



DESIGN REFERENCE GUIDE

Restaurant (Annex to NRB and INT tools)

Version 1.0

1st December 2019

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1. About GreenRE

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2. Introduction

The GreenRE assessment scheme was established in 2013 and is a recognized green building rating system tailored for the tropical climate. GreenRE sets parameters and establishes indicators to guide the design, construction and operation of buildings towards increased energy effectiveness and enhanced environmental performance.

The Intent of this Design Reference Guide for Restaurant (referred to as “this Guideline”) is to establish environmentally friendly practices for the planning, design and construction of restaurant, which would help to mitigate the environmental impact of building interior for new restaurant, existing operating restaurant and existing restaurant undergoing renovation.

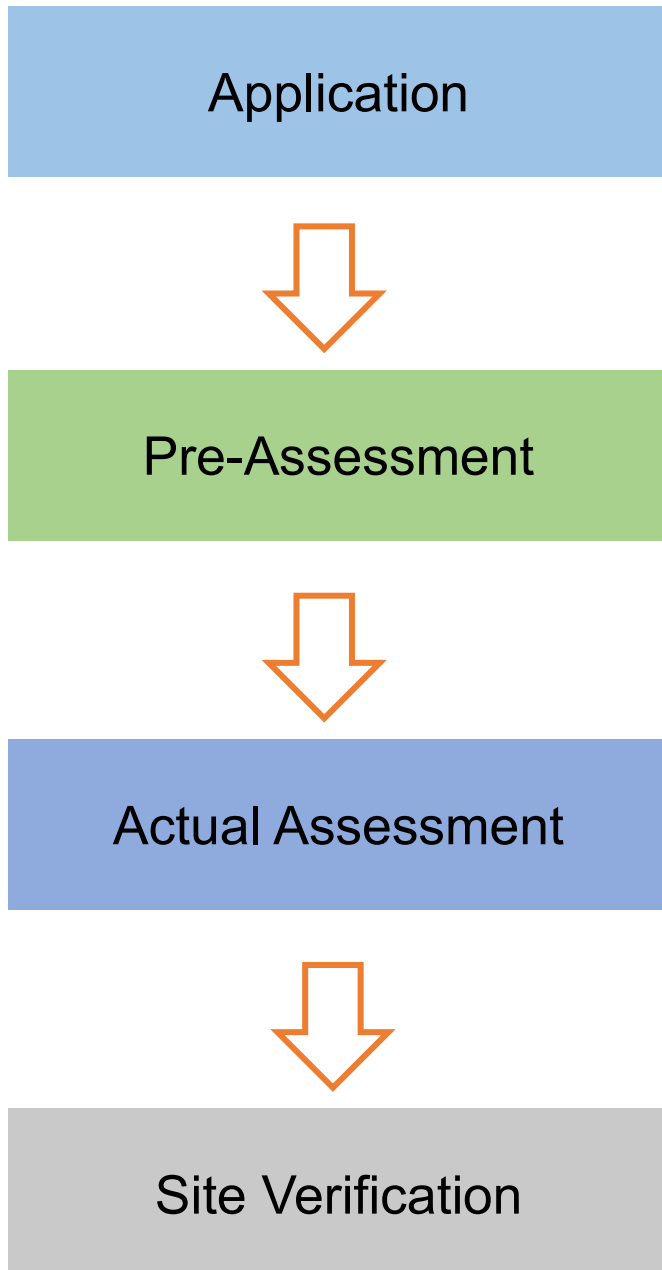
This Guideline is not intended to abridge safety, health, environmental or related requirements contained in other applicable laws, codes or policies administered by relevant authorities. Where there is a conflict between a requirement of this Guideline and such other regulations affecting the design, construction and operation of the project, the building regulations shall take precedence.

3. Revision Log

Revision	Description	Date Effective
1.0	Issued for Pilot	1 st October 2019

4. GreenRE Assessment Stages

The GreenRE restaurant certification process is as follows:



Submittal of application with relevant supporting documents for certification upon strategic inception of infrastructure project.

A pre-assessment can be conducted (optional) to give the project team a better understanding of the criteria and evaluation of the certification level sought. This should be performed upon selection of suitable design option to allow teams to identify and maximise opportunities at the earliest stages of the project.

