

CIC CARBON ASSESSMENT TOOL

USER GUIDE

(29 February 2024)

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PART 1 - INTRODUCTION

Part 1 – Introduction

In 2018, the built environment accounted for 70% of Hong Kong's carbon emissions and the HKSAR Government has committed to reduce the total carbon emission by between 26% and 36% against the 2005 baseline by 2030.

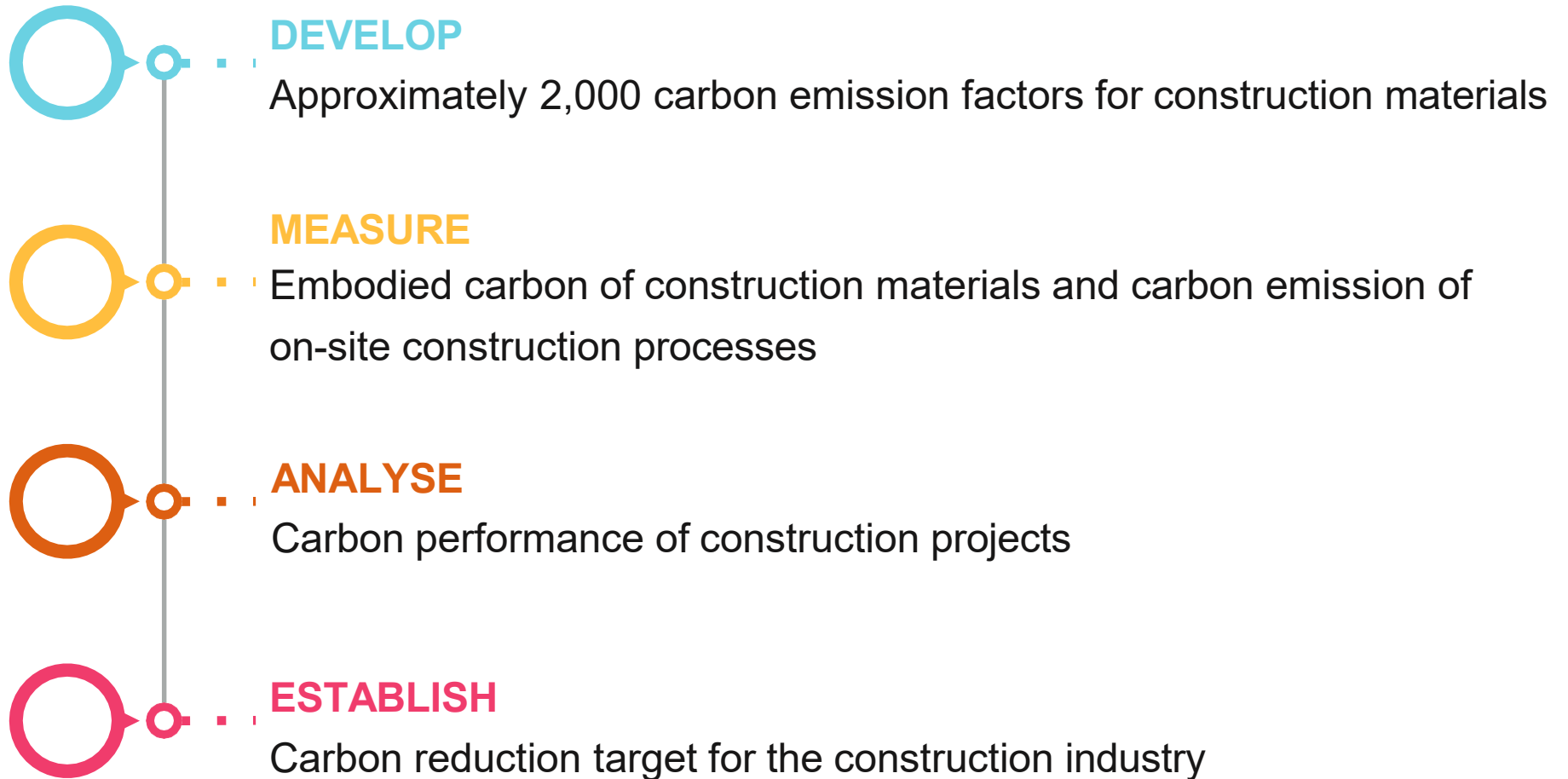
To achieve this goal, the whole construction industry needs to play its part. The Construction Industry Council (CIC) initiated the development of a web-based tool - the CIC Carbon Assessment Tool (Tool) in 2018. The Tool aims to create a common platform to evaluate the carbon performance of buildings and infrastructure in Hong Kong from raw material extraction to the end of construction. The Tool facilitates the construction industry to contribute to the goal of carbon reduction.



CIC Carbon Assessment Tool
建造業議會碳評估工具

Purpose and Background

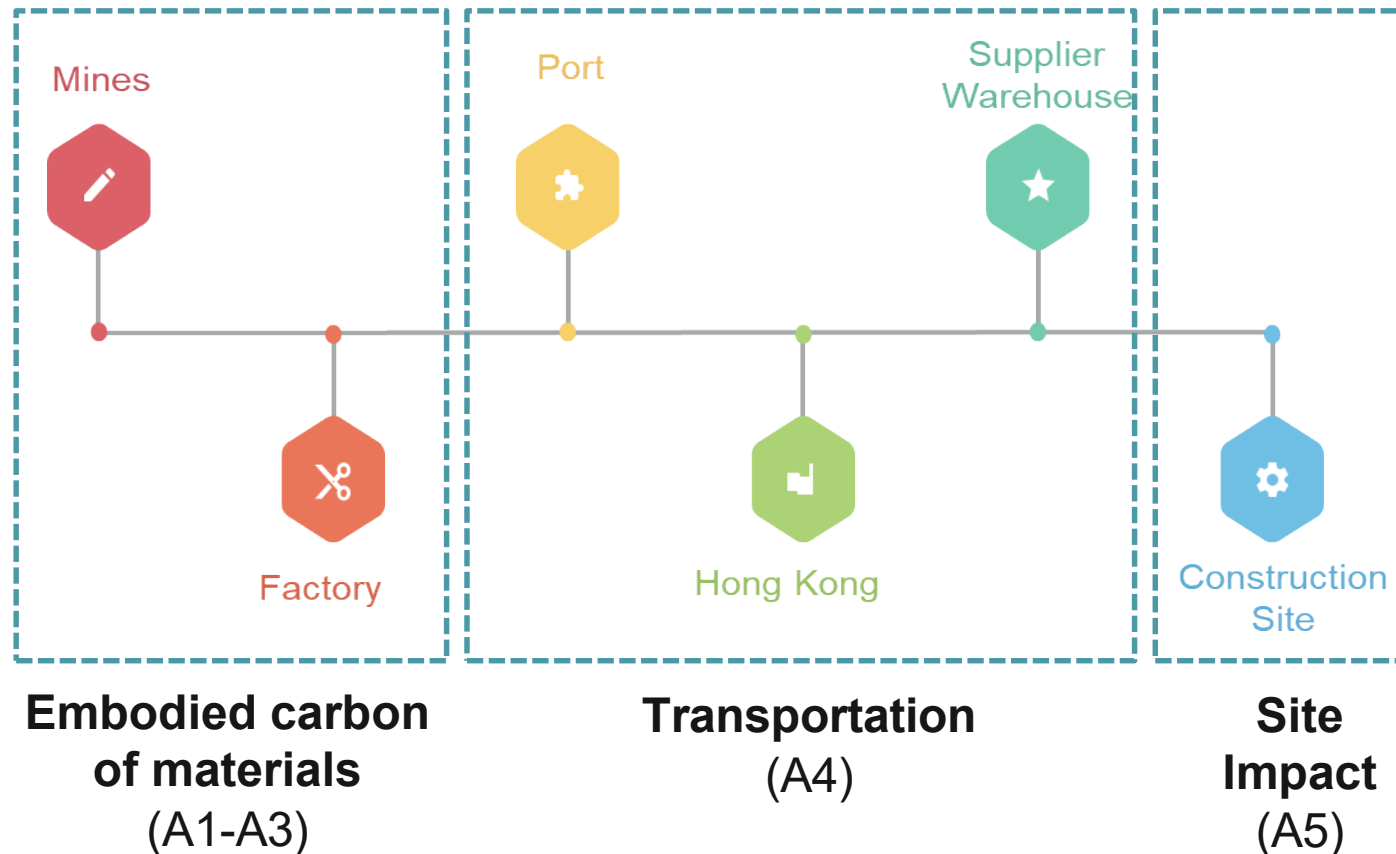
The Tool is designed to:



PART 2 - SCOPE OF THE TOOL

Scope of the Tool: Boundary

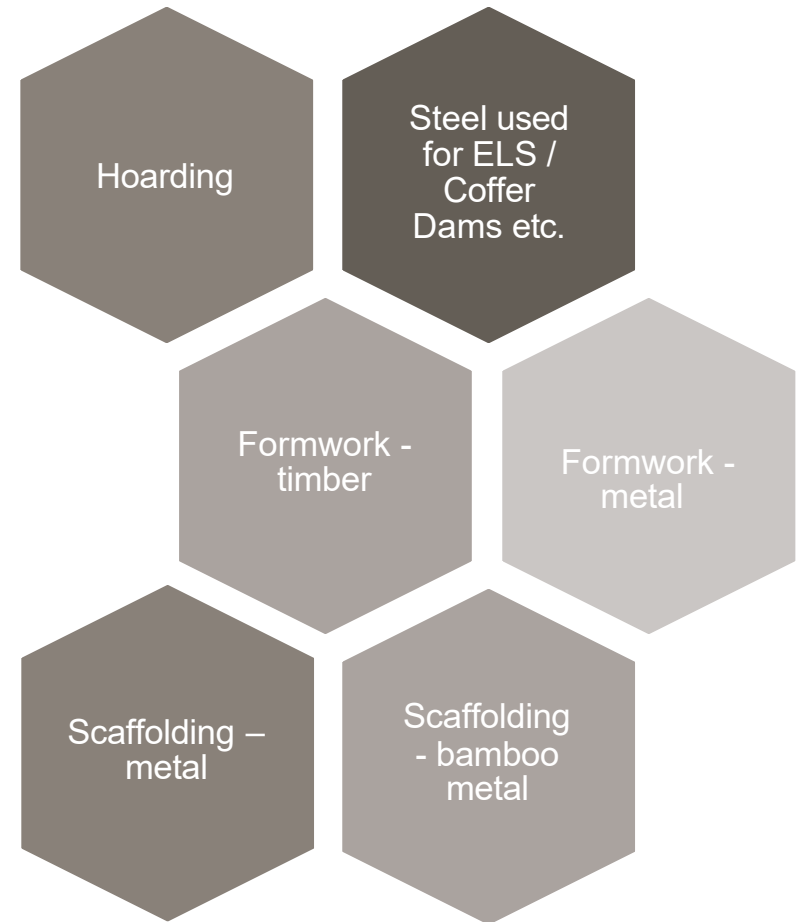
The boundary of the Tool is designed to cover the **embodied carbon of materials (A1 to A3)**, **transportation (A4)** and **site impacts (A5)** and is aligned with the principles of **ISO 14040:2006** (Environmental Management – Life Cycle Assessment Principles and Framework).



