



Invitation for Expression of Interest -
Professional Services Provider for The Design, Development and Maintenance of the
Environmental and Sustainability Data Unification Platform

Our Ref: EOI/SDD/2022/001

Invitation to Expression of Interest (EOI)

Agreement No. SDD 1/2022

**Professional Services Provider for the
Design, Development and Maintenance of the
Environmental and Sustainability Data Unification Platform
for
BEAM Society Limited**

ASSIGNMENT BRIEF

March 2022



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This document describes the requirements for the Design, Development and Maintenance of the Environmental and Sustainability Data Unification Platform ("Platform"). It provides the foundation on which the Professional Services Provider ("PSP") shall base their proposals. PSP responding to the invitation for express of interests shall read and understand this document in entirety in order to assure compliance with the requirements, functionalities and objectives of the Platform.

Words in singular form in this and the associated document shall be interpreted as singular or plural as suggested by the context of the statement in this document.

1. Background

- 1.1 BEAM Society Limited ("BSL"), owner of the Building Environmental Assessment Method ("BEAM"), is a public body established in 2010. BSL plays a key role in the development and implementation of BEAM standards for practitioners in all related disciplines, and for individual construction projects. This voluntary initiative to benchmark building sustainability is designed to benefit the entire community in Hong Kong. In recognition of the importance of this work, BSL dedicates itself to continuously improving the overall quality of Hong Kong's built environment, both in terms of new buildings and existing buildings.
- 1.2 BSL is committed to developing and implementing BEAM Assessment Tool – BEAM Plus (former HK-BEAM), assessing green buildings and training BEAM practitioners – BEAM Professionals (BEAM Pro) and BEAM Affiliates.
- 1.3 BEAM Plus is tailor-made for the high-rise, high density-built environment of sub-tropical climate in Hong Kong, which embraces a range of good practices in planning, design, construction, management, operation and maintenance of building, and is aligned with local regulations, standards and codes of practice.
- 1.4 Appreciated by the Hong Kong Government and developers, BEAM Plus assessment and certification provide building users with a single performance label that demonstrate the overall quality of a building. A qualified BEAM Plus green building should be aimed at sustainability, providing a safer, healthier, more comfortable, more functional and more efficient living or working environment.
- 1.5 In recent years, there has been a noticeable shift amongst the building industry and real estate investment groups to focus on environmental resiliency and social

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sustainability in the design and construction of the built environment. With this shift, BEAM Plus assessment tools have gain credibility amongst the building industry and real estate investment groups for its comprehensive assessment framework to analyze the environmental and social merits of the built environment.

- 1.6 At the same time, the Hong Kong Government is actively encouraging the building industry to adopt construction digitization technology to enhance and expand the existing construction management measures and services. Technologies like data unification amongst different platform not only would increase construction efficiency, but also would allow key stakeholders amongst the building industry and real estate investment groups to better visualize the carbon footprint of buildings and introduce the appropriate measures to incentivize the building sectors to build greener and smarter.
- 1.7 BSL is committed to building an ecosystem to enhance the processing and analytical power of environmental and sustainability data for the building industry. To cope with this vision, BSL is pleased to initiate the tendering of Professional Services Provider for The Design, Development and Maintenance of the Environmental and Sustainability Data Unification Platform ("Assignment") to expand on the analytical capability of environmental and sustainability data generated within the building industry and to allow these data to be exchanged freely between BSL's current web-based Assessment Automation System ("iBEAM") and an assessment platform/software operated by different third-party green building assessment bodies.
- 1.8 The overview of the iBEAM system can be found in **Annex A-1**.
- 1.1 With a view to addressing the above matters and to address the demand of the building industry, BSL would like to engage the Professional Services Provider in the provision of a turnkey platform to automate the analytical process of the environmental and sustainability data.
- 1.2 PSP shall also provide a duration of 3 months of nursing service and 1 year of maintenance service following the roll out of the Platform at no additional cost.
- 2. Objectives of the Assignment**
 - 2.1 It is an intent of the Assignment to obtain professional services from the PSP for the successful completion of the Assignment as described in the current EOI.

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2.2 The concept rests on the idea of viewing the BSL, building modelers, built environment professionals and third-party green building assessment bodies as members of one team that understand and support each other in pursuing the cooperative goal of improving the integrity, speed, accuracy, consistency, and completeness of environmental and sustainability data. The services to be provided by the PSP for this Assignment shall meet the following objectives:

- (i) enable direct importing of building modelling data into iBEAM for the submission of BEAM Plus assessment, green building analysis and application to a third-party green building assessment;
- (ii) allow the existing iBEAM to perform green building analysis and calculation, viz:- daylight and artificial lighting, solar irradiation, greenery ratio, waste recycling sizing, site permeability ratio and embodied carbon of building structure; and to import the result of the calculation into the e-form function of iBEAM for assessment;
- (iii) facilitate real-time environmental and sustainability data collaboration, information sharing and data exchange among the BSL and third-party green building assessment bodies throughout the life-cycle of the projects;
- (iv) enhance transparency and streamline review of green building analysis and assessment processes; and to incorporate historical information and enable audit/tracking of project progress and relevant data; and
- (v) avail a database/repository of project data, information and analytics of processed environmental and sustainability data which can be referenced by authorized users real time.

3. Scope of the Assignment

3.1 The scope of the Assignment is to implement a state of the art platform under the existing iBEAM that streamlines and automates the data analytical processes between building model, BEAM Plus assessment, green building analysis and third-party green building assessment application.

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3.2 PSP shall design, develop, set-up, test, host and maintain the environmental and sustainability data unification platform, which encompasses the following high-level purview: -

- (i) Innovative platform on iBEAM to enable direct importing of selected building modelling data into iBEAM for the submission of BEAM Plus assessment, analytics of green building attributes and applications of third-party green building assessments;
- (ii) Calculation and visualization tool to analyze the embodied carbon of the building structural attributes generated from building model;
- (iii) Green building analytical tool to evaluate and/or calculate the environmental and sustainability data attributes generated the design and construction processes, viz:- daylighting and artificial lighting, solar irradiation, greenery ratio, waste recycling facilities and site permeability ratio;
- (iv) Application programming interface between iBEAM and third-party green building assessment platform/software to enable sharing, exchange and collaboration of environmental and sustainability data between iBEAM and third-party green building assessment platform;
- (v) Reporting system to summarize, analyze and report on the environmental and sustainability data processed under this environmental and sustainability data unification platform with a view of assisting BSL and the green building industry leaders to enhance the environmental and sustainability standard making capabilities;
- (vi) Attend all meetings with the BSL and, as instructed by the BSL, give presentation, for the purpose(s) related to the activities of the Assignment; and
- (vii) Assist BSL to produce research findings related to the activities of this Assignment.

3.3 The workflow requirement for this Assignment is set out **Annex A-2**.

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4. Presentations

4.1 PSP shall prepare necessary presentations required during the preparation, design, development, acceptance, and training of the environmental and sustainability data unification platform as below: -

- (i) Prepare and attend all meetings with the BSL for the purpose(s) related to the activities of the Assignment;
- (ii) Conduct interviews with BSL staff, and any relevant industry stakeholders in relation to the Assignment;
- (iii) Report progress of the Assignment to the BSL and the relevant Project Steering Committee;
- (iv) Present the deliverables for the BSL comments and/or approval; and
- (v) Support the BSL to answer any queries from the relevant industry stakeholders and undertake improvement work in relation to the Assignment.

5. Deliverables

5.1 Based on the requirements depicted above, PSP shall be responsible for the analysis, design, development, testing and maintenance of the new Platform, and provide the following report as part of the deliverables: -

- (i) A System analysis report encompassing the current/future state of the BSL's business environment and processes, including:
 - An “As is” report encapsulating the assessment of the current view of the environmental and sustainability data unification process, with recommendation on potential improvement opportunities of the current process; and
 - A “future blueprint” report envisioning the future schematics of the environmental and sustainability data exchange, supported by potential organizational changes and training needs.

