

GBI Assessment Process

– Stage 2 Design Assessment

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The logo for the Green Building Index features a stylized green tree with a thick trunk and a rounded canopy, positioned to the left of the text.

green building index

Procedures & Reference Guide



4th September 2010 Revision 2

Green Building Index Procedures

To attain the Green Building Index classification, the procedures are as follows:

- | | |
|----------------|---|
| STAGE 1 | APPLICATION & REGISTRATION |
| STAGE 2 | DESIGN ASSESSMENT |
| STAGE 3 | COMPLETION & VERIFICATION
ASSESSMENT |

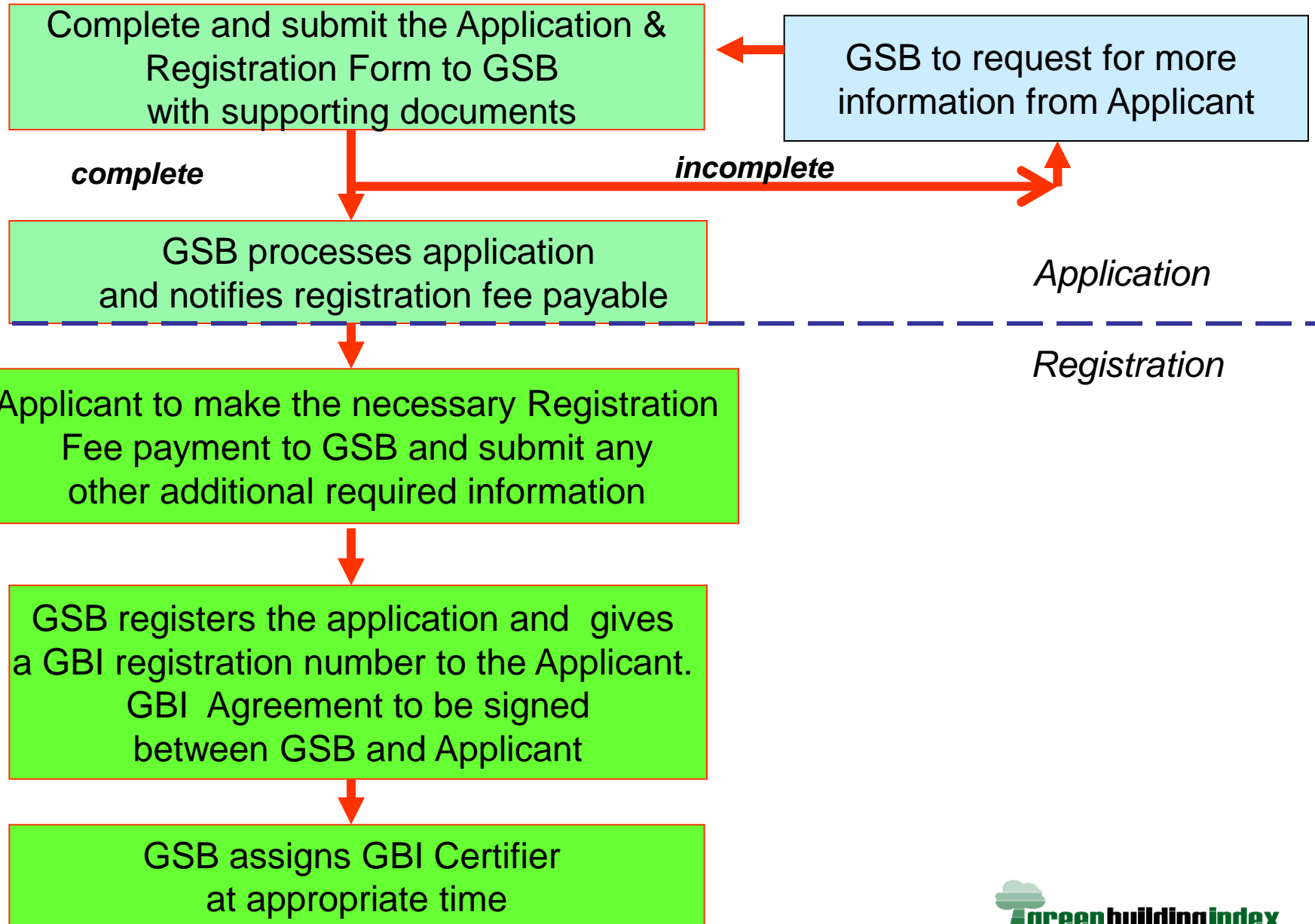
Green Building Index Procedures

STAGE 1 : APPLICATION & REGISTRATION

Complete and Submit the Application & Registration Form with Owner's information, project contact details, project information and any supporting documents to GreenbuildingIndex Sdn Bhd (GSB). Upon acceptance & approval of the application documentation, the registration fee will be confirmed dependent on the size of the project. On payment of fees, a GBI Registration number will be allocated, and the terms and conditions duly signed between owner and GSB.

GBI Certifier will be assigned for the duration of the project.