Scope of the Tool: Temporary Works

Temporary works contribute to the overall upfront embodied carbon in terms of the materials used. These are not commonly accounted for, but they can have a significant impact on the overall upfront embodied carbon of a construction project.

A similar approach was adopted for the temporary works components to compile the carbon emissions factors, and considerations for **reuse** and **end-of-life scenarios** have been incorporated into the carbon emissions factors for these materials.



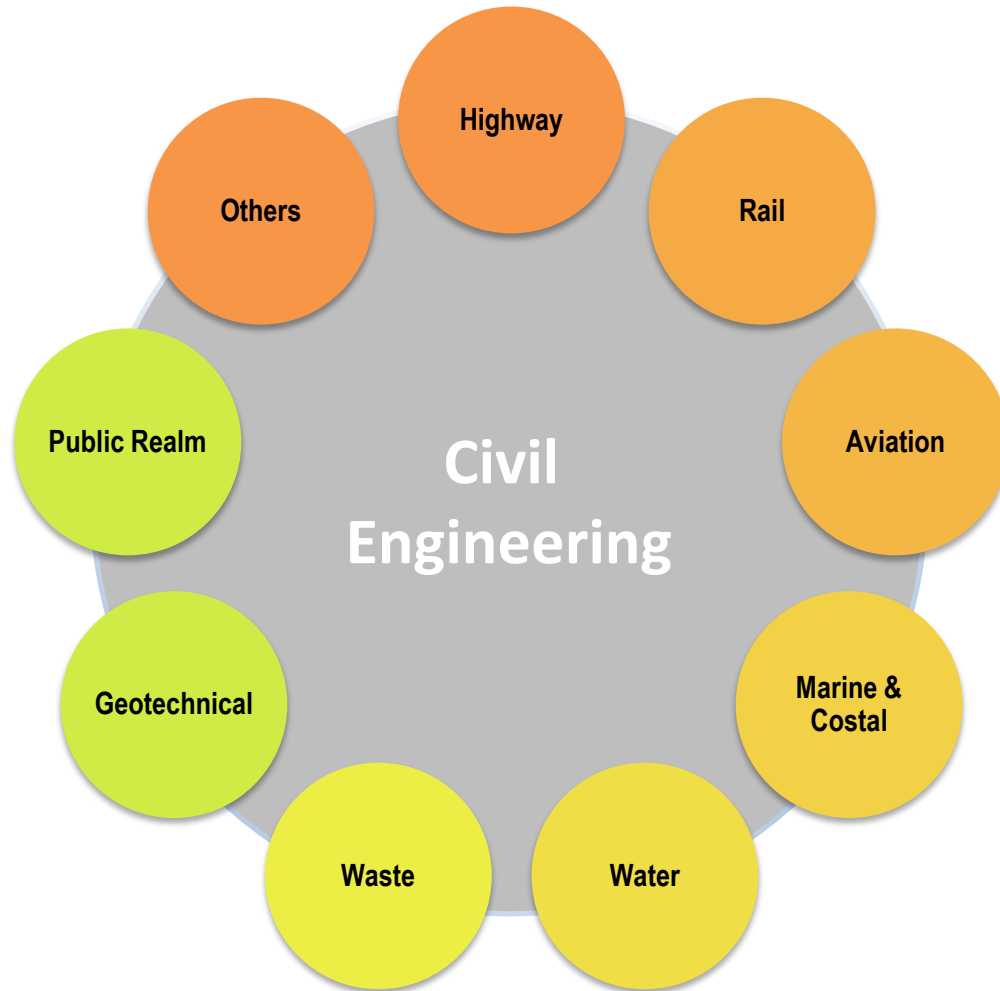
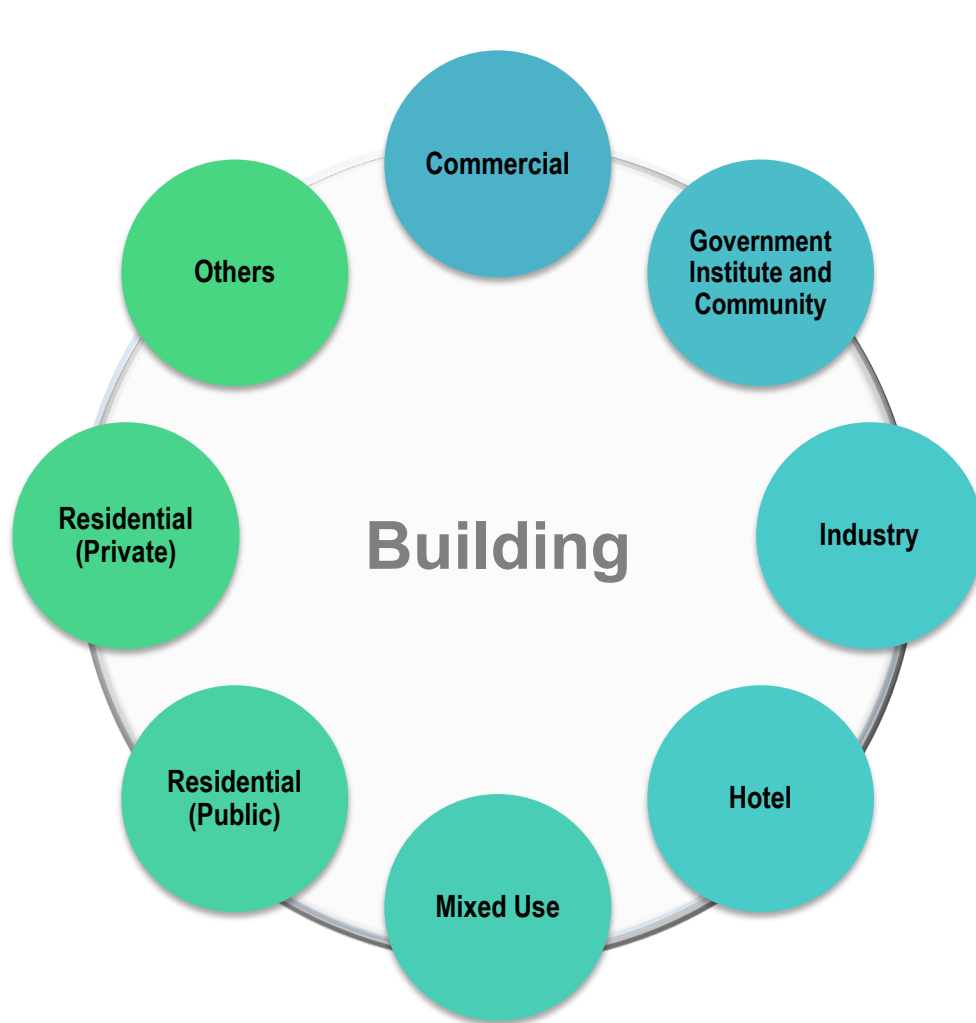
Scope of the Tool: Construction Site Impacts



The impact of construction activities on-site (**Site Impacts**) adds to the total carbon emissions of a project. However, it also provides an opportunity to implement innovative measures that can help reduce these emissions. These savings in carbon emissions can contribute to the achievement of the HKSAR Government's Carbon Reduction Target.

Project Classification:

Building Project and Civil Project



PART 3 - USER SIGN-IN AND SUPPORT

Sign-In

CIC CARBON ASSESSMENT TOOL

Understanding the embodied carbon of construction materials and carbon emissions of on-site construction process provides the opportunities to improve the sustainability performance and construction project efficiency.

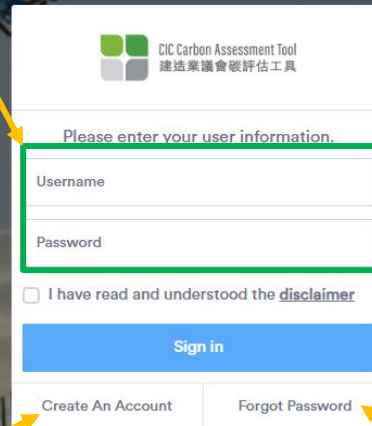
Start your journey with the CIC Carbon Assessment Tool

[SIGN IN](#)

Please click here to visit the sign-in page.

Sign-In (Cont.)

1. Enter your username and password.
2. Click on the "Sign in" button.



CIC Carbon Assessment Tool
建造業議會碳評估工具

Please enter your user information.

Username

Password

☐ I have read and understood the [disclaimer](#)

Sign in

Create An Account Forgot Password

To access the Tool for the first time, please create an account.

If you have forgotten your password, please click here to reset it.

ReCAPTCHA applied

Registration for a New Account

1. Double-check the accuracy of the information you provided.
2. Click on the "Register My Account"

Registration Form
Please enter your user information.

First Name

Last Name

E-mail

Phone

Password

Re-enter Password

Company

Position

Select Industry

Academic Institute

☐ By creating an account, you agree the [terms and conditions](#)

Unless permitted or required by law, the CIC will not disclose your personal data to any third parties without your prior consent.

