











Green Star – Multi Unit Residential v1 Summary of Changes










This Summary of Changes document sets out how each credit has been changed in Green Star Multi Unit Residential v1 compared to the PILOT version of the rating tool. A 'traffic light system' is provided to illustrate the character of the changes made. Where clarifications have been made following feedback from the PILOT process, these have been detailed. Full detail on all credits is available in the Green Star - Multi Unit Residential v1 Technical Manual.

	Benchmark higher than PILOT in line with feedback, the Multi Unit Residential Technical Working Group (TWG) and Green Star – Office v3, or significant revision made.	<p>Summary:</p> <ul style="list-style-type: none"> • Technical manual have been produced in line with the format adopted for Green Star – Office v3. • Documentation requirements have been aligned with Green Star – Office v3. • Calculators and associated guides have been amended in line with learning outcomes from PILOT projects, public feedback and internal review. • Credit numbering has been aligned across all Green Star tools. • Benchmarks and compliance requirements for Green Star – Office v3 have been adopted where appropriate, i.e. where no justification exists for building type specific differences. • Documentation has been simplified wherever possible
	Clarification or change of wording, criteria and/or requirements.	
	As PILOT, or with minor clarifications/additional options.	

Credit Name		Outcome	Notes on Update
MANAGEMENT			
Man - 1	Green Star Accredited Professional		No change to credit
Man - 2	Commissioning Clauses		Clarified what should be included in commissioning. See technical manual for further detail.
Man - 3	Building Tuning		No change to credit
Man - 4	Independent Commissioning Agent		No change to credit
Man - 5	Building Guides		The required content for the Building Guides clarified. Requirement for an 'Environmental Health and Mission Statement' removed.
Man - 6	Environmental Management		Tender documentation is accepted as evidence for a design rating.
Man - 7	Waste Management		Credit criteria clarified. Further additional guidance also included.
Man - 8 to Man - 15	Credit not applicable to this tool.	—	

Credit Name		Outcome	Notes on Update
Man-16	Metering	●	<p>Water Meters, Energy Sub-metering and Smart-metering is now one credit called Metering. The weighting of the Management category has not been increased, meaning that metering is valued lower on aggregate in Green Star Multi Unit Residential v1 than in the PILOT version.</p> <p>Water Meters Dwelling and common area metering points are no longer dependent on each other.</p> <p>Energy Sub-metering Exemption for gas metering if not provided for uses other than cook tops, stoves and ovens.</p> <p>Smart-metering Credit has changed to award one point where smart metering is provided for either water, electricity or gas and two points where smart-metering is provided for water, electricity and gas. Clarified that providing real time data is a criteria. Clarified that the display must be installed in a location that is easy accessible and visible to residents. Removed requirement for quarterly and annual reporting as this generally is provided on utility bills. Exemption for gas metering if not provided for uses other than cook tops, stoves and ovens.</p>
INDOOR ENVIRONMENT QUALITY			
IEQ - 1 to IEQ - 3	Credit not applicable to this tool.	—	
IEQ - 4	Daylight	●	<p>The Daylight factor level has been decreased from 2.5% to 2.0% for kitchens and 1.5% for other living areas. Daylight Illuminance Calculations accepted as well as Daylight Factor calculations to demonstrate compliance. The term 'living area' has been defined.</p>
IEQ - 5	Thermal Comfort	●	<p>Credit Criteria changed to award one point for providing ceiling fans as a mean to achieve thermal comfort and two points for meeting a specified heating and cooling load as calculated using NatHERS approved energy modelling software. A list of approved modelling softwares has been provided.</p>
IEQ - 6	Hazardous Materials	●	<p>No change to credit</p>
IEQ - 7	Internal Noise Levels	●	<p>Following stakeholder feedback;</p> <ul style="list-style-type: none"> - a more stringent level for floor noise isolation has been adopted ; - external noise has been included in the noise level requirement; - the same requirements applies for all dwellings independent of their location (e.g. close to major roads); and - the reference to a10% increase on the BCA requirements has been removed. <p>Please see the Technical Manual for further detail.</p>
IEQ - 8	Volatile Organic Compounds	●	<p>Low-VOC requirement for paints has been included in the credit.</p>
IEQ - 9	Formaldehyde Minimisation	●	<p>The reference to an E0 criteria for formaldehyde emissions has been replaced by a list of accepted testing standards and maximum acceptable formaldehyde emission levels.</p>

