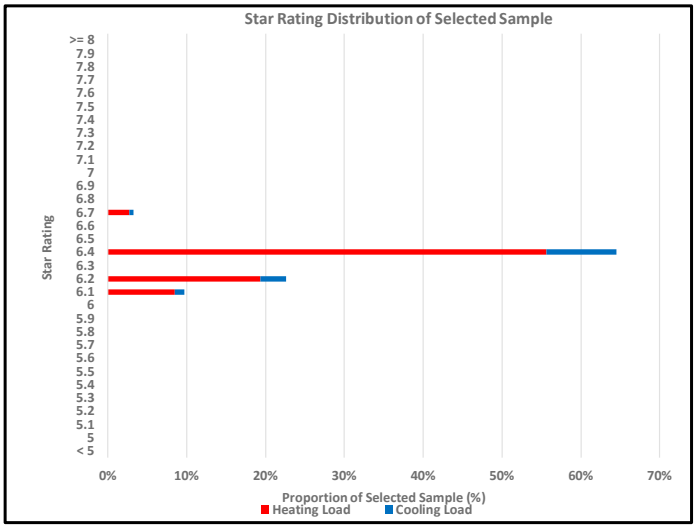
213

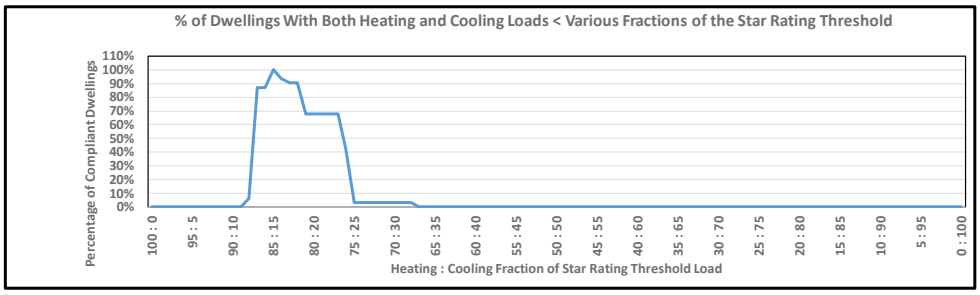
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	ACT	
Climate Zone	24	Canberra 24
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

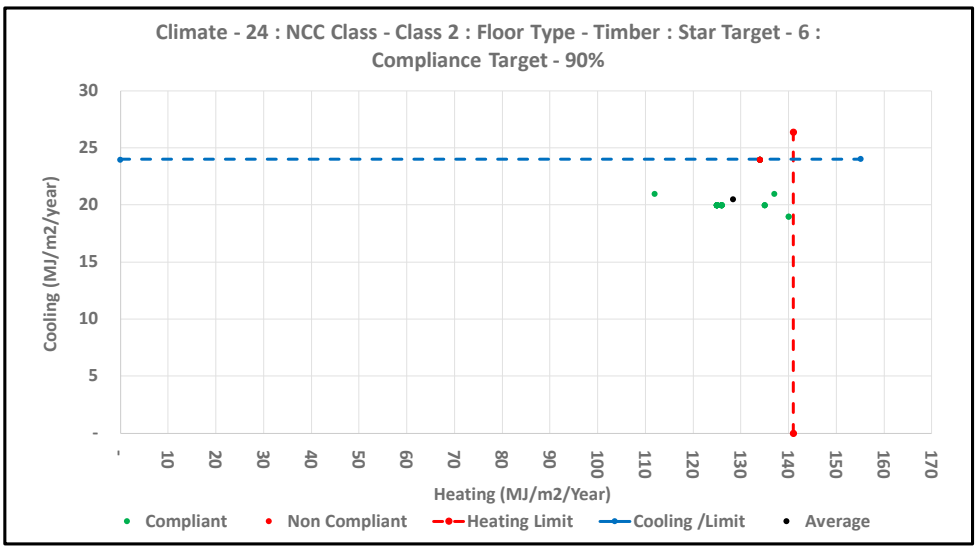
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	31	
Target Load	165.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	128.3	MJ/m2/Annum
Av. Cool Load	20.5	MJ/m2/Annum
Av. Total Load	148.8	MJ/m2/Annum
Av. % Heat	86.2%	%
Av. % Cool	13.8%	%
Av. Star Rating	6.3	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	141.0	MJ/m2/y	Cooling Limit	24.0	MJ/m2/y	Total Limit	165.0	MJ/m2/y
			5.9	Stars		6	Stars	

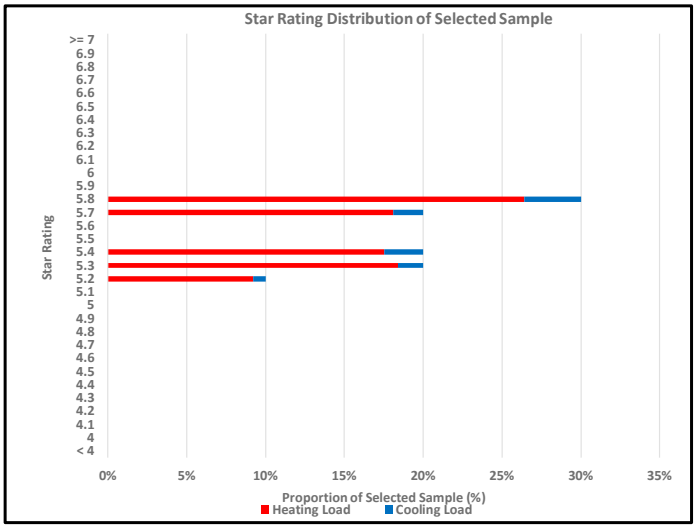
214

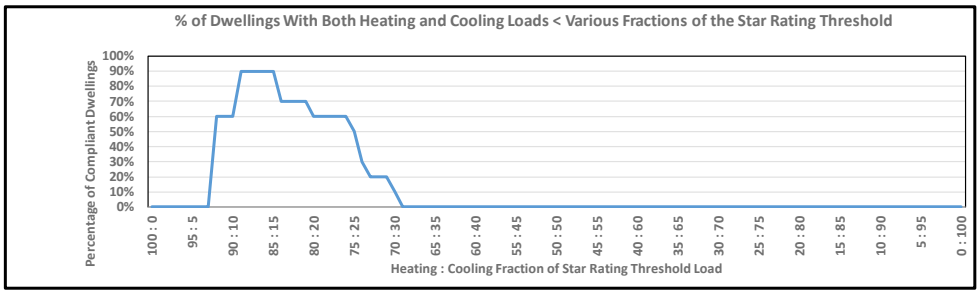
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	24	Canberra 24
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

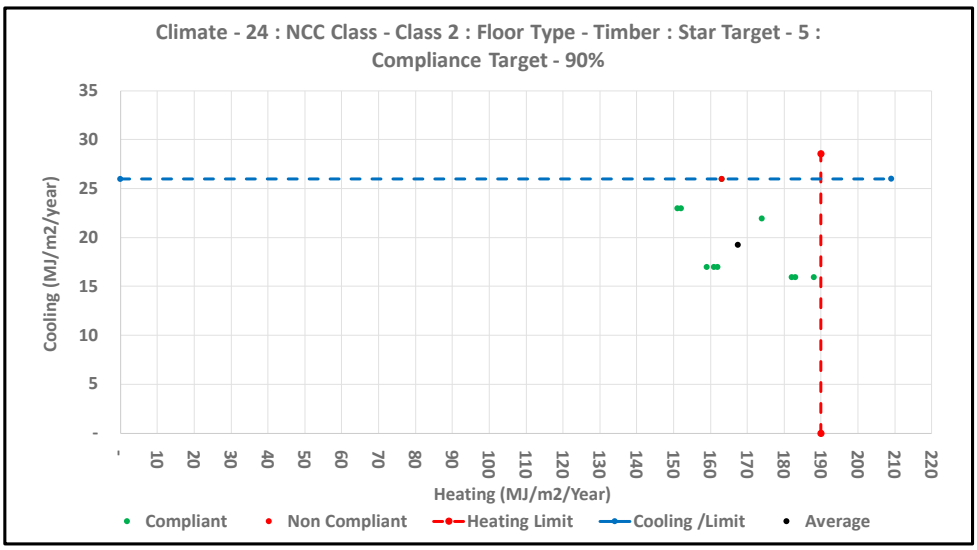
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	10	
Target Load	216.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	167.5	MJ/m2/Annum
Av. Cool Load	19.3	MJ/m2/Annum
Av. Total Load	186.8	MJ/m2/Annum
Av. % Heat	89.9%	%
Av. % Cool	10.4%	%
Av. Star Rating	5.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	190.0	MJ/m2/y	Cooling Limit	26.0	MJ/m2/y	Total Limit	216.0	MJ/m2/y
			4.9	Stars		5	Stars	