[Register My Account](#)

Already member? [Login Here.](#)

Fill out the required information

Accept the terms and condition after reading through the terms and conditions carefully

ReCAPTCHA applied

Forgot Password

1. Click on the “Send Email Link”
2. Check your email inbox for a password reset link
3. Click on the password reset link provided in the and follow the instructions provided

Forgot your password?
Enter your email

E-mail

Send Email Link

Already member? [Login Here.](#)

Enter your registered email address

ReCAPTCHA applied

Support

If you need assistance or support, please click here “Support”.

CIC CARBON ASSESSMENT TOOL

Understanding the embodied carbon of construction materials and carbon emissions of on-site construction process provides the opportunities to improve the sustainability performance and construction project efficiency.

Start your journey with the CIC Carbon Assessment Tool

[SIGN IN](#)

Support

1. Clearly explain your issue or question
2. Provide any relevant details or screenshots that can help them understand your situation better.
3. If necessary, provide any additional information or follow-up as requested by the support team.

For question you may have [click here](#) for the FAQ page
If these did not answer your questions please complete the form for us to assist you further.

Your name:	Email:
Company:	Phone:
Non-IT Support	

What can we help you with:

Submit

Fill out the required information

Click here to submit

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ReCAPTCHA applied

PART 4 – PROJECT SETUP

Two Types Input – Design or Construction



CIC Carbon Assessment Tool
建造業議會碳評估工具

After signing in, you will have the option to choose between two types – “**Design Input**” and “**Construction Input**”.

Design Input

Compare design options
Support green building design submission

Option 1

“**Design Input**” allows projects to:

- Analyse and predict the carbon performance of materials used in a design
- Explore and showcase the potential carbon savings achievable through design modifications

*Users can transfer design data to “**Construction Input**” to establish a baseline for comparison.*

Construction Input

Project carbon reporting
Comparison to design baseline
Support green building construction submission

Option 2

“**Construction Input**” allows projects to:

- Report the actual carbon performance of materials, temporary works and site impacts
- Compare the actual carbon performance against the initially forecasted outcomes and industry benchmark

Set up a New Project – Design Input



CIC Carbon Assessment Tool
建造業議會碳評估工具

Design Input

Click here to create a new project

Project Manager

↓ Clone Project

Create New Project

Projects

Project Name	Created By (Email)	Date Created	Last Updated	
TJS Test	Account Test 1 (email:1HKGcic@cundall.com)	11/10/2019 07:28	11/10/2019 07:28	
TJS Test 2	Account Test 1 (email:1HKGcic@cundall.com)	11/10/2019 07:43	11/10/2019 07:43	

Once you have created a project, you will find a list of all your projects under your account.
To access each project, simply click on the respective project name to open it.

Set up a New Project – Design Input (Cont.)

Click on the "Save" button once all the necessary details have been updated or filled in.



Project Name*

Project Type*

Public Owner / Developer*

Project Address*

Project Location

Building Project / Civil Project

Project Classification*

Design Life (years)*

Construction Floor Area (m²)*

Gross Floor Area (m²)*

Estimated Project Duration (months)*

Estimated Project Value (million HK\$)*

Project Type*

Please select

Please select

Public Works/Developments

Private Developments

Trial Projects

Design & Construction Competition - Design Competition Stage

Public Owner / Developer*

Project Address*

If you would like to try the tool without using it for a real project, please choose the option "**Trial Projects**".

Please complete all the required information. You can update this information as needed over time.

Set up a New Project – Design Input (Cont.)

The screenshot shows a web form with a dropdown menu for 'Project Type*'. The dropdown is open, showing four options: 'Please select', 'Public Works/Developments', 'Private Developments', 'Trial Projects', and 'Design & Construction Competition - Design Competition Stage'. A blue arrow points from the 'Please select' option in the dropdown to a yellow callout box. Another blue arrow points from the 'Project Type*' label to the 'Public Works/Developments' option in the dropdown.

Project Type* Please select

There are four options available for the “Project Type”

Project Type* Please select

Public Owner / Developer* Please select

Project Address* Please select

Please select

Public Works/Developments

Private Developments

Trial Projects

Design & Construction Competition - Design Competition Stage

Public Works/Developments

The screenshot shows a web form for 'Public Works/Developments'. The 'Project Type*' dropdown is set to 'Public Works/Developments'. The 'Public Owner / Developer*' dropdown is set to 'Please select'. The 'Contract Number' field is highlighted in green.

Project Type* Public Works/Developments

Public Owner / Developer* Please select

Contract Number

Design & Construction Competition – Design Competition Stage

The screenshot shows a web form for 'Design & Construction Competition – Design Competition Stage'. The 'Project Type*' dropdown is set to 'Design & Construction Competition - Design Competition Stage'. The 'Public Owner / Developer*' dropdown is set to 'Please select'. The 'Contract Number' field is highlighted in green.

Project Type* Design & Construction Competition - Design Competition Stage

Public Owner / Developer* Please select

Contract Number

For Public Works/Developments and Design & Construction Competition – Design Competition Stage, you have the option to fill in the “Contract Number” field (highlighted in green).

Trial Projects

If you would like to try the tool without using it for a real project, please choose the option “**Trial Projects**”.

Set up a New Project – Design Input (Cont.)

Public Owner / Developer*

Others

Other Public Owner / Developer(English)*

Other Public Owner / Developer(Chinese)

BR Number of Public Owner / Developer*

XXXXXXXX-XXX (X is digit)

BR Certificate Copy Upload of Public Owner / Developer*

選擇檔案

未選擇任何檔案

*Please put N/A in the box if company BR is not applicable
*Correct format of Business Registration Number: XXXXXXXX-XXX (X is digit)

If the public owner/developer is not listed in the dropdown menu, please select "**Others**" and enter the name of the organisation in the "Other Public Owner/Developer (English)" field. In addition, two additional fields – "**BR Number of Public Owner / Developer**" and "**BR Certificate Copy Upload of Public Owner / Developer**" (highlighted in green) need to be filled in.

[Ensure that the name entered in this field matches the name provided in the uploaded BR.](#)

Once the checking and confirmation of BR-related submissions by the CIC is completed, the organisation's name will be included in the drop-down menu of the "**Public Owner/Developer**" field.

Cloning an Existing Project – Design Input

To facilitate design comparison, users can create another version of the project within the Tool to submit an alternative design scheme. The Tool provides the functionality to clone the project, eliminating the need for users to input all the project information again.



Design Input

Project Manager

Click here, “**Clone Project**”, to generate a pop-up window for further action.

↓ Clone Project

Create New Project

Projects

Project Name	Created By (Email)	Date Created	Last Updated
--------------	--------------------	--------------	--------------

TJS T	Clone Project		
-------	---------------	--	--

TJS T	New Project Name:		
-------	-------------------	--	--

	From Project:		
--	---------------	--	--

	Demon		
--	-------	--	--

No

Yes

To create a clone of the project, please follow these steps:

1. Enter the new project name.
2. Choose the original project from the drop-down list.
3. Click on the “**Yes**” button to initiate the cloning process.

By following these steps, a clone of the original project with the specified name will be created.

* Please note that the cloning function is only available for Design Input projects.

Set up a New Project – Construction Input

Click here to create a new project

Create New Project

Projects				
Project Name	Created By (Email)	Date Created	Project Information Last Updated Date	Status
Demo - 1 CON		01-Aug-2023	01-Aug-2023	Ongoing

Please select the project status as either “Ongoing” or “Complete” in this field.

Same as Design Input, once you have created a project, you will find a list of all your projects under your account. To access each project, simply click on the respective project name to open it.

Set up a New Project – Construction Input (Cont.)

Project Information

Project Name*

Project Type*

Public Owner / Developer*

Contractor*

Project Address*

Project Location

Building Project / Civil Project*

Project Classification*

Project Height (Number of Stories)*

Construction Starting Date (MM/YYYY)*

Project Duration (months)*

Design Life (years)*

Project Value (million HK\$)*

Total Construction Man Hours (Thousand Hour)*

Construction Floor Area (m²)*

Gross Floor Area (m²)*

Site location on reclaimed land

Scope of Construction*

Project details

Foundation Type

Pile Length

Demolition

Basement

On site concrete batching plant

Building element reuse

Green Building & Infrastructure Certification


Green Building Certification

Click on the "Save" button once all the necessary details have been updated or filled in.

Same as “Design Input”, please complete all the required information. You can update this information as needed over time.

The additional questions on the page are intended to aid in benchmarking, but they are not mandatory. However, providing answers to these questions will enhance the accuracy and relevance of the tool's outputs for users' specific requirements.

Project Information Update – Construction Input

 CIC Carbon Assessment Tool
建造業議會碳評估工具

< Demo Project

Project Information

Data Input

Results Analysis

Comparison

Materials Analysis

Project Manager

NOV 2019 ▼

First Submitted: Never

Last Submitted: Never

→ Import From Design

+ Request New Material

↶ Import Template

↓ Import

↶ Export

→ Submit

▼ Monthly Carbon Emission 0 tCO₂e

Permanent and Temporary Works

■ Aggregate	0 (0%) tCO ₂ e
■ Concrete	0 (0%) tCO ₂ e
■	0 tCO ₂ e
■	0 tCO ₂ e
■	0 tCO ₂ e

Site Impacts

■ Electricity	0 (0%) tCO ₂ e
■ Town Gas	0 (0%) tCO ₂ e
■ Fuel Consumption	0 (0%) tCO ₂ e
■ Water	0 (0%) tCO ₂ e
■	0 tCO ₂ e

Permanent Works - Substructure ⓘ

Permanent Works - Superstructure ⓘ

Temporary Works ⓘ

Site Impacts ⓘ

Edit

To update the project information after the initial set-up, please click here to make the necessary changes.



PART 5 – DESIGN INPUT

Project Selection - Design Input

↓ Clone Project

Create New Project

Projects

Project Name	Created By (Email)	Date Created	Last Updated	
TJS Test	Account Test 1 (email:1HKGcic@cundall.com)	11/10/2019 07:28	11/10/2019 07:28	
TJS Test 2	Account Test 1 (email:1HKGcic@cundall.com)	11/10/2019 07:43	11/10/2019 07:43	

To access each project, simply click on the respective project name to open it.