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- (ii) A detailed design report of the proposed Platform which shall highlight on outcome based on potential improvement and address the needs for integrity, consistency, effectiveness and efficiency of BSL and the stakeholders in the building industry.
 - (iii) Briefing sessions to the BSL based on the timing of their scheduled meetings. The sessions aim to explain the progress of the Assignment, findings, and recommendations of the individual stages of the Assignment.
 - (iv) Test scheme including all test cases and scenarios, detailing its methodology, plan and process, with resources required, for acceptance of the new Platform adhere to the end goals specified in the inception report.
 - (v) Acceptance report detailing the test results, with issues identified, and signoff by all stakeholders. The report shall emphasis on how the user requirements, and design of the future Platform are being addressed.
 - (vi) Final report to the BSL for the formal acceptance of the completed Platform. The final report shall also provide highlight on the future improvement potential and support plan addressing the BSL's ongoing operation needs.
 - (vii) User manual containing the necessary instructions, steps and workflows to assist users to navigate and maintain the essential functions on the Platform.
- 5.2 All reports produced by the PSP shall be subjected to the acceptance by BSL. BSL will endeavor to respond and comment on the reports submitted by the PSP within reasonable time of submission as practical as possible. PSP shall rectify and supplement the submissions within 2 weeks upon receiving comments from the BSL and/or stakeholders.
- 5.3 All documents shall be submitted electronically in MS Word format, MS Excel format (for data) and in PDF file format or any other formats as applicable which are readily printable.
- 5.4 The copyright of the customized design and system, reports, documents, recommendations, data and any other information prepared or collected by the PSP, its specialist(s) and the sub-contractor(s) and their employees and agents in the course of this Assignment shall rest with the BSL.

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6. Brief Timeframe of the Assignment

- 6.1 The Assignment is planned to commence around May 2022 and shall take 24 months to complete. The Assignment shall be undertaken in two phases, with Phase 1 being completed by Jan 2023 and Phase 2 being completed by April 2024. The indicative timeline to the Assignment can be found in **Annex A-3**.
- 6.2 The deliverables are expected to be submitted during the course of the Assignment as specified in the Clause 3 above, under the supervision of the BSL.
- 6.3 To achieve the objectives of this Assignment, PSP shall conduct the Assignment following the proposed methodology and plan. The proposed methodology and plan shall be accepted by BSL prior to the commencement on the building of functions.
- 6.4 Supplementary modification on the proposed System, and information and reports other than the deliverables stated above shall be prepared and delivered at such reasonable time upon request by the BSL.

7. Requirements of the PSP

- 7.1 PSP shall be directed and supervised by the BSL.
- 7.2 PSP shall obtain the approval of the BSL before commencement of each stage of the Assignment.
- 7.3 PSP shall attend all meetings held by the BSL for this Assignment and the internal meetings of the BSL as required and necessary.

8. PSP Office and Staffing

- 8.1 An experienced and competent PSP will be engaged to conduct the tasks stipulated in Clause 3 above. It is anticipated that the PSP shall consist of one senior executive Project Director, one Project Manager, and sufficient professional staff to complete the Assignment.
- 8.2 PSP shall maintain for the duration of this Assignment an office in Hong Kong under the control of a Project Manager with at least 10 years of management

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experience in the field relevant to the subject matter of the Assignment.

8.3 The composition of the PSP shall also include at least the following team members:

- (a) Project Manager – Minimum of 10 years of working experience in managing project teams on similar project. He/she shall be the executive sponsor for the project and to ensure that all the designated Objectives are satisfactorily completed. He/she shall have 2 years of experience in managing green building projects, BIM related projects and/or urban analytics development projects.
- (b) Project Associate / Analyst – Minimum of 5 years of working experience in similar project. He/she shall have 1 year of experience in managing green building projects, BIM related projects and/or urban analytics development projects.
- (c) Technical Staff – No special requirement, but practical experience in green building projects, BIM related projects and/or urban analytics development projects is preferred.

8.4 PSP shall provide the BSL with full details of staff to be employed on the Assignment together with their curriculum vitae and proof of qualifications for prior approval from the BSL. Separate approval from the BSL shall be obtained for any subsequent changes of staff.

8.5 PSP shall provide all specialist and sub-contractor services (not limited to those specified in this Assignment above) required for the satisfactory completion of the Assignment. No additional fees or expenses for the provision of such services rendered locally or overseas shall be payable by the BSL.

8.6 PSP shall provide staff and manpower input in accordance with the technical proposal made at the tender stage, and that the BSL shall have the right to call for and audit the time-log record of the PSP's staff deployed for the Assignment.

8.7 In the event of any deviation or change of team members with respect to the submitted tender, prior approval from the BSL must be sought.

8.8 In the event, for reasons beyond his control, PSP is unlikely to provide or maintain any key staff as specified in the proposal, he shall report to the BSL as soon as

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practicable and propose for the BSL's approval of a substitute staff having qualification and experience comparable with the staff who is departing the PSP.

- 8.9 PSP shall be responsible for preparing the meeting minutes and submitting them to the BSL within 2 weeks after the meeting. Meeting papers and documents shall be prepared and submitted by PSP within 1 week before the meeting.

9. Tentative Procurement Plan

- 9.1 It is anticipated that the procurement plan may be as follows:

Description	Anticipated End Date
EOI	25 March 2022
EOI Evaluation	1 April 2022
Formal Tendering	19 April 2022
Tender Evaluation	25 April 2022
Tender Award	3 May 2022
Commencement of Assignment	4 May 2022

Annex A-1

iBEAM Overview



Overview of iBEAM



BSL has designed the **Assessment Automation System ("iBEAM")** to streamline the green building assessment workflow.



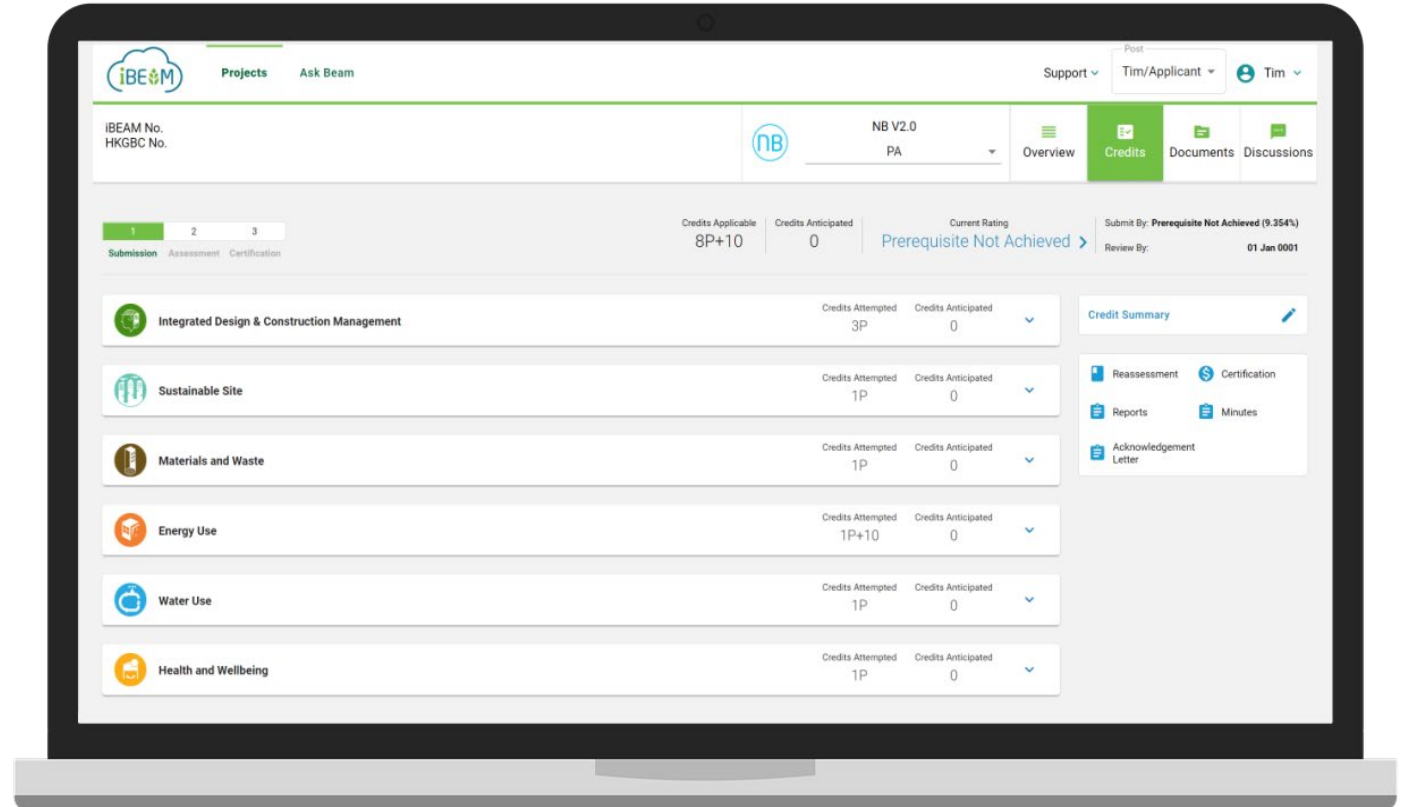
Enhance **efficiency** and **consistency**