Actual assessment to be conducted once the design and documentary evidences (e.g. approved plan) are ready. After the actual assessment, our assessors will review the documents submitted.

Assessment process includes design and documentary reviews to verify if the infrastructure project meets:

- (i) The intents of the criteria
- (ii) The pre-requisite requirement for GreenRE Bronze, Silver, Gold and Platinum rating where applicable.

Provisional Certificate will be issued upon completion of this stage.

Site verification to be conducted upon project completion.

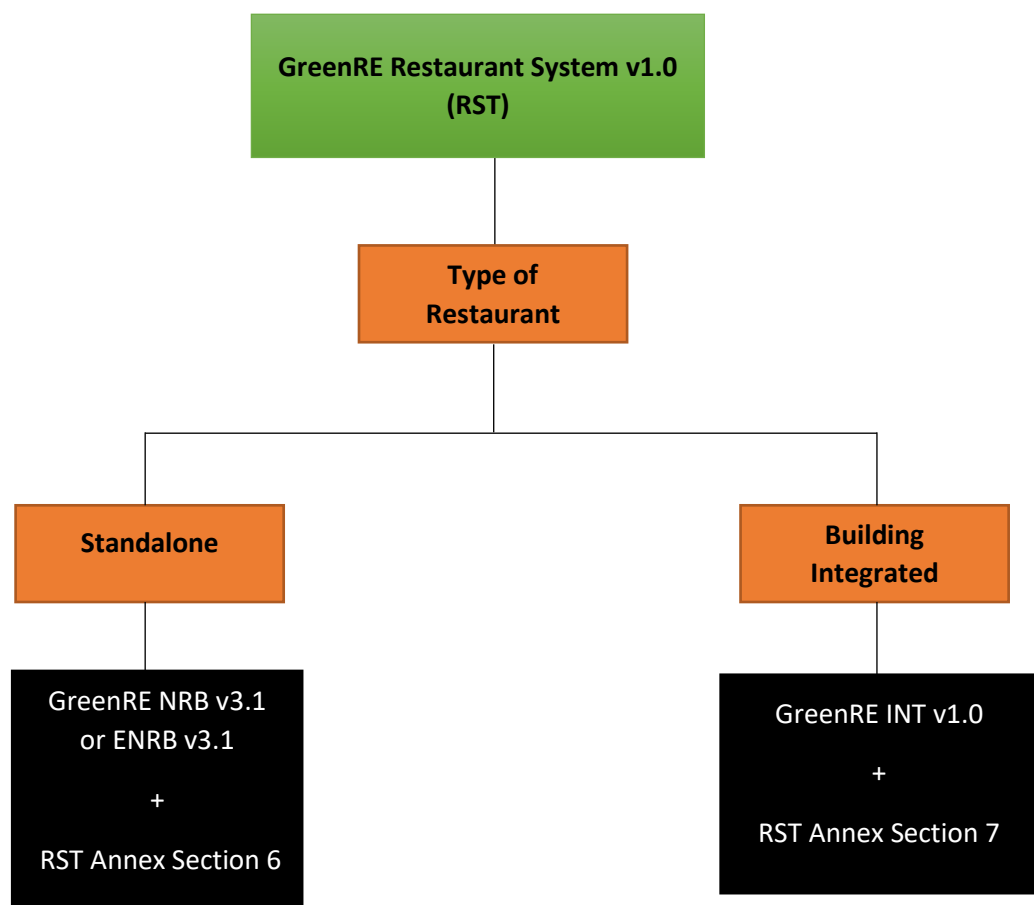
Final Certificate will be issued upon completion of this stage.

5. GreenRE Restaurant Rating System

Overview:

As an annex to GreenRE's NRB, ENRB and INT tools, the GreenRE Restaurant rating system is targeted at standalone and / or building integrated restaurant operations.

This annex is divided into two (2) sections and the decision tree for application of this annex is as follows:



6. GreenRE Restaurant Rating System Criteria (Standalone)

Pre-requisites (In addition to NRB v3.1 and ENRB v3.1)

WATER EFFICIENCY

- Demonstrate at least two (2) water efficient practices: (i) to place frozen food in the refrigerator the night before using it for thawing purposes, (ii) to display water conservation posters and (iii) to inform patrons that water will only be served upon request

SUSTAINABLE MANAGEMENT & OPERATION, INDOOR ENVIRONMENT QUALITY

- Demonstrate use of (i) at least two (2) types of environmentally friendly products in renovation and (ii) at least two (2) types cleaning products recognised under local certification bodies.