Credit Name		Outcome	Notes on Update
IEQ - 10 to IEQ - 11	Credit not applicable to this tool.	—	
IEQ - 13	Electric Lighting Levels	●	The required minimum electric lighting level has been reduced to 300Lux from 320Lux to represent best practice lighting requirements in residential work surfaces.
IEQ - 14	External Views	—	This credit has been removed from the tool as the direct benefit to residents' health and well-being of this credit is unclear for the multi unit residential sector.
IEQ-15 to IEQ - 19	Credit not applicable to this tool.	—	
IEQ - 20	Private External Space	●	Clarified that the space must be adjacent to the dwelling. Solar access and solar shading is now required in all geographic locations. 80% rather than 100% of the external space must comply with the shading and solar access requirements. Provided definition of 'living area'. Defined 'mid-Winter' and 'mid-Summer' for the purpose of solar access and sun shading requirements. Clarified that this credit is about the health and well-being of the residents.
IEQ - 21	Dwelling Ventilation	●	Credit name has been changed to reflect what is achieved in the credit. The size requirements of the trickle ventilation openings has been changed from being a function of the size of the living area, to a specified minimum size for each opening in combination with a minimum cumulative opening size for the entire dwelling. The N/A clause for naturally ventilated buildings has been removed, as trickle ventilation is valuable also for these buildings. A requirement to provide separate and dedicated exhaust for kitchens has been introduced. The point for kitchen exhaust is no longer dependent on achieving the points for trickle ventilation. The term 'living area' has been defined.
IEQ - 22	Natural Ventilation	●	Credit name and aim of credit has been revised to accurately reflect the intention of the credit. The point available for naturally ventilated common lobbies can now be achieved without providing the apartments with cross ventilation. Reference to 'dual aspect design' in the Credit Criteria has been replaced by 'effective cross ventilation'. Definition of this term is provided. Additional requirement for door catches for internal doors in the breeze path has been introduced. It has been clarified that the front door cannot be considered a ventilation opening for effective cross ventilation.
ENERGY			
Ene	Conditional Requirement	●	The credit criteria has been changed from a minimum 7 Stars NatHERS rating to 10% above the regulated minimum thermal performance in each state. For full details refer to the Technical Manual.