Reduce **human dependence**



Safeguard the **integrity** of the assessment process










Screenshot of Credit Assessment web page on iBEAM



iBEAM Features and Benefits

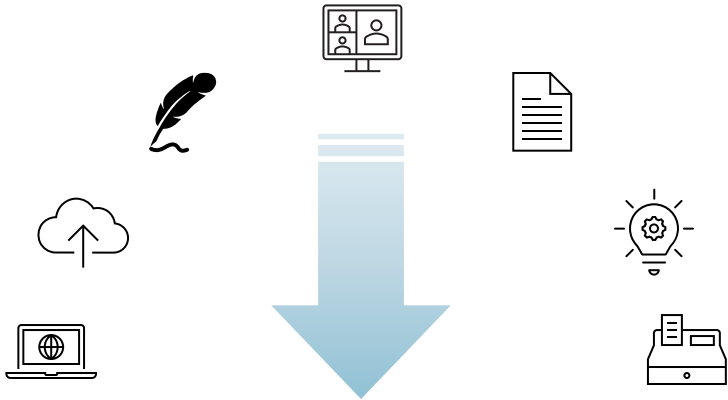


7 Development Modules of iBEAM

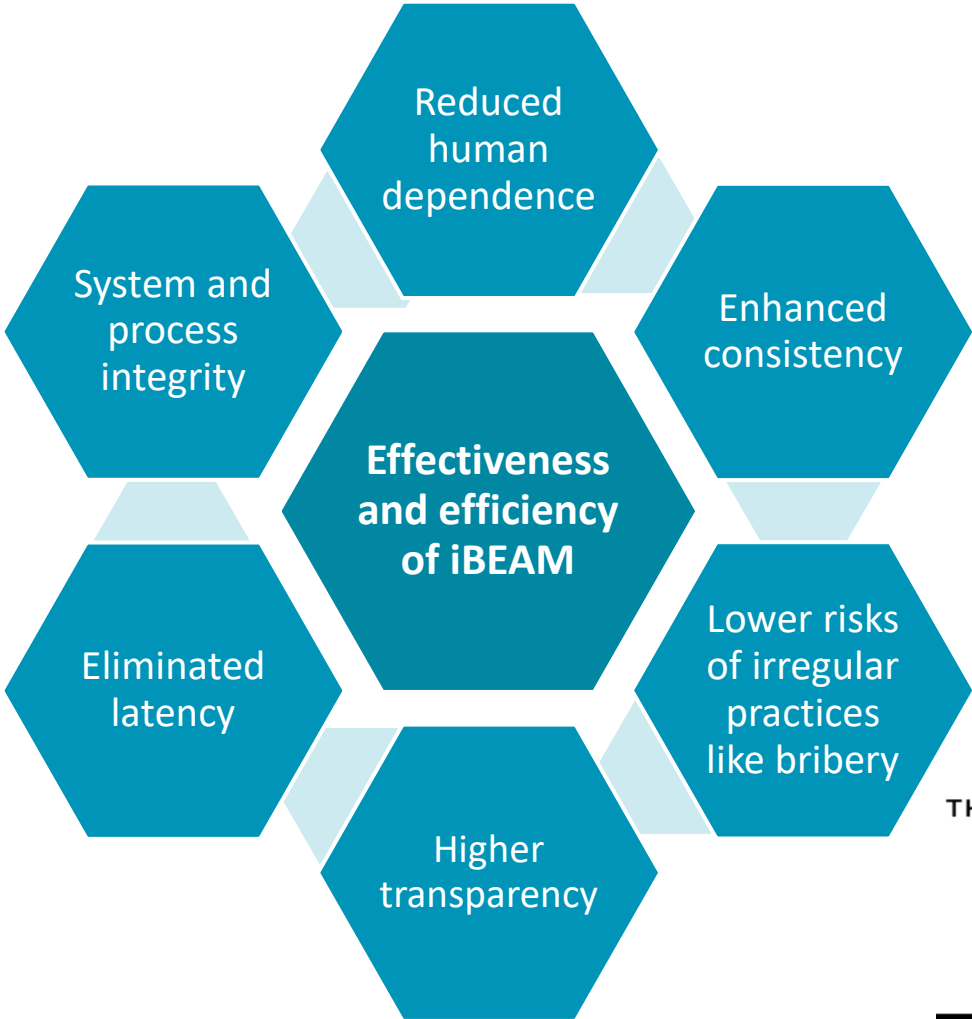
Module		Description	
1	Document Submission Module		A portal with functions to process and archive information in e-Forms submitted by the Applicants.
2	Workflow & Approval Module		A centralized project management module that would define, execute and automate the processes.
3	Online Communication Module		A communication platform for all concerned parties.
4	Reporting Module		A flexible and fully customizable report generator that obtains real-time results on information stored within the System.
5	Knowledge Database & Keyword Search Module		A centralized digital database of all information pertaining to BEAM Plus assessment and its related services.
6	Finance Module		Financial reports generator, billing and invoicing system .
7	BAS Assignment Module		An automated BAS assignment platform to safeguard transparency and integrity.



