

LOTUS NC V3 Guidelines

Sites with multiple buildings

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1. Introduction

These guidelines are for sites with multiple buildings under the control of a single entity.

The aim of these guidelines is to provide guidance on how to handle LOTUS certification for multiple buildings at the same time. This way, projects can be encouraged to pursue LOTUS for a whole project or a portion of a project and not only for single buildings.

2. Eligibility

The present guidelines can be used with the following LOTUS rating systems:

- LOTUS New Construction V3 (LOTUS NC V3)

For a project to be eligible to follow these guidelines, the following criteria must be met:

- All buildings are under control of the same owner, developer, or property management.
- All buildings are located on the same master site

3. Boundaries

3.1 Master site boundary

The first step for projects is to define the Master site boundary.

Project teams should use reasonable judgment in drawing a master site boundary following these general guidelines:

- Projects may elect to use the legal limits of the site (e.g. property boundary) or define an alternative boundary for LOTUS purposes that is wholly contained within the legal ownership rights of the site. The entire area contained within this boundary is required to be under the same ownership or property manager or developer.
- The master site boundary may include real property for which LOTUS certification will not be pursued.
- The master site boundary must be a single unbroken site.

3.2 LOTUS project boundaries

Project teams should use reasonable judgment in drawing a LOTUS project boundary following these general guidelines:

- All LOTUS project boundaries must be wholly contained within the master site boundary.
- All buildings located within the LOTUS project boundary must follow LOTUS certification. These buildings will be referred to as the LOTUS project buildings.
- The LOTUS project boundaries may not unreasonably exclude portions of the site to give the project an advantage in complying with credit requirements.
- It is not necessary that the sum of all individual LOTUS project boundaries make up the entire master site boundary area. However, if following the master site approach, all site features and amenities (existing development, new development, and future known development) within the master site boundary will be considered during the review of all master site credits (c.f. section 5.1).

For example, when calculating the development footprint requirements for credit SE-2 Development Footprint, the footprints of all real property within the master site boundary must be included in the calculations.

3.2.1 Group projects

Multiple buildings may be certified as a group where the entire group, within a single LOTUS project boundary, receives a single rating and certification.

3.2.2 Individual projects

Buildings on the master site may follow LOTUS certification individually. This might be the case for buildings that:

- are following different LOTUS rating systems (NC, Homes, etc.)
- are different types of building (Residential and Non-Residential)
- are targeting different LOTUS certification levels (Certified, Silver, Gold or Platinum)
- are under different construction contracts or are built at different times

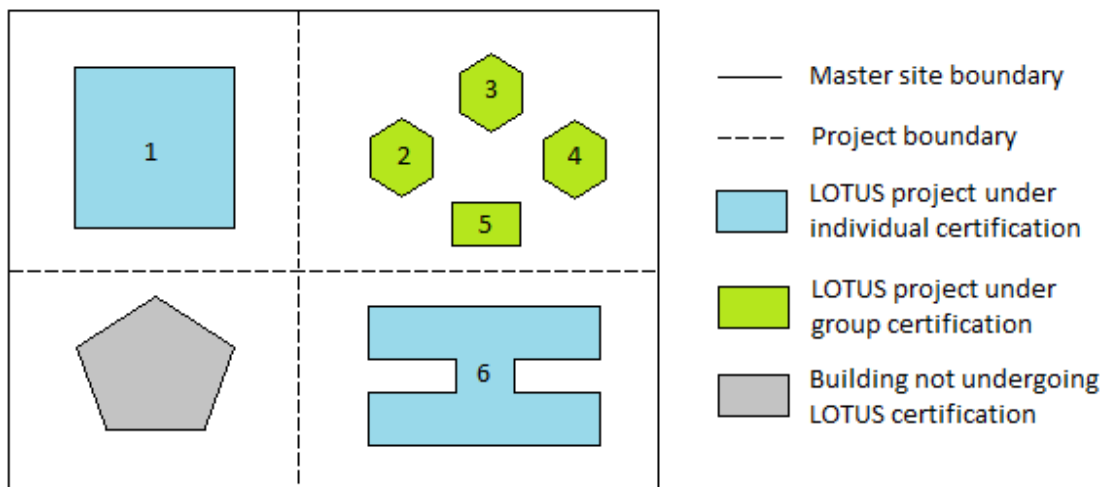


Figure 1: Example of determination of boundaries

4. LOTUS Project certification

4.1 Individual project certification

Individual project certification should be followed for individual buildings.

