



**Green Star NZ
Office 2009
And USG Ceilings**

GREENER

acoustical
ceilings

As an industry leader with a proud heritage spanning more than 100 years, USG understands the need to safeguard the world around us and protect the vital natural resources we all share. Long before conservation became a mainstream concern, USG was finding innovative ways to reduce waste, operate efficiently and transform manufacturing byproducts into valuable new resources.

With a firm belief that health, safety and environmental well-being are compatible with economic prosperity, USG maintains a longstanding commitment with our employees, customers and communities to reduce environmental impact, use recycled materials whenever feasible and eliminate manufacturing waste. We have a solid history of environmental leadership and responsibility, and we are constantly seeking environmentally friendly product and manufacturing solutions.

Consumers have become increasingly aware of the need to conserve energy, manage the use of raw materials, reduce waste and safeguard against pollutants. In response, many developers and owners now demand buildings with materials and technologies that will help save energy, preserve the integrity of the surrounding land and assure a clean, healthy indoor environment.

USG emphasizes innovation in our products, from the ingredients we choose to the processes we employ. Take a closer look at the advantages that let you choose USG products with confidence.



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Ref No.	Title	Aim of Credit	Credit Criteria Summary	USG Solution
IEQ-3	Indoor Air Quality	To encourage and recognise specification of interior finishes that reduce the detrimental impact on occupant health from products that emit pollutants	<p>Up to five points are available for this credit, points are awarded as follows:</p> <p>VOC</p> <p>Up to four points are awarded where the new interior finishes used in the project meet the benchmark for low VOC limits</p> <ul style="list-style-type: none"> • Ceiling tiles <p>One point where 90% of all the new ceiling tiles meet the requirements (listed in the Additional Guidelines)</p> <p>Formaldehyde Emissions</p> <p>One point is awarded where:</p> <ul style="list-style-type: none"> • 90% of ceiling tiles (including exposed and concealed applications) have low or no formaldehyde emissions OR no ceiling tiles are used <p>For Existing Buildings, the credit applies to new finishes used in the Current Refurbishment only. If there is none then type NA in the No. of Points Achieved column</p>	<p>USG Acoustical Ceiling Panels are low VOC emitters per standards established by the Collaborative for High-Performance Schools (CHPS), following California Specification 01350 testing methods</p> <p>Low-emitting is defined as having less than 13.5 ppb (0.017 mg/m³)</p> <p>Free is defined as having less than 1.6 ppb (0.002 mg/m³)</p> <p>These values are well below maximum values under IEQ-3 requirements of :</p> <p>VOC's ≤0.5 mg/m³ Formaldehyde ≤0.06 mg/m³ Total VOC's ≤0.5 mg/m³</p>
IEQ-8	Daylight	To encourage and recognise buildings that provide good levels of daylight for building users.	<p>Up to three points are awarded where it is demonstrated that a nominated percentage of the assessable area has a Daylight Factor not less than 2.5% as measured at the floor level under a uniform design sky, as follows:</p> <ul style="list-style-type: none"> • 1 point where 30% of the assessable area complies • 2 points where 60% of the assessable area complies • 3 points where 90% of the assessable area complies 	<p>Using high Light Reflectance (LR) ceiling materials such as USG's acoustical ceiling panels (LR of .76 to .89) can reduce required luminaries of design space, therefore energy consumption, and improve the quality and quantity of natural light.</p> <p>For more information of specific light reflectance levels of USG products refer to the USG New Zealand Sustainability Table.</p>
IEQ-11	Electric Lighting Levels	To encourage and recognise office lighting provided by the base building that improves visual comfort.	<p>Up to three points are awarded as follows:</p> <p>One point is awarded where 80% of each of the wall and ceiling area meets the following:</p> <ul style="list-style-type: none"> • Surface finishes have reflectance's of not less than 65% for ceilings and 40% for walls. • An average surface illuminance of at least: <ul style="list-style-type: none"> - 20% of the required task lighting levels (as defined by AS/NZS1680.1:2006) on the ceiling, and - 40% on the walls. <p>Two points are awarded where the above point has been achieved and 80% of each of the wall, ceiling and floor area meets the following:</p> <ul style="list-style-type: none"> • Surface finishes shall have reflectance's of not less than 75% for ceilings, 50% for walls and 20% for floors. • An average surface illuminance of at least: <ul style="list-style-type: none"> - 30% of the required task lighting levels (as defined by AS/NZS1680.1:2006) on 	<p>Using high Light Reflectance (LR) ceiling materials such as USG's acoustical ceiling panels (LR of .76 to .89) can reduce required luminaries of design space, therefore energy consumption, and improve the quality and quantity of natural light.</p>