iBEAM Features and Benefits



Assessment process becomes
smoother, more transparent
and **more efficient**



THE AGILE PROCESS



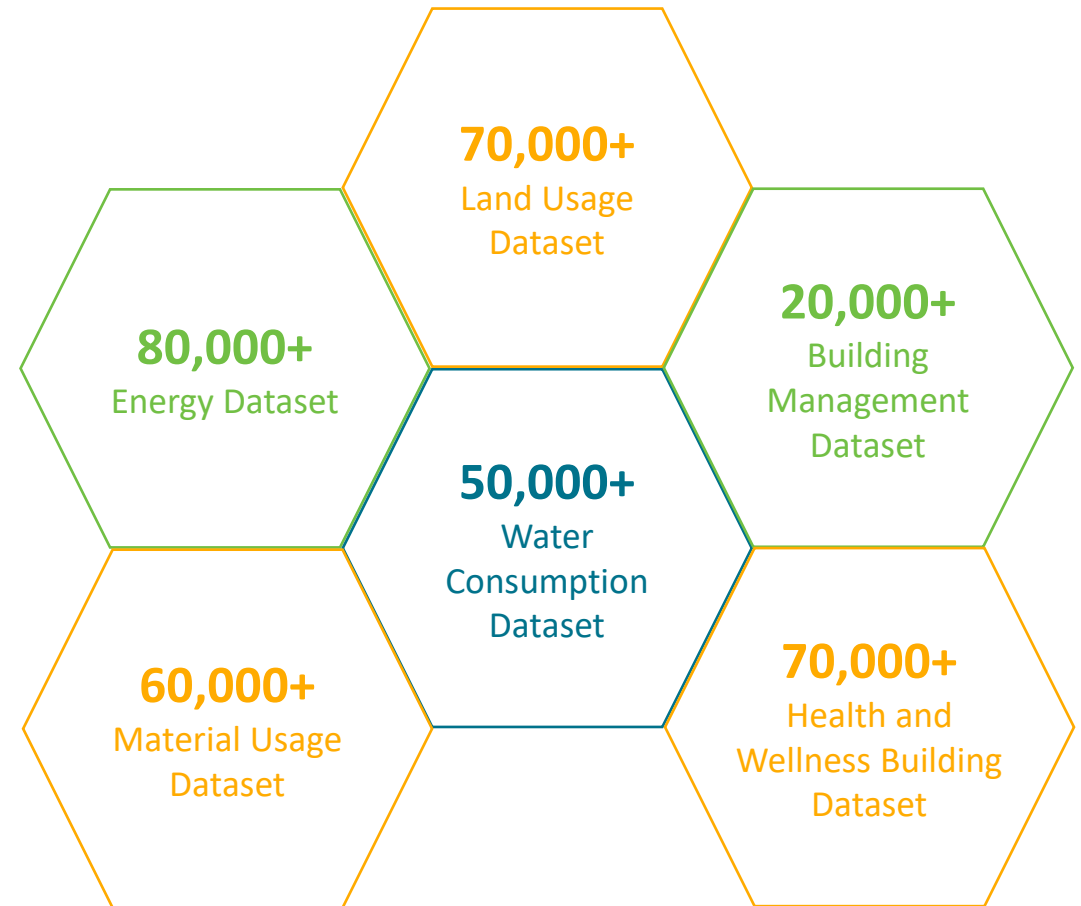
Processing High Volume of Data



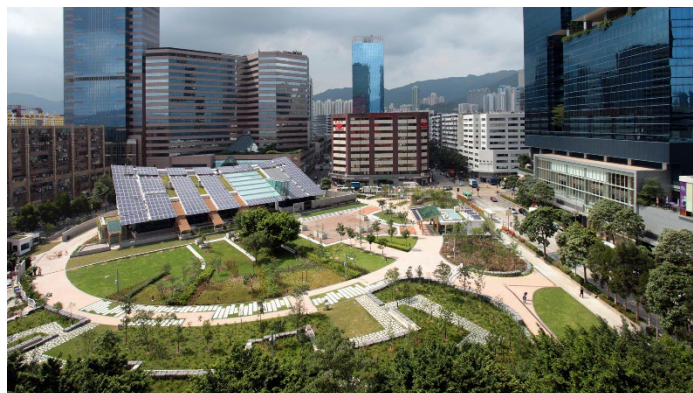
BEAM Plus
綠建環評



Annual
Processing



Applicable to Different Building Types



Residential · Office · Retail · Data Centre · Government & Institution



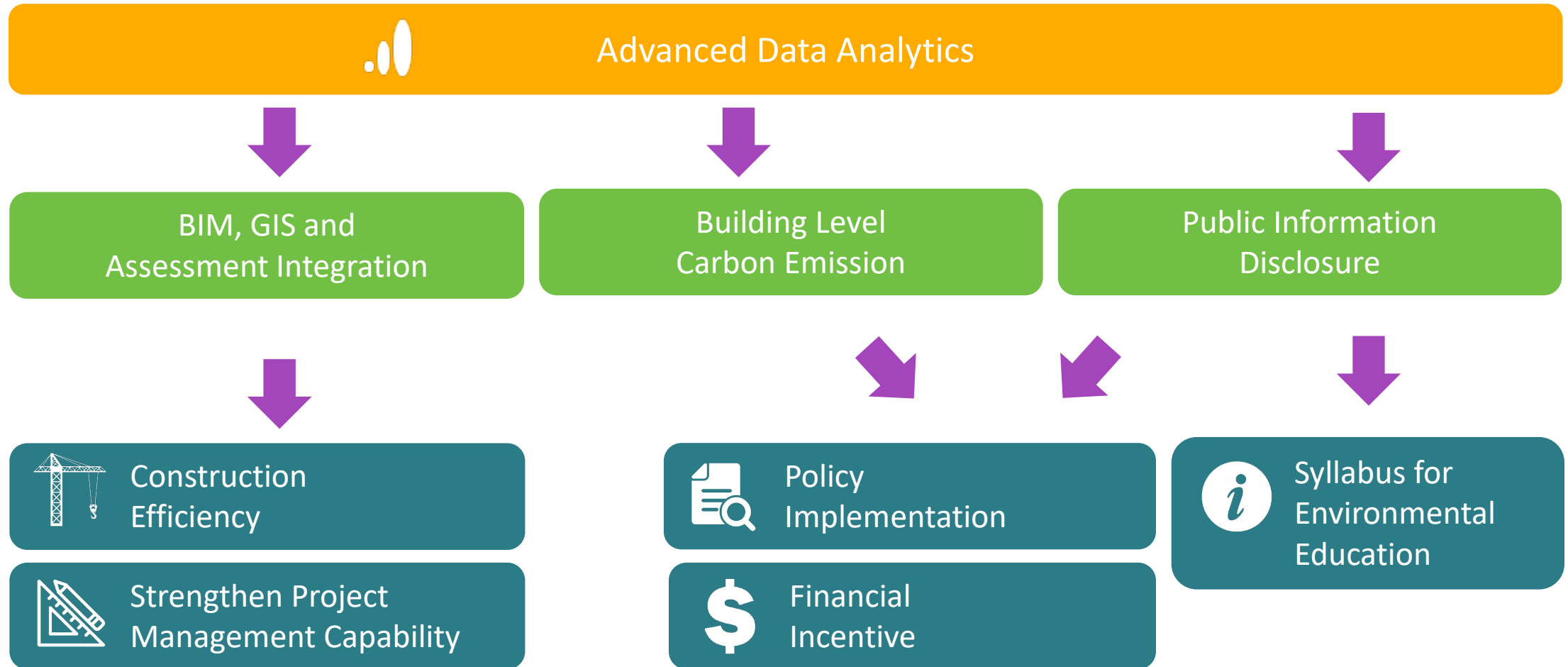
Performance Normalization



Meeting Environmental Targets



Creating New Generation of Analytics



Annex A-2

Workflow Requirement



1. BIM Level of Information

Output Requirement for Processing Model Data on iBEAM



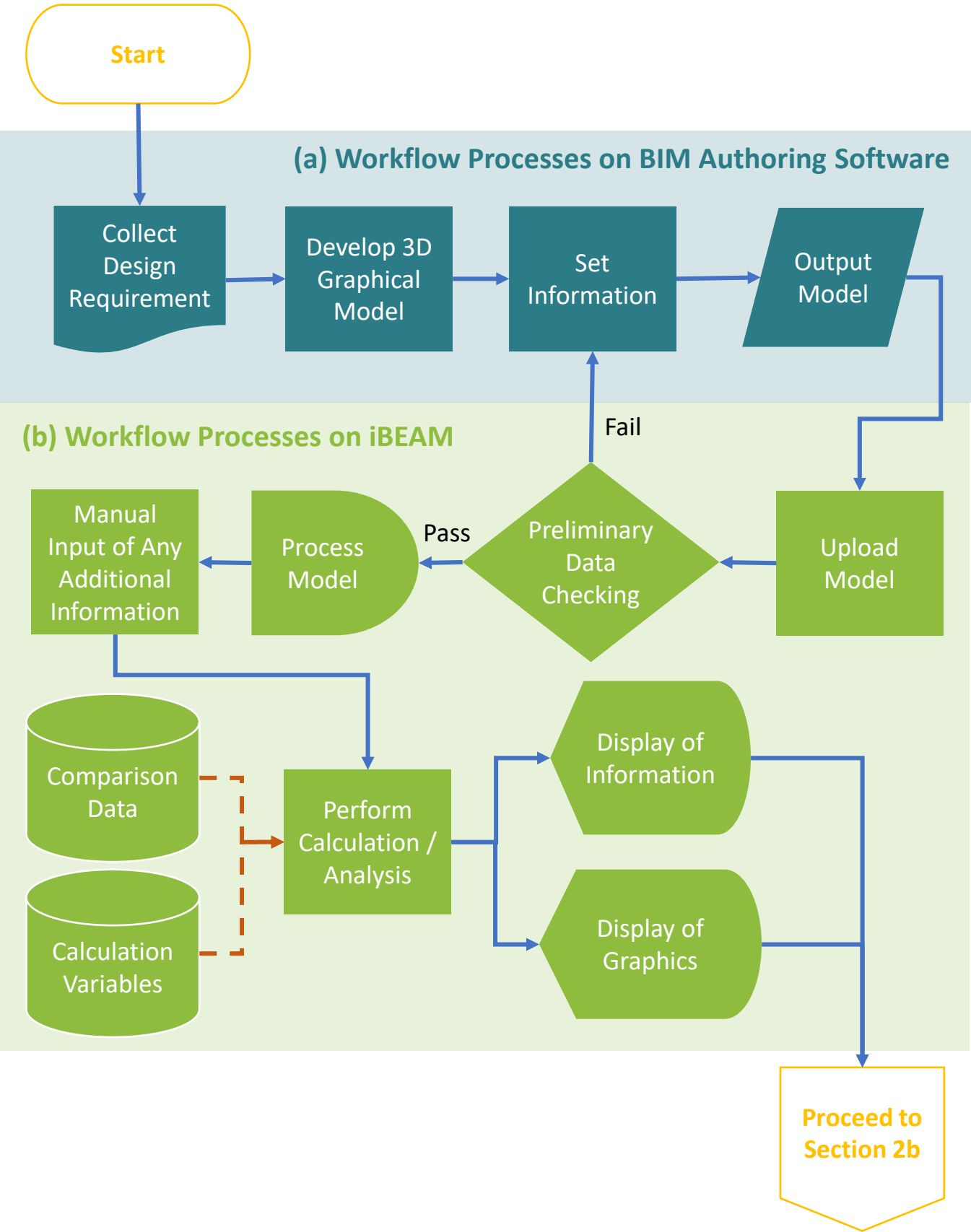
BIM Level of Information Needed	Environmental and Sustainability Related Deliverables
<div>Develop Model with LOD-G / LOD-I 100</div>	<div><div>1. Project Information, viz. project address, project number, project name, iBEAM number, HKGBC Project number</div><div>2. Calculation of site permeability (<i>BEAM Plus NB v.2.0 SS 8 refers</i>)</div><div>3. Modeling for neighborhood daylight access (<i>BEAM Plus NB v.2.0 SS 4 refers</i>)</div><div>4. Modeling on solar irradiation (<i>BEAM Plus NB v.2.0 EU 1 refers</i>)</div></div>
<div>Develop Model with LOD-G / LOD-I 200</div>	<div><div>1. Modeling for embodied carbon analysis (<i>BEAM Plus NB v.2.0 MW 10 refers</i>)</div><div>2. Calculation of landscape area and output of soil depth sectional diagram (<i>BEAM Plus NB v.2.0 SS P1 refers</i>)</div></div>
<div>Develop Model with LOD-G / LOD-I 300</div>	<div><div>1. Comparison analysis on embodied carbon of different structural scheme</div><div>2. Layout of recycling facilities (<i>BEAM Plus NB v.2.0 MW P1 refers</i>)</div><div>3. Preliminary analysis of artificial lighting performance (<i>BEAM Plus NB v.2.0 MW 10 refers</i>)</div></div>
<div>Develop Model with LOD-G / LOD-I 400</div>	<div><div>1. Final analysis of artificial lighting performance (<i>BEAM Plus NB v.2.0 HWB 10 refers</i>)</div></div>



