

# Frequently Asked Questions

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*For BPA's Commercial Lighting Calculator*

*Accompanies Calculator version 2.1*

## **Release notes**

Version 2.1 comes with significant improvements to the initial version of the Calculator. Improvements include:

- A radical liberalization of the Master Measure List (the engine behind dropdowns), allowing the user more choices in the drop-downs and to more accurately reflect the existing and proposed cases<sup>1</sup>
- An update to reflect changes in FY2011 incentives offered to utilities and inclusion of new incentive categories for linear fluorescent lighting
- Additional update buttons and a reorganization of the Lighting Details sheet to make it easier for contractors to enter jobs and see results immediately
- User interface improvements, including project-level lumen and kWh reporting now are a core part of the Lighting Details sheets
- Additional space types for the Agricultural sector
- A print tab for the Lighting Details sheet has been added.

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<sup>1</sup> Some gaps, such as proposing a higher-watt fixture than the existing fixture, still purposefully exist.

# Index of terms

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Basic Project Data Tab .....	9, 14	Formatting .....	8
Bug report .....	16	Black.....	8
Building information		Brown.....	8
Annual hours .....	5	Examples.....	8
Operating schedule .....	5	Light blue .....	8, 13
Buttons		Yellow.....	8
Adding rows .....	10	HVAC types	
Clearing rows.....	10	Updating .....	5
Copy Specs to New Row below .....	12	Incentive .....	7, 13
Deleting rows .....	10	Lighting Tab .....	5, 6
Resize row .....	10	HVAC adjustments .....	5
Colors		No drop-downs .....	9
Black .....	8	On-screen directions.....	9
Brown .....	8	Logo customization	
Light blue.....	8	Excel 2003 .....	10
Light Blue.....	8	Excel 2007 .....	11
Yellow .....	8	Macros	
Controls.....	14	Enabling macros.....	9
Bi-level.....	14	Excel 2003 .....	9
Occupancy sensor .....	14	Excel 2007 .....	9
Photocells.....	14	Word security settings.....	9
Timers.....	14	On-screen directions	
Custom Tabs.....	14	Interference with drop-downs .....	9
Decommissioning a fixture .....	11	Placement and relocation.....	9
Example .....	12	Pop-up directions.....	9
Delamping .....	12	Password changes .....	3
Example .....	12	Savings .....	5, 13
Demand rates.....	7, 8	Site address	
Example .....	8	Causing errors.....	4
Rate Class .....	7, 8	Space types.....	4, 6, 9
Drop-downs .....	4, 6	State	
Fixing broken drop-downs .....	4, 7	Causing errors.....	4
Not working.....	6, 9	Tab control.....	9
Energy rates .....	7, 8	Tips and Tricks	
Example .....	8	Copy Specs to New Row Below .....	5
Rate Class .....	7, 8	Group space types .....	3

Unprotecting Cells.....14  
 Utility Controls ..... 7, 13, 14

Unlock All Sheets ..... 14

## Main Tab

### 1. How do I change my password?

The current version of the calculator does not allow the utility to change their own password. This is noted and will be released in future versions.

*Applicable Versions: 2.0X (this will be updated when this is changed)*

## Step 1: Basic Project Data

### Tips and Tricks: Group space types

Instead of entering each space type separately, just enter the space types by unique hours and heating types. That will save you time. The Lighting Details sheet has a sub-space ID.

### Example:

Space ID	Daily Hours of Lighting Usage								Space Conditioning		
	Use whole bldg. info.	S	M	T	W	Th	F	Sa	Use whole bldg. info.	Cooling and Heating	Heating Type
Receiving, back	YES	0	9	9	9	9	9	0	YES	Cooled/not heated	No space heating
Room 411	YES	0	9	9	9	9	9	0	YES	Cooled & heated	Electric resistance
Room 410	YES	0	9	9	9	9	9	0	YES	Cooled & heated	Electric resistance
Room 409	YES	0	9	9	9	9	9	0	YES	Cooled & heated	Electric resistance
Room 201	YES	0	9	9	9	9	9	0	YES	Cooled & heated	Electric resistance
Room 202	YES	0	9	9	9	9	9	0	YES	Cooled & heated	Electric resistance
Room 211	YES	0	9	9	9	9	9	0	YES	Cooled & heated	Electric resistance
Front Office	YES	0	9	9	9	9	9	0	NO	Cooled & heated	Electric resistance
Receiving, front	YES	0	9	9	9	9	9	0	YES	Cooled/not heated	No space heating
Conditioned, elec 1805hrs	YES	0	9	9	9	9	9	0	YES	Cooled & heated	Electric resistance
Cooled only, 1805hrs	YES	0	9	9	9	9	9	0	NO	Cooled/not heated	No space heating