OR

At least three (3) sustainable consumable materials (e.g. packaging, wrappers, cups, utensil, napkins etc.)

- Provision of recycling facilities for food waste and used frying oil

OR

To display SOP to ensure good indoor environment through proper cleaning practice, schedule and hygiene practice in kitchen

- Good access to nearest MRT/LRT or bus stops

OR

Provide customer feedback survey form to gather feedback on services, environment, etc.

- Food safety management (accredited to ISO 22000)

Part 1 - Energy Efficiency	GreenRE Credits
<p><u>Replace NRB 1-9 and ENRB 1-7 with following:</u></p> <p><u>KITCHEN EQUIPMENT</u></p> <p>Encourage the use of energy efficient kitchen equipment to save energy.</p> <p>Use of energy efficient office equipment such as:</p> <ul style="list-style-type: none"> • Deep Fryers • Grills • Ovens • Freezers • Cold rooms 	<p>Credits awarded based on the number (type of equipment) and energy efficiency rating (highest rating for applicable labelling scheme) of the equipment used.</p> <p>(up to 10 credits)</p>
<p><u>Replace NRB 1-10 and ENRB 1-8 with following:</u></p> <p><u>ENERGY EFFICIENT FEATURES</u></p> <p>To create an energy breakdown of entire restaurant to indicate major energy consumers within the facility and to calculate energy efficiency index (EEI).</p> <p>Encourage the use of energy efficient features which are innovative and/or have positive environmental impact.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Use of heat exchanger • Use of motion sensors for areas with infrequent usage 	<p>1 credit</p> <p>2 credits for high impact item 1 credit for medium impact item 0.5 credit for low impact item</p> <p>(up to 5 credits)</p>

Part 2 – Water Efficiency	GreenRE Credits
<p><u>To include following as additional credits for NRB and ENRB:</u></p> <p><u>WATER EFFICIENT PRACTICES</u></p> <p>Adopt water efficient practices such as; -</p> <ul style="list-style-type: none"> • Placing frozen food in the refrigerator the night before using it for thawing purposes; • Displaying water conservation posters in the premises; • Involvement of patrons by displaying water conservation cards that inform patrons that water will only be served on request • Re-adjusting cooking practices to reduce water usage. 	<p>(up to 4 credits)</p>

Part 3 – SUSTAINABLE MANAGEMENT & OPERATION	GreenRE Credits
<p><u>The following can be included as sustainable products under NRB 3-2 and ENRB 3-4:</u></p> <p><u>SUSTAINABLE CONSUMABLE MATERIALS</u></p> <p>Encourage the selection of consumable materials that is environmentally friendly and sustainable, such as the use of those materials which are recyclable/ recycled / non-disposable. (Valid third-party certification or product manufacturer verification required.)</p> <ul style="list-style-type: none"> • Food wrappers • Food containers • Carry out bags • Cups • Plates • Serving utensils • Toilet rolls • Napkins/serviettes. • Straws 	<p>Each item will score 1 credit up to maximum allowable in base tool</p>

Part 5 – OTHER GREEN FEATURES	GreenRE Credits
<p><u>To include the following in NRB 5-1 and ENRB 5-1:</u></p> <p><u>5-1 GREEN FEATURES & INNOVATIONS</u></p> <p>Encourage the use of other green features which are innovative and/or have positive environmental impact.</p> <p>Examples:</p> <ul style="list-style-type: none"> • CO2 monitoring of kitchen area to detect leakage of CO2 from CO2 cylinders used in making carbonated drinks • Air sterilization system to limit the level of bacteria, mould and other bio-contaminants • Treatment of kitchen exhaust with green technologies such as UVC emitters, electronic air filtration, etc Technologies that also incorporate noise dampeners will be considered. • For restaurants where guests self-cook at the table eg. Hotpot, bbq, use of green technologies that exhausts oil content, smoke and odour before discharging out as a “noiseless” and energy efficient system. • Working with social enterprises, NGOs and other agencies to distribute surplus food to homeless, poor and other disadvantaged groups in the community that diverts the surplus from landfills. • Replacement of labour with technology eg. Self-service ordering via tablets, cashless payments at table. • Green wall • etc 	<p>2 credits for high impact</p> <p>1 credit for medium impact</p> <p>0.5 credit for low impact</p> <p>(Up to 7 credits)</p>

GreenRE Restaurant Rating System Criteria (Building Integrated)

7. GreenRE Restaurant Rating System Criteria (Building Integrated)

Pre-requisites (In addition to INT v1.0)

ENERGY EFFICIENCY

- Pre-requisites for EEI will exclude air-conditioning and kitchen equipment.