STAGE 1 : APPLICATION & REGISTRATION



Green Building Index Procedures

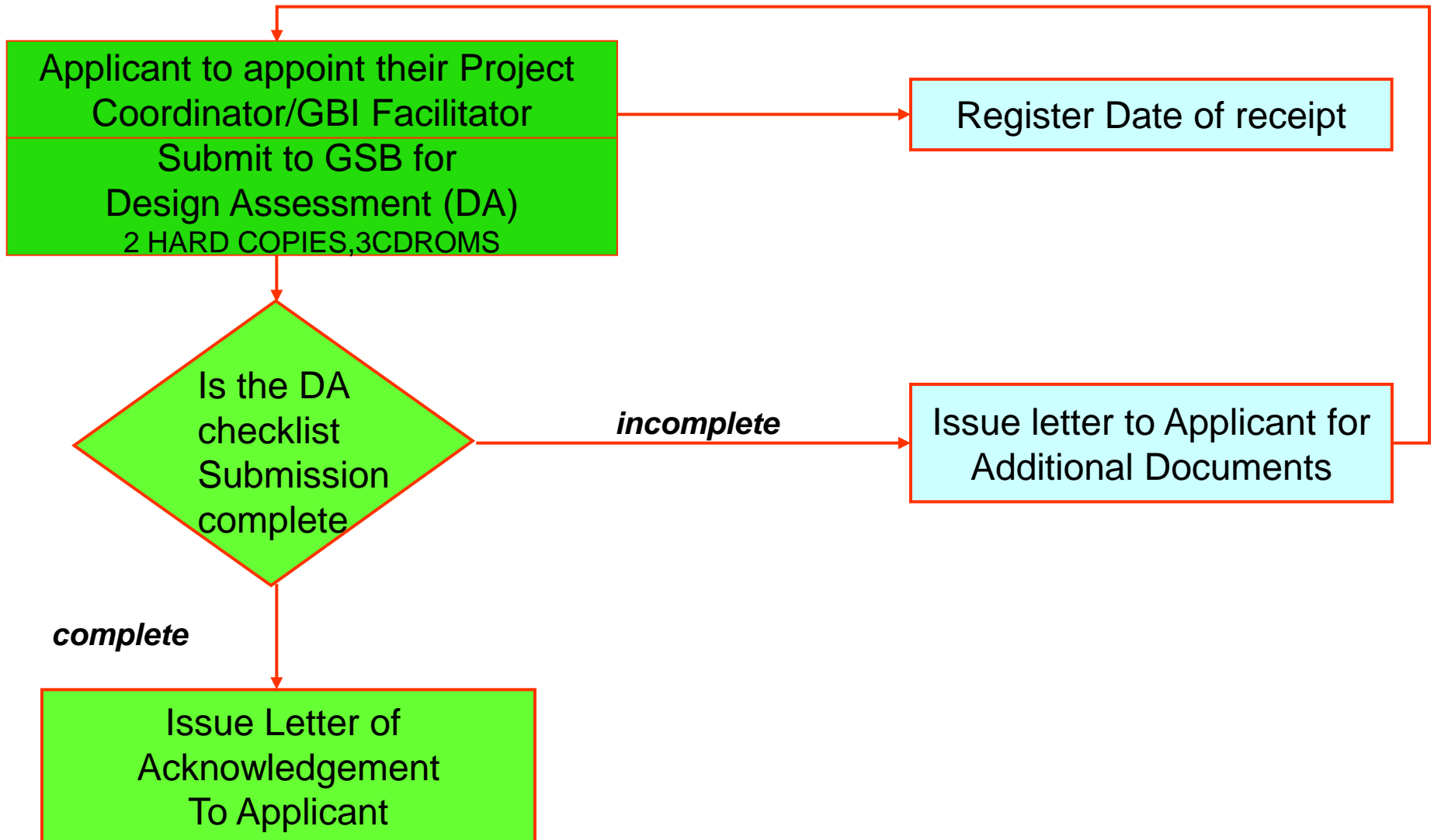
STAGE 2 : DESIGN ASSESSMENT (DA)

Submission Requirements : 2 Hard Copies & 3 CD roms

Appraisal conducted upon the submission by the Project Design team / Client (Architect/Engineer/Building Owner or Developer) directly or through a GBI Facilitator, of comprehensive design and other necessary documents for GBI Assessment. After acceptance of registration from GBI, the Project Design team & client should proceed to collect information for each of the six criteria completing the submittal requirements described under each detailed sub-section. It is recommended that the information submitted is based on preconstruction information (ie tender documentation stage) when all parameters of the design have been finalised.

