



# **Green Star Multi Unit Residential V1 Addendum**

Date issue

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## **Introduction**

This addendum is the result of the Green Star Rulings process 2014.

This document must be used in conjunction with:

- The Green Star - Multi Unit Residential v1 rating tool
- The Green Star Rulings spreadsheet

It is the responsibility of project teams to verify if any rulings, either as part of this addendum or as part of the rulings spreadsheet, apply to their project prior to submitting for assessment.

## Man-16 Metering

### Credit Criteria

#### Water Meters AND Energy Sub-metering criteria (TC-7)

This ruling is aimed at defining the 'effective mechanism' in place for monitoring consumption data, as outlined in the 'Water Meters' and 'Energy Sub-metering' criteria of this credit. This does not apply to the 'Smart-metering' criteria of the credit.

Technical Clarification 4 (TC 4), states that 'an effective mechanism to monitor energy and water consumption data must allow for the collection of daily usage data'. However, a more appropriate focus would be reporting, rather than collection of data.

Further to TC 4, an authority billing system (or central reporting provided by management) is to be considered an 'effective mechanism' for monitoring consumption provided that the bills or reports measure and report the units' individual consumption and are delivered to those unit's occupants, rather than to strata managers or owners corporation.

An effective mechanism that meets the requirement above may produce bills or reports quarterly or monthly, as long as monthly and daily average consumption are reported on such bills or reports.

### Smart-metering criteria

Alternative Credit Criteria has been introduced as follows:

#### Alternative to Fixed Visual Display (CIR)

This ruling applies to the 'Smart-metering' criteria of the credit. As an alternative to a fixed visual display in each dwelling, projects may demonstrate compliance with the requirements of 'Smart-metering' through the following methods:

#### Cloud Based Reporting

- Online portal accessed through the internet; and/or
- An App which is able to be accessed through a Smart Phone device, where they can provide the same minimum functions outlined in the credit criteria:
  - A visual display of the real time consumption,
  - A function to analyse data at regular intervals, either on a daily, weekly and monthly basis at least; and
  - A function that can present the financial costs and the greenhouse gas emissions associated with the usage.

#### Documentation Requirements

- Extracts from the Building Users Guide/ Information Package with the following information:
- Description of how the system is easily accessible to the residents, instructions on how to download the App and/or access the internet.
- Description of how the App and/or internet site provides the functions listed above.

## IEQ-4 Daylight

Alternative Credit Criteria have been introduced as follows:

### Credit Criteria (CIR-14)

- 1 point is awarded where for all apartments, 60% of the living area and 30% of the kitchen area meet the daylight criteria outlined in the credit or;
- 2 points are awarded where for all apartments, 90% of the living area and 60% of the kitchen area meet the daylight criteria outlined in the credit.

## IEQ-5 Thermal Comfort

Alternative Credit Criteria have been introduced as follows:

### Credit Criteria (CIR-23)

Up to two points are awarded as follows:

- 1 point is awarded where the average NatHERS star rating for the dwelling is 7.0 stars or higher.
- 2 points are awarded where the average NatHERS star rating for the dwelling is 7.5 stars or higher.

NatHERS star ratings must be calculated using NatHERS (second generation) approved software.

## IEQ-7 Internal Noise Levels

Alternative Credit Criteria have been introduced as follows:

### Credit Criteria (CIR-16)

As an alternative to the **first point** available in the Credit Criteria;

- One point is awarded where the internal noise level (combined building services noise and external noise intrusion), irrespective of building location does not exceed:
  - 35 dBLAeq(1 hour) in any bedroom in the building during the night time period 10pm to 7am; and
  - 40 dBLAeq (1 hour) in other habitable rooms (other than a garage, kitchen, bathroom or hallway) at any time

Where the primary method of ventilation is natural ventilation, the criteria above must be applied to these spaces with any openings which cannot be controlled by the occupant in the open position for the acoustic assessment. Naturally ventilated spaces must

comply with the requirements above with any ventilation openings which cannot be controlled by the occupant in the open position (such as louvers), but operable windows closed.