Data Input - Design Input

Demon

+ Request New Material

+ Import Template

+ Import

+ Export

^ Total Carbon Emission 0 tCO₂e

Permanent and Temporary Works

■	0 tCO ₂ e
■	0 tCO ₂ e
■	0 tCO ₂ e
■	0 tCO ₂ e
■	0 tCO ₂ e

1. Select the specific construction works here before adding the materials

Permanent Works – Substructure: Foundations of the project

Permanent Works – Superstructure: Superstructure of the project

Temporary Works: The construction that doesn't form part of the final structure, e.g. formwork or ELS

Permanent Works - Substructure ⓘ Permanent Works - Superstructure ⓘ Temporary Works ⓘ

+ Select New Material

2. Click on the **"Select New Material"** button to generate a pop-up window for further action.

Note: In the Design Input, all carbon emission factors include a predefined "wastage value" to estimate potential wastage during actual construction operations. However, it is important to note that this "wastage value" is not present in the construction stage's database.

Data Input - Design Input (Cont.)

A pop-up window for **selecting materials from the database** for each construction works

Select New Material

Certification Body

Nothing selected

clear

Certificate Number

Nothing selected

clear

Material Family

Please Select

clear

Material

Nothing selected

clear

Country/Origin

Nothing selected

clear

Supplier

Nothing selected

clear

A1-A3 Carbon Emission Factor

clear

Certification Validated Year

clear

Selected Material

Material Family

Aggregate

Material

Coarse Aggregates

Country/Origin

China

Unit

Tonnes

Quantity

0

Close

Add

3. Apply filters to sort or narrow down the results based on different types or ranges.

4. The filtered materials will be displayed here, showing only the materials that meet the selected criteria or filters.


5. Click on the "+" button here to the desired material. This will add the material to your calculation.

6. Fill in the quantity of the selected material and then click on the "Add" button to include the material with the specified quantity in the project.

Material Family	Material	Country of Origin	unit	Supplier	A1-A3 Carbon Emission Factor per Unit	A1-A4 Emission Factor per Unit	Certification Expire Date	Action
Aggregate	Coarse Aggregates	China	Tonnes	N/A	2.425	48.03449662	2019-12-31 The certificate for this product has been expired	+
Aggregate	Coarse Aggregates, Recycled Content	China	Tonnes	N/A	0.982	46.44719662	2019-12-31 The certificate for this product has been expired	+
Aggregate	Fine Aggregates	China	Tonnes	N/A	2.796	48.44259662	2019-12-31 The certificate for this product has been expired	+
Aggregate	Fine Aggregates, Recycled Content	China	Tonnes	N/A	1.132	46.61219662	2019-12-31 The certificate for this product has been expired	+
Aggregate	Coarse Aggregates	China	Tonnes	N/A	2.18	48.23328202		+

Showing 1 to 5 of 1,608 materials (filtered from 1,945 materials)

Previous12345...322Next



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Data Input - Design Input (Cont.)

If the material is NOT found in the database, users can request to **add a new material along with its carbon emission factor to the database**. This will help ensure that the database is comprehensive and includes all relevant materials for accurate carbon emission calculations.

Demon

Request New Material

Certificate Number

Material Family

Material Name

Material Name (Chinese)

Country/Origin

Country/Origin (Chinese)

Company

Company (Chinese)

Unit

A1-A3 Emissions Per Unit (kg CO₂e)

Total Carbon Emission 0 tCO₂e

Permanent and Temporary Works - Substructure

Permanent Works - Substructure

To add a new material, follow these steps:

1. Navigate back to the "Data Input" page
2. Click on the "Request New Material" button, which triggers a pop-up window.
3. Complete the form in the pop-up window with the relevant details of the new material.
4. Save the form to submit the request.
5. An automatic email will be sent to your account email address, requesting you to submit supporting documents for the carbon emission factor of the material (e.g. EPD certificate.)
6. Submit the required supporting documents as requested in the email to cat@cic.hk within 14 calendar dates for the CIC's review and confirmation.

Alternative Data Input – Import Data - Design Input

Users have the option to import data into the tool from an Excel file.

Download the Excel file by clicking the “**Import Template**” button.

This template is pre-defined with the required structure, allowing users to organize and upload their information accurately.

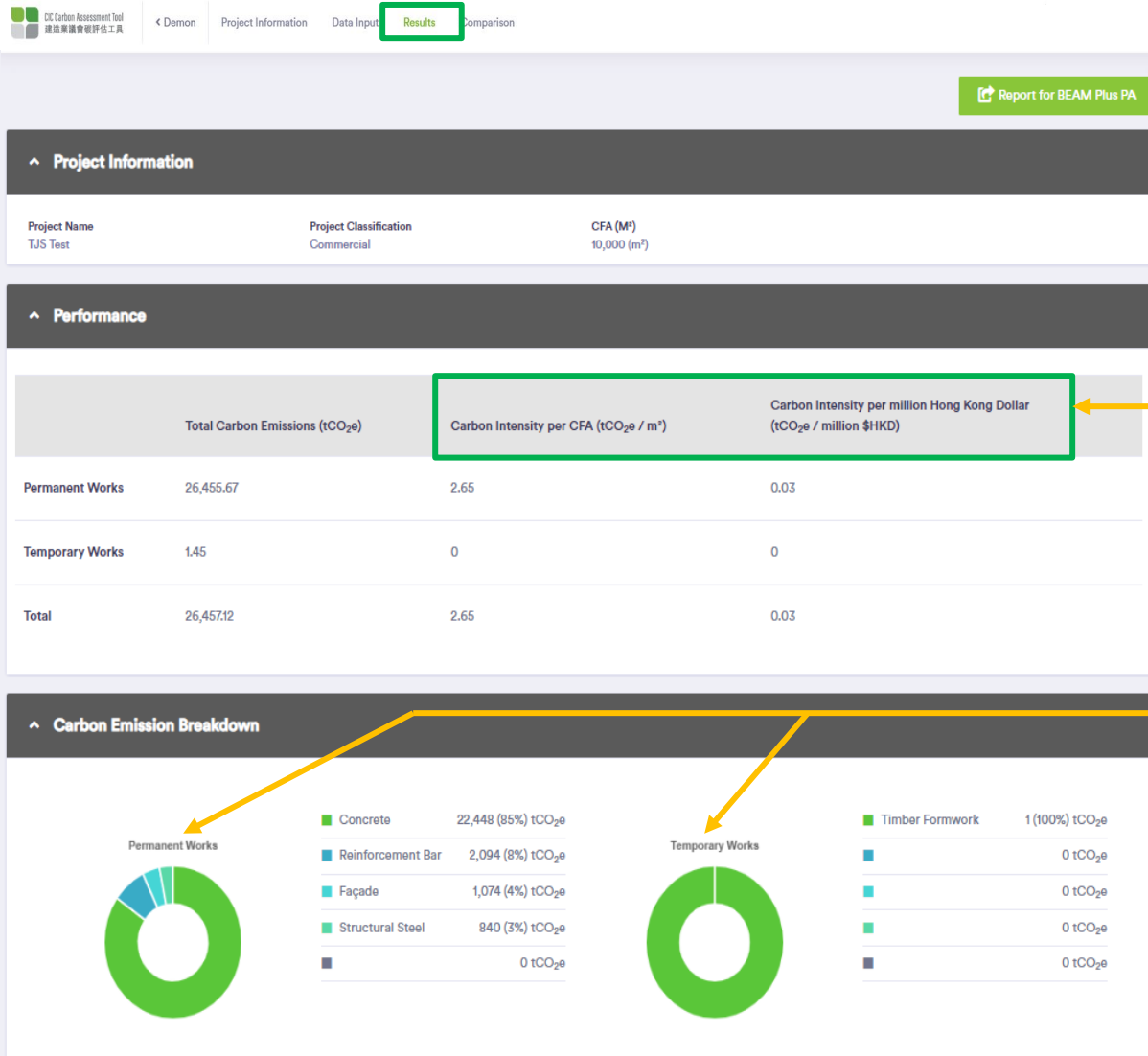
Data can be imported into the Tool by utilising the Excel file format and the “**Import**” function.

This allows users to input multiple months of data simultaneously, streamlining the data entry process.

A pop-up window will appear after clicking on the “**Import**” button, allowing users to import the completed Import Template that has been saved locally from their source. By clicking the “Open” button within the pop-up window, the data will be uploaded into the system.

Result - Design Input

Once all the data has been input, the results will be displayed on the “**Result**” page.



Click on the “**Report for BEAM Plus PA**” button to generate and download the necessary supporting documents in a format suitable for submission to the BEAM Plus PA certification process.

In addition to generating the total carbon emissions from the project, the Tool also calculates the carbon intensity in terms of CFA and Project Value (million HK\$). This allows for a fair comparison of carbon emissions by considering the size of the project and its financial scale.

The graphics present the total materials used in the design, highlighting the Top 5 materials, and providing a breakdown of the materials based on their reported total embodied carbon.

** Contractors can utilise the design calculator for the redesign of Temporary Works.*

The results of the redesign calculations will be displayed in the report, providing Contractors with valuable information to inform their decision-making process and optimize the temporary works for improved efficiency and reduced carbon emissions.

Comparison - Design Input

The tool has the capability to compare the performance of two design options and display the carbon savings in relative terms on the “**Comparison**” page.