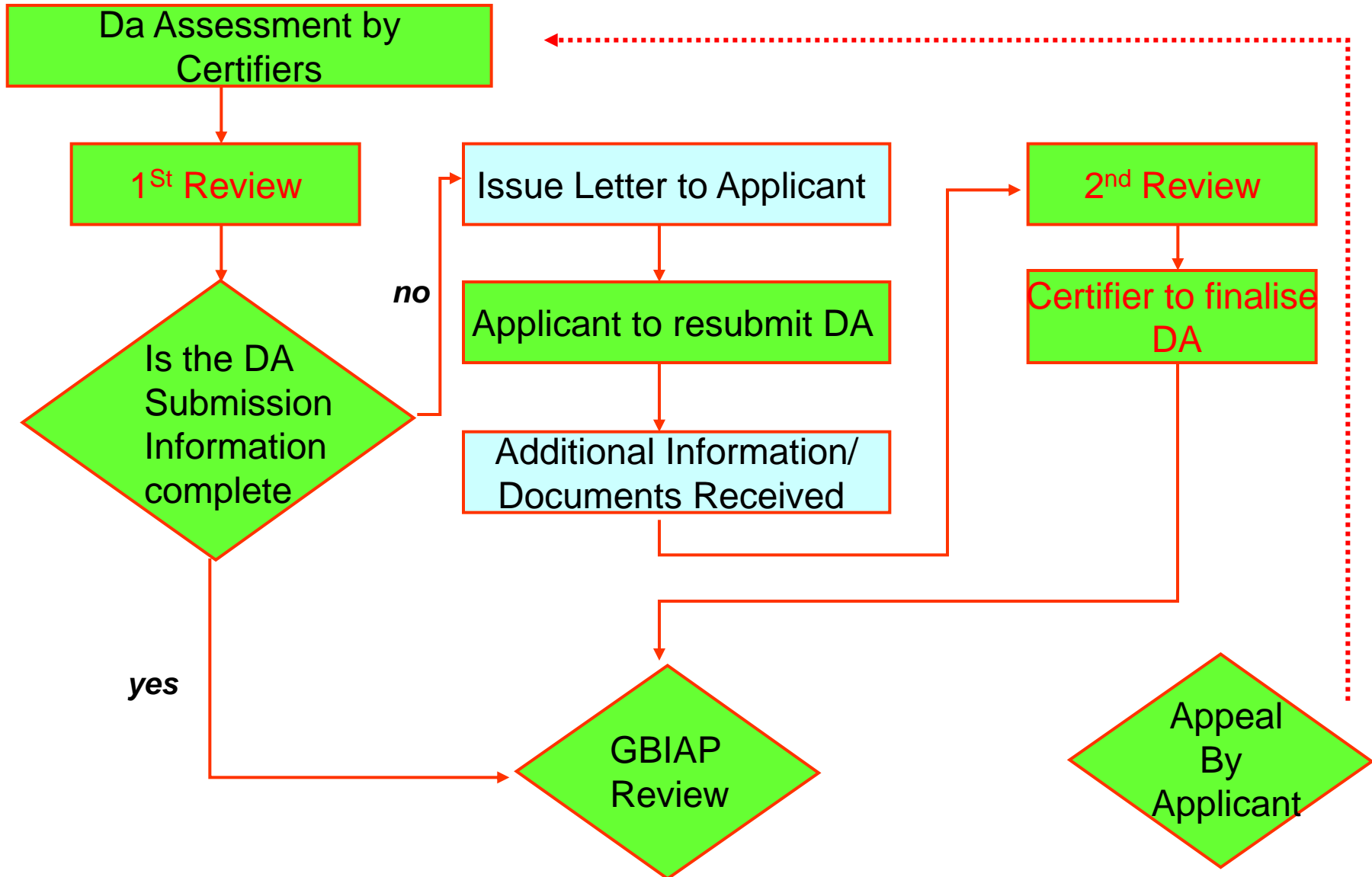
A Provisional Design Assessment certificate is given at this stage.

STAGE 2 : DESIGN ASSESSMENT (DA) – Complete Documentation submission



STAGE 2 : DESIGN ASSESSMENT (DA)

- Certifier's 1st & 2nd Review



Green Building Index Procedures

STAGE 2 : DESIGN ASSESSMENT (DA)

Submission Requirements : 2 Hard Copies & 3 CD roms

1st Review – Certifier from date of receipt of documents will take 10 working days+ 3 working days for administration to send out letter requesting information on specific criteria