Under individual project certification, projects should strictly follow the requirements outlined in the LOTUS NC V3 Technical Manual.

However, there is one specificity for individual projects with a LOTUS project boundary contained within a master site boundary. For credits where a master site approach is available (as described in Section 5.1 below), submissions based on the complete master site may be used instead of submissions based on the LOTUS project boundary.

4.2 Group project certification

To receive a group project certification, the project must demonstrate that a group of buildings collectively meets the prerequisite and credit requirements in LOTUS.

To follow a group project certification, the following requirements must be met:

- All buildings within the group project must use the same rating system and must use the same compliance paths for all credits and prerequisites pursued.
- Each building in the group project must independently be eligible and meet all the prerequisites of LOTUS NC V3.
- Only one certification and one rating (Certified, Silver, Gold or Platinum) must be pursued for the entire group project
- Calculations and Documentation for all credits and prerequisites pursued must represent all real property and site features within the LOTUS project boundary for the group project. No selective exemptions, exclusions, or omissions are permitted.
- All the buildings that compose the group must be under the same construction contract and constructed at the same time (in the same phase of development).
- All the buildings in the group must either be NR projects or Residential projects.

5. Credit compliance

Depending on the credit, compliance can be demonstrated following 3 different approaches:

1. Master site approach
2. Group approach
3. Individual approach

The list of credits and the types of approaches available are listed in the Tables of Appendix 1.

5.1 Master site approach

The master site cannot be certified under LOTUS on its own. However, some LOTUS credits can be demonstrated for the whole master site and be used for the certification of individual or group projects that are located within the master site boundary. In this case, compliance with the credits will have to be justified only once and the results can be used for all the other projects located within the master site boundaries.

This is an option given to projects which can pursue these credits either using the master site approach (with the master site boundary) or using the actual LOTUS project boundaries.

If the master site boundary changes, the development within the master site boundary changes, or if any subsequent projects change the master site's credit performance, all affected credits must be reassessed at the expense of the project team.

Documenting Credit Compliance under master site approach:

A master site credit includes documentation on the entire area and development within the master site boundary.

If a project wants to follow a master site approach for some credits, it is recommended that the master site is submitted for review prior to the first LOTUS project submitting for assessment. Project teams may submit the master site at the same time as the first building or group of buildings submitting for assessment. The outcome of a master site review is that master site credits are earned for use by all the LOTUS projects included within the master site boundary.

5.2 Group approach

This approach is reserved for group project certification. The definition of the group project must be consistent across all credits and prerequisites.

In credits eligible for the group approach, points are awarded to the group based on the performance of the project as a whole. This can be done in two ways:

- by considering all the building spaces together. For example, in credit H-4 Daylighting, all the occupied spaces in all the buildings should be considered to calculate the percentage of compliant areas.
- by averaging the performance of all the buildings. For example, in credit E-3 Building Envelope - Option A, the average of the OTTV values of all the buildings should be calculated to get one single value of OTTV reduction.

Documenting Credit Compliance under group approach:

In credits eligible for the group approach, group projects should document credit compliance for all buildings as a single group: calculations should consider all the buildings as a whole and a single set of submissions should be provided.

5.3 Individual building approach

For individual projects and when neither the master site approach, nor the group approach are eligible, projects should follow the individual building approach under which all the buildings within the LOTUS project boundary must individually meet the requirements set in the Prerequisite or Credit.

Appendix 1: LOTUS NC V3 Prerequisites and Credits

Table 1: Applicability of LOTUS NC V3 Prerequisites and Credits with the different credit approaches