* Please refer to CIC BIM Standard for definition of LOD-G and LOD-I

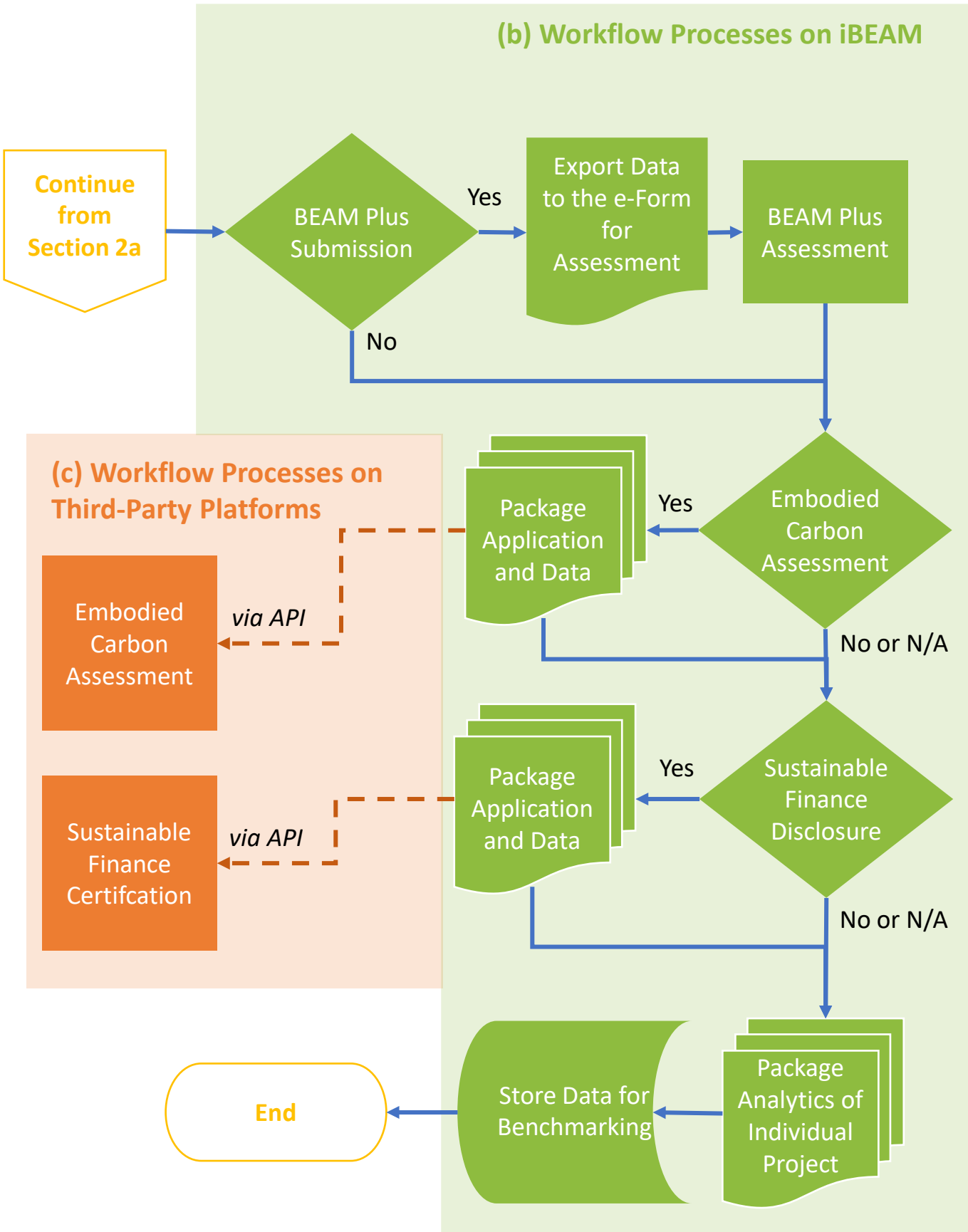
2a. General Workflow

For Validating Project Information and Architectural Calculation



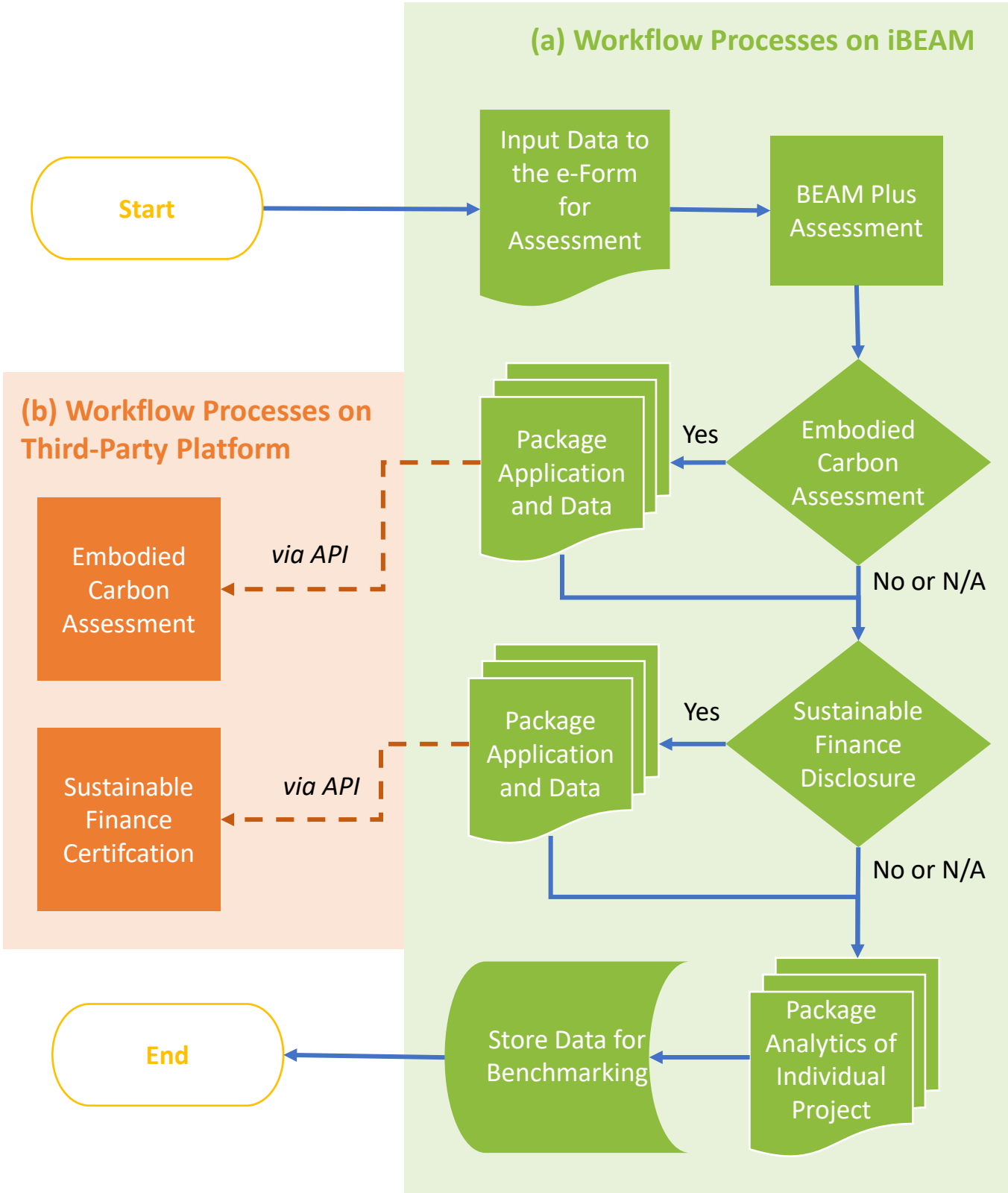
2b. General Workflow