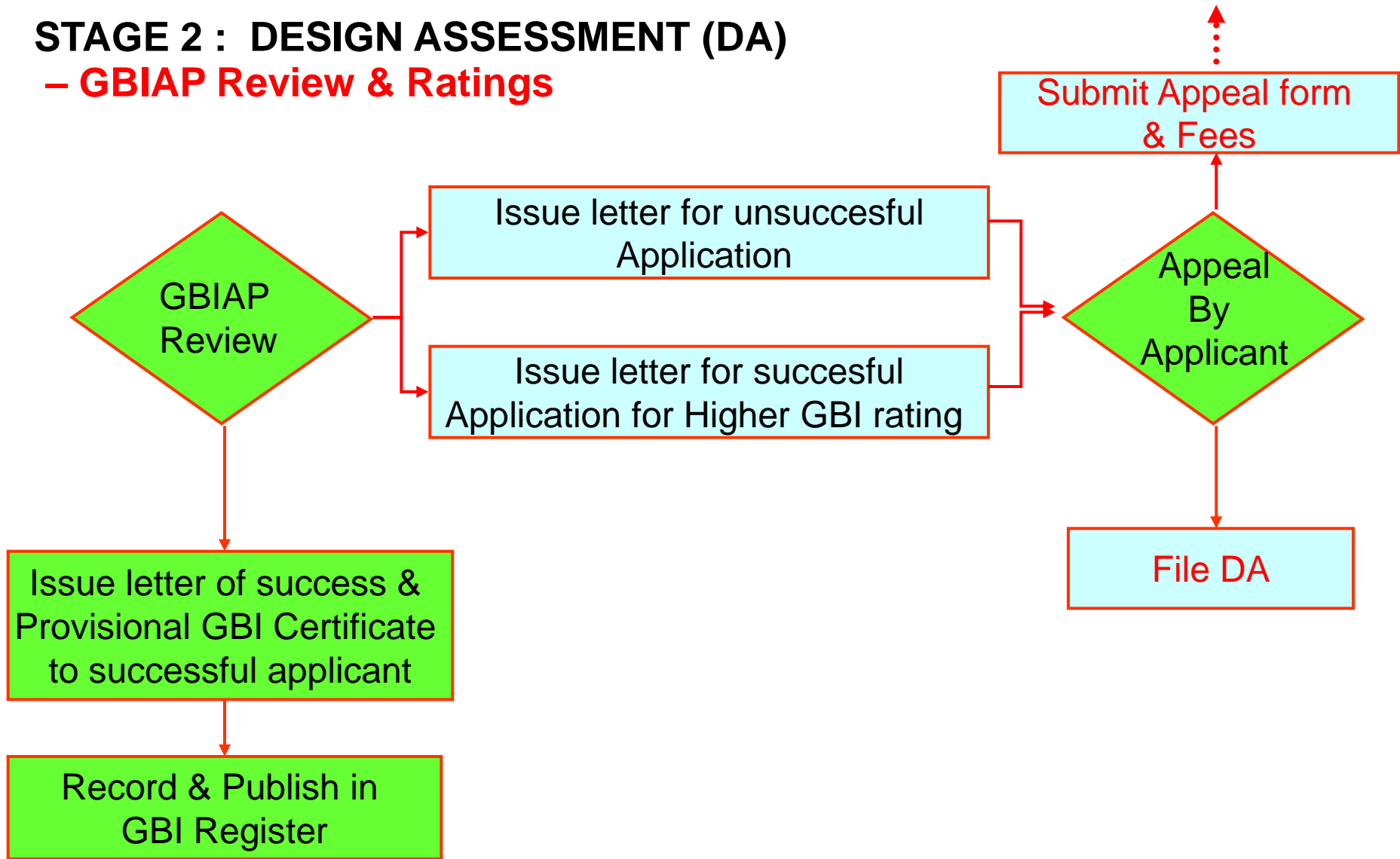
Project Facilitators

Project Coordinators – 2 weeks from receipt of letter to resubmit missing/supporting information.

2nd Review – Certifier has 2 weeks/10 working days for report to be submitted to GBIAP upon receiving supporting information.

STAGE 2 : DESIGN ASSESSMENT (DA)

- GBIAP Review & Ratings



Green Building Index Procedures

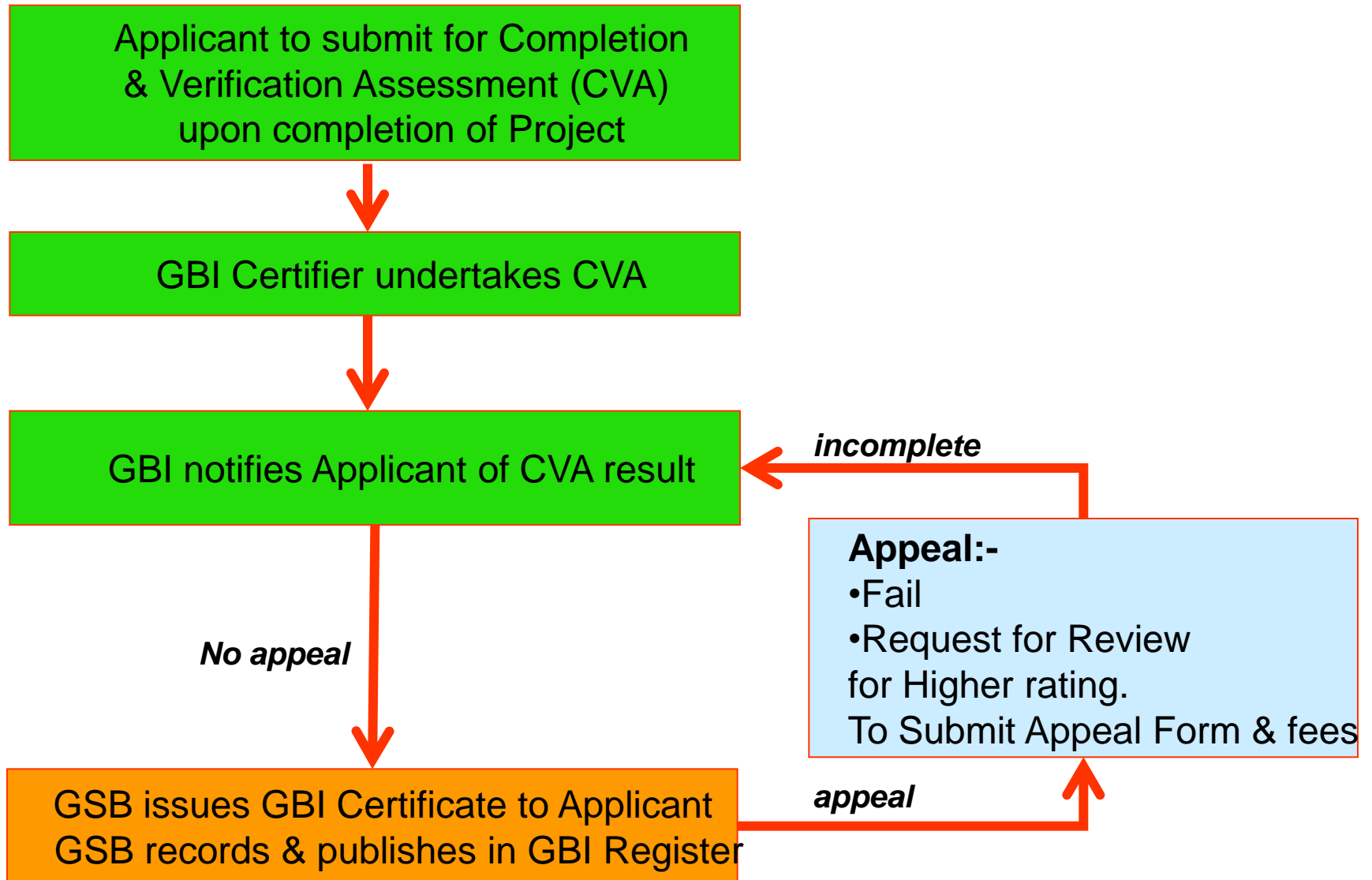
STAGE 3 : COMPLETION & VERIFICATION ASSESSMENT (CVA)

Appraisal conducted upon CCC of the project when all necessary documents are submitted according to as-built information and calculations by the Project Design team / Client (Architect/Engineer/Building Owner or Developer) directly or through a GBI Facilitator. The Completion Assessment confirms that the targeted criteria have been properly implemented and achieved, or otherwise, for the intended classification. Verification Assessment is conducted within 12 months of CCC or earlier, if not less than 50% occupancy.