PR/Credit	Eligibility		Procedure
	Master site approach	Group approach	
E-PR-1 Minimum Energy Efficiency Performance	No	No	Each building (at the exception of buildings with a GFA under 2,500 m ²) must demonstrate individual compliance with requirements.
E-PR-2 Passive Design	No	No	Each building must demonstrate individual compliance with requirements. However, some elements of the Passive design analysis can be shared between the LOTUS project buildings but each building must demonstrate individual compliance.
E-1 Passive Design	No	No	Each building must demonstrate individual compliance with requirements..
E-PR-3 Total Building Energy Use	No	No	Each building (at the exception of buildings with a GFA under 2,500 m ²) must demonstrate individual compliance with requirements.
E-2 Total Building Energy Use	No	Yes	<ul style="list-style-type: none"> Group approach: Points awarded should be based on the energy reduction calculated using the total baseline model energy use and the total proposed model energy use of all the LOTUS project buildings (including all site lighting within the LOTUS project boundary)
E-3 Building Envelope – Option A	No	Yes	<ul style="list-style-type: none"> Group approach: Points awarded should be based on the average OTTV value of all the LOTUS project buildings. It should be calculated as an area-weighted average of the OTTV values (roofs and walls) of all the LOTUS project buildings.
E-3 Building Envelope – Option B	No	No	<ul style="list-style-type: none"> Group approach: <ul style="list-style-type: none"> - For NR projects, Option B can be followed only if all buildings individually have more than 50% of occupied spaces without air-conditioning. - For Residential projects, Option B can be followed only if all buildings individually have more than 50% of dwelling units with a building layout design that meets requirements of Strategy A1 of credit E-4. - Under Strategy B1 and Strategy B4, each building must demonstrate individual compliance with requirements. - Under Strategy B2, points awarded should be based on the average West facing façade area of all the LOTUS project buildings. - Under Strategy B3, points awarded should be based on the average WWR area of the West and East facing façades of all the LOTUS project buildings

E-4 Building Cooling – Strategy A (For NR projects)	No	Yes	<ul style="list-style-type: none"> Group approach: Points awarded should be based on the percentage of compliant occupied spaces considering the total net occupied area of all the LOTUS project buildings.
E-4 Building Cooling – Strategy A1 (For Residential projects)	No	Yes	<ul style="list-style-type: none"> Group approach: Points awarded should be based on the percentage of compliant dwelling-units considering all the dwelling-units in the LOTUS project buildings.
E-4 Building Cooling – Strategy A2 (For Residential projects)	No	Yes	<ul style="list-style-type: none"> Group approach: Points awarded should be based on the percentage of compliant living rooms and bedrooms considering all the living rooms and bedrooms in the LOTUS project buildings.
E-4 Building Cooling – Strategy A3 (For Residential projects)	No	Yes	<ul style="list-style-type: none"> Group approach: All the lobby, corridor and staircase areas in the LOTUS project buildings should be considered to demonstrate compliance with requirements.
E-4 Building Cooling – Strategy B1	No	Yes	<ul style="list-style-type: none"> Group approach: Points awarded should be based on the efficiency improvement of all the HVAC systems installed in the LOTUS project buildings.
E-4 Building Cooling – Strategy B2	No	No	Each building must individually demonstrate compliance with requirements and have variable controls installed on all suitable HVAC systems.
E-4 Building Cooling – Strategy B3	No	No	Each building must individually demonstrate compliance with requirements and have a Dedicated Outdoor Air System (DOAS) and/or a Radiant Cooling system installed.
E-5 Artificial Lighting – Strategy A	No	Yes	<ul style="list-style-type: none"> Group approach: Points awarded should be based on the LPD reduction calculated considering the total lighting power of all the LOTUS project buildings.
E-5 Artificial Lighting – Strategy B	No	Yes	<ul style="list-style-type: none"> Group approach: A lighting control system should be implemented in more than 50% of the GFA of all the LOTUS project buildings and in 100% of the whole outdoor car park area within the LOTUS project boundary.
E-6 Energy Monitoring and Management (For NR projects)	No	No	Each building must demonstrate individual compliance with requirements.
E-6 Energy Monitoring and Management (For Residential projects)	No	No	All the dwelling-units within the LOTUS project boundary should demonstrate compliance with requirements.
E-7 Lifts (For Residential projects)	No	No	All the lifts serving the residential areas with dwelling-units in all the LOTUS project buildings should demonstrate compliance with requirements..