For Validating Project Information and Architectural Calculation



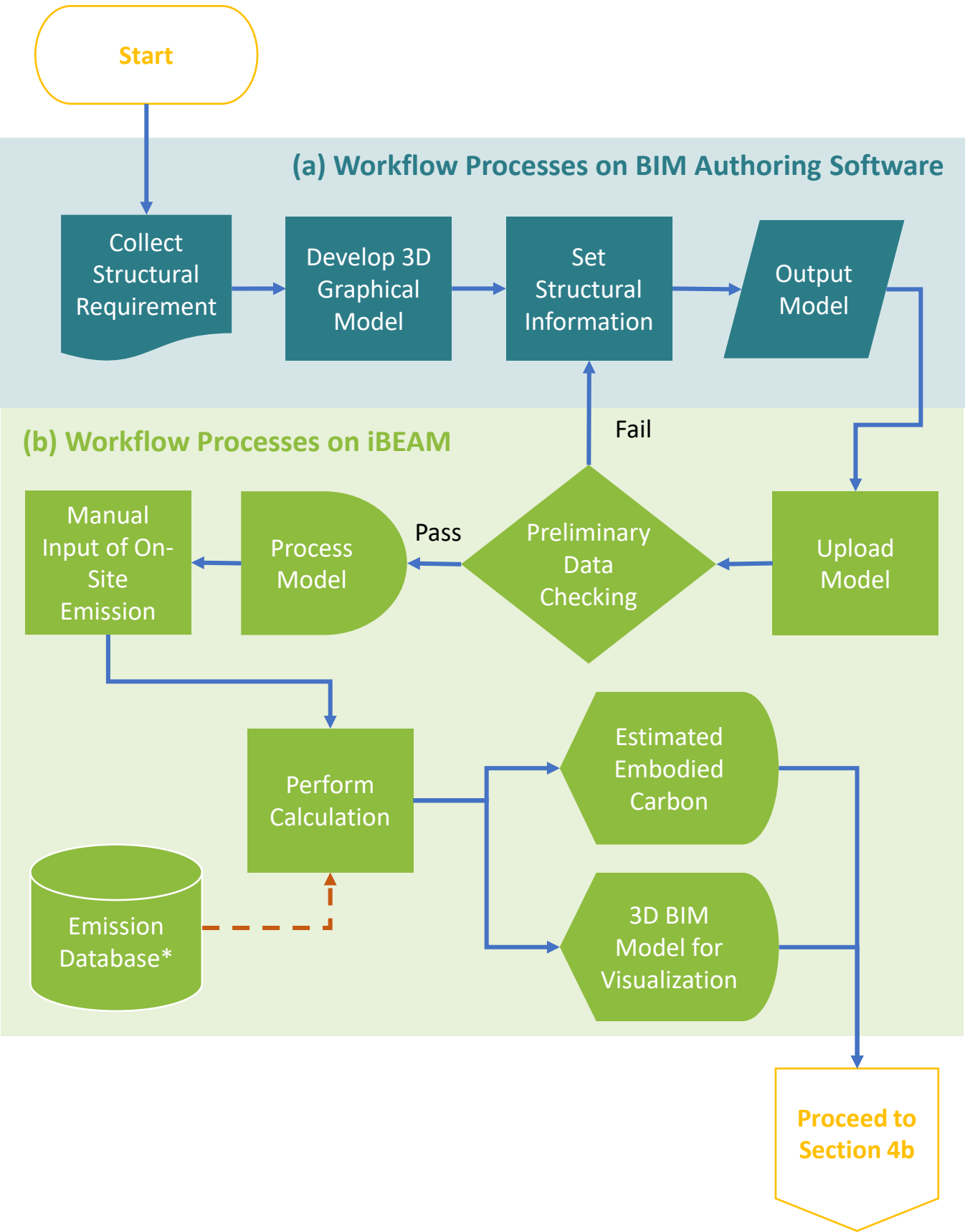
3. Assessed Information

Output for Submission to Third-Party Assessment Platform



4a. Embodied Carbon Analysis

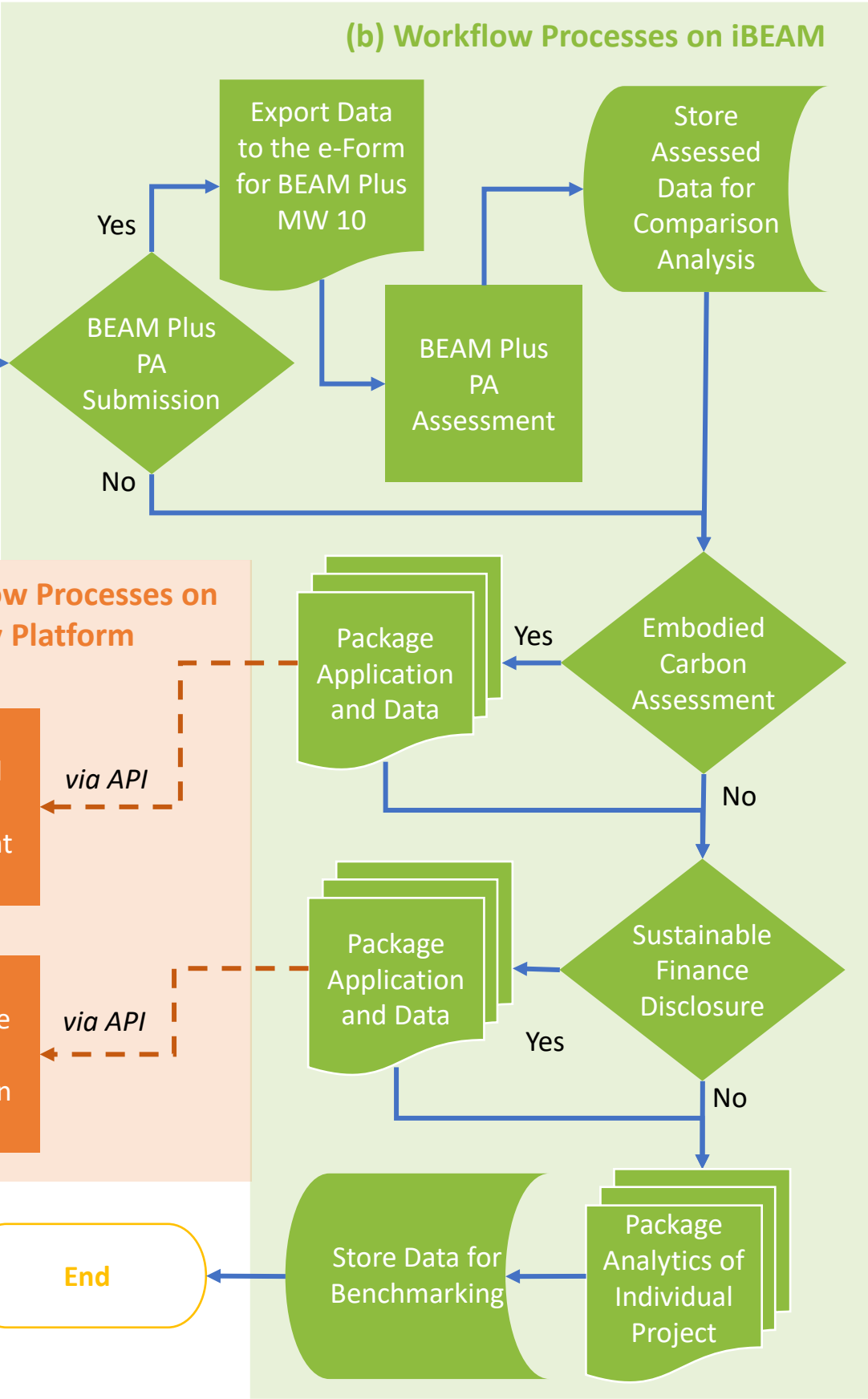
For Design Input & Compliance with BEAMPlus MW10