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IEQ-11 cont.	Electric Lighting Levels		<p>the ceiling</p> <ul style="list-style-type: none"> - 50% on the walls and - 20% on the floors. <p>One point is awarded where:</p> <ul style="list-style-type: none"> • The office lighting design has an average maintained illuminance level (as defined by AS/NZS1680.1:2006 1.4.4) of no more than 400 Lux with a uniformity of no less than 0.6 for 95% of the assessable area as measured at the working plane (700mm AFFL) with the standard maintenance factor of 0.76. 	
IEQ-13	Internal Noise Levels	To encourage and recognise buildings that maintain internal noise levels at an appropriate level.	<p>Up to two points are awarded where 95% of the project's assessable area does not exceed the "Satisfactory ambient internal noise levels in accordance with AS/NZS 2107:2000, as follows:</p> <p>Building Services Design</p> <p>One point is awarded where the noise from the building services does not exceed 43 dB (A) LAeq.</p> <p>Overall Building including Building Services</p> <p>One point is awarded where the noise level does not exceed 43 dB (A) LAeq (assuming open plan offices).</p>	<p>The materials used within a space greatly assist in maintaining internal noise levels – particularly walls, floors and ceilings.</p> <p>USG manufacture high performance acoustical ceilings tiles that deliver high NRC – Noise Reduction Coefficient (related to the reverberation time of a material) levels, while maintaining excellent CAC – Ceiling Attenuation Class (measurement of the sound transmission of a material) values. These tiles can assist acoustics engineers to maintain the correct acoustic level.</p> <p>For more information of specific acoustical ratings of USG products refer to the USG New Zealand Sustainability Table.</p>
Ene-4	Lighting	To encourage and recognise lighting design practices which lessen lighting energy consumption while maintaining appropriate illumination on ceilings, walls and floors.	<p>Up to three points are awarded where it is demonstrated that:</p> <p>The lighting power densities for 95% of the assessable area meet the following criteria at 700mm AFFL with the standard maintenance factor of 0.76.:</p> <ul style="list-style-type: none"> • 1 point for lighting power density of 2.5 W/m² per 100 Lux • 2 points for lighting power density of 2.0 W/m² per 100 Lux and • 3 points for lighting power density of 1.5 W/m² per 100 Lux <p>AND</p> <p>The lighting design has an average maintained illuminance level (as defined by AS/NZS1680.1:2006 1.4.4) of no more than 600 Lux as defined by AS/NZS1680.1 2006 table 3.1 for difficult tasks) with:</p> <ul style="list-style-type: none"> • A uniformity of no less than 0.6 for 95% of the assessable area as measured at the working plane (700mm AFFL) and • A standard maintenance factor of 0.76 	<p>Using high Light Reflectance (LR) ceiling materials such as USG's acoustical ceiling panels (LR of .76 to .89) can reduce required luminaries of design space, therefore energy consumption, and improve the quality and quantity of natural light.</p> <p>For more information of specific light reflectance levels of USG products refer to the USG New Zealand Sustainability Table.</p>