E-8 Renewable Energy	Yes	Yes	<ul style="list-style-type: none"> Master site approach: In case the renewable energy production equipment is not physically located in the LOTUS project boundary, provide data showing the projected energy consumption of all buildings within the LOTUS project boundary and the percentage to be met with the renewable energy produced. The owner should submit a certification letter acknowledging that the renewable energy produced will apply only to the submitted LOTUS project and will not be applied to subsequent buildings for any future LOTUS certifications.
W-PR-1 Water Efficient Fixtures	No	No	Each building must demonstrate individual compliance with requirements.
W-1 Water Efficient Fixtures	No	Yes	<ul style="list-style-type: none"> Group approach: Points awarded should be based on the reduction of the amount of water use through fixtures calculated with the total baseline water use through fixtures and the total design water use through fixtures of all the LOTUS project buildings.
W-2 Water Efficient Landscaping	Yes	Yes	<ul style="list-style-type: none"> Master site approach: Points awarded should be based on the reduction of the amount of domestic water used for all the landscaped areas within the master site boundary. Group approach: Points awarded should be based on the reduction of the amount of domestic water used for all the landscaped areas within the LOTUS project boundary.
W-3 Water Metering	No	No	Each building must demonstrate individual compliance with requirements.
W-4 Sustainable Water Solutions – Strategy A	No	Yes	<ul style="list-style-type: none"> Group approach: Points awarded should be based on the total amount of recycled, reused and/or harvested water used in all buildings within the LOTUS project boundary.
W-4 Sustainable Water Solutions – Strategy B	No	Yes	<ul style="list-style-type: none"> Group approach: The same strategies to reduce water use must be implemented for all the swimming pools within the LOTUS project boundary
W-4 Sustainable Water Solutions – Strategy C	Yes	Yes	<ul style="list-style-type: none"> Master site approach: In case a chiller plant with water-cooled chillers is installed to provide cooling to all the buildings of the master site, the cooling tower system serving for the whole master site must demonstrate compliance with requirements. Group approach: In case a chiller plant with water-cooled chillers is installed to provide cooling to all the LOTUS project buildings, the cooling tower system serving for all the LOTUS project buildings must demonstrate compliance with requirements.
W-4 Sustainable Water Solutions – Strategy D	No	No	Each building must demonstrate individual compliance with requirements.

MR-1 Reduced Concrete Use – Strategy A	No	No	Each building should demonstrate individual compliance with requirements.
MR-1 Reduced Concrete Use – Strategy B	No	No	Each building should demonstrate individual compliance with requirements.
MR-1 Reduced Concrete Use – Strategy C	No	No	Each building should demonstrate individual compliance with requirements.
MR-2 Sustainable Materials	No	Yes	<ul style="list-style-type: none"> Group approach: Points awarded should be based on the percentage of sustainable materials calculated considering the total combined amount of materials of all the LOTUS project buildings.
MR-3 Non-Baked Materials	No	Yes	<ul style="list-style-type: none"> Group approach: Points awarded should be based on the percentage of non-baked materials calculated considering all the non-structural walls of the LOTUS project buildings.
MR-PR-1 Demolition and Construction Waste	No	Yes	<ul style="list-style-type: none"> Group approach: The same Demolition and Construction Waste Plan should be implemented for the whole LOTUS project boundary.
MR-4 Demolition and Construction Waste – Strategy A	No	Yes	<ul style="list-style-type: none"> Group approach: Points awarded should be based on the percentage of demolition and construction waste diverted from landfill considering the total combined amount of demolition and construction waste of all the LOTUS project buildings.
MR-4 Demolition and Construction Waste – Strategy B	No	Yes	Each building should demonstrate individual compliance with requirements.
MR-5 Operation Waste Management – Option A (For NR Projects)	Yes	Yes	<ul style="list-style-type: none"> Master site approach: A central recycling storage area for the whole master site can be used for compliance with this credit. It should be located for convenient access by occupants and collection vehicles, and should have storage spaces sufficiently sized based on waste generation of all the buildings located on the master site. Group approach: A central recycling storage area for the whole LOTUS project boundary can be used for compliance with this credit. It should be located for convenient access by occupants and collection vehicles, and should have storage spaces sufficiently sized based on waste generation of all the LOTUS project buildings.
MR-5 Operation Waste Management – Option B (For Residential Projects)	No	No	Each building must demonstrate individual compliance with requirements.
H-PR-1 Indoor Smoking	No	No	Each building must demonstrate individual compliance with requirements.