UIC Carbon Assessment Tool
建築業碳評估工具表

< DemonProject InformationData InputResults**Comparison**

Select a Design Option

Comparison Table

	Design A	Design B
Project Name	TJS Test	TJS Test 2
Project Type	Building	Building
Project Classification	Commercial	Commercial
Project Sub-Classification		
Project CFA	10,000 (m²)	10,000 (m²)
Design Life	50 (m³)	50 (m³)
Total Carbon Emission tCO ₂ e		

Design A: Permanent Works

Concrete

Reinforcement Bar

Façade

Structural Steel

22,448 tCO₂e

2,094 tCO₂e

1,074 tCO₂e

840 tCO₂e

0 tCO₂e

Design B: Permanent Works

Concrete

Reinforcement Bar

Façade

Structural Steel

20,990 tCO₂e

3,459 tCO₂e

1,074 tCO₂e

703 tCO₂e

0 tCO₂e

Performance

	Design A	Design B	Difference
Total Carbon of the Project (tCO ₂ e)	26,457 tCO ₂ e	26,228 tCO ₂ e	229 tCO ₂ e
Normalised Carbon of the Project (tCO ₂ e/(m³))	3 tCO ₂ e	3 tCO ₂ e	0 tCO ₂ e

Click here “**Select a Design Option**” to select the project they want to compare with.


28,000
26,000
24,000
22,000
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0

ConcreteFaçadeReinforcement BarStructural SteelTimber FormworkPer. WorkTemp. WorkTotal

■ Design A ■ Design B

The table at the bottom of the page displays a comparison of the two design options, showcasing the generated savings in carbon emissions. This allows users to easily identify and assess the carbon savings achieved by choosing one option over the other.

The graphics compare material usage distribution and carbon breakdown by element, enabling users to analyse relative contributions to carbon emissions.

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PART 6 – CONSTRUCTION INPUT

Project Selection - Construction Input

CIC Carbon Assessment Tool
建造業議會碳評估工具

Projects

Create New Project

Projects

Project Name	Created By (Email)	Date Created	Project Information Last Updated Date	Status
Demo - 1 CON		01-Aug-2023	26-Feb-2024	Ongoing
Tes		26-Feb-2024	26-Feb-2024	Ongoing
Tes		26-Feb-2024	26-Feb-2024	Ongoing
Tes		26-Feb-2024	26-Feb-2024	Ongoing

To access each project, simply click on the respective project name to open it.

Data Input - Construction Input

Option 1: From Design Input

On the “**Data Input**” page, users can import the materials from Design Input to Construction Input.

CIC Carbon Assessment Tool
建造業議會碳評估工具

< Tes Project Information **Data Input** Results Comparison Materials Analysis Benchmark

FEB 2024

First Submitted: Never
Last Submitted: Never

Monthly Carbon Emission 0 tCO₂e

Permanent and Temporary Works

Import From Design

From which design project do you want to import materials to the current month?

Close Import

+ Select New Material

0 (0%) tCO₂e
0 (0%) tCO₂e
0 (0%) tCO₂e
0 (0%) tCO₂e
0 tCO₂e

Edit

Data Input - Construction Input

Option 2: Directly Input Data into the Tool

Like Design Input, users can directly input the data in the Tool for the Construction Input.

The screenshot displays the 'Data Input' tab of the CIC Carbon Assessment Tool. The interface includes a navigation bar with tabs: < Tes, Project Information, Data Input (highlighted), Results, Comparison, Materials Analysis, and Benchmark. Below the navigation bar, there's a dropdown menu for 'FEB 2024' and buttons for 'Import From Design', 'Request New Material', 'Import Template', 'Import', 'Export', and 'Submit'. A large orange box highlights the first step: '1. Set the month and year for data entry (Feb 2024) by using this drop-down list. * Data is input and submitted on a monthly basis.' Below this, another large orange box highlights the second step: '2. Like Design Input, select the specific construction works here before adding the materials'. This box lists 'Permanent Works – Substructure: Foundations of the project', 'Permanent Works – Superstructure: Superstructure of the project', and 'Temporary Works: The construction that doesn't form part of the final structure, e.g. formwork or ELS'. It also states: 'In addition to materials, the Construction Input allows the users can input data to calculate the carbon emissions resulting from the operation of the construction site in the "Site Impacts" (e.g. electricity consumption, town gas usage, fuel consumption, water usage, and other relevant operational activities)'. At the bottom, a green box highlights the third step: '3. Click on the "Select New Material" button to generate a pop-up window for further action.' This box points to a '+ Select New Material' button. The bottom of the interface shows a tabbed view with 'Permanent Works - Substructure', 'Permanent Works - Superstructure', 'Temporary Works', and 'Site Impacts' (highlighted with a green box). An 'Edit' button is also visible.

1. Set the month and year for data entry (Feb 2024) by using this drop-down list.
* *Data is input and submitted on a monthly basis.*

2. Like Design Input, select the specific construction works here before adding the materials
Permanent Works – Substructure: Foundations of the project
Permanent Works – Superstructure: Superstructure of the project
Temporary Works: The construction that doesn't form part of the final structure, e.g. formwork or ELS

In addition to materials, the Construction Input allows the users can input data to calculate the carbon emissions resulting from the operation of the construction site in the “**Site Impacts**” (e.g. electricity consumption, town gas usage, fuel consumption, water usage, and other relevant operational activities)

3. Click on the “**Select New Material**” button to generate a pop-up window for further action.

* For Temporary Works, the material reuse, product end-of-life and transportation to the site have been captured in the carbon emission factors.

Data Input - Construction Input

Option 2: Directly Input Data into the Tool (Cont.)

A pop-up window for **selecting materials from the database** for each construction works

Select New Material

Certification Body

Nothing selected

clear

Certificate Number

Nothing selected

clear

Material Family

Please Select

clear

Material

Nothing selected

clear

Country/Origin

Nothing selected

clear

Supplier

Nothing selected

clear

A1-A3 Carbon Emission Factor

clear

Certification Validated Year

clear

Selected Material

Material Family

Aggregate

Material

Coarse Aggregates

Country/Origin

China

Unit

Tonnes

Quantity

0

Close

Add

4. Apply filters to sort or narrow down the results based on different types or ranges.

Show 5 materials

Search:

Material Family	Material	Country of Origin	unit	Supplier	A1-A3 Carbon Emission Factor per Unit	A1-A4 Emission Factor per Unit	Certification Expire Date	Action
Aggregate	Coarse Aggregates	China	Tonnes	N/A	2.425	48.03449662	2019-12-31 The certificate for this product has been expired	+
Aggregate	Coarse Aggregates, Recycled Content	China	Tonnes	N/A	0.982	46.44719662	2019-12-31 The certificate for this product has been expired	+
Aggregate	Fine Aggregates	China	Tonnes	N/A	2.796	48.44259662	2019-12-31 The certificate for this product has been expired	+
Aggregate	Fine Aggregates, Recycled Content	China	Tonnes	N/A	1.132	46.61219662	2019-12-31 The certificate for this product has been expired	+
Aggregate	Coarse Aggregates	China	Tonnes	N/A	2.18	48.23328202		+


Showing 1 to 5 of 1,608 materials (filtered from 1,945 materials)

Previous12345...322Next

5. The filtered materials will be displayed here, showing only the materials that meet the selected criteria or filters.

6. Click on the "+" button here to the desired material. This will add the material to your calculation.

7. Fill in the quantity of the selected material and then click on the "Add" button to include the material with the specified quantity in the project.



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Data Input - Construction Input

Option 2: Directly Input Data into the Tool (Cont.)

If the material is NOT found in the database, users can request to **add a new material along with its carbon emission factor to the database**. This will help ensure that the database is comprehensive and includes all relevant materials for accurate carbon emission calculations.

The screenshot displays the CIC Carbon Assessment Tool interface. The top navigation bar includes links for '< Tes', 'Project Information', 'Data Input', 'Results', 'Comparison', 'Materials Analysis', and 'Benchmark'. The user's email 'larainechau@cic.hk' and the name 'Armin' are visible in the top right corner. The main dashboard features a row of buttons: '→ Import From Design', '+ Request New Material', '↶ Import Template', '↓ Import', '↶ Export', and '→ Submit'. The '+ Request New Material' button is highlighted with a green box, and an orange arrow points from it to a detailed pop-up window titled 'Request New Material'. This pop-up window contains a form with the following fields: 'Certificate Number' (text input with 'Test'), 'Material Family' (dropdown menu with 'Concrete'), 'Material Name' (text input with 'Test'), 'Material Name (Chinese)' (text input with 'Test'), 'Country/Origin' (text input with 'Hong Kong'), 'Country/Origin (Chinese)' (text input with 'Test'), 'Company' (text input with 'test'), 'Company (Chinese)' (text input with 'Test'), 'Unit' (dropdown menu), and 'A1-A3 Emissions Per Unit (kg CO₂e)' (text input with '1234'). At the bottom of the pop-up are 'Close' and 'Save changes' buttons. An orange box on the right side of the image contains a list of steps to add a new material.

To add a new material, follow these steps:

1. Navigate back to the “Date Input” page
2. Click on the “Request New Material” button, which triggers a pop-up window.
3. Complete the form in the pop-up window with the relevant details of the new material.
4. Save the form to submit the request.
5. An automatic email will be sent to your account email address, requesting you to submit supporting documents for the carbon emission factor of the material (e.g. EPD certificate.)
6. Submit the required supporting documents as requested in the email to cat@cic.hk within 14 calendar dates for the CIC’s review and confirmation.

Data Input - Construction Input

Option 2: Directly Input Data into the Tool (Cont.)

To calculate the carbon emissions from the operations of the construction site, the following data can be input in the "Site Impacts".

Fill in the amount.

The screenshot displays the 'Site Impacts' data input form, organized into several sections. A green rectangular box highlights a column of input fields across multiple sections, and a yellow box with the instruction 'Fill in the amount.' has arrows pointing to these fields.