WATER EFFICIENCY

- Demonstrate at least two (2) water efficient practices: (i) to place frozen food in the refrigerator the night before using it for thawing purposes, (ii) to display water conservation posters and (iii) to inform patrons that water will only be served upon request

SUSTAINABLE MANAGEMENT & OPERATION, INDOOR ENVIRONMENT QUALITY

- Demonstrate use of (i) at least two (2) types of environmentally friendly products in renovation and (ii) at least two (2) types cleaning products recognised under local certification bodies.

OR

At least three (2) sustainable consumable materials (e.g. packaging, wrappers, cups, utensil, napkins etc.)

- Provision of recycling facilities for food waste and used frying oil

OR

To display SOP to ensure good indoor environment through proper cleaning practice, schedule and hygiene practice in kitchen

- Good access to nearest MRT/LRT or bus stops

OR

Provide customer feedback survey form to gather feedback on services, environment, etc.

- Food safety management (accredited to ISO 22000)

Part 1 - Energy Efficiency	GreenRE Credits
<p><u>Replace INT 1-1 with the following:</u></p> <p><u>1-1 ENERGY EFFICIENCY</u></p> <p>(a) Encourage selection of energy efficient base building.</p> <p>Building is awarded GreenRE Gold / Platinum rating and / or demonstrates 25%-30% energy saving over last three years</p> <p>To create an energy breakdown of entire restaurant to indicate major energy consumers within the facility and to calculate energy efficiency index (EEI).</p> <p>(b) Encourage restaurants with energy efficiency improvement plan</p> <p>Setting target to improve outlet energy performance.</p> <p>To show intent, measures and implementation strategies of energy efficiency improvement plan over the next three years.</p> <p>Committed energy savings accrued from proposed measures should be quantified.</p>	<p>Gold: 2 credits Platinum: 3 credits</p> <p>1 credit</p> <p>2 credits</p>
<p><u>Replace INT 1-2 with the following:</u></p> <p><u>1-2 ELECTRICITY USAGE</u></p> <p>Encourage the design of system that monitor and manage electricity consumption.</p> <p>(a) Provision of sub-meter to monitor electricity use of different services such as air-conditioning, lighting. Kitchen equipment, etc.</p> <p>(b) Monitoring of electricity consumption</p>	<p>1 credit</p> <p>1 credit</p>

Replace INT 1-5 with the following:

1-5 KITCHEN EQUIPMENT

Encourage the use of energy efficient kitchen equipment to save energy.

Use of energy efficient (electric and thermal) kitchen equipment such as:

- Deep Fryers
- Grills
- Ovens
- Freezers
- Cold rooms
- Efficient gas cookers

Credits awarded based on the number (type of equipment) and energy efficiency rating (highest rating for applicable labelling scheme) of the equipment used.

(up to 10 credits)