H-1 Ventilation for indoor air quality – Strategy A	No	Yes	<ul style="list-style-type: none"> Group approach: 95% of all the occupied spaces within the LOTUS project boundary should demonstrate compliance with requirements.
H-1 Ventilation for indoor air quality – Strategy B	No	No	Each building must demonstrate individual compliance with requirements.
H-1 Ventilation for indoor air quality – Strategy C (For NR Projects)	No	No	Each building must demonstrate individual compliance with requirements.
H-1 Ventilation for indoor air quality – Strategy D (For Residential Projects)	No	No	Each building must demonstrate individual compliance with requirements.
H-PR-2 Low-Emission Products	No	No	Each building must demonstrate individual compliance with requirements.
H-2 Low-Emission Products	No	No	Each building must demonstrate individual compliance with requirements.
H-3 Biophilic Design	No	No	Each building should demonstrate individual compliance with requirements.
H-4 Daylighting – Option A	No	Yes	<ul style="list-style-type: none"> Group approach: Points awarded should be based on the percentage of compliant area considering the total net occupied area of all the LOTUS project buildings.
H-4 Daylighting – Option B	No	Yes	<ul style="list-style-type: none"> Group approach: Points awarded should be based on the spatial daylight autonomy_{300/50%} achieved considering the total net occupied area of all the LOTUS project buildings.
H-5 External Views	No	Yes	<ul style="list-style-type: none"> Group approach: For both strategies, points awarded should be based on the percentage of compliant area considering the total net occupied area of all the LOTUS project buildings.
H-6 Thermal Comfort	No	Yes	<ul style="list-style-type: none"> Group approach: 95% of all the occupied spaces in the LOTUS project buildings should demonstrate compliance with the credit.
H-7 Acoustic Comfort – Option A (For NR Projects)	No	No	Each building should demonstrate individual compliance with requirements.
H-7 Acoustic Comfort – Option B (For NR Projects)	No	No	Each building should demonstrate individual compliance with requirements.
H-7 Acoustic Comfort (For Residential Projects)	No	No	Each building should demonstrate individual compliance with requirements.
SE-1 Flooding Resistance	No	No	Each building should demonstrate individual compliance with requirements. However, the local flood risk report can be prepared for the master site boundary or for the LOTUS project boundary.

SE-2 Development Footprint	Yes	Yes	<ul style="list-style-type: none"> Master site approach: Depending on requirements from local departments of planning and architecture, points awarded should be based the reduction of development footprint for the whole master site boundary. Group approach: Depending on requirements from local departments of planning and architecture, submittal documentation and calculations should represent the reduction of development footprint for the whole LOTUS project boundary.
SE-3 Vegetation – Strategy A	Yes	Yes	<ul style="list-style-type: none"> Master site approach: Points awarded should be based on the Greenery Index calculated considering the whole master site boundary. Group approach: Points awarded should be based on the Greenery Index calculated considering the whole LOTUS project boundary.
SE-3 Vegetation – Strategy B	Yes	Yes	<ul style="list-style-type: none"> Master site approach: The Landscape management plan should be established and implemented for the whole master site boundary. Group approach: The Landscape management plan should be established and implemented for the whole LOTUS project boundary site area.
SE-4 Stormwater Management – Option A	Yes	Yes	<ul style="list-style-type: none"> Master site approach: Points awarded should be based on the average perviousness of the site calculated considering the whole master site boundary. Group approach: Points awarded should be based on the average perviousness of the site calculated considering the whole LOTUS project boundary.
SE-4 Stormwater Management – Option B	Yes	Yes	<ul style="list-style-type: none"> Master site approach: Points awarded should be based on the volume of on-site stormwater runoff calculated considering the whole master site boundary. Group approach: Points awarded should be based on the volume of on-site stormwater runoff calculated considering the whole LOTUS project boundary.
SE-5 Heat Island Effect	No	Yes	<ul style="list-style-type: none"> Group approach: Points awarded should be based on the percentage of the paved and roof area that limits heat island effect considering the whole LOTUS project boundary.
SE-6 Refrigerants – Option A (For NR Projects)	No	No	Each building must demonstrate individual compliance with requirements.