The verification process involves verifying the actual measured energy and water use, and indoor comfort survey results.

A full GBI Certification is given at this stage

STAGE 3 : COMPLETION & VERIFICATION ASSESSMENT (CVA)



Green Building Index Procedures

APPEAL PROCEDURES

Appeal can be submitted (with fee paid) after receiving the Design Assessment result or after receiving the Completion & Verification Assessment results.

VALIDITY OF GBI CERTIFICATE

The validity of the GBI certificate is limited to three years. This is to ensure sustainable building maintenance management throughout the life of the building.

Green Building Index Procedures

CERTIFIERS & FACILITATORS

GBI Certifiers perform the detailed assessments of building projects and recommend certification rating level to the GBI Accreditation Panel (GBIAP).

GBI Facilitators provide services to enable building projects to achieve GBI certification. A GBI Facilitator is a registered person with Greenbuildingindex Sdn Bhd (GSB) having completed the training and passed examinations conducted by GSB.

GBI TERMS & CONDITIONS

An agreement setting out the terms and conditions between the Project owner and GSB.

Green Building Index Reference Guide



**New Revised
reference guide
Out 15th September**

Greenbuildingindex Reference guide

INTRODUCTION

- **The purpose of the Green Building Index Design Reference Guide is to establish a guidance document to assist project teams in understanding the criteria for each of the main components of the Green Building Index Rating Tool.**
- **The project team can use the document as a Reference Guide when submitting for the Green Building Index as it clearly identifies examples of how and what is required for completing the submission.**

Greenbuildingindex Reference guide

- Each of the main six criteria's are further divided into the corresponding sub-sections in obtaining the necessary credit points.
This guide is indicative and is not an exhaustive/definitive reference to the Green Building Index rating tool.
- The basic framework of this document sets out for each subsection the intent, description, requirements, approach & implementation.

• Greenbuildingindex Reference guide

GREEN BUILDING INDEX DESIGN REFERENCE GUIDE & SUBMISSION FORMAT

**NON-RESIDENTIAL NEW CONSTRUCTION (NRNC)
ASSESSMENT CRITERIA
SCORE SUMMARY**

IRAT	CRITERIA	ITEM	POINTS	SUBMITTER	GBI	
	EE	ENERGY EFFICIENCY				
1	Design	EE1	Minimum EE Performance	1		
		EE2	Lighting Zoning	3		
		EE3	Electrical Sub-metering	1		
		EE4	Renewable Energy	5		
		EE5	Advanced EE Performance - EB	15		
	Commissioning	EE6	Enhanced Commissioning	3		
		EE7	Post Occupancy Commissioning	2		
	Verification & Maintenance	EE8	EE Verification	2		
		EE9	Sustainable Maintenance	3		
		EQ	INDOOR ENVIRONMENTAL QUALITY			
2	Air Quality	EQ1	Minimum IAQ Performance	1		
		EQ2	Environmental Tobacco Smoke (ETS) Control	1		
		EQ3	Carbon Dioxide Monitoring and Control	1		
		EQ4	Indoor Air Pollutants	2		
		EQ5	Mould Prevention	1		
	Thermal Comfort	EQ6	Thermal Comfort Design & Controlability of Systems	2		
		EQ7	Air Change Effectiveness	1		
	Lighting, Visual & Acoustic Comfort	EQ8	Daylighting	2		
		EQ9	Daylight Glare Control	1		
		EQ10	Electric Lighting Levels	1		
		EQ11	High Frequency Ballasts	1		
		EQ12	External Views	2		
		EQ13	Internal Noise Levels	1		
	Verification	EQ14	IAQ Before & During Occupancy	2		
		EQ15	Post Occupancy Comfort Survey Verification	2		

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The Reference guide has been formatted to form part of the basic criteria checklist for all documentation submissions for both the Design Assessment (DA) and Completion & Verification Assessment (CVA).

GBI Criteria point

Submitter's Target points filled at submission of DA & CVA

GBI precertified or certified ratings

• Greenbuildingindex Reference guide

NON-RESIDENTIAL NEW CONSTRUCTION (NRNC) ASSESSMENT CRITERIA SCORE SUMMARY

PART	CRITERIA	ITEM	POINTS	SUBMITTER	GBI	
1	EE	ENERGY EFFICIENCY				
	Design					
	EE1	Minimum EE Performance	1	1	1	
	EE2	Lighting Zoning	3	1	1	
	EE3	Electrical Sub-metering	1	1	1	
	EE4	Renewable Energy	5	3	3	
	EE5	Advanced EE Performance - BEI	15	11	9	
	Commissioning					
	EE6	Enhanced Commissioning	3			
	EE7	Post Occupancy Commissioning	2			
	Verification & Maintenance					
EE8	EE Verification	2				
EE9	Sustainable Maintenance	3				

GBI Criteria point

Submitter's Target points filled at submission of DA & CVA

GBI precertified or certified ratings

example

• Greenbuildingindex Reference guide

GREEN BUILDING INDEX DESIGN REFERENCE GUIDE & SUBMISSION FORMAT

NON-RESIDENTIAL NEW CONSTRUCTION (NRNC)

The Non-Residential New Construction (NRNC) Reference Guide is formatted in reference to the Non-Residential New Construction Tool. It is envisaged that this reference guide is a live document that from time to time will be updated for the benefit of the end users.