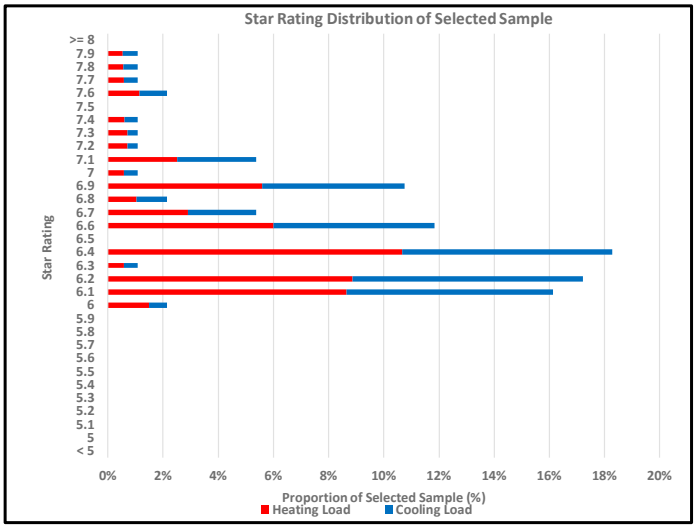
215

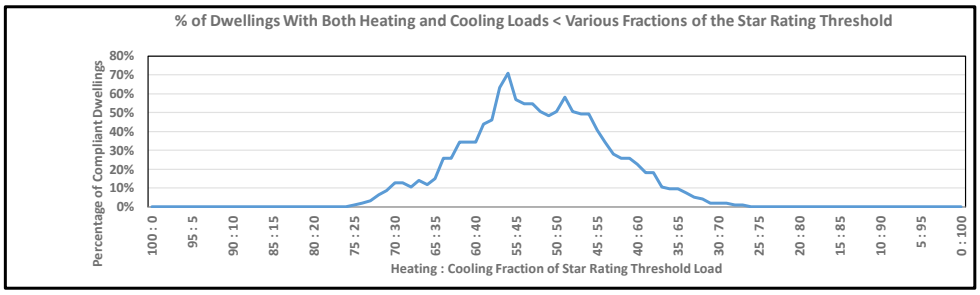
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	28	Richmond 28
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

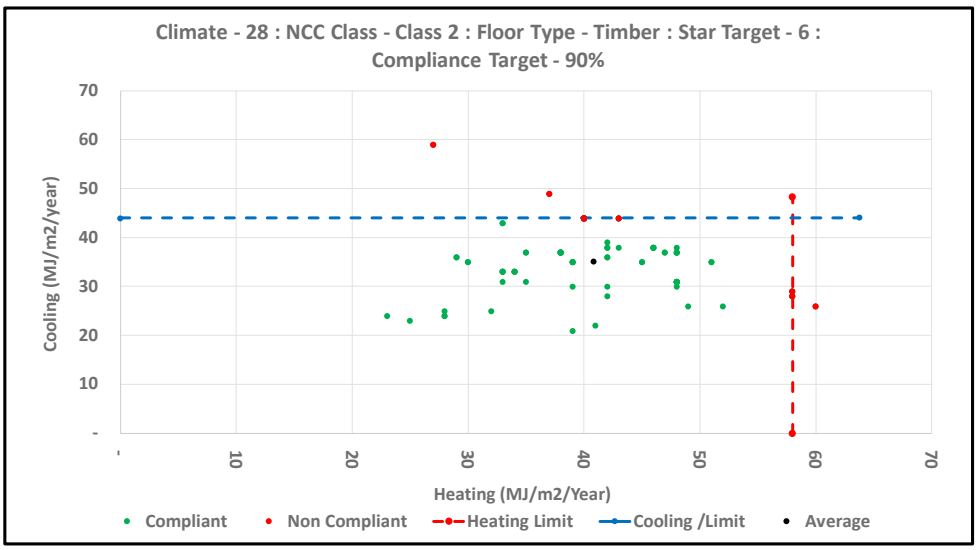
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	93	
Target Load	87.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	40.8	MJ/m2/Annum
Av. Cool Load	35.2	MJ/m2/Annum
Av. Total Load	76.0	MJ/m2/Annum
Av. % Heat	53.8%	%
Av. % Cool	46.3%	%
Av. Star Rating	6.6	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	58.0	MJ/m2/y	Cooling Limit	44.0	MJ/m2/y	Total Limit	87.0	MJ/m2/y
			5.3	Stars			6	Stars

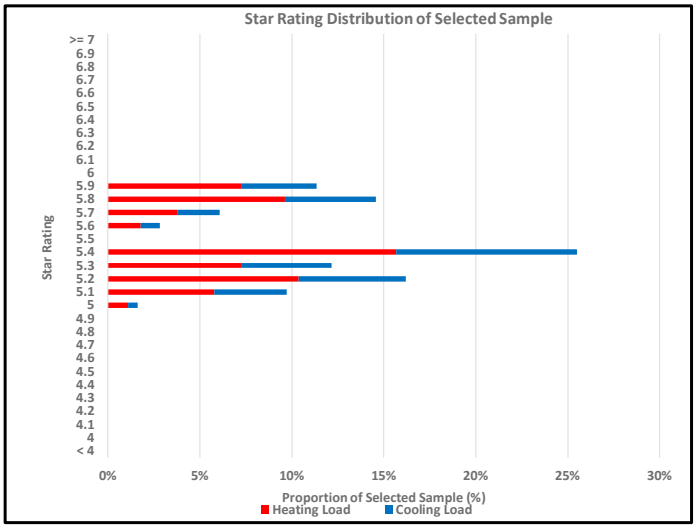
216

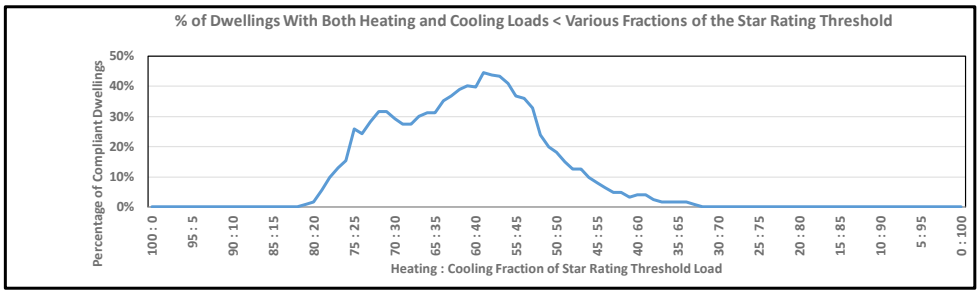
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	28	Richmond 28
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

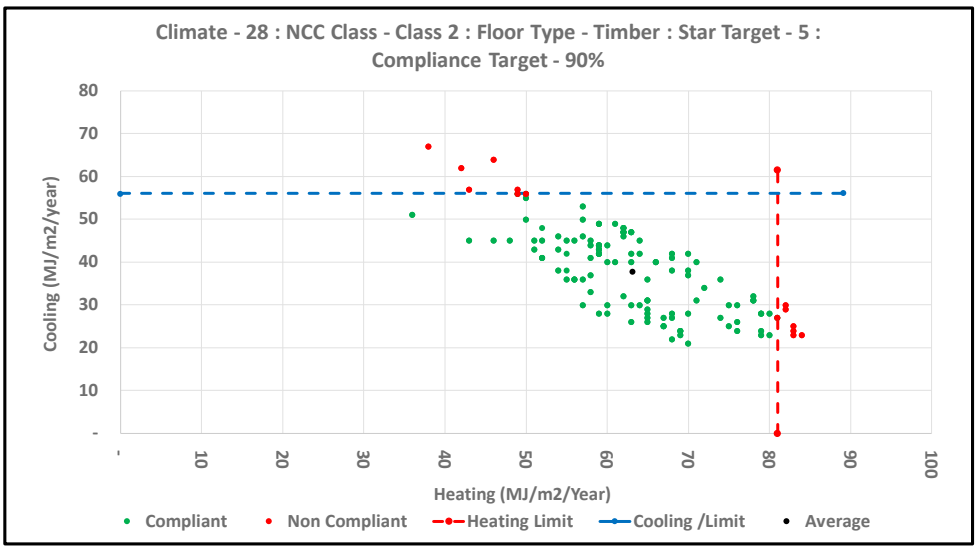
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	247	
Target Load	112.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	63.1	MJ/m2/Annum
Av. Cool Load	37.8	MJ/m2/Annum
Av. Total Load	101.0	MJ/m2/Annum
Av. % Heat	62.5%	%
Av. % Cool	37.4%	%
Av. Star Rating	5.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	81.0	MJ/m2/y	Cooling Limit	56.0	MJ/m2/y	Total Limit	112.0	MJ/m2/y
			4.2	Stars			5	Stars