Credit Name		Outcome	Notes on Update
Ene - 1	Greenhouse Gas Emissions		Points scale updated to award 20 points for buildings that achieve zero net operating emissions. Please refer to the Green Star - Multi Unit Residential v1 Energy Calculator Guide for full details on the standard practice energy benchmarks which is used as a comparison to the building design of the building being assessed under Green Star to award points in this credit.
Ene - 2	Energy Sub-metering	—	This credit has been incorporated into Man-16 'Metering'.
Ene - 3 to Ene - 6	Credit not applicable to this tool.	—	
Ene - 7	Unoccupied Areas		The credit criteria has been clarified. Documentation requirements simplified.
Ene - 8 to Ene - 10	Credit not applicable to this tool.	—	
Ene-11	Energy Efficient Appliances		Provided definition of 'best available appliances'. The credit criteria has been changed to make it possible to get one of the two available points if efficient clothes driers and dishwashers are installed. I.e. Installing all 4 types of appliances no longer necessary to be awarded any points. An additional requirement was introduced; for any points to be awarded, clothes lines and/or hoist must be provided. The requirement for dishwashers can now be fulfilled by not providing space nor plumbing that allows for the installation of a dishwasher.
Ene - 12	Peak Electricity Demand Reduction		The credit name has been changed to reflect the intention of the credit. The credit has been re-structured to award specific initiatives for reducing the building's contribution to reduced electricity demand at time of peak demand in the electricity supply network.
TRANSPORT			
Tra - 1	Provision Car Parking		It has been clarified that car parking provided for building uses other than what is assessed under the Green Star - Multi Unit Residential v1 rating tool can be excluded from the credit criteria, provided that it can be demonstrated that the car parking is designated to the other use.
Tra - 2	Fuel-Efficient Transport		Clarified that car parking provided for building uses other than what is assessed under the Green Star - Multi Unit Residential v1 rating tool can be excluded from the credit criteria, provided that it can be demonstrated that the car parking is designated to the other use.
Tra - 3	Cyclist Facilities		A lower benchmark for senior living buildings and for housing for people with disabilities has been introduced.
Tra - 4	Commuting Mass Transport		The transport calculator has been amended to include input cells for Saturdays and Sundays.
Tra - 5	Trip Reduction Mixed Use		A list of acceptable amenities has been created. Documentation requirements has been simplified. The credit criteria has been clarified.

Credit Name		Outcome	Notes on Update
Tra - 6	Credit not applicable to this tool.	—	
WATER			
Wat - 1	Occupant Amenity Water	●	The Potable water calculator has been updated so that maximum points are achieved when the most efficient fixtures and fittings available are used and toilets and laundries are supplied with 100% non-potable water.
Wat - 2	Water Meters	—	Credit has been incorporated into Man-16 'Metering'.
Wat - 3	Landscape Irrigation	●	No change to credit
Wat - 4	Heat Rejection Water	●	No change to credit
Wat - 5	Fire System Water	●	No change to credit
Wat - 6	Credit not applicable to this tool.	—	
Wat - 7	Water Efficient Appliances	●	<p>The credit criteria have been changed from requiring appliances that have a minimum 4 Stars WELS rating, to require appliances within 1 star of the highest available WELS rating.</p> <p>A dwelling design that provides neither space nor plumbing for the installation of dishwashers is now deemed to be equivalent to installing a dishwasher that is within one point of the highest available WELS rating.</p>
Wat - 8	Swimming Pool/Spa Water Efficiency	●	<p>Non-potable make-up water supply can now be utilised to meet the credit criteria.</p> <p>The credit criteria have been changed so that either or a combination of the three different water savings initiatives can be implemented to achieve a 70% water savings rather than just either of the initiatives.</p>
MATERIALS			
Mat - 1	Recycling Waste Storage	●	<p>The credit criteria have been changed to award one point when any three of the four specified initiatives are implemented, rather than three specified initiatives. Two points are awarded when all four are implemented.</p> <p>The sizing of waste handling facilities has been changed to be based on calculations of the waste streams rather than default sizes.</p> <p>Clarified that the facility for re-use of household items must be separate from the general waste area.</p> <p>The term 'waste auditor' has been defined.</p>
Mat - 2	Building Re-use	●	Included a 'Not Applicable' clause if all buildings are legally required to be demolished.
Mat - 3	Recycled Content & Re-used Products and Materials	●	No change to credit