* Sync with the database of third-party assessment platform

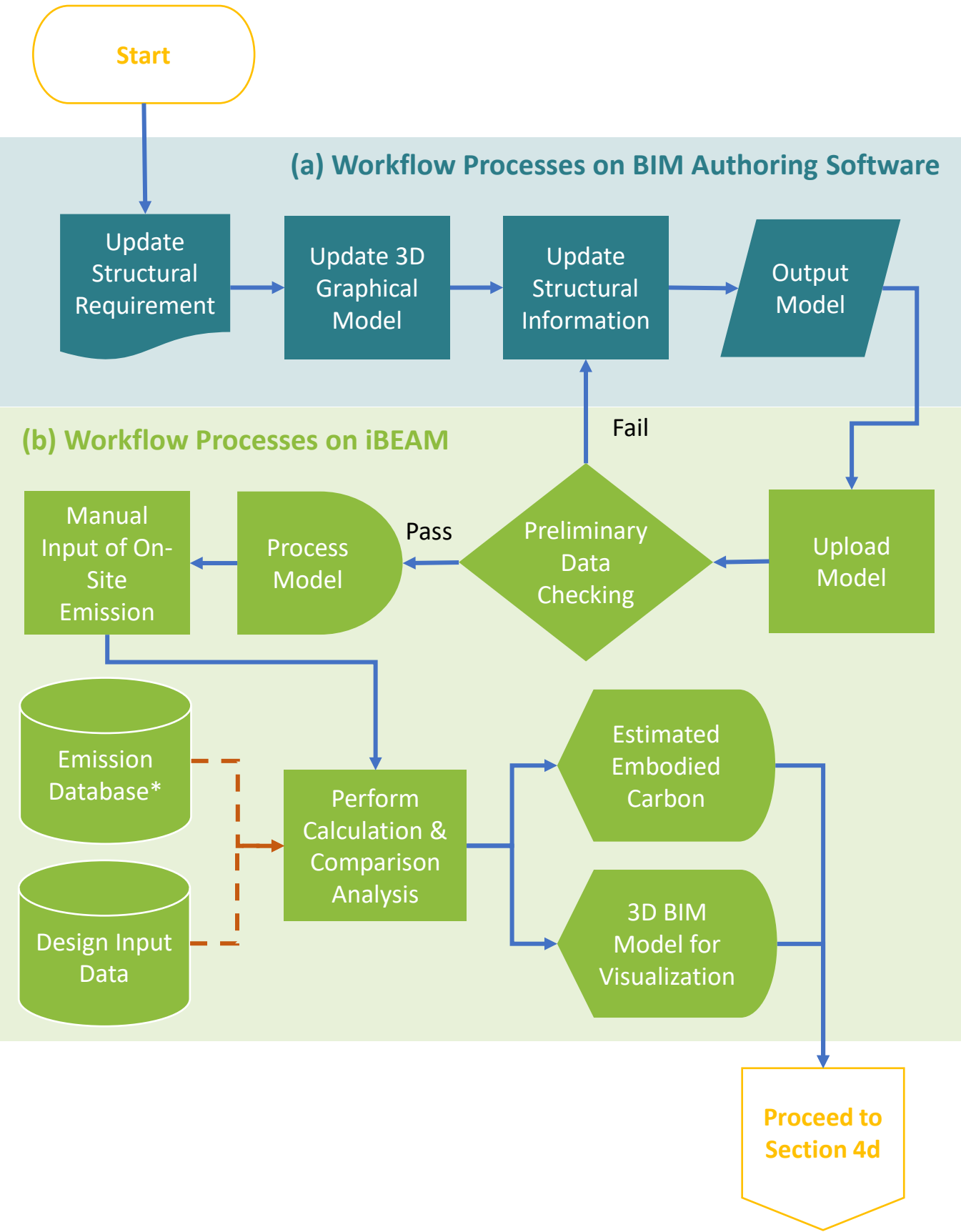
4b. Embodied Carbon Analysis

For Design Input & Compliance with BEAMPlus MW10



4c. Embodied Carbon Analysis

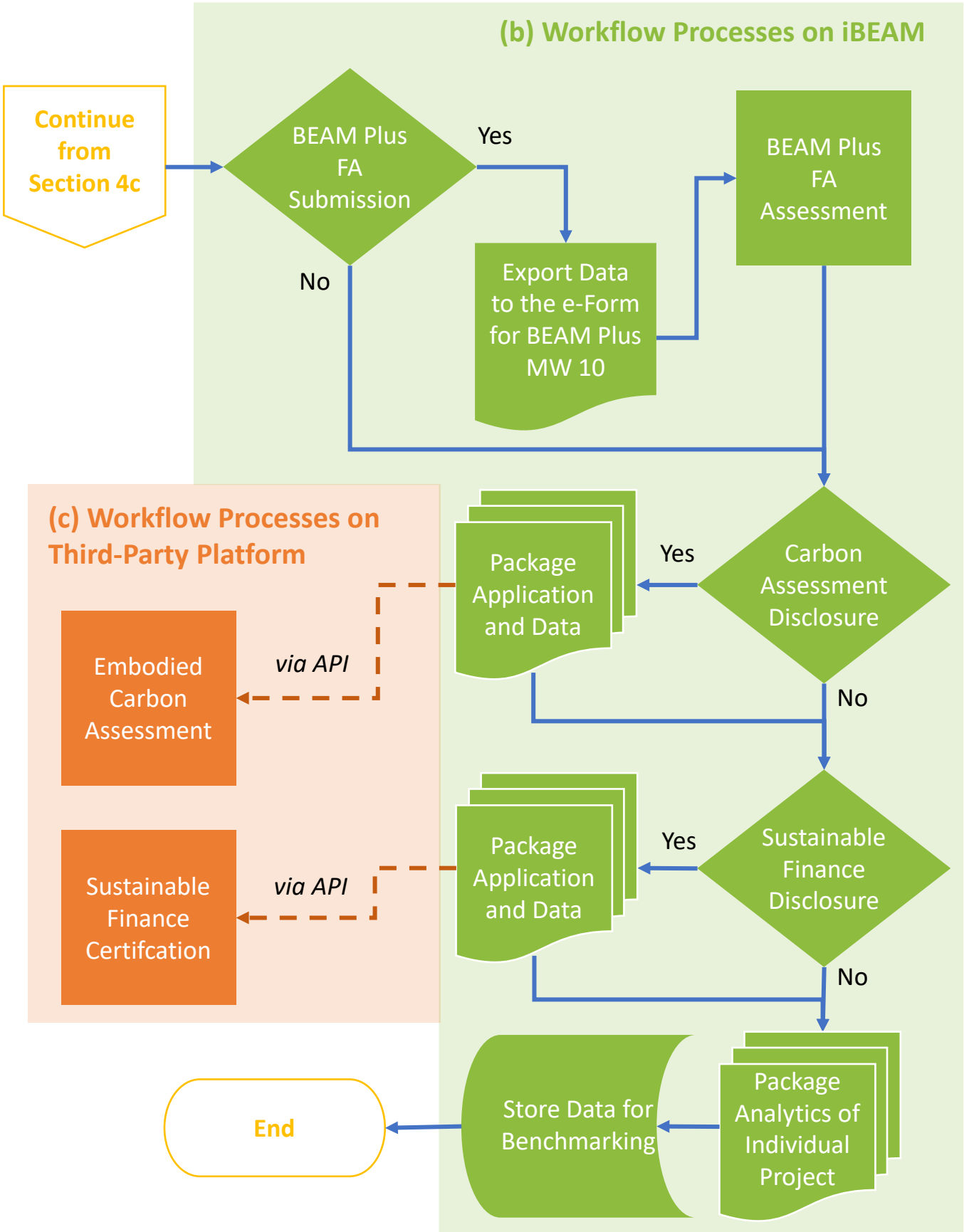
For Construction Input & Comparison Analysis



* Sync with the database of third-party assessment platform

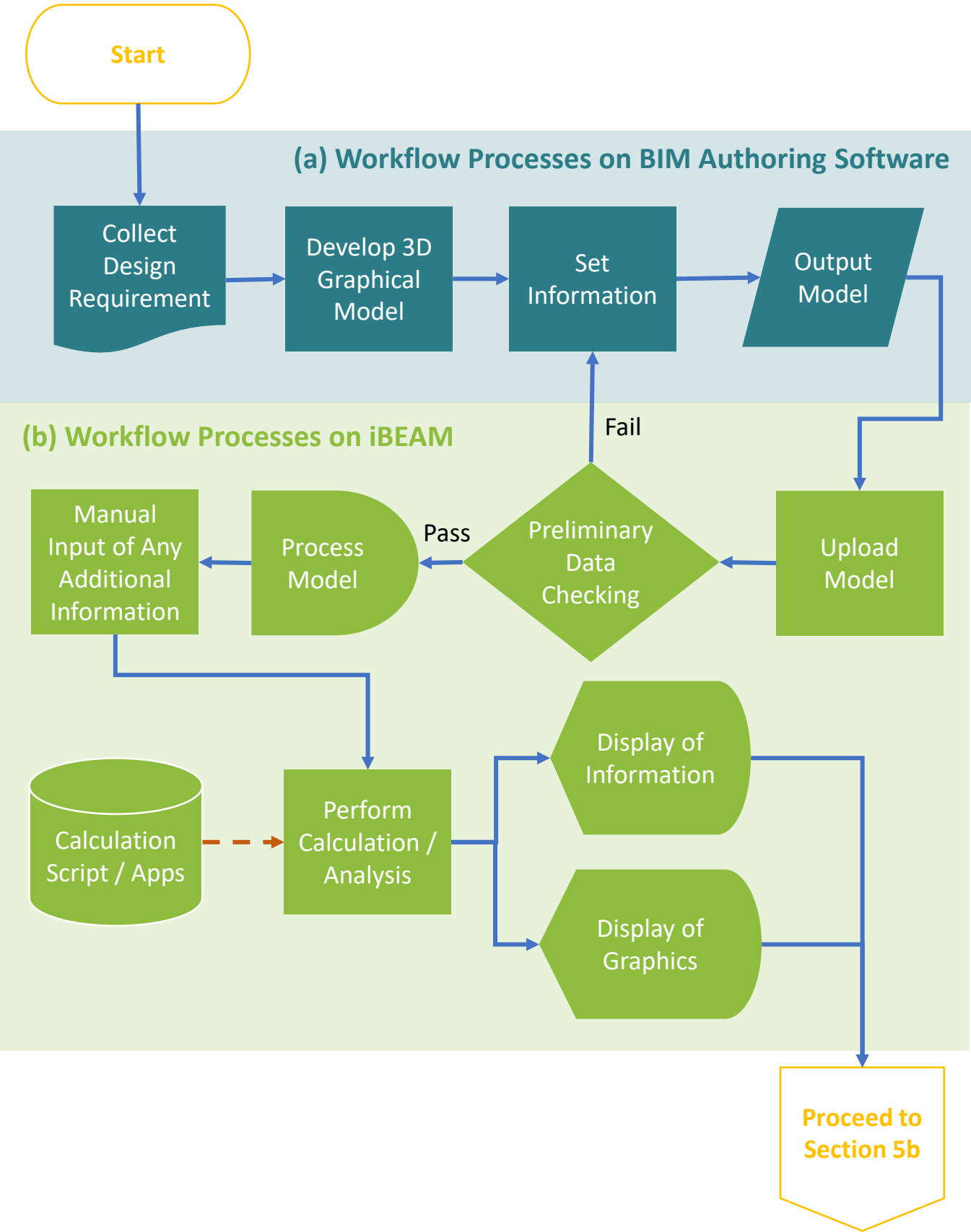
4d. Embodied Carbon Analysis

For Construction Input & Comparison Analysis



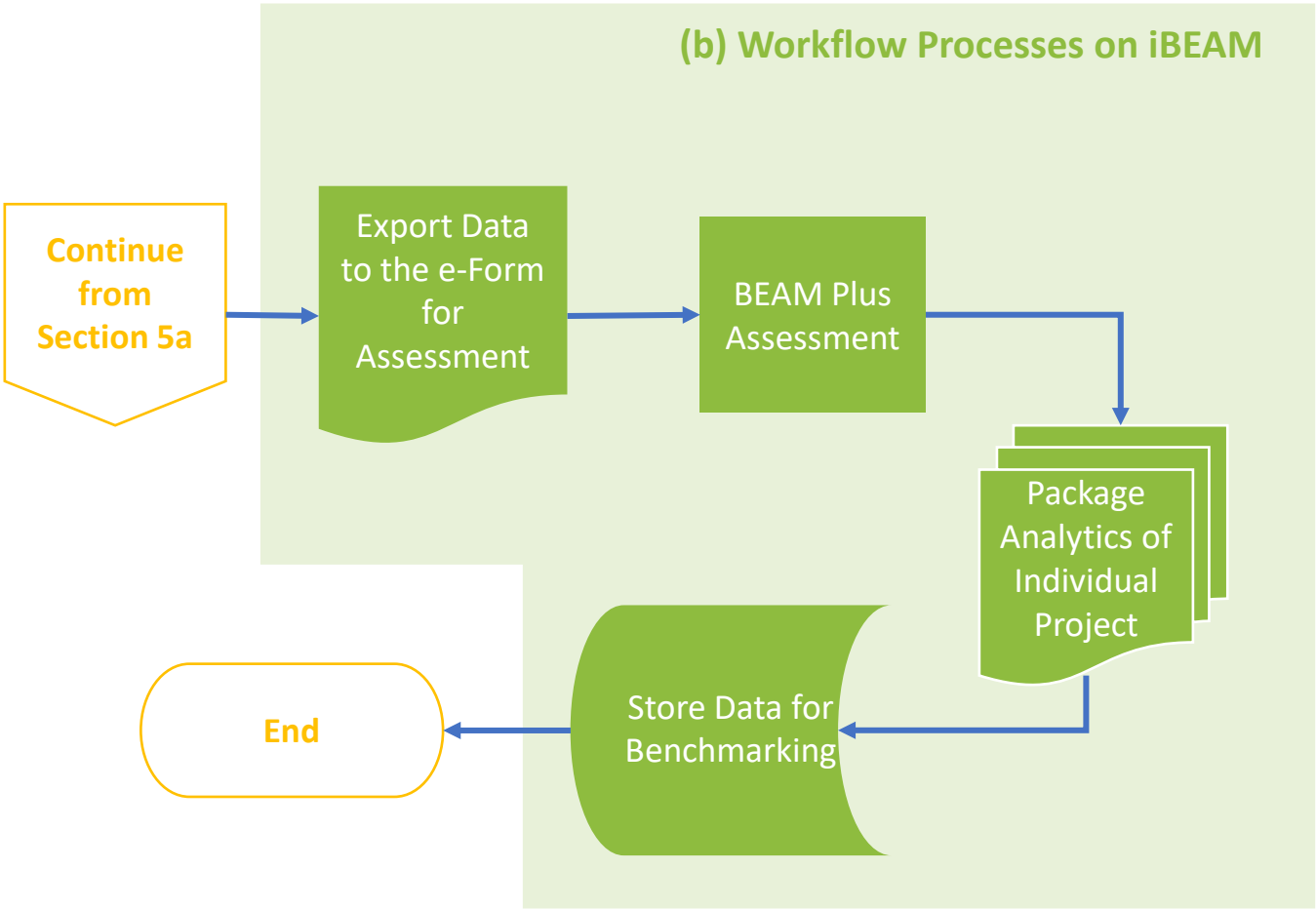
5a. Green Building Analysis

For Compliance on Lighting and Solar Irradiation Requirement



5b. Green Building Analysis

For Compliance on Lighting and Solar Irradiation Requirement



Project Commencement:	01/05/2022	(Anticipated)
Project End:	30/04/2024	(Anticipated)