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Mat-1	Shell and Core or Integrated Fitout	To encourage and recognise the reduction of material wastage during tenancy fit outs.	<p>Up to three points are awarded where it is demonstrated that the percentage of the assessable area of the base building construction or refurbishment is delivered as either:</p> <ul style="list-style-type: none"> • Shell and core (i.e. no ceiling, floor finishes or partitions installed) OR • Integrated fitout (ie. base building and tenant fitout works are fully integrated) <p>OR</p> <ul style="list-style-type: none"> • Any combination of the above <p>Points are awarded as follows:</p> <ul style="list-style-type: none"> • 1 point if 30% of the assessable area meets the criteria; • 2 points if 60% of the assessable area meets the criteria; • 3 points if 90% of the assessable area meets the criteria. <p>For existing building, this credit only applies to areas of Current Refurbishment that involve a change in tenancy. For all other existing buildings, this credit is 'Not Applicable' and is excluded from the points available used to calculate the Materials Category Score. In this case type "NA" in the "No. of Points Achieved" column. Please refer to the Existing Building Guidance in the Introduction for the definition of Existing Building and Current Refurbishment.</p>	<p>USG Donn Brand suspension system with its patented Quick Release Clip (QRC) makes it easy to disassemble and reuse.</p> <p>When used with a specific acoustical ceiling tile you have a system that can be reused in the future.</p> <p>This is applicable for an integrated fit out as set out in Mat-1.</p> <p>This is also an advantage for shell and core developments that include a suspended ceiling. If the disassembly and reuse of the system are included in the Building Users Guide and are part of the contracted lease, then it could be argued that the aim of this credit (to encourage and recognise the reduction of material wastage during tenancy fitouts) is achieved.</p> <p>USG Fiberock wall linings (branded in NZ as GIB Toughrock) have 95% re-cycled content, and can be de-installed and re-used. Due to their paperless face off-cuts can be re-used thereby minimizing site waste.</p> <p>For more specific information on which USG products suit disassembly, refer to the USG New Zealand Sustainability Table.</p>
Mat-8	Steel	To encourage and recognise the reduction in embodied energy and resource depletion associated with reduced use of virgin steel	<p>Up to three points are awarded when a percentage of all new steel in the project (by weight) either has a post-consumer recycled content greater than 50%, or is re-used.</p> <p>Points are awarded as follows:</p> <ul style="list-style-type: none"> • 1 point if 30% of the steel meets the criteria; • 2 points if 60% of the steel meets the criteria; • 3 points if 90% of the steel meets the criteria. <p>For New Buildings, if the material cost of steel represents less than 1% of the contracts total value, this credit is 'Not Applicable' and is excluded from the points available used to calculate the Materials Category Score. In this case type "NA" in the "No. of Points Achieved" column. Please refer to the Existing Building Guidance in the Introduction for the definition of Existing Building Guidance in the Introduction for the definition of New Building.</p> <p>For Existing Buildings, the credit applies to steel used in the Current Refurbishment, or if no Significant Amount of steel is used as part of the Current Refurbishment, the credit is 'Not Applicable' and is excluded from the points available to calculate the Materials Category Score. In this case "NA" in the "No. of Points Achieved" column. Please refer to the Existing Building Guidance in the Introduction for the definition of Existing Building, Current Refurbishment and Significant Amount.</p>	<p>USG Donn Brand suspension system with its patented Quick Release Clip (QRC) makes it easy to disassemble and reuse.</p> <p>This is also an advantage for developments that include a suspended ceiling. If the disassembly and reuse of the system are included in the Building Users Guide and are part of the contracted lease, then it could be argued that the aim of this credit (to encourage and recognise the reduction of material wastage during tenancy fitouts) is achieved.</p>

Note: use of the particular products/solutions listed in this table contribute toward the efforts to achieve Green Star NZ points in these specific categories, however, use of these products/solutions alone does not guarantee achievement of point criteria or Green Star certification of a building.