Part 2 – Water Efficiency	GreenRE Credits									
<p><u>Replace INT 2-1 with the following:</u></p> <p><u>2-1 WATER EFFICIENT FITTINGS</u></p> <p>Encourage the use of water efficient fittings covered under the Water Efficiency Labelling Scheme (WELS) or adopt equivalent water efficient flowrates for water fittings.</p> <p>(a) Basin Taps and Mixers (b) Flushing Cistern (c) Showers (d) Sink/Bib Taps and Mixers (e) All other water fittings</p> <p>Use of water efficiency features such as: (a) Pre-rinse spray valve (<6L/min) (b) Dishwasher (c) Air-cooled ice-making machine</p>	<table><tr><th colspan="3">Rating Based on Water Efficiency Products Labelling Scheme (WEPLS)</th></tr><tr><td>Efficient *</td><td>Highly Efficient **</td><td>Most Efficient ***</td></tr><tr><td>2 credit</td><td>4 credits</td><td>6 credits</td></tr></table> <p>Credits can be scored based on the number and water efficiency rating of the fitting type used.</p> <p>(Up to 6 credits)</p> <p>(Up to 3 credits)</p>	Rating Based on Water Efficiency Products Labelling Scheme (WEPLS)			Efficient *	Highly Efficient **	Most Efficient ***	2 credit	4 credits	6 credits
Rating Based on Water Efficiency Products Labelling Scheme (WEPLS)										
Efficient *	Highly Efficient **	Most Efficient ***								
2 credit	4 credits	6 credits								
<p><u>Replace INT 2-2 with the following:</u></p> <p><u>2-2 WATER USAGE</u></p> <p>Provide the use of private-metering and leak detection system for better control and monitoring</p> <p>(c) Provision of private meters for major water uses (eg. pre-rinse spray valve, dishwasher, kitchen and common toilets) (d) To keep track of water consumption</p>	<p>1 credit</p> <p>1 credit</p>									
<p><u>Replace INT 2-3 with the following:</u></p> <p><u>2-3 WATER EFFICIENT PRACTICES</u></p> <p>Adopt water efficient practices such as;-</p> <ul style="list-style-type: none">Placing frozen food in the refrigerator the night before using it for thawing purposes;Displaying water conservation posters in the premises;Involvement of patrons by displaying water conservation cards that inform patrons that water will only be served on request	<p>(up to 4 credits)</p>									

<ul style="list-style-type: none"> • Re-adjusting cooking practices to reduce water usage. 	
<p><u>To include the following:</u></p> <p><u>2-4 WATER EFFICIENCY IMPROVEMENT PLANS</u></p> <p>Targets to improve restaurant's water performance should be set. To show intent, measures and implementation strategies of water efficiency improvement plans over the next three years.</p> <p>Committed water savings accrued from proposed measures should be quantified.</p>	<p>1 credit</p>

Part 3 – SUSTAINABLE MANAGEMENT & OPERATION	GreenRE Credits
<p><u>Replace INT 3-1 with the following:</u></p> <p><u>3-1 SUSTAINABLE CONSUMABLE MATERIALS</u></p> <p>Encourage the selection of consumable materials that is environmentally friendly and sustainable, such as the use of those materials which are recyclable/ recycled / non-disposable. (Valid third-party certification or product manufacturer verification required.)</p> <ul style="list-style-type: none"> • Food wrappers • Food containers • Carry out bags • Cups • Plates • Serving utensils • Toilet rolls • Napkins/serviettes. • Straws 	<p>(Up to 6 credits)</p>
<p><u>Replace INT 3-5 with the following:</u></p> <p><u>3-5 WASTE MANAGEMENT</u></p> <p>Encourage recycling facilities within restaurant to reduce wastage</p> <p>Provision of recycling facilities for</p> <ul style="list-style-type: none"> • Food waste • Used frying oil <p>Waste collecting and monitoring</p> <p>Waste management improvement plan</p>	<p>(up to 3 credits)</p> <p>1 credit</p> <p>1 credit</p>

Part 5 – Other Green Features	GreenRE Credits
<p><u>Replace INT 5-1 with the following:</u></p> <p><u>5-1 GREEN FEATURES & INNOVATIONS</u></p> <p>Encourage the use of other green features which are innovative and/or have positive environmental impact.</p> <p>Examples:</p> <ul style="list-style-type: none"> • CO2 monitoring of kitchen area to detect leakage of CO2 from CO2 cylinders used in making carbonated drinks • Air sterilization system to limit the level of bacteria, mould and other bio- contaminants • Treatment of kitchen exhaust with green technologies such as UVC emitters, electronic air filtration, etc Technologies that also incorporate noise dampeners will be considered. • For restaurants where guests self-cook at the table eg. Hotpot, bbq, use of green technologies that exhausts oil content, smoke and odour before discharging out as a “noiseless” and energy efficient system. • Working with social enterprises, NGOs and other agencies to distribute surplus food to homeless, poor and other disadvantaged groups in the community that diverts the surplus from landfills. • Replacement of labour with technology eg. Self-service ordering via tablets, cashless payments at table. • Green wall • etc 	<p>2 credits for high impact</p> <p>1 credit for low impact</p> <p>(Up to 8 credits)</p>