The Reference guide has been formatted to form part of the basic criteria checklist for all documentation submissions for both the Design Assessment (DA) and Completion & Verification Assessment (CVA). The front cover sheet of the individual criteria will be attached with the documentation drawings, project narratives and technical submissions. The criteria checklist will be signed by the Principal Submitting Person (in short "PSP"), Submitting Person (in short "SP") or Specialist (in short "S") together with the client's (in short "C").

Enclosed the summary checklist together with the corresponding signatories required for each criteria.

PART	CRITERIA	ITEM	REQUIRED SIGNATORIES	
1	EE	ENERGY EFFICIENCY		
		EE1	Minimum EE Performance	PSP and C
		EE2	Lighting Zoning	SP and C
		EE3	Electrical Sub-metering	SP and C
		EE4	Renewable Energy	SP/S and C
		EE5	Advanced EE Performance - EB	SP/S and C
		EE6	Enhanced Commissioning	SP/S and C
		EE7	Post Occupancy Commissioning	SP/S and C
		EE8	EE Verification	SP/S and C
EE9	Sustainable Maintenance	SP/S and C		
2	EQ	INDOOR ENVIRONMENTAL QUALITY		
		EQ1	Minimum IAQ Performance	SP and C
		EQ2	Environmental Tobacco Smoke (ETS) Control	PSP and C
		EQ3	Carbon Dioxide Monitoring and Control	SP and C
		EQ4	Indoor Air Pollutants	PSP and C
		EQ5	Mould Prevention	PSP/SP and C
		EQ6	Thermal Comfort: Design & Controllability of Systems	SP and C
		EQ7	Air Change Effectiveness	SP and C
		EQ8	Daylighting	PSP and C
		EQ9	Daylight Glare Control	PSP and C
		EQ10	Electric Lighting Levels	SP and C
		EQ11	High Frequency Ballasts	SP and C
		EQ12	External Views	PSP and C
		EQ13	Internal Noise Levels	PSP/SP and C
EQ14	IAQ Before & During Occupancy	SP/S and C		
EQ15	Post Occupancy Comfort Survey: Verification	S and C		
3	SM	SUSTAINABLE SITE PLANNING & MANAGEMENT		
		SM1	Site Selection	PSP and C
		SM2	Brownfield Redevelopment	PSP and C
		SM3	Development Density & Community Connectivity	PSP and C
		SM4	Environment Management	PSP and C
		SM5	Earthworks - Construction Activity Pollution Control	SP and C
		SM6	GLASSC	PSP and C
		SM7	Workers' Site Amenities	PSP and C
		SM8	Public Transportation Access	PSP and C
		SM9	Clean Vehicle Priority	PSP and C
		SM10	Parking Capacity	PSP and C
		SM11	Stormwater Design - Quantity & Quality Control	SP and C
		SM12	Overseas & Roof	PSP/SP and C
SM13	Building User Manual	S and C		

- PSP** defined as Architect or Engineer (similar to the definition in Certificate of Completion & Compliance, CCC)
- SP** defined as Engineer, Landscape Architect, Planner and Quantity Surveyor (QS).
- S** Specialist which includes Facilitator, Project Manager, Facilities Manager, Energy or Sustainable Consultant and Commissioning Specialist.
- C** defined as Client or client's assigned representative.

• Greenbuildingindex Reference guide

Enclosed the summary checklist together with the corresponding signatories required for each criteria.

PART	CRITERIA	ITEM	REQUIRED SIGNATORIES
1	EE	ENERGY EFFICIENCY	
	EE1	Minimum EE Performance	PSP and C
	EE2	Lighting Zoning	SP and C
	EE3	Electrical Sub-metering	SP and C
	EE4	Renewable Energy	SP/S and C
	EE5	Advanced EE Performance - BEI	SP/S and C
	EE6	Enhanced Commissioning	SP/S and C
	EE7	Post Occupancy Commissioning	SP/S and C
	EE8	EE Verification	SP/S and C
EE9	Sustainable Maintenance	SP/S and C	

PSP & C

SP/S and C

example

• Greenbuildingindex Reference guide

GREEN BUILDING INDEX DESIGN REFERENCE GUIDE & SUBMISSION FORMAT

**NON-RESIDENTIAL NEW CONSTRUCTION (NRNC)
ENERGY EFFICIENCY (EE)**

EE1	MINIMUM EE PERFORMANCE	1 POINT
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INTENT
To create energy efficiency (EE) awareness and promote the use of MG 1525.

DESCRIPTION
Establish minimum energy efficiency (EE) performance to reduce energy consumption in buildings, thus reducing CO₂ emission to the atmosphere. Meet the following minimum EE requirements as stipulated in MG 1525.

REQUIREMENTS
OTTV ≤ 50, RTTV ≤ 25. Submit calculations. Use of the BEST software or other CSI approved software is acceptable, AND
Provision of Energy Management System where Air Conditioned space ≥ 4000m².

APPROACH & IMPLEMENTATION
Wall insulation can be achieved in many ways, such as, but not limited to, using autoclaved lightweight concrete, composite insulated walls, double brickwall and many other construction systems. Glazing should be optimally used. The use of insulated Glazing Units and/or performance glazing such as low-e and/or spectrally selective glazing is encouraged. Roof should be insulated with suitable insulation materials to prevent heat gain into occupied spaces.