In addition to the requirements above, naturally ventilated spaces must also comply with the internal noise levels below, with operable windows open:

- 45 dBLAeq(1 hour) in any bedroom in the building during the night time period 10pm to 7am; and
- 50 dBLAeq (1 hour) in any other habitable rooms (other than a garage, kitchen or hallway) at any time

For both requirements, any openings which cannot be controlled by the occupant shall be in the open position for the acoustic assessment.

## IEQ-20 Private External Space

### Credit Criteria (TC-4)

The **third bullet point** (solar access) in the Credit Criteria has been amended as follows:

- 80% of the *combined external private area* (in m2) per dwelling must be shaded from direct sunlight for a minimum of 3 hours between 9am and 5pm in mid-summer and receiving a minimum of three hours direct sunlight at any time of the day in mid-winter.

All other Credit Criteria remain unchanged.

## IEQ-21 Dwelling Ventilation

Alternative Credit Criteria have been introduced as follows:

### Credit Criteria (CIR-3)

Alternative Compliance Requirements for the first two points:

- Two points are awarded where:
  - It is demonstrated that 95% of the nominated area is naturally ventilated in accordance with AS1668.4 - 2012.

This ruling cannot be used in conjunction with the original Credit Criteria within IEQ-22 Natural Ventilation. This ruling may only be used when:

- Credit 'IEQ-22 Natural Ventilation' is not targeted by project team
- Credit 'IEQ-22 Natural Ventilation' is targeted using ruling IEQ-22 CIR-2, which relates to high quality air delivered through mechanical means (outlined below).

## Compliance Requirements (TC-4)

### Kitchen exhaust must be ducted to outside

The GBCA confirms that kitchen exhausts must be ducted from the rangehood to the outside of the building, in order for the compliance requirements to be met. Air flow rates for proprietary appliances shall be in accordance with the manufacturer's requirements, as outlined in AS1668.2-2012.

## IEQ-22 Natural Ventilation

### Aim of Credit

*To encourage and recognise building design that effectively delivers high quality air to any occupant throughout the occupied area.*

As such, an option to effectively deliver high quality air using mechanical ventilation has been introduced as an alternative as follows:

### Credit Criteria (CIR-2)

Alternative Credit Criteria have been introduced as follows:

#### High Quality Air using Mechanical Ventilation

- Up to two points can be awarded where 95% of the nominated area is mechanically ventilated with outside air rates greater than the requirements of AS1668.2-2012 as follows:
  - One point for 50% improvement;
  - Two points for 100% improvement.

Project teams are to submit documentation as per Green Star – Public Building v1, IEQ-1 'Ventilation Rates' in order to demonstrate compliance.

#### Third point 'Not Applicable'

In all cases, the third point in this credit is no longer applicable as the aim of the credit is focused on high quality to occupants. As lobbies are not considered regularly occupied spaces, the project team can claim this point 'Not Applicable'.

## Ene-1 Greenhouse Gas Emissions (Correction 40)

Alternative compliance requirements have been introduced as follows:

### Swimming Pools

Projects with swimming pools, spas and/or saunas are to use the methodology found in *Appendix H of the Green Star - Public Building Greenhouse Gas Emissions Calculator Guide* to address associated energy consumption.

Alternatively, project teams may submit a Credit Interpretation Request outlining their own methodology to address the energy and greenhouse gas impact associated with swimming pools.

## Ene-11 Energy Efficient Appliances

Alternative Credit Criteria have been introduced as follows:

### Credit Criteria (CIR-3)

Up to two points are awarded as follows:

- 1 point is awarded where it is demonstrated that all clothes dryers, dishwashers, refrigerators, and clothes washers installed as part of base building works are within one star of the highest available rating under the Australian Government's 'Energy Rating' labelling system;
- 1 point is awarded where 95% of all units contain an internal, or external clothesline or hoists as follows:
  - 4m total line length minimum for studios, 1 and 2 bedroom units and;
  - 6m total line length minimum for 3 or more bedroom units.

