



Ministry of Environment, Climate Change and
Technology

User Manual for Building EPI Calculator

Promoting Energy Efficient Buildings through
Strengthening Low Carbon Energy
Island Strategies (LCEI) Project



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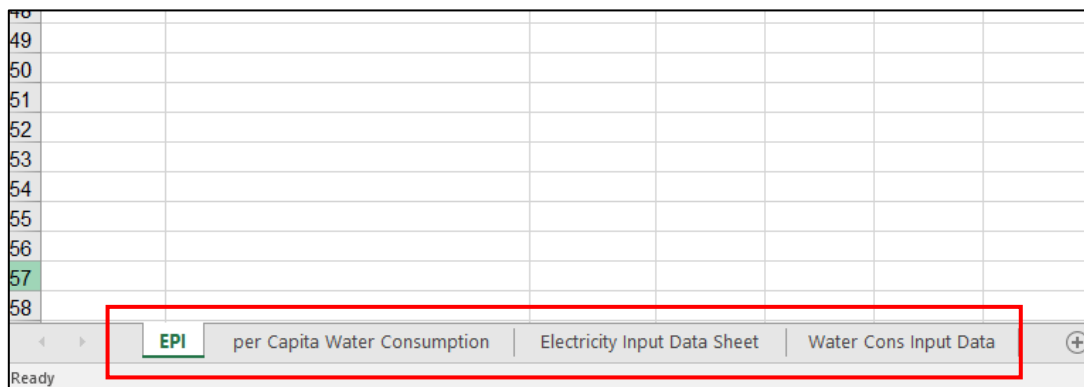
Manual or User Guide:

Welcome to the User Manual for **Building EPI Calculator** Excel Worksheet. This manual document will brief the following statements:

- How to use the Building EPI Calculator excel worksheet.
- Which data need to be import in the excel worksheet.
- What should be the interpretation of the data input in the sheet.

Let's start first with the introduction of the Building EPI Calculator Excel Worksheet. It consists of four different sheets:

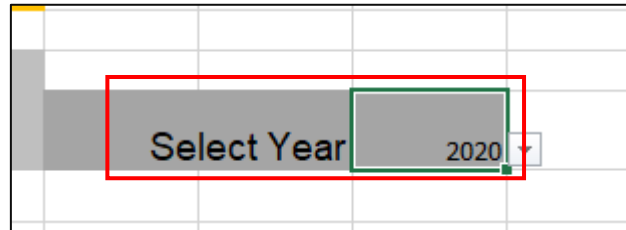
- 1. EPI (Energy Performance Index)**
- 2. Per Capita Water Consumption**
- 3. Electricity Input Data Sheet**
- 4. Water Consumption Input Data**



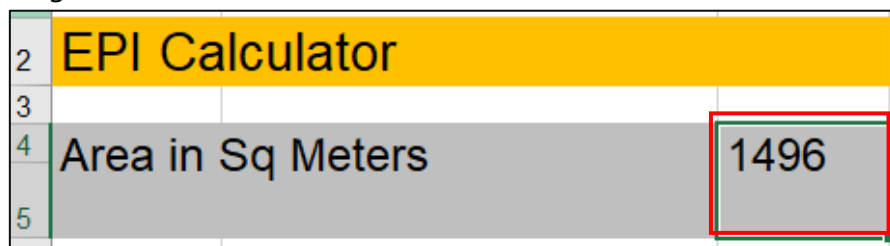
We will go through each sheet & their required inputs one on one.

1. EPI (Energy Performance Index)

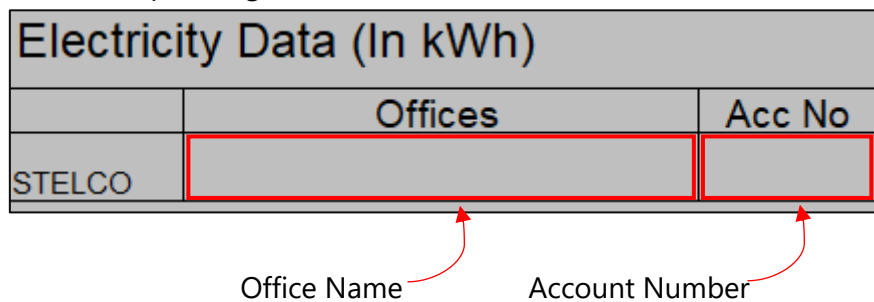
- a) Select the operational year from listed dropdown options in the worksheet as shown in below sample image:



- b) Input the built-up area of the building in square meters in the area cell, refer the below sample image:

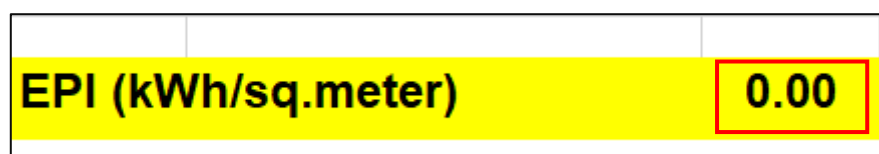


- c) Input the Building name and Account number provided by electricity board in the cells, refer the below sample image:



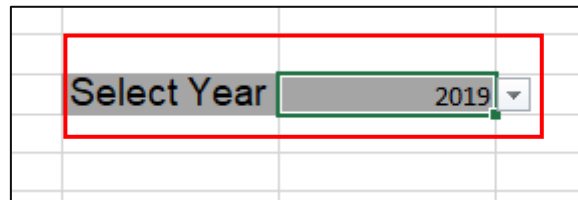
Note: Make sure that these below blank spaces or cells not to be filled here. They are equipped with excel formulas, they will get their own values once the data has been filled in another sheets.

Electricity Data (In kWh)			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	Offices	Acc No									
STELCO			-	-	-	-	-	-	-	-	-
			-	-	-	-	-	-	-	-	-

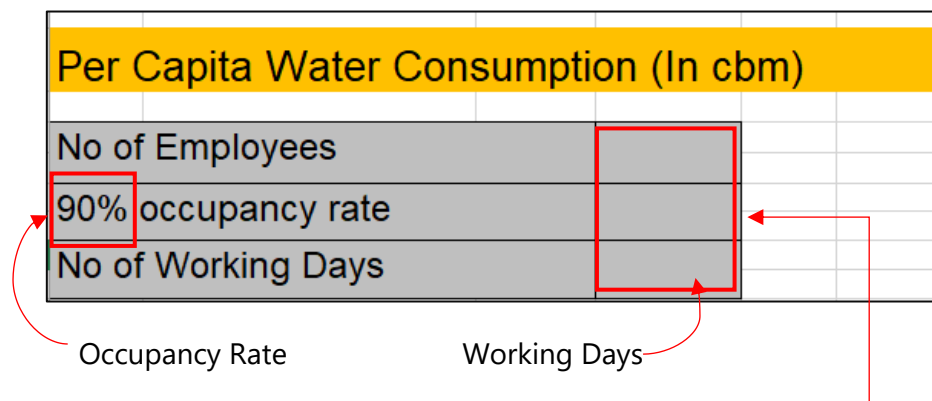


2. Per Capita Water Consumption

- a) Select the operational year from listed dropdown options in the worksheet as shown in below sample image:

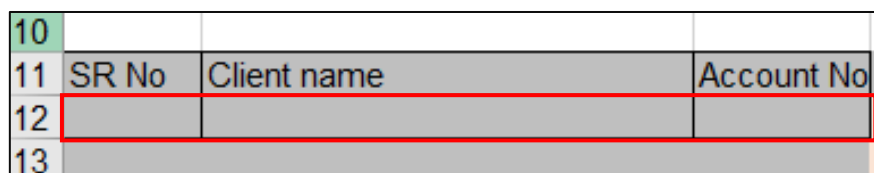


- b) Input the occupancy (No. of employees) & occupancy rate (%) of the building and number of working days, refer the below sample image:



Note: Input for the occupancy rate= (Occupancy Rate x No. of Employees)/100

- c) Input the Building/Client name and Account number provided by water board in the cells, refer the below sample image:



Note: Make sure that these below blank spaces or cells not to be filled here. They are equipped with excel formulas, they will get their own values once the data has been filled in another sheets.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0

per capita annual water consumption (cbm/employees)	#DIV/0!
Water consumption in liters per day per employee	#DIV/0!

3. Electricity Input Data Sheet

- a) Mention the following inputs in the Electricity input data sheet, refer the below sample image:

	A	B	C
4		Meter Information	Building Name
5	2019	Jan	
6	2019	Feb	
7	2019	Mar	
8	2019	Apr	
9	2019	May	
10	2019	Jun	
11	2019	Jul	
12	2019	Aug	
13	2019	Sep	
14	2019	Oct	
15	2019	Nov	
16	2019	Dec	
17	2020	Jan	
18	2020	Feb	
19	2020	Mar	
20	2020	Apr	
21	2020	May	
22	2020	Jun	
23	2020	Jul	

Month & Year

Building Name

Energy Consumption (kWh)

4. Water Consumption Input Data

- a) Mention the following inputs in the water consumption data sheet, refer the below sample image:

	Meter Information	
2019	Jan	
2019	Feb	
2019	Mar	
2019	Apr	
2019	May	
2019	Jun	
2019	Jul	
2019	Aug	
2019	Sep	
2019	Oct	
2019	Nov	
2019	Dec	
2020	Jan	
2020	Feb	
2020	Mar	

Month & Year

Meter Number

Water Consumption (CBM)

Interpretation of Worksheet Calculator:

1. Energy Performance Index (EPI):

Energy Performance Index (EPI) is the key metric used for benchmarking energy usage in a building. EPI is the energy used per unit area measured as kWh/m²/year. The energy consumption of a building is a function of the use, physical, operational and location characteristics. Once we input the energy consumption data of building in the worksheet calculator, will get the **Energy Performance Index (EPI)** of the building later on we can compare building consumption with another building of same category or location.

Considering energy efficiency and conservation in the buildings, Energy efficiency measures shall be recommended on the basis of investment capital. They can be low cost or no cost or medium/high cost energy efficiency or conservation measures.

Energy Monitoring can be done with the help of worksheet calculator since it can indicate the energy usages in the building on the monthly basis.

2. Water Consumption per person per day

Water consumption in building can be tracked & saved with the help of water data monitoring. After submission of water consumption & occupancy of building, we get the water consumption per occupant in a day in building.

Water efficiency or conservation measures shall be recommended with the help of data received in the worksheet calculator.

Energy Savings Tips:

- Keep the set point temperature above 25°C. Try not to go below this temperature.
- Operate the ceiling fan in conjunction with the split air conditioner to spread the cooled air more effectively throughout the room and operate the air conditioner at higher temperature.
- Seal the doors and windows properly.
- Leave enough space between condenser unit and the walls to allow better air circulation.
- Prefer air conditioners having automatic temperature cut off.
- Filter cleaning of all split AC Systems need to be done on a monthly basis.
- A roof garden can reduce the load on Air Conditioner.
- Use windows with sun films/curtains.
- Don't place lamp sets near the air-conditioning thermostat. The thermostat senses heat from these appliances, which can cause the air conditioner to run longer than necessary.
- Plant trees or shrubs to shade air-conditioning units but not to block the airflow. A unit operating in the shade uses as much as 10% less electricity than the same one operating in the sun.
- It is suggested to keep manually records of each maintenance activity.
- Turn off the lights when not in operation.
- Take advantage of daylight by using light-colour, loose-weave curtains on your windows to allow daylight to penetrate the room. Also, decorate with lighter colours that reflect daylight. De-dust lighting fixtures to maintain illumination.
- Use task lighting; instead of brightly lighting an entire room, focus the light where you need it.

- Turn off your home & office equipment when not in use. A computer that runs 24 hours a day, for instance, uses - more power than an energy-efficient refrigerator.
- If your computer must be left on, turn off the monitor; this device alone uses more than half the system's energy.
- Setting computers, monitors, and copiers to use sleep-mode when not in use helps cut energy costs by approximately 40%.
- Battery chargers, such as those for laptops, cell phones and digital cameras, draw power whenever they are plugged in and are very inefficient. Pull the plug and save.
- Screen savers save Computer screens, not energy. Start-ups and shutdowns do not use any extra energy, nor are they hard on your computer components.

Water Savings Tips:

- Use an aerator and/or a water flow-reducer attachment on your tap to cut down the water usage.
- Always turn taps off tightly so they do not drip.
- Promptly repair any leaks in and around your taps. (One leak can waste several thousand litres of water per year.)
- Usage of water efficient fixtures.
- Sub-metering & data tracking of different application of water usages in the building.
- Reduce high pressure set-points in water lines.
- Installation of smart sensors & meters in irrigation.
- Installation of water less urinals in the restrooms. It can save around 40-50% water usage.