Space ID	Quantity	Equipment	Type
<b>Deemed Lighting Measures</b>			
Receiving, back	18	ExistingFixtures	T8 4ft
		ControlsOnly	
-	4	Controls	Occupancy Sensors
Room 409	4	ExistingFixtures	T8 4ft
		ControlsOnly	
-	4	Controls	Occupancy Sensors
Receiving, front	4	ExistingFixtures	T8 4ft
		ControlsOnly	
	4	Controls	Occupancy Sensors
Cooled only, 1805hrs	18	ExistingFixtures	T8 4ft
Recv, back		ControlsOnly	
	4	Controls	Occupancy Sensors
Conditioned, elec 1805hrs	4	ExistingFixtures	T8 4ft
Room 409		ControlsOnly	
	1	Controls	Occupancy Sensors
Cooled only, 1805hrs	4	ExistingFixtures	T8 4ft
Recv, fr		ControlsOnly	
	1	Controls	Occupancy Sensors
Conditioned, elec 1805hrs	2	ExistingFixtures	T8 4ft
Room 211		ControlsOnly	
	1	Controls	Occupancy Sensors

## 2. Do I really need to enter the state and address information?

Yes. Many of the drop-downs and space types are determined by the site's state, especially when dealing with New Construction. If you do not fill in the site information, you may have a lack of space types which will compromise functionality throughout the Calculator.

*Applicable Versions: 2.0X*

### 3. Why do I need to enter the operating schedule?

The operating schedule determines the usage of the lighting in each different zone of the building. This allows you to have the control over different areas of the building which more accurately estimates savings.

### 4. Why can't I enter the annual hours directly?

This is done by design. BPA felt that if the contractor or utility couldn't determine the operating schedule, there was likely something wrong with the project. It is likely to your benefit that you fill out the operating schedule for it will provide the most accurate usage basis for kWh savings. Please fill this out accurately and don't try to doctor the numbers to fit into the annual hours you would expect; simply record what is on the ground. This will help both BPA and the utility in gathering the most accurate usage data to determine the cost effectiveness of our programs, which is a requirement they both have in order to provide the most value to ratepayers and taxpayers.

### 5. Whenever I make a change to HVAC types, the rest of the Lighting Details HVAC adjusted column does not automatically update.

The Calculator is fairly self-aware, but not quite this much. In order to update HVAC types, reselect the space type and it will readjust the HVAC savings for that row. The Calculator isn't intended to deal with a shift mid-stream like this: a real project has only one HVAC type and it doesn't change on the fly in reality. Please consider that when doing your testing.

*Applicable Versions: 2.0X*

## Step 2: Lighting Details Tab

### Tips and Tricks: Copy Specs to New Row Below

When you have a large, mostly uniform job, instead of entering each item line by line, use the 'Copy Specs to New Row Below' button and edit the details.

### Enter one line

Space ID	Quantity	Equipment	Type	Sub-type	Lamp Wattage	Lamps per Fixture
<b>Deemed Lighting Measures</b>						
Cooled only, 1805hrs	18	ExistingFixtures	T12 4ft	Energy-efficient Ballast	40	2
	14	NewLampAndBallast	T8 4ft	Normal Light Output Ballast	32	2
Recv, back	4	Controls	Occupancy Sensors	ceiling-mounted	% Reduction in Hours >>	25%

Copy Specs  
to New Row  
Below

**Use Copy Specs to New Row Below button**

This is at the top of the Lighting Details sheet. Click that three times and make your edits (these edits were highlighted in yellow):