POTENTIAL TECHNOLOGIES & STRATEGIES
Design the building envelope, HVAC, lighting and other systems to maximize energy performance.

REQUIRED SUBMISSION FOR DESIGN ASSESSMENT (DA)	SUBMITTER	DATE
1. Plans and elevations marking out walls & apertures used for the calculation coloured blue; and walls & apertures not used for calculation coloured red. Recommended scale 1: 200.	<input type="checkbox"/>	<input type="checkbox"/>
2. OTTV calculations for each facing wall and roof.	<input type="checkbox"/>	<input type="checkbox"/>
3. Description of wall & aperture materials specified.	<input type="checkbox"/>	<input type="checkbox"/>
4. Calculations of U-values for roof and walls.	<input type="checkbox"/>	<input type="checkbox"/>
5. Proposed Glazing specifications on shading coefficient, U-values and Visible Light Transmission.	<input type="checkbox"/>	<input type="checkbox"/>
6. Confirm provision of Energy Management System where air conditioned space ≥ 4000m ² .	<input type="checkbox"/>	<input type="checkbox"/>

REQUIRED SUBMISSION FOR COMPLETION & VERIFICATION ASSESSMENT (VA)	SUBMITTER	DATE
1. As Built plans and elevations marking out walls & apertures used for the calculation coloured blue; and walls & apertures not used for calculation coloured red.	<input type="checkbox"/>	<input type="checkbox"/>
2. OTTV calculations for each facing wall and roof.	<input type="checkbox"/>	<input type="checkbox"/>
3. Description of built wall & aperture materials with U-value calculation.	<input type="checkbox"/>	<input type="checkbox"/>
4. Manufacturer issued glazing specification on shading coefficient, U-values and Visible Light Transmission.	<input type="checkbox"/>	<input type="checkbox"/>
5. Description of as-installed Energy Management System and i/o schedule.	<input type="checkbox"/>	<input type="checkbox"/>
6. Describe any deviations or additions to the DA submission.	<input type="checkbox"/>	<input type="checkbox"/>

PROJECT NAME				SITE
SUBMITTER PERSON IN CHARGE	NAME	DESIGNATION	CONTACT	SIGNATURE
CLIENT	NAME	DESIGNATION	CONTACT	SIGNATURE

NOTE: ATTACH ALL SUBMITTALS WITH THE COVER PAGE

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•The front cover sheet of the individual criteria's will be attached with the documentation drawings, project narratives and technical information as part of the submissions.

•The criteria checklist will be signed by the Principal Submitting Person (“PSP”), Submitting Person (“SP”) or Specialist (“S”) together with the client’s (“C”).

•Enclosed the summary checklist together with the corresponding signatories required for each criteria.

• Greenbuildingindex Reference guide

GREEN BUILDING INDEX DESIGN REFERENCE GUIDE & SUBMISSION FORMAT

**NON-RESIDENTIAL NEW CONSTRUCTION (NRNC)
ENERGY EFFICIENCY (EE)**

EE1	MINIMUM EE PERFORMANCE	1 POINT
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INTENT
To create energy efficiency (EE) awareness and promote the use of MG 1525.

DESCRIPTION
Establish minimum energy efficiency (EE) performance to reduce energy consumption in buildings, thus reducing CO₂ emission to the atmosphere. Meet the following minimum EE requirements as stipulated in MG 1525.

REQUIREMENTS
COTV ≤ 50, RTTV ≤ 25. Submit calculations. Use of the BEST software or other GBI approved software is acceptable, AND
Provision of Energy Management System where Air Conditioned space ≥ 4000m².

APPROACH & IMPLEMENTATION
Wall insulation can be achieved in many ways, such as, but not limited to, using autokaded lightweight concrete, composite insulated walls, double brick wall and many other construction systems. Glazing should be optimally used. The use of insulated Glazing Units and/or performance glazing such as low-e and/or spectrally selective glazing is encouraged. Roof should be insulated with suitable insulation materials to prevent heat gain into occupied spaces.

POTENTIAL TECHNOLOGIES & STRATEGIES
Design the building envelope, HVAC, lighting and other systems to maximize energy performance.

REQUIRED SUBMISSION FOR DESIGN ASSESSMENT (DA)		SUBMIT	BE
1.	Plans and elevations marking out walls & apertures used for the calculation coloured blue; and walls & apertures not used for calculation coloured red. Recommended scale 1: 200.	<input type="checkbox"/>	<input type="checkbox"/>
2.	COTV calculations for each facing wall and roof.	<input type="checkbox"/>	<input type="checkbox"/>
3.	Description of wall & aperture materials specified.	<input type="checkbox"/>	<input type="checkbox"/>
4.	Calculations of U-values for roof and walls.	<input type="checkbox"/>	<input type="checkbox"/>
5.	Proposed Glazing specifications on Shading Coefficient, U-values and Visible Light Transmission.	<input type="checkbox"/>	<input type="checkbox"/>
6.	Confirm provision of Energy Management System where air conditioned space ≥ 4000m ² .	<input type="checkbox"/>	<input type="checkbox"/>