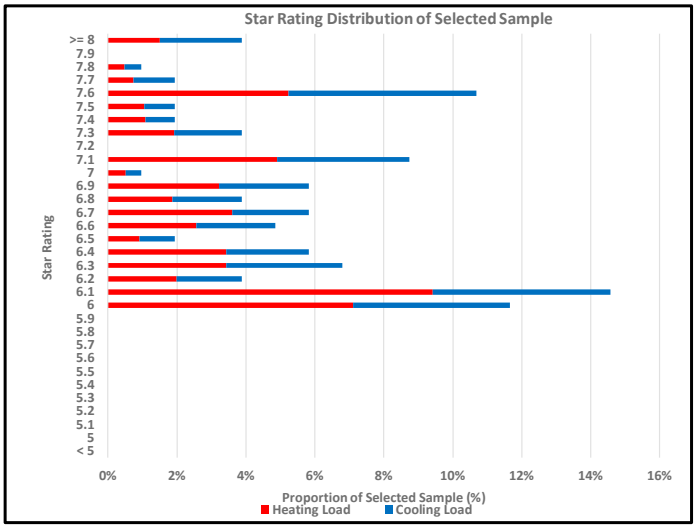
217

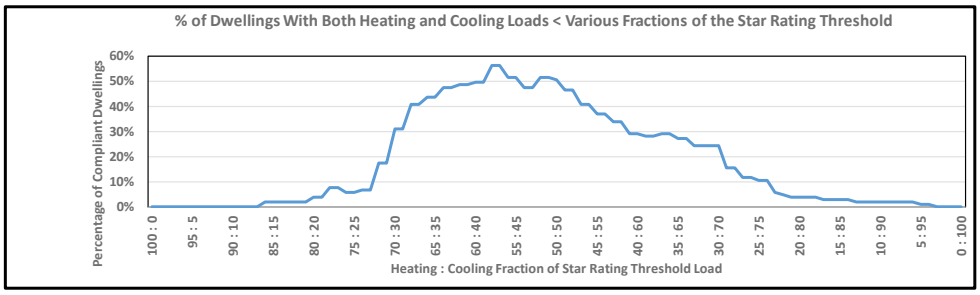
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	56	Mascot 56
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

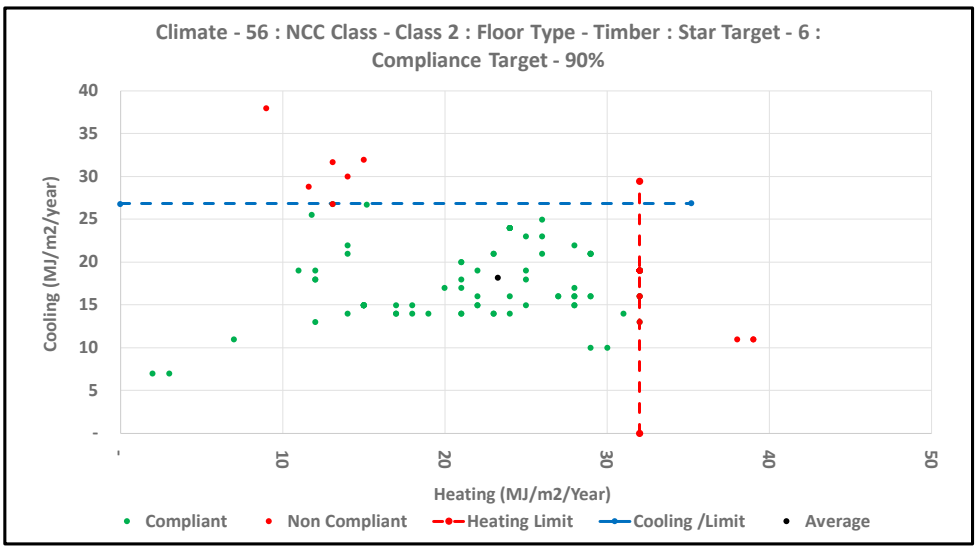
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	103	
Target Load	51.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	23.3	MJ/m2/Annum
Av. Cool Load	18.2	MJ/m2/Annum
Av. Total Load	41.5	MJ/m2/Annum
Av. % Heat	56.1%	%
Av. % Cool	43.9%	%
Av. Star Rating	6.8	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	32.0	MJ/m2/y	Cooling Limit	26.8	MJ/m2/y	Total Limit	51.0	MJ/m2/y
			5.4	Stars			6	Stars

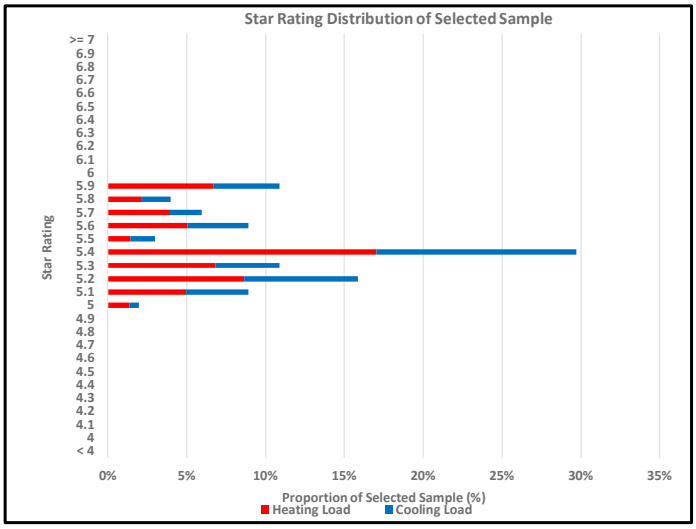
218

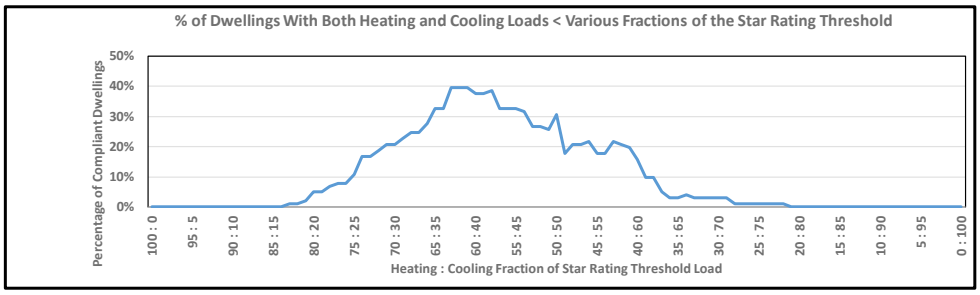
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	56	Mascot 56
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