**Example:**

Space ID	Quantity	Equipment	Type	Sub-type	Lamp Wattage	Lamps per Fixture	
<b>Deemed Lighting Measures</b>							
Conditioned, elec 1805hrs	18	ExistingFixtures	T12 4ft	Energy-efficient Ballast		40	2
	18	NewLampAndBallast	T8 4ft	Normal Light Output Ballast		32	2
Room 409	4	Controls	Occupancy Sensors	ceiling-mounted	% Reduction in Hours >>	25%	
Conditioned, elec 1805hrs	12	ExistingFixtures	T12 4ft	Energy-efficient Ballast		40	2
	12	NewLampAndBallast	T8 4ft	Normal Light Output Ballast		32	2
Room 411	1	Controls	Occupancy Sensors	ceiling-mounted	% Reduction in Hours >>	25%	
Conditioned, elec 1805hrs	10	ExistingFixtures	T12 4ft	Energy-efficient Ballast		40	2
	9	NewLampAndBallast	T8 4ft	Normal Light Output Ballast		32	2
Room 201	1	Controls	Occupancy Sensors	ceiling-mounted	% Reduction in Hours >>	25%	

**6. While working in the Lighting Details Tab, I can't seem to get the measures to work. The limited type and drop-downs are preventing me from finding the measure I need to install?**

- Check the delta wattage for this. Make sure that it is actually going to produce some significant savings. There is a relationship between existing measures and the fixtures and bulbs allowed as replacements for that existing fixture. For example, a 32W T8 purposefully lacks a wealth of options for replacement, both due to a lack of savings and the fact that it is one of the most efficient technologies available currently.
- Make sure you're using the proper fixture replacement variable (A NewFixture is a replacement of the entire fixture; NewLampsAndBallast are generally done in applications where you are keeping the existing fixture but simply replacing lamps; ControlsOnly is for installations of Occupancy Sensors or other automated usage controls.)
- Make sure your *space type* is chosen and is set up in the Basic Project Details tab (more information **Error! Bookmark not defined.**).

- If you believe it will net savings (especially over the course of the project), enter the project in the BPA-Qualified (custom) section of the Calculator. That will give you the correct savings as a workaround.
- If this is a persistent issue, this may be a problem with the Measures List not allowing a certain combination of lighting. Efforts are being made to reasonably liberalize the Measures List so that contractors can implement typical projects.

**Reason: The lighting calculator's intention is to pay incentives for savings. The old calculator did not have any checks in able to ensure this, so 2 delta-watt projects would make it through. This has been changed this, so low-wattage change-outs aren't being paid for. If a contractor wishes to use this tool as a sales tool, the custom field will handle the oddities and BPA or the utility will then be able to have a discussion whether they are willing to pay an incentive for this project.**

**Note: This has been liberalized quite a bit in version 2.1 so this issue won't come up as often.**

*Applicable Versions: 2.0X, 2.1*

## **7. Why are the energy rates incorrect? OR Why are there no energy rates?**

The utility determines the energy rates. If these are found to be inaccurate, do the following steps:

### ***Contractors***

- Select a different *Rate Class* to see if one fits your expected rate
- If that doesn't solve the issue, contact your utility to make sure that they have reflected the correct utility rates for the program, as this Calculator came stocked with some default energy and demand rates.

### ***Temporary testing feature for proactive contractors***

A workaround for the purposes of testing has been implemented to allow contractors a user-defined rate. It is expected that upon full release this feature will be removed. To enter a user-defined rate:

- Select USER DEFINED in the *Rate Class* field on the Lighting Tab
- Enter energy and demand rates.

*Applicable versions: 2.079 and later*

### ***Utility***

- To change the *Rate Class*, log in to the *Utility Controls* by going to the *Main Menu* (via clicking the *Main Menu button* at the top of the screen and then clicking the *Utility Controls* button on the bottom right corner of the screen.
- Log in by using the password for your workbook.

- After the 'Text to display on customer offer letter...' section is a place where you can change the descriptor for the *Rate Class*, the energy rate (\$/kWh) and the demand rate (\$/kW).