- Electricity**
 - HKE: Input field (0), unit kWh, 0 tCO₂e
 - CLP: Input field (0), unit kWh, 0 tCO₂e
- Town Gas**
 - Input field (0), unit, 0 tCO₂e
- Fuel Consumption**
 - Diesel Oil: Input field (0), unit litre, 0 tCO₂e
 - Unleaded Petrol: Input field (0), unit litre, 0 tCO₂e
 - Liquefied Petroleum Gas: Input field (0), unit litre, 0 tCO₂e
 - Biodiesel B5: Input field (0), unit litre, 0 tCO₂e
 - Biodiesel B20: Input field (0), unit litre, 0 tCO₂e
 - Biodiesel B100: Input field (0), unit litre, 0 tCO₂e
- Water**
 - Water: Input field (0), unit m³, 0 tCO₂e
- Total Waste**
 - Landfill: Input field (0), unit Tonnes, 0 tCO₂e
 - Public Fill: Input field (0), unit Tonnes, 0 tCO₂e
 - Sorting Facilities: Input field (0), unit Tonnes, 0 tCO₂e
 - Recycling of Metal: Input field (0), unit Tonnes, 0 tCO₂e
 - Recycling of Timber: Input field (0), unit Tonnes, 0 tCO₂e
- Refrigerant**
 - R-403A: Input field (0), unit kg, 0 tCO₂e
 - R-410A: Input field (0), unit kg, 0 tCO₂e
 - [Dropdown]: Input field (0), unit kg, 0 tCO₂e
- Welding and Flame Cutting**
 - Acetylene: Input field (0), unit litre, 0 tCO₂e
 - Liquid CO₂: Input field (0), unit litre, 0 tCO₂e
- Tree**
 - Trees (above 5m) ⓘ: Input field (0), unit Number of Trees, 0 tCO₂e

Please note that only newly planted trees are considered.

Number of newly planted trees (above 5m) = Number of trees planted – Number of trees removed

Data Input - Construction Input

Option 3: Import Excel File to the Tool

Like Design Input, Users have the option to import data into the tool from an Excel file.

Download the Excel file by clicking the “**Import Template**” button.

This template is pre-defined with the required structure, allowing users to organize and upload their information accurately.

The screenshot displays the CIC Carbon Assessment Tool interface. At the top, a navigation bar includes buttons for 'Import From Design', 'Request New Material', 'Import Template', 'Import', 'Export', and 'Submit'. An orange arrow points from the 'Import Template' button to a text box explaining its function. Another orange arrow points from the 'Import' button to a text box explaining its function. A third orange arrow points from the 'Open' button in a file explorer window to a text box explaining the import process. The file explorer window shows a file named 'Sample_Import_File_Construction' selected. The main interface shows a table with columns for 'Site' and 'Data', with rows of '0 (0%) tCO₂e'. An 'Edit' button is visible at the bottom right.

→ Import From Design + Request New Material Import Template Import Export Submit

Site Data

0 (0%) tCO ₂ e	
0 (0%) tCO ₂ e	
0 (0%) tCO ₂ e	
0 (0%) tCO ₂ e	
0 tCO ₂ e	

Edit

Data can be imported into the Tool by utilising the Excel file format and the “**Import**” function.

This allows users to input multiple months of data simultaneously, streamlining the data entry process.

A pop-up window will appear after clicking on the “**Import**” button, allowing users to import the completed Import Template that has been saved locally from their source. By clicking the “Open” button within the pop-up window, the data will be uploaded into the system.

Data Input - Construction Input

Save Data for Each Month

Users should save all the compiled data for the reporting month, such as February 2024.

The screenshot displays the 'CIC Carbon Assessment Tool' interface. The top navigation bar includes tabs for '< Tes', 'Project Information', 'Data Input' (highlighted), 'Results', 'Comparison', 'Materials Analysis', and 'Benchmark'. Below the navigation bar, a dropdown menu shows 'FEB 2024'. To the left, it indicates 'First Submitted: Never' and 'Last Submitted: Never'. A row of action buttons is visible: '→ Import From Design', '+ Request New Material', '📄 Import Template', '↓ Import', '📄 Export', and '→ Submit'. A yellow arrow points from the 'Submit' button to a text box. Below the buttons, a dark grey bar shows 'Monthly Carbon Emission 0 tCO₂e'. A table with five rows is partially visible, each showing '0 (0%) tCO₂e'. At the bottom, a navigation bar shows 'Permanent Works - Substructure', 'Permanent Works - Superstructure', 'Temporary Works', and 'Site Impacts'. A yellow arrow points from the 'Edit' button (labeled '✎ Edit') to another text box. The Construction Industry Council logo is in the bottom right corner.

CIC Carbon Assessment Tool
建造業議會碳評估工具

< Tes Project Information **Data Input** Results Comparison Materials Analysis Benchmark

FEB 2024

First Submitted: Never
Last Submitted: Never

→ Import From Design + Request New Material 📄 Import Template ↓ Import 📄 Export → Submit

Monthly Carbon Emission 0 tCO₂e

Permanent and Temporary

0 (0%) tCO₂e
0 (0%) tCO₂e
0 (0%) tCO₂e
0 (0%) tCO₂e
0 tCO₂e

Permanent Works - Substructure Permanent Works - Superstructure Temporary Works Site Impacts

✎ Edit

CONSTRUCTION INDUSTRY COUNCIL
建造業議會

Click on “**Submit**” to save all the compiled data for the reporting month.

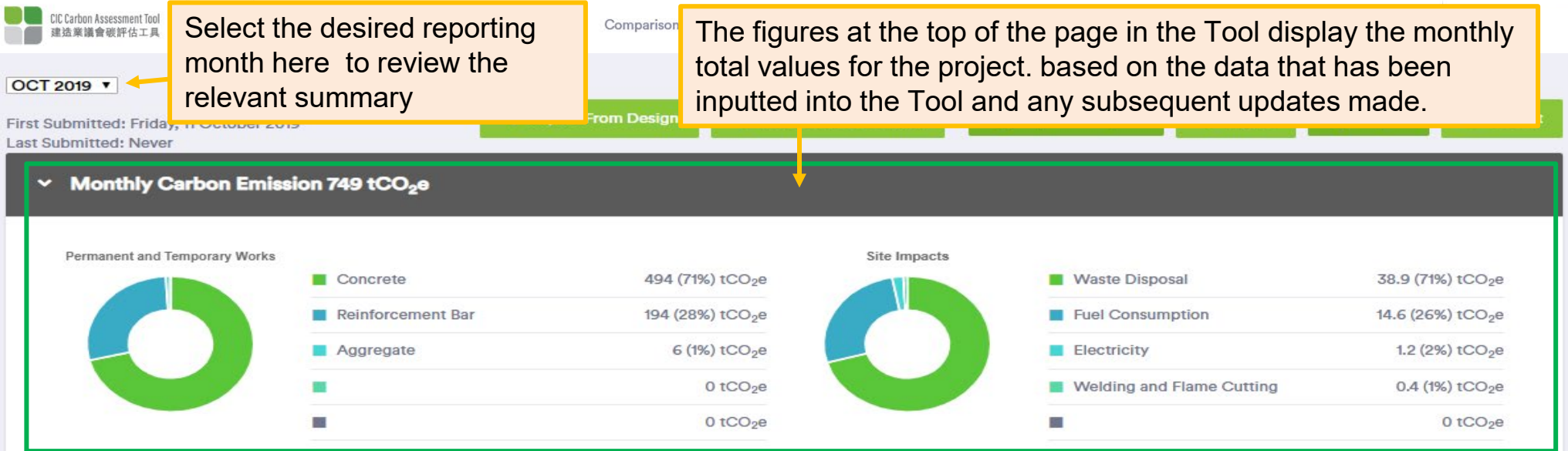
This action ensures that the previously logged materials and other relevant data are saved and available for updates in subsequent reporting periods.

After submitting the compiled data for the reporting month, if you wish to make updates or modifications, you can click on the “**Edit**” button.

Data Input - Construction Input

Summary for Monthly Update

Users should save all the compiled data for the reporting month, such as February 2024.



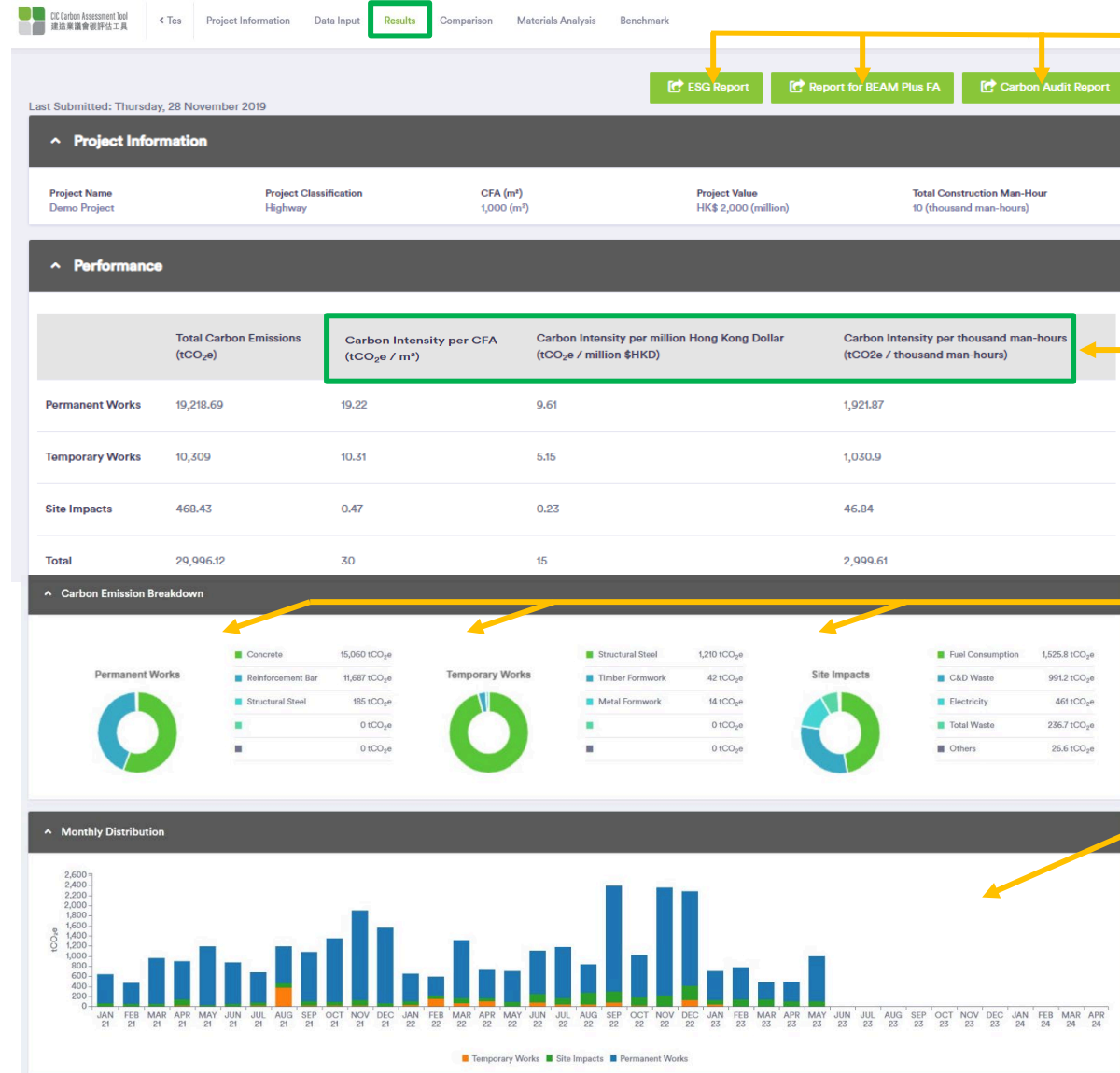
To streamline the data entry process, the material types reported in the previous month will be carried over to the current month in the Tool. This means that you don't have to re-enter the same material types each month if they remain consistent.