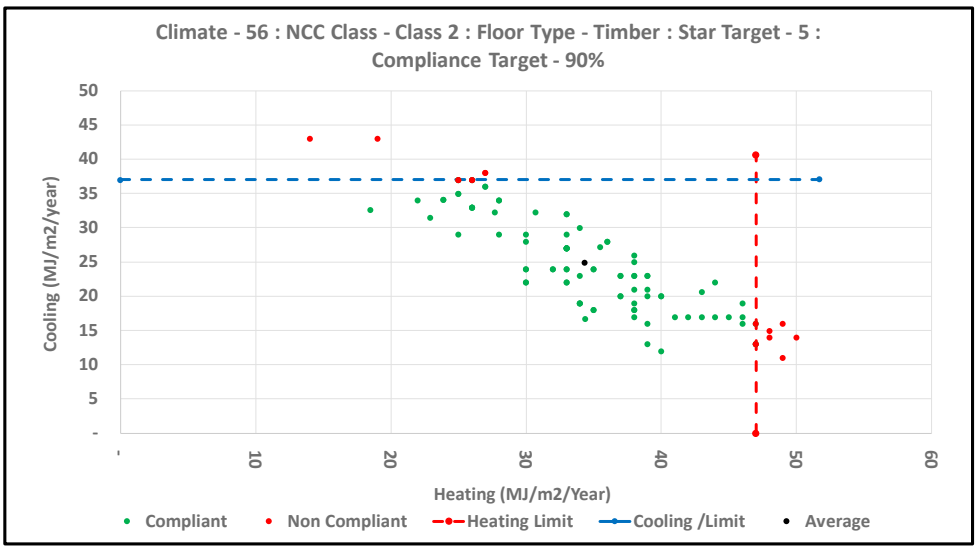
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	101	
Target Load	66.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	34.4	MJ/m2/Annum
Av. Cool Load	24.9	MJ/m2/Annum
Av. Total Load	59.2	MJ/m2/Annum
Av. % Heat	58.1%	%
Av. % Cool	42.1%	%
Av. Star Rating	5.4	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	47.0	MJ/m2/y	Cooling Limit	37.0	MJ/m2/y	Total Limit	66.0	MJ/m2/y
			4.1	Stars			5	Stars

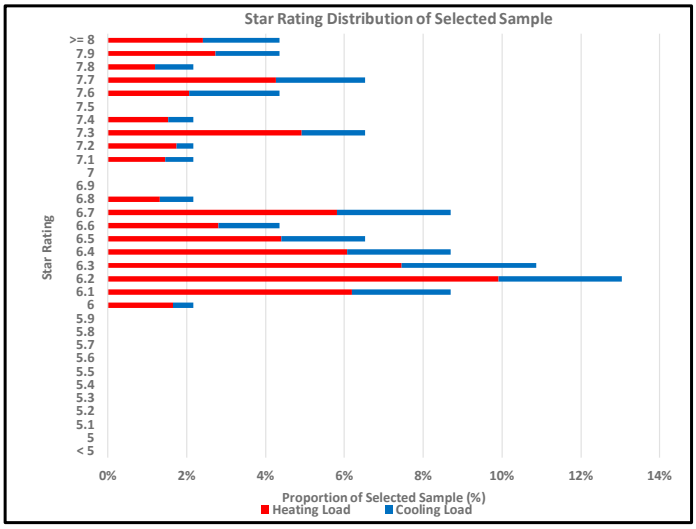
219

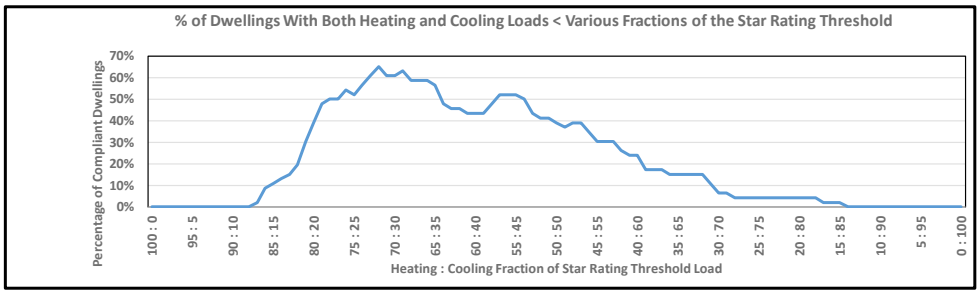
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	60	Tullamarine 60
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

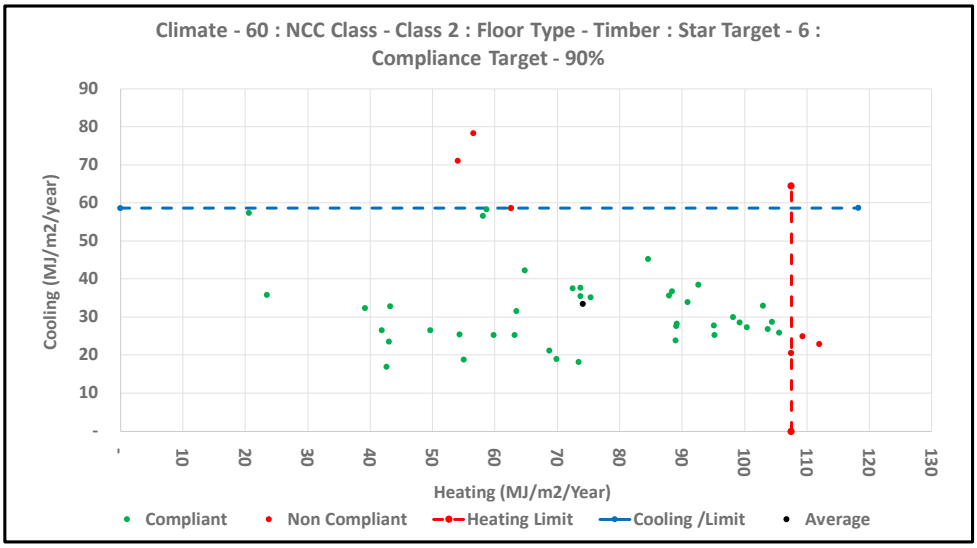
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	46	
Target Load	138.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	74.1	MJ/m2/Annum
Av. Cool Load	33.6	MJ/m2/Annum
Av. Total Load	107.6	MJ/m2/Annum
Av. % Heat	68.8%	%
Av. % Cool	31.2%	%
Av. Star Rating	6.8	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	107.5	MJ/m2/y	Cooling Limit	58.7	MJ/m2/y	Total Limit	138.0	MJ/m2/y
			5.3	Stars			6	Stars

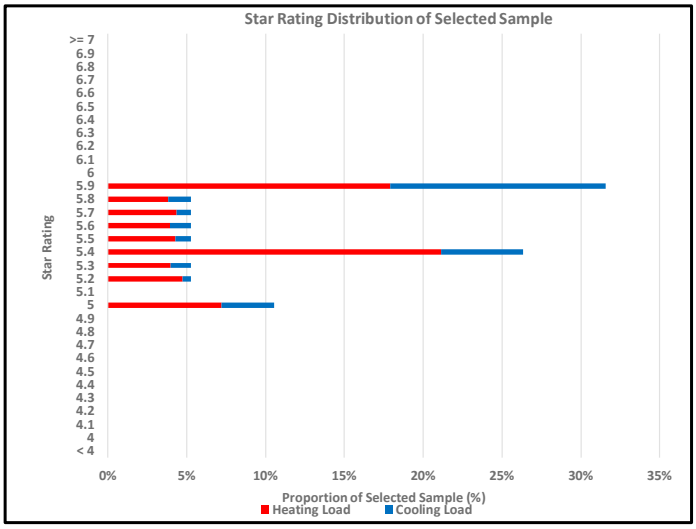
220

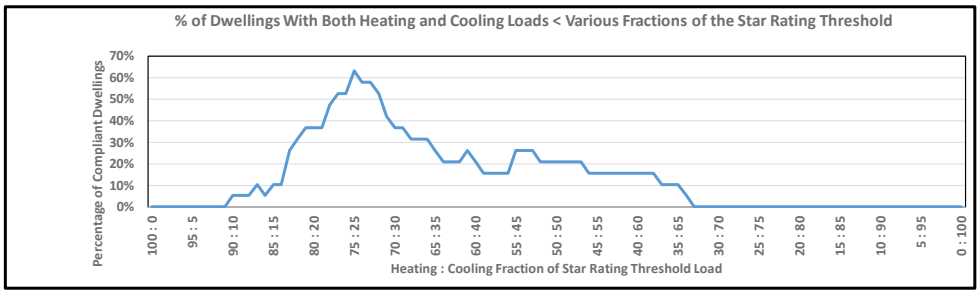
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	60	Tullamarine 60
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

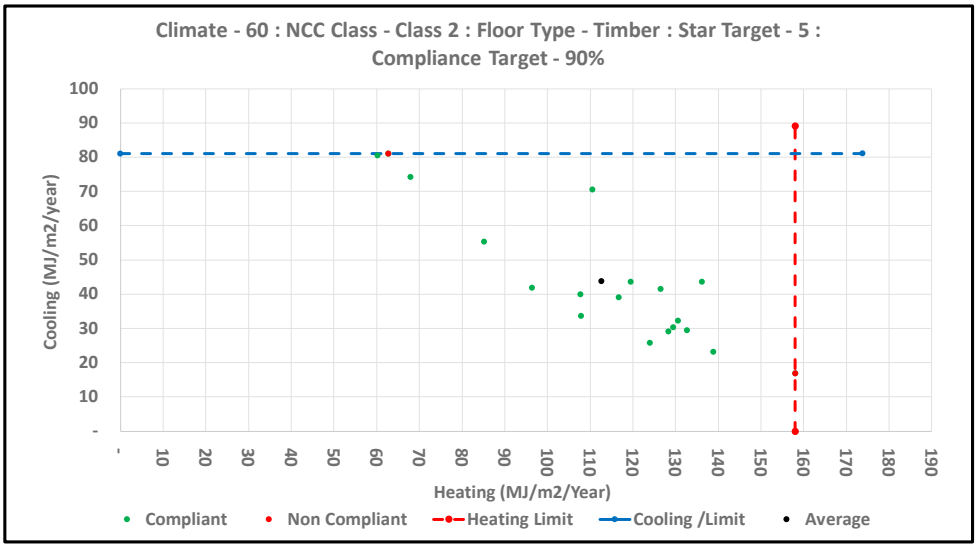
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	19	
Target Load	182.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	112.6	MJ/m2/Annum
Av. Cool Load	43.9	MJ/m2/Annum
Av. Total Load	156.5	MJ/m2/Annum
Av. % Heat	72.0%	%
Av. % Cool	28.0%	%
Av. Star Rating	5.6	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	158.0	MJ/m2/y	Cooling Limit	81.1	MJ/m2/y	Total Limit	182.0	MJ/m2/y
			4	Stars		5	Stars	

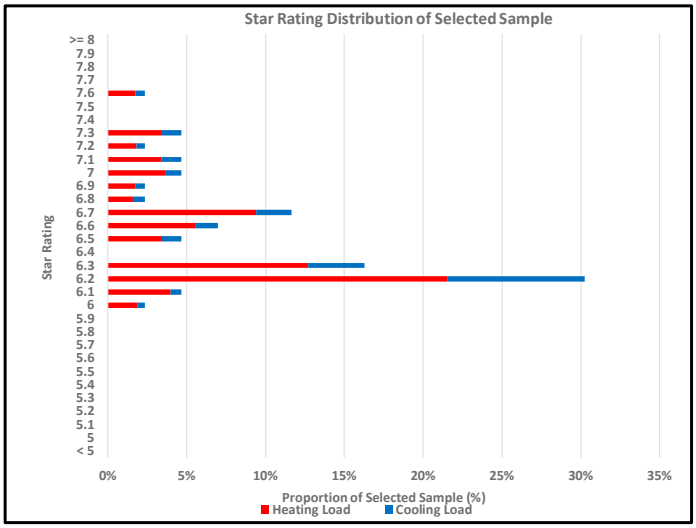
221

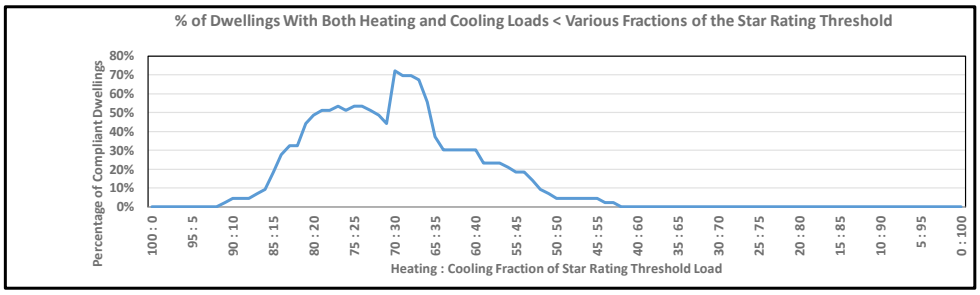
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	62	Moorabbin 62
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	6	
Exclude < target?	Yes	Override V
Included (Lower)	6	6 stars
Included (Upper)	10	10 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

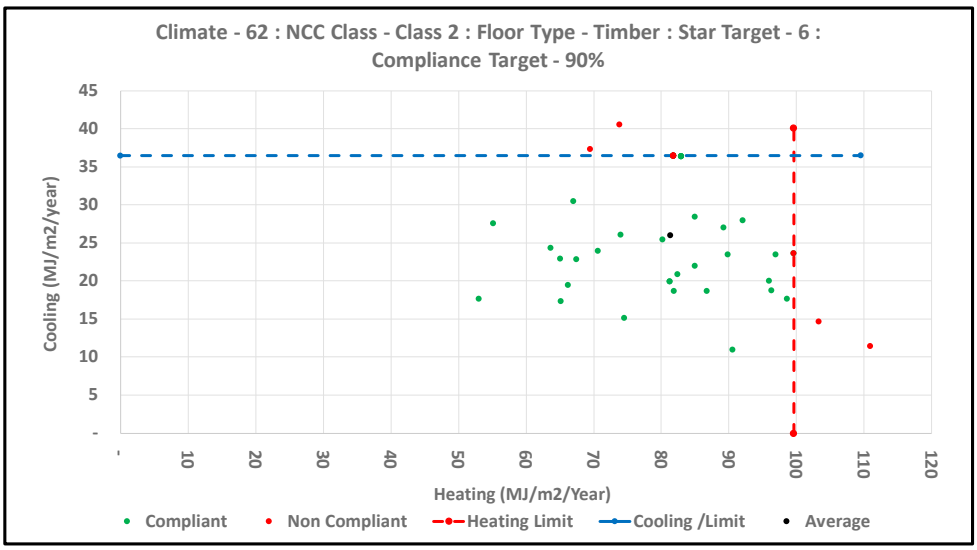
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	43	
Target Load	125.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	81.3	MJ/m2/Annum
Av. Cool Load	26.1	MJ/m2/Annum
Av. Total Load	107.4	MJ/m2/Annum
Av. % Heat	75.7%	%
Av. % Cool	24.3%	%
Av. Star Rating	6.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	99.6	MJ/m2/y	Cooling Limit	36.5	MJ/m2/y	Total Limit	125.0	MJ/m2/y
			5.7	Stars			6	Stars

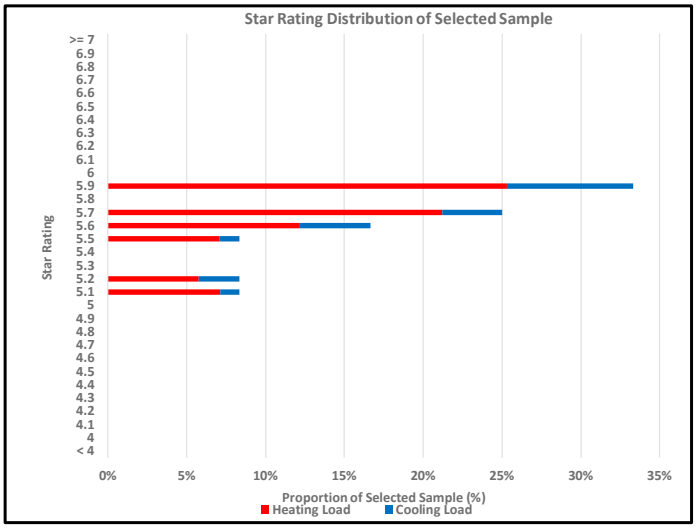
222

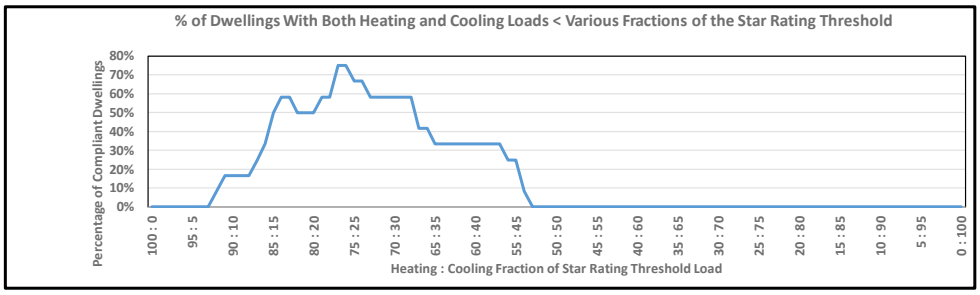
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	VIC	
Climate Zone	62	Moorabbin 62
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

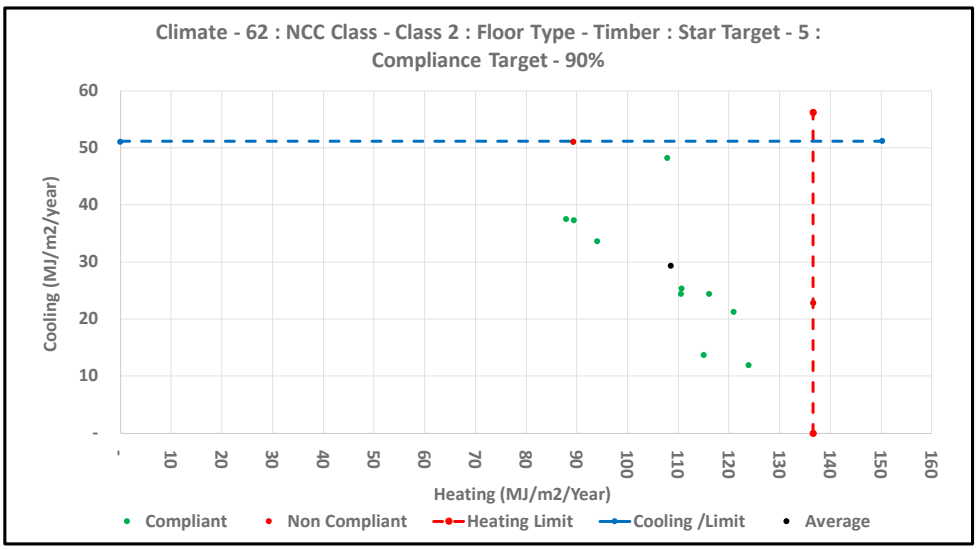
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	12	
Target Load	165.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	108.5	MJ/m2/Annum
Av. Cool Load	29.4	MJ/m2/Annum
Av. Total Load	137.9	MJ/m2/Annum
Av. % Heat	78.7%	%
Av. % Cool	21.3%	%
Av. Star Rating	5.6	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	136.6	MJ/m2/y	Cooling Limit	51.1	MJ/m2/y	Total Limit	165.0	MJ/m2/y
			4.5	Stars		5	Stars	

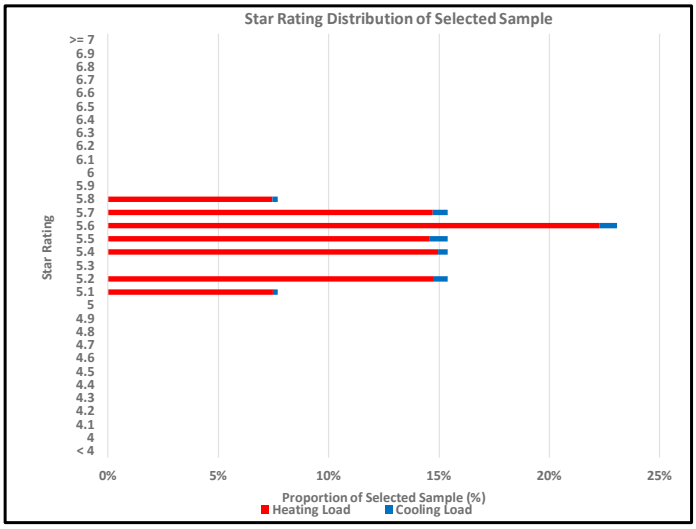
223

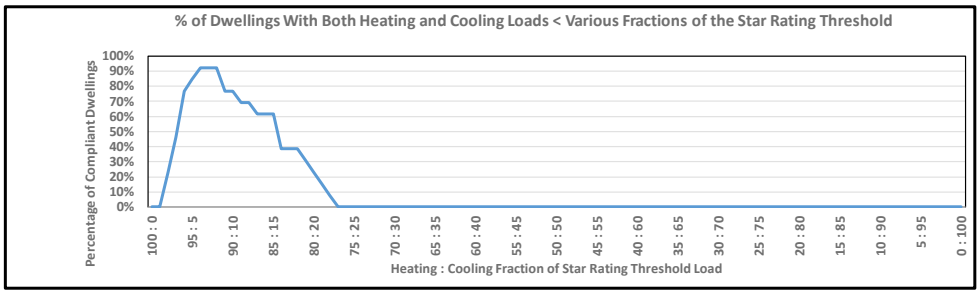
ABCB - Heating/Cooling Load Intensity Limit Analysis - 2017

Settings		
GENERAL - Sample Selection		
State	NSW	
Climate Zone	65	Orange 65
NCC Class	Class 2	
Permit Type	New Home	
Floor type	Timber	
PERFORMANCE TARGET		
Star Target	5	
Exclude < target?	Yes	Override V
Included (Lower)	5	5 stars
Included (Upper)	5.9	5.9 stars
ANALYSIS SETTINGS		
Tolerance range	up to 100%	
Target compliance	90	%
Bias (Cooling)*	50	%

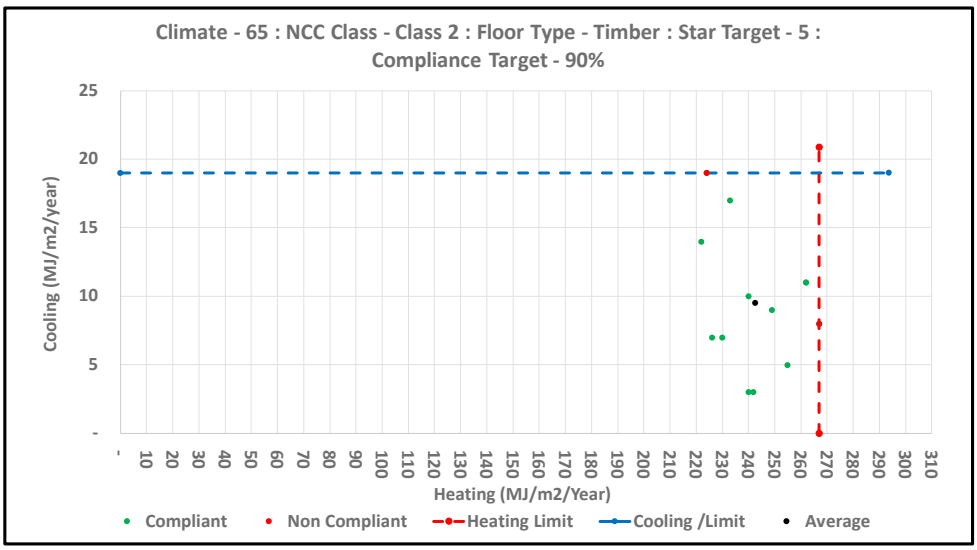
* 50% = 50% of cooling and 50% heating outliers excluded

Selected Sample Statistics		
Sample Size	13	
Target Load	285.0	MJ/m2/Annum
Compliance Rate	100.00	%
Av. Heat Load	242.5	MJ/m2/Annum
Av. Cool Load	9.5	MJ/m2/Annum
Av. Total Load	252.0	MJ/m2/Annum
Av. % Heat	96.3%	%
Av. % Cool	3.8%	%
Av. Star Rating	5.5	Stars





RESULTS - Minimum 90 % Sample Dwelling Load Intensity Compliance Outcome



Heating Limit	267.0	MJ/m2/y	Cooling Limit	19.0	MJ/m2/y	Total Limit	285.0	MJ/m2/y
			4.9	Stars			5	Stars

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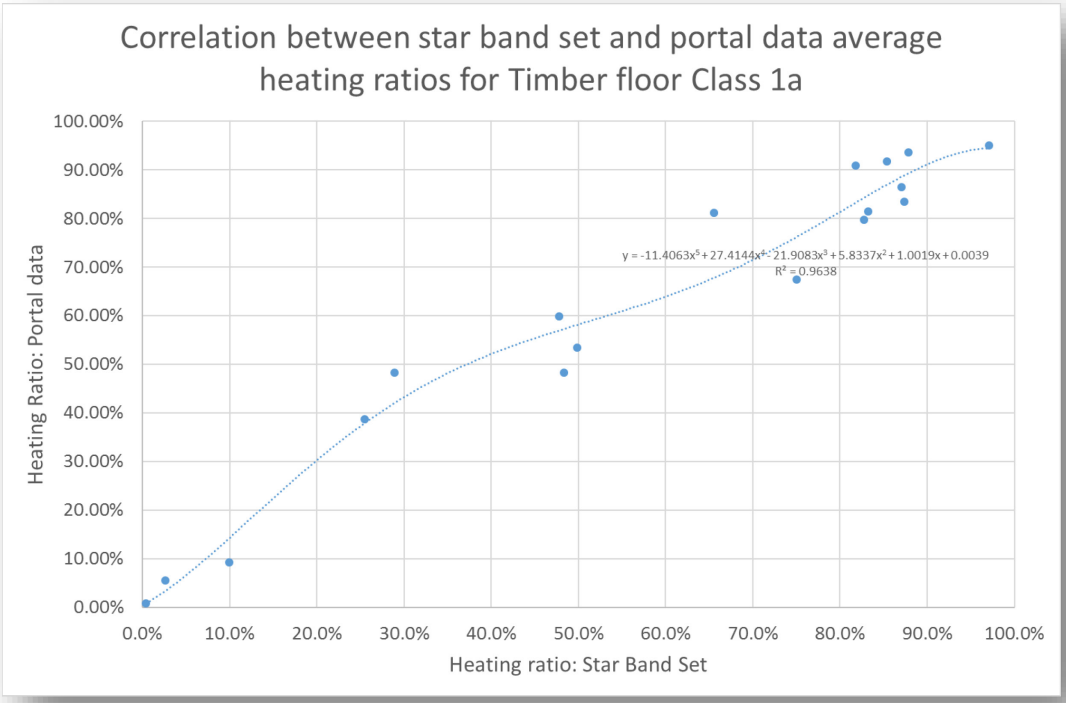
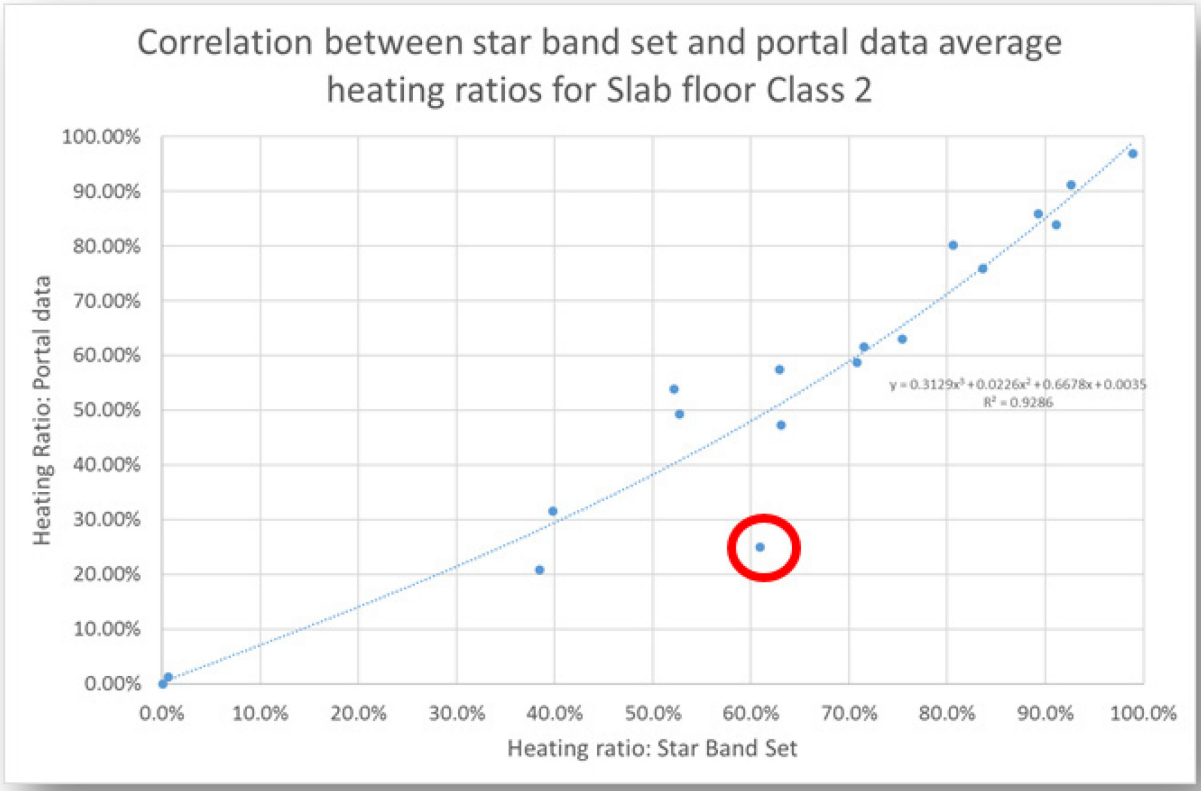
Appendix 5: Outputs from Method 2 Analysis

Note that the heating fraction outputs from method 2 are shown in the heating and cooling load limit tables in section 0 Appendix 3: Load Limits.

Correlation between Star Band data set and portal data for Class 1 timber floored houses. 6 stars

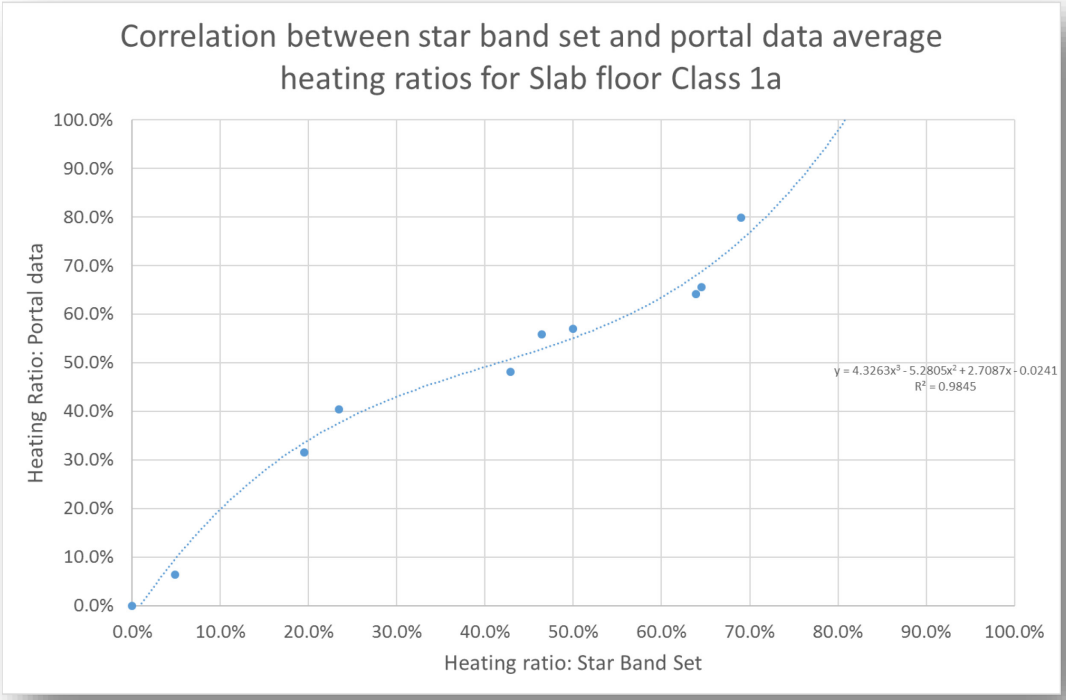


Correlation between Star Band data set and portal data for Class 2 concrete slab floored houses. 6 stars (average load limit for the whole building)