Credit Name		Outcome	Notes on Update
Mat - 4	Concrete	●	No change to credit. Please refer to the ongoing stakeholder engagement process for review of this credit for all Green Star tools. Latest updates on the progress of this review are available form www.gbca.org.au
Mat - 5	Steel	●	No change to credit. Please refer to the ongoing stakeholder engagement process for review of this credit for all Green Star tools. Latest updates on the progress of this review are available form www.gbca.org.au
Mat - 6	PVC Minimisation	●	No change to credit. Please refer to the ongoing stakeholder engagement process for review of this credit for all Green Star tools. Latest updates on the progress of this review are available form www.gbca.org.au
Mat - 7	Sustainable Timber	●	No change to credit. Please refer to the ongoing stakeholder engagement process for review of this credit for all Green Star tools. Latest updates on the progress of this review are available form www.gbca.org.au
Mat - 8	Design for Disassembly	●	Credit introduced for Green Star - Multi Unit Residential v1. This credit is identical to the credit for Design for Disassembly in Green Star - Office v3.
Mat - 9	Dematerialisation	●	Increased the maximum unit sizes, making the credit criteria more achievable and relevant.
Mat - 10	Shell and Core or Integrated Fitout	—	The conventional way to deliver a residential development is as an integrated fitout, and thus points are awarded in this credit for current common construction practices. The Green Star rating tools are aimed at awarding leading best environmental practice in construction; hence this credit has been removed from the Green Star - Multi Unit Residential rating tool.
Mat - 11	Flooring	●	No change to credit
Mat - 12	Joinery	●	Credit introduced for Green Star - Multi Unit Residential v1. The Joinery calculator used in Green Star - Office Interiors v1.1 and in Green Star - Education v1 is used.
Mat - 13	Credit not applicable to this tool.	—	
Mat - 14	Internal Walls	●	Credit introduced for Green Star - Multi Unit Residential v1. A slightly modified version of the walls and partitions calculator used in Green Star - Office Interiors v1.1 is used.
Mat - 15	Universal Design	●	Simplified the documentation requirements.
LAND USE & ECOLOGY			

Credit Name		Outcome	Notes on Update
Eco	Ecological Value of Site: Conditional Requirement	●	The conditional requirement developed by an Ecology expert reference panel in collaboration with the GBCA for Green Star - Retail Centre v1 and Green Star -Industrial PILOT has been included in this tool. Developments within 100m of a wetland that is not defined as being of high ecological value can be assessed under this tool provided a number of initiatives to protect the wetland is taken. Refer to the Technical Manual for full details.
Eco - 1	Topsoil	●	No change to credit
Eco - 2	Re-use of Land	●	Further definition of 'previously developed land' has been provided.
Eco - 3	Reclaimed Contaminated Land	●	No change to credit
Eco - 4	Ecological Value of Site	●	No change to credit
Eco - 5	Outdoor Communal Facilities	●	Increased the list of possible facilities in the credit criteria to provide more choice to the project teams. Clarified the definitions of and requirements for the facilities. Clarified that the communal facilities can be located on rooftops and that instructions for how they should be maintained must be provided.
EMISSIONS			
Emi - 1	Refrigerant ODP	●	Simplified the documentation requirements for naturally ventilated buildings.
Emi - 2	Refrigerant GWP	●	Simplified the documentation requirements for naturally ventilated buildings.
Emi - 3	Refrigerant Leaks	●	Simplified the documentation requirements for naturally ventilated buildings.
Emi - 4	Insulant ODP	●	No change to credit
Emi - 5	Watercourse Pollution	●	Further definition of the requirements for the riparian buffer zone has been provided.
Emi - 6	Discharge to Sewer	●	Updated the calculations in the Sewage calculator to reflect the changes made in the Potable water calculator No change to credit criteria.
Emi - 7	Light Pollution	●	The credit criteria have been simplified to limiting the upward light output ratio of the luminaires (light distribution apparatuses), rather than trying to simultaneously control the direction and the intensity of the emitted light as per the old criteria.
Emi - 8	Legionella	●	This credit was revised for all Green Star rating tools in December 2008. The new version of the credit is included in Green Star - Multi Unit Residential v1.
INNOVATION			

Credit Name		Outcome	Notes on Update
Inn - 1	Innovative Strategies and Technologies	●	No change to credit
Inn - 2	Exceeding Green Star Benchmarks	●	No change to credit
Inn - 3	Exceeding Green Star Scope	●	No change to credit