* Quantities of these materials should be entered on a monthly basis to ensure accurate tracking and calculation of metrics such as carbon emissions and material usage.

C45, OPC	Hong Kong	600	m ³	256 tCO ₂ e	
C100, ≤ 25% PFA mix	Hong Kong	600	m ³	238 tCO ₂ e	

Result – Construction Input

Once the data has been input, the results will be displayed on the “**Result**” page.



Click on these export buttons to generate and download the reports – **ESG Report**, **Report for BEAM Plus FA** and **Carbon Audit Report**.

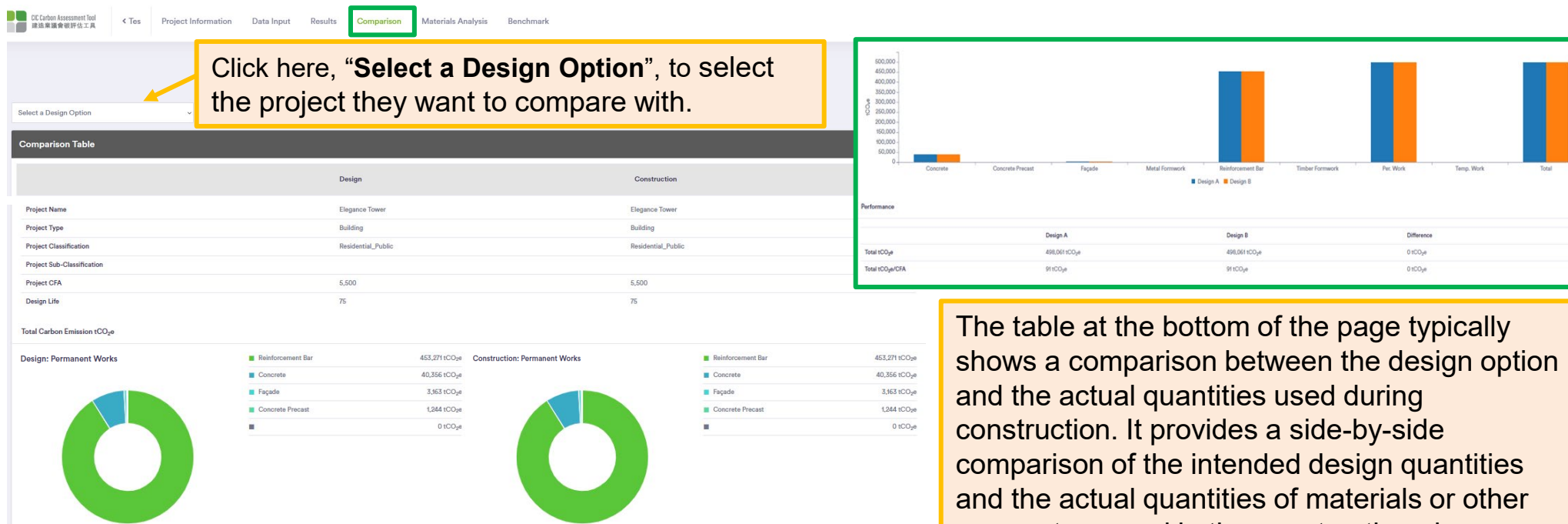
In addition to generating the total carbon emissions from the project, the Tool also calculates the carbon intensity considering CFA (m²), Project Value (million HK\$) and Total Construction Man Hours. This allows for a fair comparison of carbon emissions by taking into account the size and financial scale of the project.

The graphics present the total materials used in the design, highlighting the Top 5 materials, and providing a breakdown of the materials based on their reported total embodied carbon.

At the bottom of the reporting page, you will find the monthly contributions of the three areas where data is collected. These contributions reflect the monthly data and metrics related to carbon emissions, material usage, or other relevant factors

Comparison – Construction Input

The tool can compare the performance of the chosen design option against the actual materials used in the construction phase on the “**Comparison**” page.



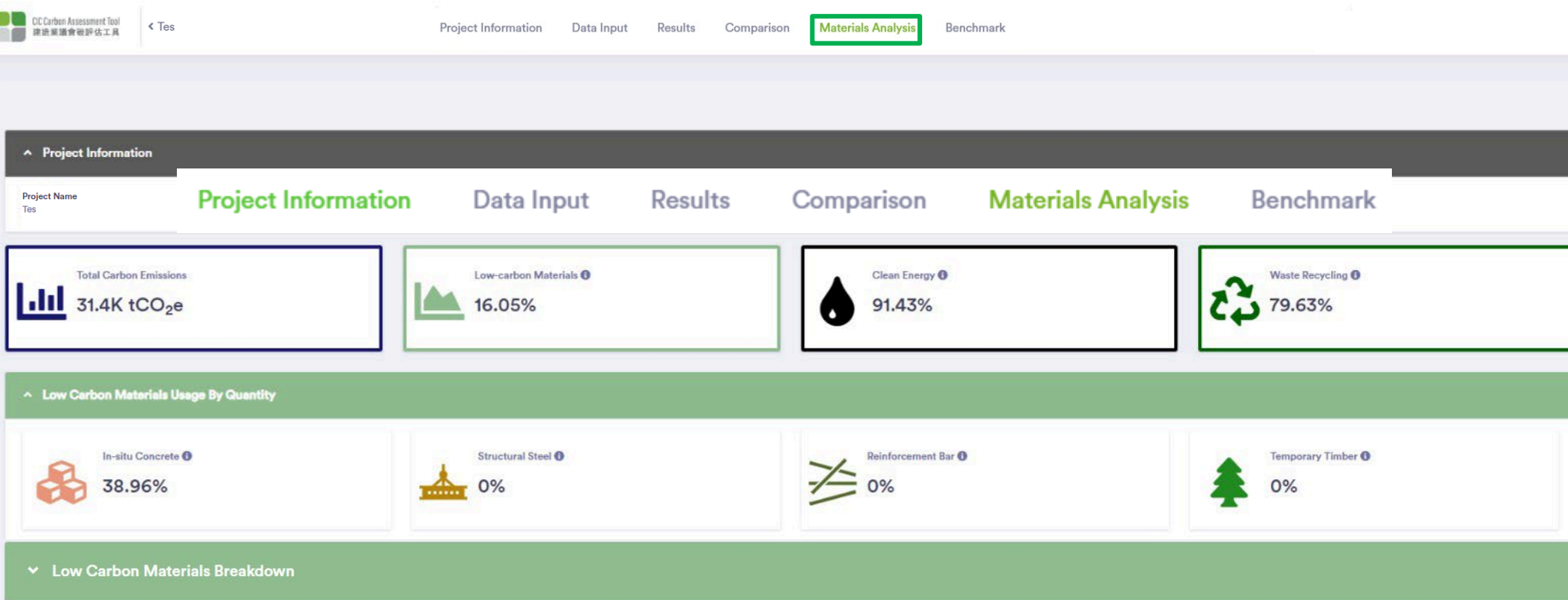
The graphics provide a comparison of the distribution of material usage and the breakdown of the total carbon emissions by element. These visual representations offer insights into the composition and environmental impact of the project.

The table at the bottom of the page typically shows a comparison between the design option and the actual quantities used during construction. It provides a side-by-side comparison of the intended design quantities and the actual quantities of materials or other parameters used in the construction phase.

The table provides a quantitative assessment of the design-to-actual performance, enabling project teams to evaluate the effectiveness of their design decisions and make informed decisions for future projects.