SE-6 Refrigerants – Option A (For Residential Projects)	No	Yes	All the dwelling-units in the LOTUS project buildings should comply with requirements.
SE-6 Refrigerants – Option B	No	Yes	<ul style="list-style-type: none"> Group approach: Points awarded should be based on the average Refrigerant Atmospheric Impact calculated considering all the air-conditioning systems installed in the LOTUS project buildings.
SE-6 Refrigerants – Option C (For NR Projects)	No	No	All the HVAC and refrigeration systems installed in the LOTUS project buildings should be considered and comply with requirements.
SE-7 Construction Activity Pollution Control	No	Yes	<ul style="list-style-type: none"> Group approach: The same measures to limit air, water and land pollution during the construction process should be implemented for the whole LOTUS project boundary site area.
SE-8 Light Pollution Minimization – Option A	No	Yes	<ul style="list-style-type: none"> Group approach: The whole LOTUS project boundary should comply with requirements.
SE-8 Light Pollution Minimization – Option B	No	Yes	<ul style="list-style-type: none"> Group approach: All the exterior lighting fixtures installed within the LOTUS project boundary should comply with requirements.
SE-9 Green Transportation – Strategy A	Yes	Yes	<ul style="list-style-type: none"> Master site approach: The number of bicycle parking spaces and showers to be provided should be calculated and documented for all the occupants of the master site. The bicycle parking spaces and showers provided should be within 200 meters of the main entrances of each LOTUS project building. Group approach: The number of bicycle parking spaces and showers to be provided should be calculated and documented for all the occupants of the LOTUS project buildings. The bicycle parking spaces and showers provided should be within 200 meters of the main entrances of each LOTUS project building.
SE-9 Green Transportation – Strategy B	No	No	Each building should demonstrate individual compliance with requirements.
SE-9 Green Transportation – Strategy C	Yes	Yes	<ul style="list-style-type: none"> Master site approach: The number of electric vehicle charging stations to be provided should be calculated and documented based on the total vehicle parking capacity within the master site (including parking spaces associated with buildings that are not pursuing LOTUS certification). The charging stations should be located within 200 meters of the main entrances of each LOTUS project building. Group approach: The number of electric vehicle charging stations to be provided should be calculated and documented based on the total vehicle parking capacity within the LOTUS project boundary. The charging stations should be located within 200 meters of the main entrances of each LOTUS project building.

SE-9 Green Transportation – Strategy D	No	Yes	<ul style="list-style-type: none"> Group approach: The same green transportation program should be implemented for all the LOTUS project buildings.
SE-10 Community Connectivity	No	No	Each project building must demonstrate individual compliance with requirements.
SE-11 Outdoor Communal Space and Facilities – Strategy A	Yes	Yes	<ul style="list-style-type: none"> Master site approach: Points awarded should be based on the percentage of public space considering the whole master site. Group approach: Points awarded should be based on the percentage of public space considering the whole LOTUS project boundary.
SE-11 Outdoor Communal Space and Facilities – Strategy B	No	Yes	<ul style="list-style-type: none"> Master site approach: Points awarded should be on the number of outdoor communal facilities for occupants within the whole master site. Group approach: Points awarded should be based on the number of outdoor communal facilities for occupants within the whole LOTUS project boundary.
Man-1 Effective Design Process – Strategy A	No	Yes	<ul style="list-style-type: none"> Group approach: The same integrated design process can be followed for all the buildings in the LOTUS project boundary.
Man-1 Effective Design Process – Strategy B	No	Yes	<ul style="list-style-type: none"> Group approach: The same coordinated BIM model can be used to design all the buildings in the LOTUS project boundary.
Man-1 Effective Design Process – Strategy C	No	Yes	<ul style="list-style-type: none"> Group approach: The same quantity surveyor's report can be used to demonstrate that the design of all the buildings in the LOTUS project boundary is cost-effective.
Man-2 Construction Stage – Strategy A	No	Yes	<ul style="list-style-type: none"> Group approach: The same project management must be performed for all the construction works in the LOTUS project boundary.
Man-2 Construction Stage – Strategy B	No	Yes	<ul style="list-style-type: none"> Group approach: Trades Training is conducted for all the contractors involved on the construction of all the buildings within the LOTUS project boundary.
Man-3 Commissioning	No	No	Each building or space must demonstrate individual compliance. Project teams may complete one set of submittal documentation representing the entire project if there is a single contract for the commissioning of all project buildings including a single commissioning agent responsible for the entire LOTUS project.

Man-PR-1 Maintenance	No	No	Each building must demonstrate individual compliance with requirements.
Man-4 Maintenance	No	No	Each project building must demonstrate individual compliance. Project teams may complete a preventative maintenance plan representing the entire project if there is a maintenance team responsible for the entire LOTUS project.
Man-PR-2 Green Awareness	No	No	Each building must demonstrate individual compliance with requirements.
Man-5 Green Awareness	No	No	Each building must demonstrate individual compliance with requirements. The regular Green activities and events may be organised for the entire LOTUS project.
EP-1 Enhanced Performance	/	/	The procedure to follow should be the same as for the credit for which the performance achieved by the project exceeds significantly the requirements.
EP-2 Innovative Solutions	/	/	Depending on the solution, each building may need to demonstrate individual compliance or a group approach may be followed. For this reason, it is advisable to confirm the approach that can be followed for the proposed innovative solutions with the VGBC at any time prior to submittal