**Example**

Rate Class	Energy Rate (\$/kWh)	Demand Rate (\$/kW)
A	\$0.110	\$1.26
B	\$0.120	\$2.00
C	\$0.055	\$1.75
D	\$0.045	\$3.00

**8. What do the different colors mean?**

The workbook is formatted to aid the user in understanding what is necessary as far as inputs go and where the user needs to make changes.

- Brown: No further data is needed
- Yellow: Other cells require this to be filled in before they will become active
- Black : No need to fill this in at this time
- Light blue : This row has been error-checked and works. If this row changes color, it means that options that have been changed have altered the allowable values for the dropdowns in this row and they need to be changed.

**Formatting coloration examples:**

- Brown:

Rate Class	Energy Rate (\$/kWh)	Demand Rate (\$/kW)
A	\$0.110	\$1.26
B	\$0.120	\$2.00
C	\$0.055	\$1.75
D	\$0.045	\$3.00

- Yellow:

ExistingFixtures					

- Black :

--	--	--	--	--	--

- Light blue :

E	ExistingFixtures	3ft T8	Standard Lamp w/ Normal Light Output Ballast	25	2	1
---	------------------	--------	--	----	---	---

	NewLampAndBallast	ASAD			20	1	1
	Controls	Photocells	panel-mounted	% Reduction in Hours >>	25%		1

*Applicable Versions: 2.0X*

## 9. The pop-up directions are in the way! I can't select a drop-down.

### How do I fix this?

Simply click the directions and drag (click, hold down, and move) them to a different area, such as the top right corner of the screen. That will permanently move them for this session of the workbook. This was recognized as problematic in older versions of the program, so the directions on the *Lighting Tab* are now in the top-right section of the workbook next to the BPA logo.

*Applicable Versions: Basic Project Data: 2.0X, Lighting Tab: 2.07X*

## 10. I started with a fresh calculator and there is nothing to select in the Lighting Tab. What's wrong with this thing?

The dropdowns for the *space types* are dependent upon the Basic Project Data building information entered in that section. It is recommended that you work through the workbook from the beginning (or left to right with respect to the menu buttons at the top of the screen). Start with the Basic Project Data and fill in the project details.

*Applicable Versions: 2.0X*

## 11. Why can't I maneuver between tabs in the Calculator? OR I clicked the Lighting Tab and Excel wouldn't allow me to go there.

- Enable your macros
  - In Excel 2007, this is usually done just below the ribbon by clicking 'Options' when the security warning comes up.
  - In Excel 2003, this is done by going to Tools->Security and setting it to Medium. You then have to restart Excel 2003. When you bring up the Calculator, you'll want to click 'Enable macros'.

*Applicable Versions: 2.0X*

## 12. How do I add, delete, or change rows?

- At the top of the Lighting Tab, there are buttons that control adding, clearing, and deleting rows. You can add rows, both one by one or add multiple rows using the respective buttons. Many of the normal Excel controls are turned off, disallowing the user to make changes to certain areas. These functions should help you control your workbook.

*Applicable Versions: 2.0X*

## 13. When I use the Resize Row button, nothing happens?

- The resize row button is intended to resize the row based on the contents of the Notes field (to the far right). Some users have noticed that the sub-space marker doesn't affect the resizing of the row. That is a correct observation. The sub-space field was added and the developers failed to have that cell be a part of the function to resize the row. This is now a known issue and will be fixed in an upcoming version of the Calculator.

### **Workaround**

In order to resize the row, use the notes field and fill it up. Then hit the resize row button until it works properly.

*Applicable Versions: 2.1X*

## 14. How do I upload my logo?

Earlier releases of the product overlooked this in this particular tab. Version 2.076 has fixed this error. Directions follow:

### **In Excel 2003**

**A utility can insert an image anywhere they want**

**It is recommended that you minimize the image file size to avoid ballooning the calculator file size – an easy way to do this is by using the free online service:**

<http://www.imageoptimizer.net/Pages/Home.aspx>

- Select box that says "Add Logo Here" by clicking on the border of it (not inside the box)
- Right click on box
- Go to Format AutoShape...>>>Colors and Lines>>Fill-Color>>Fill Effects>>Picture [note, if you right click on the box while your cursor is inside, rather than on the border of the box, you only get options to format the text, not the fill of the box]
- Select the image you want to use