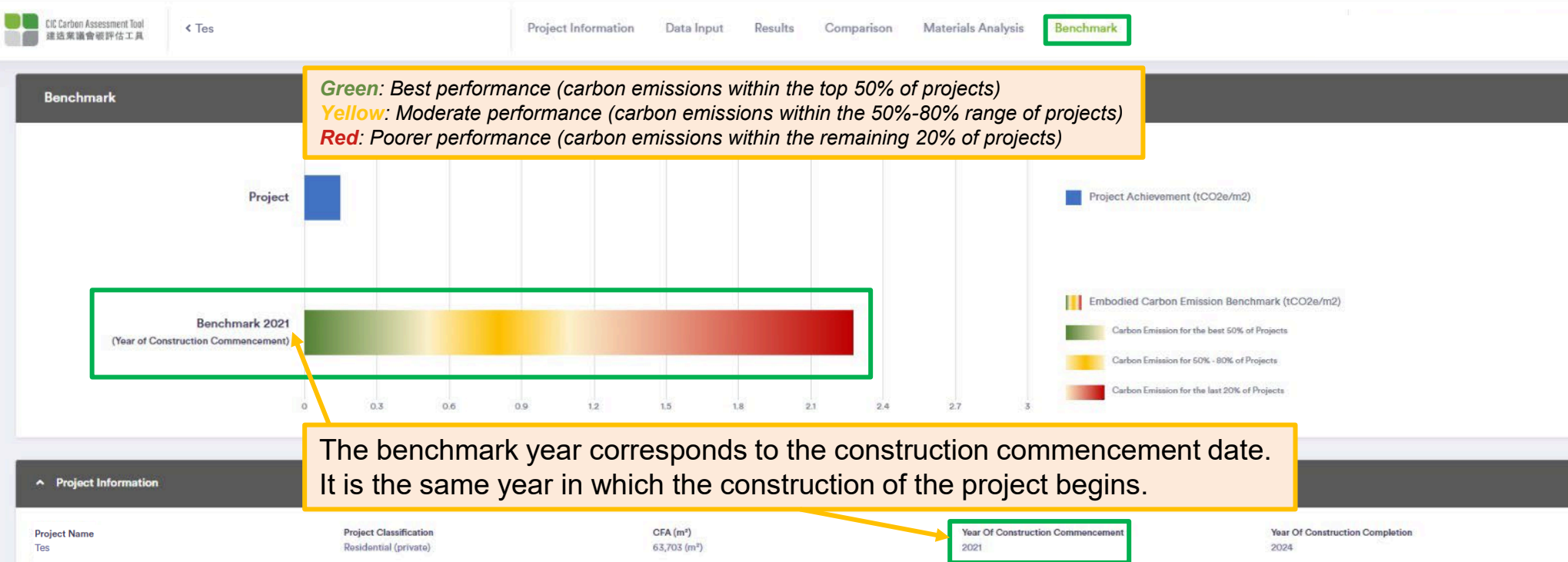
Material Analysis – Construction Input

The Tool is designed to consolidate and present the materials used on the project that can be considered low carbon. This information is typically presented as a percentage of the total quantity by material type. To access this information, you can navigate to the **"Materials Analysis"** tab within the Tool.



Benchmark – Construction Input

The Tool provides a benchmark for each project classification in building projects. These benchmarks are developed based on the carbon emissions of completed projects categorised as A1 to A4 within the same project classification. You can access these benchmarks under the “Benchmark” section.



	Total Carbon Emissions (tCO ₂ e)	Carbon Intensity per CFA (tCO ₂ e / m ²)	Carbon Emissions Difference (tCO ₂ e)	Carbon Emissions Reduction %
Project	9562.05	0.15	-	-
2022 Benchmark (latest available Benchmark - Reference only)	142,185.1	2.232	142,185.1	100%
2021 Benchmark (Year of Construction Commencement)	145,115.43	2.278	145,115.43	100%

The comparison table between the benchmarks and the actual project is presented in this section.

PART 7 – OTHER FEATURES

Feature 1: End Project (Design & Construction Input)

CIC Carbon Assessment Tool
建造業議會碳評估工具

< Demo - 1 CON **Project Information** Data Input Results Comparison Materials Analysis Benchmark

Project Information

Project Name* Test

Project Type* Trial Projects

Public Owner / Developer* Others

Other Public Owner / Developer(English)* Test

Other Public Owner / Developer(Chinese)*

BR Number of Public Owner / Developer* 00000000-000

*Please put N/A in the box if company BR is not applicable
*Correct format of Business Registration Number: XXXXXXXX-XXX (X is digit)

BR Certificate Copy Upload of Public Owner / Developer* 2023080141414_CIC_Trial.pdf

Contractor* Others

Other Contractor(English)* CIC

Other Contractor(Chinese)*

BR Number of Contractor* 00000000-001

*Please put N/A in the box if company BR is not applicable
*Correct format of Business Registration Number: XXXXXXXX-XXX (X is digit)

Ended: Tuesday, 27 February 2024

End Project Share Transfer Save

Restart Project Share Transfer

Project Name* Test

Project Information

* Please note that the “Share” and “Transfer” functions are only available for Construction Input projects.

Feature 2: Share (Construction Input Only)

Projects can be shared with other team members.

The screenshot displays the 'CC Carbon Assessment Tool' interface. The top navigation bar includes tabs for 'Demo - 1 CON', 'Project Information' (highlighted with a green box), 'Data Input', 'Results', 'Comparison', 'Materials Analysis', and 'Benchmark'. On the right, there are buttons for 'End Project', 'Share', 'Transfer', and 'Save'. The 'Project Information' form contains fields for 'Project Name*' (Test), 'Project Type*' (Trial Projects), 'Public Owner / Developer*' (Others), 'Other Public Owner / Developer(English)*' (Test), 'Other Public Owner / Developer(Chinese)*', 'BR Number of Public Owner / Developer*' (00000000-000), and a 'BR Certificate Copy Upload of Public Owner / Developer*' section. A 'Share Project' modal is open, showing a 'User Email:' field, an 'Access Right:' dropdown menu set to 'Read', and 'No' and 'Yes' buttons. A yellow arrow points from the 'Share' button in the top bar to the modal. Another yellow arrow points from the 'Read' option in the dropdown to a text box. A third yellow arrow points from the 'Yes' button to another text box.

Click on the **"Share"** button to grant access to other individuals, allowing them to collaborate on the project. There are two types of access rights available: "Read" and "Read & Write".

Read: users to view and review the project but does not permit them to make any changes or modifications

Read & Write: users have the ability to not only view and review the project but also make edits, updates, and additions as needed.

Enter the email address of another user, select the access rights option, and then click the **"Yes"** button.

A link will be generated and sent to their email. The recipient can then follow the link to have the project added to their dashboard.

** Please note that to activate access to the project, it is recommended that the recipient is already registered in the Tool before the project is shared with them.*

Feature 3: Transfer (Construction Input Only)

"The 'Project Owner", who is the user setting up the project, has complete ownership and management rights over the project. However, if needed, the Project Ownership can be transferred to other users by utilising the "Transfer" function.

The screenshot shows the 'Project Information' form in the 'CC Carbon Assessment Tool'. The form includes fields for Project Name, Project Type, Public Owner / Developer, and other details. A 'Transfer' button is located in the top right corner. A modal window titled 'Transfer Ownership?' is open, displaying a warning message and a 'User Email' input field. The 'Yes' button in the modal is highlighted.

Click on the **"Transfer"** button to transfer the project ownership to another user. Then, you will no longer act as the project administrator.

Enter the email address of the new user and click the **"Yes"** button.

A link will be generated and sent to their email, allowing them to become the new Project Owner.

** Please note that to activate access to the project, it is recommended that the recipient is already registered in the Tool before the project is shared with them.*

PART 8 – GLOSSARY OF TERMS

Glossary of Terms

Key Term	Definition
Off-site Fabrication	Assembly of materials or systems at a location away from the project e.g. offsite rebar bending and fabrication of metal formwork
Precast Concrete	Concrete cast in a reusable mould or "form", cured in a controlled environment, transported to site and lifted into place e.g. beams, columns, façade
End of Life	Final stage of a product or material's use phase, e.g. disposal to landfill, recycling or reused on another project
Foundations	Materials and site impacts that are used / produced to complete the foundations of the project
Structure and Enclosure	Materials and site impacts that are used / produced to complete the structure and the enclosure (façade) of the project
Reuse factor	Predefined number of times the materials are reused on a project based on the assumption that timber formwork is use three times before disposal and for metal this is 10 times.
Sites located on Reclaimed land	Sites on reclaimed land, this option should be checked even if the land was not reclaimed for the purpose of the project

Glossary of Terms (2)

Key Term	Definition
Permanent Works – Substructure	The foundations of the project
Materials for Permanent Works – Substructure	The key materials used in the foundations of the project include concrete, steel, rebar and aggregates
Permanent Works – Superstructure	The superstructure of the project
Materials for Permanent Works – Superstructure	The key materials used in the foundations of the project include aggregate, cement, concrete, façade, concrete, rebar, and steel.
Temporary Works	The construction which don't form part of the final structure e.g. formwork or ELS
Materials for Temporary Works	The key materials used in the foundations of the project include bamboo scaffolding, concrete, metal formwork, hoarding & scaffolding, steel, and timber formwork & hoarding.
Site Impacts	Direct emissions from generated by the operation of the site e.g. the waste disposed from site, the fuel used and the refrigerant replacement

Glossary of Terms (3)

Key Term	Definition
Material Family	Material group providing all the common specifications used in Hong Kong
Material	Specification of material which links to the carbon emissions factors used by the Tool to calculate the carbon emissions
Carbon Emissions - Materials	Automated conversion from the material quantity to embodied carbon (tCO ₂ e)
Country/Origin	Where materials are manufactured; if the locations are unknown or mixed
A1-A3 Carbon Emission Factor	Carbon emissions associated with upstream modules A1-A2: extraction and transportation of raw materials, plus core module A3: manufacturing to production plant gate
A4 Carbon Emission Factor	Carbon emissions associated with core module A4: transportation to and within Hong Kong to the site
Quantity	Delivery quantity of the materials/fuel to the site, or the quantity of waste carried away from the site

Glossary of Terms (4)

Key Term	Definition
Electricity	Consumption of electricity (kWh) used on the site as per the electricity bill for the reporting period
Town Gas	Number of units used on the site as per the Town Gas bill for the reporting period
Fuel Consumption	Quantity of fuel measured in litres that is delivered to site for the reporting period
Water	Volume of water (m ³) used on the site as per the water bill for the reporting period
Refrigerant	Total quantity (kg) of refrigerant (e.g. R-403A, R-410A, etc.) used in refrigeration and air conditioning systems for the reporting period
Waste Disposal	Total quantity of waste removed from the site – for landfill, public fill (including sorting facility) and recycling for the reporting period
Welding and Flame Cutting	Total quantity of acetylene and liquid CO ₂ delivered to the site for the reporting period
Trees	Net number of <u>additional trees (over 5-meter height) planted</u> since the concerned building is constructed; net number of additional trees = number of newly planted trees (over 5-meter height) – number of removed trees (over 5-meter height) within the physical boundary of the construction site.

Glossary of Terms (5)

Key Term	Definition
Low-carbon Materials	All materials with a certain percentage of recycled content or HKCIC Green Product Certified Products.
Clean Energy	Clean Energy in the Tool include B5, B20 and B100-grade biodiesel.
Waste Recycling	Recycling temporary timber and metal.