REQUIRED SUBMISSION FOR COMPLETION & VERIFICATION ASSESSMENT (VA)		SUBMIT	BE
1.	As Built plans and elevations marking out walls & apertures used for the calculation coloured blue; and walls & apertures not used for calculation coloured red.	<input type="checkbox"/>	<input type="checkbox"/>
2.	COTV calculations for each facing wall and roof.	<input type="checkbox"/>	<input type="checkbox"/>
3.	Description of built wall & aperture materials with U-value calculation.	<input type="checkbox"/>	<input type="checkbox"/>
4.	Manufacturer issued glazing specification on shading coefficient, U-values and Visible Light Transmission.	<input type="checkbox"/>	<input type="checkbox"/>
5.	Description of as-installed Energy Management System and i/o schedule.	<input type="checkbox"/>	<input type="checkbox"/>
6.	Describe any deviations or additions to the DA submission.	<input type="checkbox"/>	<input type="checkbox"/>

PROJECT NAME				SITE
SUBMITTER PROJECT NAME	NAME	DESIGNATION	CONTACT	SIGNATURE
CLIENT	NAME	DESIGNATION	CONTACT	SIGNATURE

NOTE: ATTACH ALL SUBMITTALS IN THE COVER PAGE

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• Enclosed the summary checklist together with the corresponding signatories required for each criteria.

• Enclose the cover checklist with project information as indicated on the DA and CVA submissions

• All submission information shall be attached to the cover criteria sheet along with the signatures for each of the criteria.

• **Greenbuildingindex Reference guide**

- **All submission information shall be attached to the cover criteria sheet along with the signatures for each of the criteria.**
- **The criteria checklist will be marked by the submitter and all project documentation as described under “Required Submission for Design Assessment (DA)” or “Required Submission for Completion & Verification Assessment (CVA)”.**
- **Please leave the GBI’s column for the administration of GSB. All documents must be duly verified and signed as part of the procedural requirements. GSB will return documents that are not submitted in full compliance for correct action.**

• Greenbuildingindex Reference guide

REQUIRED SUBMISSION FOR DESIGN ASSESSMENT (DA)		
	SUBMITTER	GBI
1. Plans and elevations marking out walls & apertures used for the calculation coloured blue; and walls & apertures not used for calculation coloured red. Recommended scale 1: 200.	X	<input type="radio"/>
2. OTTV calculations for each facing wall and roof.	X	<input type="radio"/>
3. Description of wall & aperture materials specified.	X	<input type="radio"/>
4. Calculations of U-values for roof and walls.	X	<input type="radio"/>
5. Proposed Glazing specifications on Shading Coefficient, U-values and Visible Light Transmission.	X	<input type="radio"/>
6. Confirm provision of Energy Management System where air conditioned space $\geq 4000m^2$.	X	<input type="radio"/>
REQUIRED SUBMISSION FOR COMPLETION & VERIFICATION ASSESSMENT (CVA)		
	SUBMITTER	GBI
1. As Built plans and elevations marking out walls & apertures used for the calculation coloured blue; and walls & apertures not used for calculation coloured red.	X	<input type="radio"/>
2. OTTV calculations for each facing wall and roof.	X	<input type="radio"/>
3. Description of built wall & aperture materials with U-value calculation	X	<input type="radio"/>
4. Manufacturer issued glazing specification on shading coefficient, U-values and Visible Light Transmission.	X	<input type="radio"/>
5. Description of as-installed Energy Management System and i/o schedule.	X	<input type="radio"/>
6. Describe any deviations or additions to the DA submission.	X	<input type="radio"/>

• Submitter required to tick submission checklist.
 • The submission document will be checked by GBI to confirm sufficiency of information

Please leave the GBI's column for the administration of GSB. All documents must be duly verified and signed as part of the procedural requirements. GSB will return documents that are not submitted in full compliance for correct action.

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REQUIRED SUBMISSION FOR COMPLETION & VERIFICATION ASSESSMENT (CVA)		SUBMITTER	GBI
1.	As Built plans and elevations marking out walls & apertures used for the calculation coloured blue; and walls & apertures not used for calculation coloured red.	<input type="radio"/>	<input type="radio"/>
2.	OTTV calculations for each facing wall and roof.	<input type="radio"/>	<input type="radio"/>
3.	Description of built wall & aperture materials with U-value calculation	<input type="radio"/>	<input type="radio"/>
4.	Manufacturer issued glazing specification on shading coefficient, U-values and Visible Light Transmission.	<input type="radio"/>	<input type="radio"/>
5.	Description of as-installed Energy Management System and i/o schedule.	<input type="radio"/>	<input type="radio"/>
6.	Describe any deviations or additions to the DA submission.	<input type="radio"/>	<input type="radio"/>

PSP/Principal Submitting Person (Architect or engineer)

PROJECT NAME				DATE	
SUBMITTING PROFESSIONAL	NAME	DESIGNATION	COMPANY	SIGNATURE	
CLIENT	NAME	DESIGNATION	COMPANY	SIGNATURE	

C/Client or appointed Client representative

NOTE ATTACH ALL SUBMITTALS WITH THIS COVER PAGE

Submission Format

The following is the recommended format of all documents that will form the Design Assessment (DA) & Completion & Verification Assessment (CVA) submission;

1. All Drawings, Plans, Sections and Elevations to be formatted on A3 size paper, with respective scale or scales clearly indicated. Should drawings be too small for legibility, provide a key plan with part plans for full clarity of building information.
2. All Perspectives to fit A3 size paper.
3. All Reports to be A4 format. Signature of Qualified submitting professional should form part of the submission.
4. Clearly mark the Design Assessment Checklist or Completion & Verification Checklist on submission of documentations together with a Design Submission form.

All submission to be saved into CDROM pdf format. Two hard copy and three copies of CDROM are to be submitted to GSB.

Thank -you