- Delete the text “Add Logo Here” from the box, and remove the border

## In Excel 2007

A utility can insert an image anywhere they want

It is recommended that you minimize the image file size to avoid ballooning the calculator file size – an easy way to do this is by using the free online service:

<http://www.imageoptimizer.net/Pages/Home.aspx>

- Select box that says “Add Logo Here” by clicking on it
- Right click on box
- Go to Format Shape and select “Picture or texture fill”
- Select “Insert from”>> “File”
- Select the image you want to use
- Delete the text “Add Logo Here” from the box, and remove the border

## 15. How do I decommission fixtures or delamp fixtures?

### *Decommissioning a fixture*

- For *deemed measures*, enter the existing fixture in the *existing fixture* row.
- The next step is to put the *proposed measure* in as the measure type set to *Existing Fixture*. When you do that, you will only have the option to enter the existing fixtures’ attributes via the drop-downs.
- For *quantity*, enter the number of existing fixtures remaining.

**Example:**

Space & Measure	Type	Sub-type	Lamp Wattage	Lamps per Fixture	Quantity	
<b>Deemed Lighting Measures</b>						
Front Office	ExistingFixtures	4ft T12	ES Lamp w/ Magnetic Ballast	34	4	<b>2</b>
	ExistingFixtures	4ft T12	ES Lamp w/ Magnetic Ballast	34	4	<b>0</b>
	Controls	None				
Front Office	ExistingFixtures	4ft T12	Standard Lamp w/ Magnetic Ballast	40	4	<b>3</b>
	NewLampAndBallast	4ft T8HP NLO	High Performance - Normal Light Output Ballast	25	4	<b>3</b>
	Controls	None				

- 5 Fixtures are in need of replacement. They are replaced by 3 new fixtures and 2 fixtures are being decommissioned.
- In the first row, enter the *existing fixtures* with a *quantity* of 2 (the quantity to be decommissioned)
- Use the button at the top to ‘Copy Specs to New Row below’. This copies the existing fixture to a second line to save on time.
- Enter *Existing Fixtures* on the proposed line of the first item with a *quantity* of 0 to decommission the 2 fixtures.
- Enter the *Measure Type* option on the next row (the row you copied) with the *quantity* of 3 (in the case of just this example; you can use whatever relevant figure is in play) for the existing fixture and the installed item.

**Delamping**

To delamp an existing fixture, use the non-standard measure to estimate a delamping effort.

**Example**

<b>Non-Standard Lighting Measures (BPA pre-approval required)*<sup>2</sup></b>						
Retail Floor	ExistingFixtures	8ft T12 VHO	Very High Output ES Lamp w/ Magnetic Ballast	185	<b>4</b>	20
	ExistingFixtures	Delamping		185	<b>2</b>	20

- Enter the *existing fixture* information

<sup>2</sup> Note: Delamping does not require pre-approval from BPA.

- Select *Existing Fixtures* and write 'Delamping' in the description field. Enter the *lamp wattage* and the new *lamps per fixture*. If you're decommissioning look at the directions for decommissioning the fixture (see Decommissioning).

*Applicable Versions: 2.07X*

**Future versions are intended to have delamping integrated into the calendar.**

## **16. Why aren't the kWh savings being calculated?**

- Have you entered the HVAC types for your spaces? kWh are derived from both the fixture wattages and the HVAC interaction. If you haven't filled out the *Basic Project Data* tab before entering the *Lighting Details* tab, chances are you won't be getting any savings.
- Make sure that the *Space type* is selected. Formatting of the *Lighting Details* tab has been helpful in guiding the user in how to use the tab and in what order, but in the event that you can see the *Type and Subtype fields* without the *Space* being filled in, make sure that the *Space and Measure Type* items are filled in and all the items are complete and formatted as light blue (which means complete) before expecting a proper calculation of savings
- Older versions of the calculator had an error with respect to unconditioned spaces not calculating savings. If you encounter this, please write us up a bug report.

*Applicable Versions: 2.06X*

## **17. Why isn't the deemed measure incentive correct?**

This Calculator is intended to be customizable. If incentives aren't correct on your Calculator, the utility should change the values for those incentives.