The two points are independent from each other and may be claimed on their own or combined with each other..

### Energy Efficient Appliances

The GBCA confirms that this credit only applies to those appliances installed by the project as part of the projects scope of works.

For example, if refrigerators are not installed as part of the base building works then no compliance is required to be demonstrated for fridges. If no appliances are installed as part of base building works then this credit is 'Not Applicable'.

### Appliance Star Ratings

The highest star rating is relevant only to appliances of similar capacities, not against the ultimate performer.

For example, a six place setting dishwasher is only compared against the best six place setting dishwasher in Australia, in order to demonstrate the 'highest star rating' for a six place setting dishwashers.

## Ene-12 Peak Electricity Demand Reduction

### Air-conditioning equipment not listed on energy rating website (TC-8)

Where air-conditioning installed is not listed on [energyrating.gov.au](http://energyrating.gov.au), the following method may be used to demonstrate compliance with item 3 of Table Ene-12.1, "All installed air-conditioning equipment is within one star of the best available energy star rating ([www.energyrating.gov.au](http://www.energyrating.gov.au))."

For each piece of HVAC equipment not listed on [energyrating.gov.au](http://energyrating.gov.au):

1. Determine a reference air conditioning system that meets the above quoted requirement from Table Ene-12.1. This reference system must be selected from an equivalent cooling capacity band (e.g. 3-4kW) from the Equipment Energy Efficiency Program website. If the HVAC system(s) specified for the project are larger than any category in the Equipment Energy Efficiency Program then the highest cooling capacity band must be selected for the reference system.
2. Compare the COP (for cooling and where relevant heating) of the specified system against the compliant reference air conditioning system.
3. Demonstrate that each system selected has an equivalent or better COP(s) than their equivalent reference systems.

When applying this approach to centralized HVAC systems a whole system COP must be calculated, not just that of the chiller. COP calculations for centralized HVAC systems must include all systems that contribute to the conditioning (heating/cooling) and ventilation of spaces. For example (where these systems are designed/installed in the building) chillers, chilled and condenser water pumps, fans associated with heating, cooling and ventilation of primary and secondary spaces and heat rejection systems.

### Documentation Requirements

When using this ruling the following must be provided:

- Extracts from Energy Rating Database must be provided for all reference air conditioning systems.

All other documentation must be provided in line with the requirements of the Ene-12 'Peak Electricity Demand Reduction' credit.

## Tra-2 Fuel Efficient Transport

Alternative Credit Criteria have been introduced as follows:

### Credit Criteria (CIR-11)

For the additional point, the criteria are revised from 5% or 1 car sharing scheme space (whichever is greater) to:

1 car share parking space per 70 building occupants, calculated based on the following rates:

- studio = 1 occupant,
- 1 bedroom = 2 occupants,
- 2 bedrooms = 3 occupants
- 3 bedrooms = 4 occupants.

Where there are less than 70 occupants, a minimum 1 car share parking space must be provided.



The car share spaces must be clearly designated, for example through use of different coloured line markings and highly visible signage and meet all other credit criteria.

The car share parking space(s) must be accessible to all car share scheme members.

The parking space(s) may be located on the street, if immediately adjacent to the building. The parking space(s) may be located in a secured carpark, provided access is made available to all car share scheme members.

## **Tra-3 Cyclist Facilities**

Alternative Credit Criteria have been introduced as follows:

### **Credit Criteria (CIR-36)**

Up to **three points** are awarded as follows:

#### **Resident Parking**

**1 point** is awarded where a minimum of one secure bicycle rack is provided per dwelling;

OR

**2 points** are awarded where a minimum of one enclosed bicycle locker or cage is provided per dwelling. This locker or cage may be common to all building occupants.

Please see Table 1, sliding scale of compliance below, for large developments.

#### **Visitor Parking**

An additional **1 point** is awarded if either of the above requirements is met and visitor bicycle parking is provided within the project at the rate of **1 visitor spaces for 4 dwellings** in an accessible on-grade location, signposted and near a major public entrance.

Please see Table 1, sliding scale of compliance below, for large developments.

#### **Sliding scale of compliance**

To recognise the increased confidence in availability that occurs where there is larger scale provision of facilities, it is acceptable to adjust the provision of cyclist facilities on a sliding scale as follows:

**Table 1: Sliding scale compliance**

No. of apartments (number range)	Ratio	Requirement
0 – 50 apartments	1	1 bicycle park for every 1 apartment within the number range
51 – 75 apartments	1.5	1 bicycle park for every 1.5 apartments within the number range
76 – 100 apartments	2.0	1 bicycle park for every 2 apartments within the number range
>100 apartments	2.5	1 bicycle park for every 2.5 apartments within the number range

For example:

No. of apartments	Ratio	Facilities Required
Development A – 50 apartments	1	50 bike parks
Development B – 120 apartments	50 apartments @ 1 25 apartments @ 1.5 25 apartments @ 2 20 apartments @ 2.5 Total: 120 apartments	50 bike parks 16.7 bike parks 12.5 bike parks 8 bike parks Total: 87.2 = 88 bike parks

The sliding scale of compliance can only be adopted by projects where the bicycle parking facilities are common to all building occupants. This must include all bicycle racks, cages or lockers.

## **Wat-1 Occupant Water Amenity**

### **Authority approvals (TC-32)**

The GBCA confirms that for the purposes of this credit, authority approvals are only required to be demonstrated with submissions, where blackwater and greywater systems are installed. Rainwater installations do not need authority approval.

## Wat-5 Fire System Water

Alternative Credit Criteria have been introduced as follows:

### Credit Criteria

This clarification relates to 'sufficient temporary storage for a minimum of 80% of the routine fire protection'. It provides an alternative for demonstrating compliance for the first point.

#### Recirculating Fire Test Water (CIR-2)

One point is awarded where fire test water is recirculated, and the following can be demonstrated:

- At least 80% of fire testing water is reused or recycled; and
- At least 80% of the fire testing water that would otherwise be discharged to sewer (in the event of a system drain down, for instance) is stored for reuse.

## Wat-7 Water Efficient Appliances

### Water Efficient Appliances (TC-1)

The GBCA confirms that this credit only applies to those appliances installed by the project as part of the projects scope of works.

For example, if washing machines are not installed as part of the base building works then no compliance is required to be demonstrated for washing machines. If no appliances are installed as part of base building works then this credit is 'Not Applicable'.

### Appliance Star Rating (TC-2)

The highest star rating is relevant only to appliances of similar capacities, not against the ultimate performer.

For example, a six place setting dishwasher is only compared against the best six place setting dishwasher in Australia, in order to demonstrate the 'highest star rating' for a six place setting dishwashers.

## Emi-6 Discharge to Sewer

Alternative Credit Criteria have been introduced as follows:

### Credit Criteria (CIR-4)

#### Credit 'Not Applicable'

This credit is to be considered 'Not Applicable' to all projects *that utilise the new Green Star – Design & As Built, Potable Water credit, Modelled Water Balance method in lieu of the current Wat-1 credit.*

#### Background for information only:

The new Green Star – Design & As Built tool does not contain a credit for Discharge to Sewer. In the current draft of the credit, all required inputs are entered into the Potable Water Calculator with data exported to the Sewerage Calculator, which then returns the number of points for Discharge to Sewer. These points are currently not taken into account by the Potable Water credit.

It is proposed that the final version of the Potable Water credit will incorporate the additional benefit of reducing the impact on downstream sewer infrastructure as opposed to having an additional credit to do this separately.

This approach reduces the documentation required to be submitted by project teams and avoids the perception of “double-counting” by awarding points within the one credit. The achievement of points will be shown as a separate portion of the make-up of the total points awarded for the Modelled Water Balance approach so as not to diminish the importance that reduced flow to sewer has on reducing the impact to downstream infrastructure.