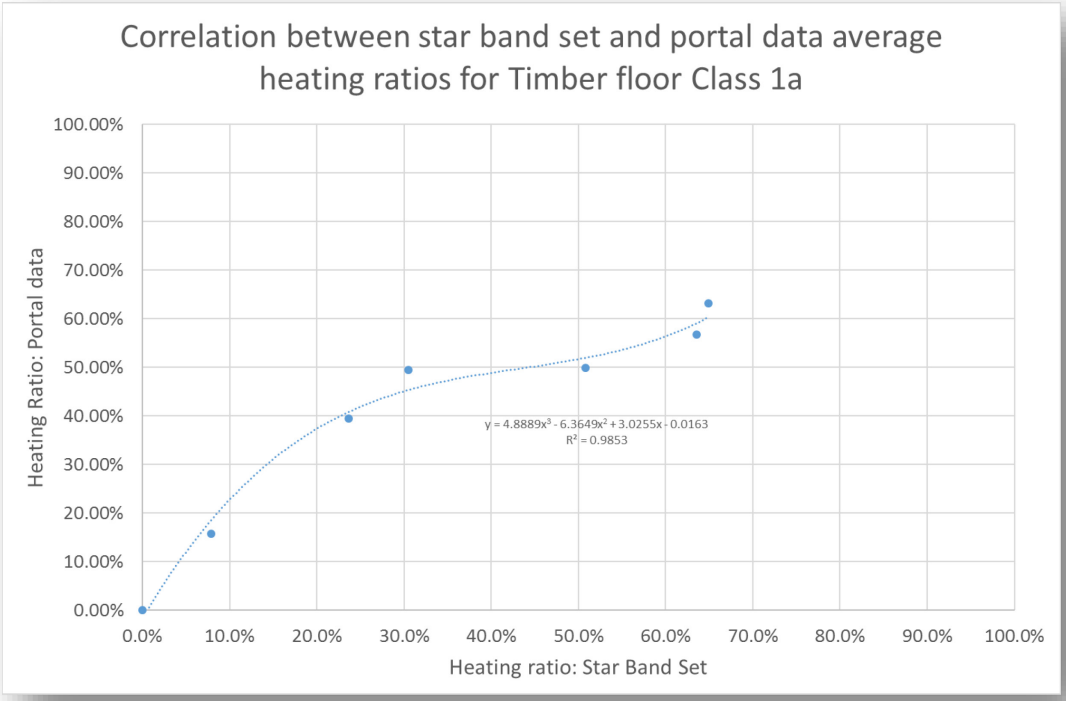


Note that the heating fraction shown with a red circle over it is for East Sydney. This shows that the heating fraction in East Sydney does not correlate well with other climates. In similar climates like Williamtown, Mascot and West Sydney (Richmond) the heating fractions are much higher and heating fractions for Class 1 dwellings in these climates are all similar. Further investigation showed that over half of the ratings available at over 5 stars were from one apartment building. Because the BASIX heating and cooling caps were used, rather than the NCC methodology this appears to have led to a skewing of results toward a lower heating fraction that would not occur if the NCC methodology was used. The only units that had ratings in the appropriate range (over 5 and 6 stars) all had very low heating fractions, while all those units from the same development which were excluded from the analysis had much higher heating fractions. This could arise if the building itself has a predominant north orientation which would result in lower heating loads, or if those units in the sample from this building were mainly north facing. The consultants will be seeking further portal data to overcome the limitations of the current sample.

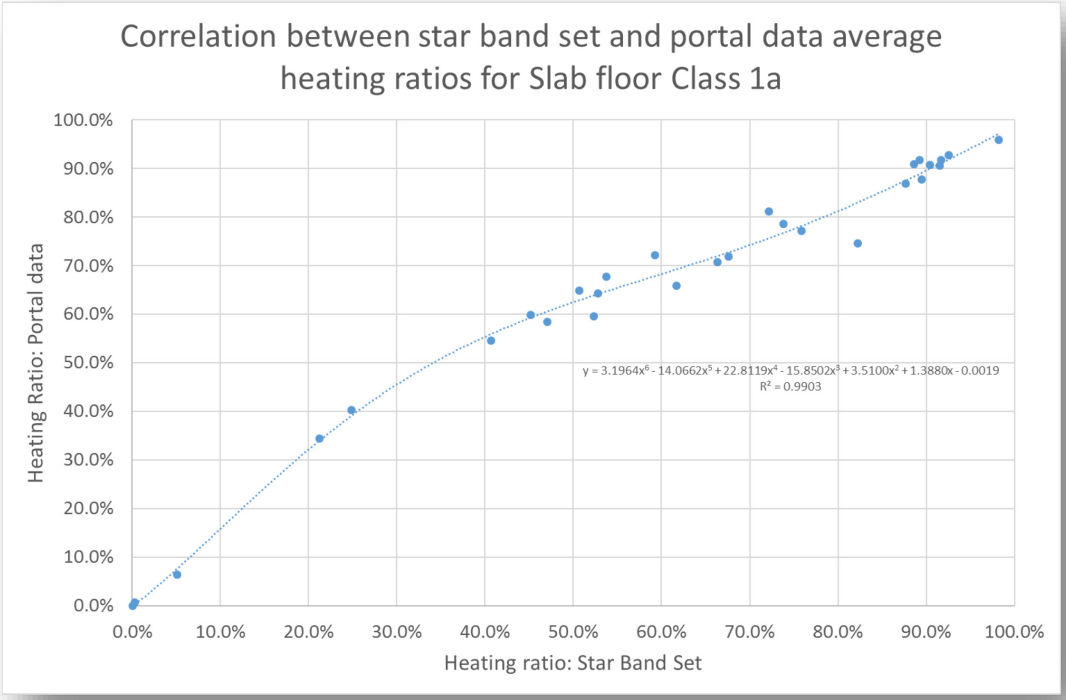
Correlation between Star Band data set and Class 1 concrete slab floored houses. 5.5 stars (dwellings with an outdoor room)



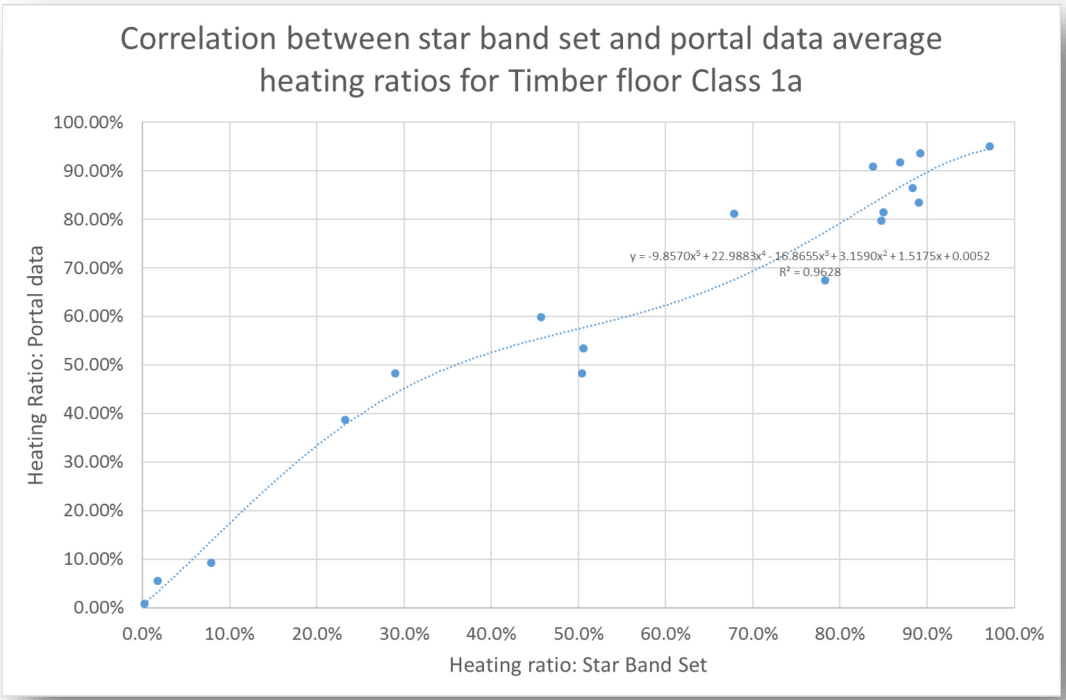
Correlation between Star Band data set and Class 1 timber floored houses. 5.5 stars (dwellings with an outdoor room)



Correlation between Star Band data set and Class 1 concrete slab floored houses. 5.0 stars (dwellings with an outdoor room with ceiling fan)



Correlation between Star Band data set and Class 1 timber floored houses. 5.0 stars (dwellings with an outdoor room with ceiling fan)



Correlation between Star Band data set and Class 2 concrete slab floored apartments. 5.0 stars (maximum load limit for an individual unit)