### ***Utilities***

- To make changes to incentive values, go to the *main menu*
- In the bottom-right corner under *modify Calculator*, click *Utility Controls* and enter your password.
- Scroll down to *Incentives*.
- This will look a lot like the program offering. By default, the *Utility incentives* (in yellow) are set to the *BPA Incentive per Unit*.
- Make any relevant changes to your incentives.

### ***Contractors***

- If you find an error in the incentive amount (either low or high), please contact your utility contact and alert them to the error.

*Applicable Versions: 2.0X*

## 18. What are controls all about?

Controls are put in place to decrease usage, rather than wattage. By default, the system is currently set up to assume a 25% savings. If you change this value, please be prepared to have some on-site studies or other ways to justify the change. There are several different technologies available.

- Occupancy sensor: An occupancy sensor can be of multiple types, such as an infrared sensor that detects motion, a carbon dioxide sensor that detects changes in CO<sub>2</sub> and therefore occupancy, or other methods that may be integrated into an energy management system (EMS)
- Photocells: Photocells are usually equipped in outdoor applications where, instead of using a timer, they control the operation of the light based on the amount of ambient light in the area (usually this is sunlight)
- Timers: Timers are simply programmable or manual timers that turn the lights off once the timer reaches zero or is programmed to shut off.
- Bi-level: Bi-level systems allow a portion of the lights to be shut off or dimmed.

*Applicable Versions: 2.0X*

## 19. Can I use this Calculator across multiple utilities?

It is intended that each Calculator be associated one-to-one with a utility. Theoretically, this calculator can be used across utilities, but it is not recommended because each utility has control over the measures offered and it is BPA's preference to let the utilities determine the details of their programs.

## Custom Tabs

### 20. The Custom Tab is blank. How can I make changes?

The Custom Tabs are intended for utility use to use however they see fit to aid in running their programs.

#### *Utilities*

- To make changes to any custom tab, go to the *main menu*
- In the bottom-right corner under *modify Calculator*, click *Utility Controls* and enter your password.
- At the top of the screen, click 'Unlock All Sheets'. This will unlock all the sheets available to you as a utility.
- Edit the custom tab you wish. Upon distribution of the Calculator, that sheet will be locked by default. If you would like contractors to fill in anything, make sure the cells you would like data in are unprotected.
  - To unprotect cells, hit ctrl+1, click the 'Protection' tab, and uncheck 'Locked' from those items you wish contractors access to
  - It is recommended that you format these cells in a way to highlight that they are the ones that can accept input. The calculator tends to use a light yellow formatting for that generally.

*Applicable Versions: 2.0X*

# Appendix

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## Bug Report Format

In the event that you have exhausted all of the FAQs in this document, here is the format for the bug report.

### Example of Bug report

#### [ISSUE NAME]IMPROPER DROPDOWNS

- [short explanation] When I changed the Existing Fixture from the Sodium to a T5HO, the measure type only brought up Existing Fixtures and Controls Only as the option.
  - **States:** Started with a fresh calculator and didn't enter/change any of the project details. Entered the following data:

Deemed Lighting Measures [specify]						
[Space Type]	ExistingFixtures	Exit Sign	Incandescent Lamps	25	2	10
	NewFixtures	LED	Exit/other Sign	6	1	10
	Controls	None				

- **Relevant Tab:** Lighting Details tab.
- **Environments:** Tested on local Excel 2003 on the Windows XP SP2 platform
- **Issue:** Selected newFixtures: T5NLO was still the only option. Selected that with the only subtype available and attempted to change the existing fixture to T5HO. Selected the only available subtype and wattage and then attempted to change the newFixture. The Measure type is limited to Controls Only and Existing.
- **Workaround:** use the Custom BPA-Qualified section (custom project)
- **Replicated:** I have been able to reconstruct this error on multiple jobs. It seems to be a problem only in the Deemed Lighting section. I'm using version 2.067 of the calculator.

**ISSUE DESCRIPTION GOES HERE**

- Where it happened (include an attached version of your calculator) and short description
  - **Tab:**
  - **Environments:**
  - **Issue:**
  - **Workaround:**
  - **Replicated:**
  - Date found: