

Instructions for Electronic Forms, pg 1

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1

Revised July 2016

<p>Intro</p>	<p>Commercial Provision Chapters 1 - 5 of the 2015 Washington State Energy Code apply to all commercial occupancies, R-2, R-3 and R-4 occupancies greater than 3 stories above grade, and R-1 occupancy (all building heights).</p> <p>This file, LTG15-v1.XLSM, has electronic compliance forms for electrical power and lighting system provisions as defined in Section C405 and Chapter 5. This includes interior and exterior lighting systems, electric motors, and transformers. There are two companion files: ENV15-v1.XLSM (Sections C303, C402, Chapter 5, and Appendix A envelope requirements) and MECH15-v1.XLSM (Section C403 and Chapter 5 mechanical systems requirements).</p>
<p>Energy Code</p>	<p>This form is a compliance aid and is not a substitute for the full energy code text or specific jurisdiction compliance requirements. Users should refer to the code text and contact the local jurisdiction for complete information. The full 2015 WSEC code text is available for download from the NEEC website:</p> <p style="text-align: center;">http://www.neec.net/energy-codes</p>
<p>Training</p>	<p>Refer to the NEEC website for instruction on how to complete all of the 2015 WSEC Compliance Forms.</p>
<p>Start-up</p>	<p>Select this file from the NEEC website to download to your computer. When opening the file be sure to Enable Macros and if applicable Enable Content.</p>
<p>Overview</p>	<p>This file is an Excel workbook that contains multiple compliance forms and resources in Excel worksheets. Each worksheet is indicated by a tab at the bottom of the screen. You may visit each worksheet by selecting it's tab.</p> <p>Most calculations are automated. Cells that display informational text and the results of calculations are write-protected and cannot be edited.</p>
<p>Save Files</p>	<p>This file is saved in the same manner as any standard Excel file.</p>
<p>Getting Around</p>	<p>Some forms have multiple pages. All pages are available on screen when you select the tab for a form (worksheet). Use the scroll bars or page down key to find additional pages located below the first page.</p>
<p>Input Cells</p>	<p>All general project information and the date are entered once on LTG-SUM. This information is automatically replicated on all other LTG forms. The LTG-SUM form accompanies all other LTG forms except LTG-EXT, which is a stand alone form.</p> <p>Only input cells are accessible. If you try to edit a write-protected cell an error message will appear requesting a password. A password IS NOT required to complete these forms. You may use the TAB key to move to the next input cell. If the TAB doesn't take you where you want to go, use your mouse to move around the form.</p> <p>Avoid excessively long text strings when entering information. In some cases, text that extends beyond the available space will not be visible. In most cases the text will wrap within the cell. This may force part of the form onto a new page.</p> <p>To enter the date, use this format: mm/dd/yyyy. For example, you would enter 7/1/2013 or 12/21/2014.</p> <p>Check boxes can be checked or unchecked by clicking in the box with your mouse. Radio buttons (circles) allow only one in a set to be selected.</p> <p>Drop-down lists have an arrow at the right side of the cell. Click on the arrow with your mouse and select the appropriate option. Use the delete button on your computer to clear a drop-down entry.</p> <p>When a form has a space for notes or explanation, click anywhere in the space to edit.</p>
<p>Personalizing</p>	<p>You can personalize the forms with your company name, address, phone, or any other information. This is done by editing the header or footer in Excel.</p>
<p>Adding And Deleting Lines</p>	<p>Many tables, such as for listing proposed lighting fixture types, have a certain number of lines available for entering data. You may need more lines to enter all your information. Where this feature is available, you can add additional lines to the table by selecting the "+" button on the right hand side of the table with your mouse.</p> <p>To remove lines that you have added, select the "-" button with your mouse. This will delete the last line of the section. You cannot remove lines that were not added; an error message will appear if you try.</p> <p>If you add additional lines with this method, the pagination may be affected forcing the forms to carry additional lines over to other pages. Be sure to submit all pages to the plans examiner.</p>
<p>Calculation Area</p>	<p>You must select a Calculation Area on LTG-INT-SPACE or LTG-INT-BLD to enable the calculations in these forms.</p>
<p>LPA Calculation Type</p>	<p>You must select a LPA Calculation Type on LTG-INT-SPACE or LTG-INT-BLD to enable the calculations in these forms.</p>
<p>Exterior LTG Zone</p>	<p>You must select a Lighting Zone on LTG-EXT (line 12) to activate this worksheet to display the applicable base site allowance and automatically calculate the applicable exterior lighting power allowances.B54</p>

Instructions for Electronic Forms, pg 2

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Interior LTG Building Area Method	<p>For projects complying via the Building Area Method, provide the total gross interior area for each Building Area Type in the Maximum Allowed Lighting Wattage table using the drop down menu.</p> <p>Assign a Building Area using the drop menu for each lighting fixture type defined in the Proposed Lighting Wattage table. The worksheet will total all fixtures assigned to each Building Area.</p> <p>Each Building Area shall comply independently.</p>
Interior LTG Space-By-Space Method	<p>For projects complying via the Space-By-Space Method, provide total gross interior area for each Space Type in the Maximum Allowed Lighting Wattage table using the drop down menu.</p> <p>For Atriums and any space utilizing the additional lighting wattage allowance based on ceiling height per Footnotes d thru f, provide total gross interior area and ceiling height (above finished floor) in the Maximum Allowed Lighting Wattage table.</p> <p>All Display lighting shall be entered in the LTG-INT-DISPLAY worksheet. Results from this worksheet automatically transfer to the LTG-INT-SPACE worksheet in the assigned locations under Retail Display Allowance, Lobby Art/Exhibit Allowance and Proposed Retail Display Lighting cells.</p>
Interior LTG Retail Display	<p>For projects with eligible Retail Sales display lighting that is in addition to Retail Sales general area lighting, select the Retail Display category per Section C405.4.2.2.1 from the drop down menu provided, and enter the total gross interior area of the footprint illuminated by display lighting in the Maximum Allowed Retail Display Lighting Wattage table. Assign a corresponding Retail Display category to each lighting fixture type defined in the Proposed Retail Display Lighting Wattage table using the drop down menu.</p> <p>For projects with eligible Lobby Art/Exhibit display lighting that is in addition to Lobby general area lighting, enter a unique name for each Lobby that this allowance will be applied to, and enter the total gross interior area of the Lobby in the Maximum Allowed Lobby Art/Exhibit Display Lighting Wattage table. Assign a corresponding Lobby to each lighting fixture type defined in the Proposed Lobby Art/Exhibit Display Lighting Wattage table.</p> <p>The total Retail Display and Lobby Art/Exhibit Display gross interior areas entered in the LTG-INT-DISPLAY worksheet may not exceed the total Retail Sales and Lobby Art/Exhibit Display gross interior areas entered in the LTG-INT-SPACE worksheet.</p>
Exterior LTG	<p>Provide square-foot surface area, perimeter linear feet, or number of items for each Surface Type in the Tradable and Non-Tradable Maximum Allowed Lighting Wattage tables using the drop down menus.</p> <p>Assign a Surface using the drop menu for each exterior lighting fixture type defined in the Tradable and Non-Tradable Proposed Lighting Wattage tables.</p>
Printing	<p>The forms should print on any printer supported by your operating system. You will need to have the following TrueType fonts installed under Windows: Arial, Times New Roman, Courier New and Wingdings. These are all standard Windows fonts.</p> <p>If you are losing form details when printing, you may have a shortage of printer memory. Try printing problem pages individually.</p> <p>By default, only the active worksheet is printed. To print more than one worksheet at a time, open your print set-up menu and select either the page range you wish to print or Entire Workbook.</p> <p>Forms (worksheets) in a workbook may not be deleted because the file is locked.</p>
Blank Forms	<p>To print blank forms, delete all of the heading information at the beginning of LTG-SUM. For less than 50% alterations, select the Calculation area in the LTG-INT-SPACE form before printing.</p> <p>For each radio button group there is a button labeled "Clear." Clicking this button will clear the other buttons so that they will print as empty circles. The "Clear" button will not print.</p>
End of Instructions for Electronic Forms	

Lighting Summary

LGT-SUM

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1

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Project Info Compliance forms do not require a password to use. <i>Instructional and calculating cells are write-protected.</i>	Project Title: 1 - This title will copy onto other forms	Date: 7/1/2016
	<i>Applicant Information. Provide contact information for individual who can respond to inquiries about compliance form information provided.</i>	For Building Department Use
	Company Name:	
	Company Address:	
	Applicant Name:	
	Applicant Phone:	
Applicant Email:		

Project Description	<input type="checkbox"/> New Building <input type="checkbox"/> Addition <input type="checkbox"/> Alteration <input type="checkbox"/> Plans Included Include PROJ-SUM form (included in envelope forms workbook) with lighting compliance forms.
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Building Additions <i>Refer to Section C502.2.6 for additional requirements.</i>	Compliance Method		Interior lighting	Exterior lighting
	Lighting systems in addition area comply with all applicable provisions as a stand alone new construction project		<input type="checkbox"/>	<input type="checkbox"/>
	Lighting systems in addition are combined with existing building lighting systems to demonstrate compliance		<input type="checkbox"/>	<input type="checkbox"/>
	Addition is combined with existing: For interior lighting projects, include new + existing interior lighting fixture wattage in Proposed Lighting Wattage table in LTG-INT-BLD or LTG-INT-SPACE form. For exterior lighting projects, include new + existing exterior lighting fixture wattage in Proposed Tradable and Proposed Non-Tradable Lighting Wattage tables in LTG-EXT form.			

Interior and Exterior Lighting Alterations <i>Select all Lighting Power and Lighting Control elements that apply to the scope of the retrofit project. If project includes a combination of spaces where less than 50% of the existing fixtures are replaced in some spaces, and 50% or more of the fixtures are replaced in others, then provide separate lighting power compliance forms for the two retrofit conditions. Spaces undergoing the same type of retrofit may be combined into one lighting power compliance form.</i> <i>Refer to Section C503.6 for additional requirements.</i> <i>All alteration lighting controls shall be commissioned per C408.3.</i> <input type="checkbox"/> No changes are being made to the interior or exterior lighting systems and existing space uses and configuration are not changed.	Lighting Power	Interior lighting	Parking garage	Exterior lighting
	50% or more of existing are replaced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Less than 50% of existing are replaced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Lamp and/or ballast replacement only – existing total wattage not increased	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	50% or more replaced - Total lighting power of new + existing-to-remain fixtures shall comply with total LPA per Sections C405.4.2 and C405.5.2. Include new + existing-to-remain fixtures in Proposed Lighting Wattage table in LTG-INT-BLD, LTG-INT-SPACE or LTG-EXT form.			
	Less than 50% replaced - Total lighting power of new + existing-to-remain fixtures shall not exceed the total lighting power prior to alteration. Include new + existing-to-remain fixtures in the Proposed Lighting Wattage table in LTG-INT-BLD, LTG-INT-SPACE or LTG-EXT form.			
	50% threshold applies to number of luminaires for interior spaces and parking garages, and total installed wattage for exterior luminaires.			
	Lighting Controls	Interior lighting	Parking garage	Exterior lighting
	New wiring installed to serve added fixtures and/or fixtures relocated to new circuit(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	New or moved lighting panel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interior space is reconfigured - luminaires unchanged or relocated only	<input type="checkbox"/>			
New wiring or circuit - For interior lighting, provide required manual controls per C405.2.3, occupancy sensor controls per C405.2.1, daylight responsive controls per C405.2.4 and application specific lighting controls per C405.2.5. For exterior lighting, provide required controls per C405.2.7.				
New or moved panel - Provide all applicable lighting controls as noted for New Wiring and automatic time switch controls per C405.2.2.				
Reconfigured interior space - Provide all required lighting controls that apply to a new interior space. Application specific lighting control provisions per C405.2.5 do not apply to reconfigured spaces.				

Change of Space Use	<input type="checkbox"/> Existing interior lighting systems in areas under-going a change in space use are upgraded to comply with LPAs for the new space types per Tables C405.4.2(1) or C405.4.2(2). Identify interior spaces requiring LPD upgrade to the current Code in Proposed Lighting Wattage table in LTG-INT-BLD or LTG-INT-SPACE form.
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Lighting Summary, cont.

LGT-SUM

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1

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Project Title:	Fill this line out at top of LGT-SUM	Date	7/1/2016
Interior Lighting System Description			
Interior Lighting Power Allowance Method	<input type="checkbox"/> Building Area Method <input type="checkbox"/> Space-by-space Method <i>Select method used in project.</i>		
Interior Lighting Controls	<input type="checkbox"/> All C405.2.1 - C405.2.8 Controls <input type="checkbox"/> C405.2 Exception 5 Luminaire Level Lighting Control (LLLC) <input type="checkbox"/> Additional Efficiency Package Option C406.4 Enhanced digital lighting controls <i>To comply with C406.4, no less than 90% of the total installed interior lighting power shall comply with the required controls per C406.4.</i>		
Dwelling Unit Interior Lighting	<i>Permanently installed interior lighting fixtures in dwelling units comply with:</i> <input type="radio"/> C405.2 thru C405.5 Commercial Lighting Controls and LPA <input type="radio"/> C406.3 High Efficacy Lighting <input type="radio"/> <input checked="" type="radio"/>		
Exterior Lighting System Description			

Interior Lighting - Space-By-Space Method

LTG-INT-SPACE

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Project Title: Fill this line out on LGT-SUM		Date: 7/1/2016
Calculation Area <small>NOTE 9</small>	<input checked="" type="radio"/> Addition - stand alone <input type="radio"/> Addition + existing <input type="radio"/> Spaces where < 50% of luminaires are replaced <input type="radio"/> Spaces where ≥ 50% of luminaires are replaced <input type="radio"/>	For Building Department Use
	LPA Calculation Type <input type="radio"/> Standard <input type="radio"/> Additional Efficiency Package Option C406.3 Reduced Interior Lighting Power <input checked="" type="radio"/> <i>To comply with C406.3, the Proposed LPD shall be 25% lower than the Target LPA. Refer to C406.3 for additional requirements.</i>	

Maximum Allowed Lighting Wattage NOTE 1

Location (plan #, room #)	Space Type	Height <small>NOTE 2</small>	Gross Interior Area in ft ²	Allowed Watts per ft ²	Watts Allowed (watts/ft ² x area)
Total Area					
Retail Display Allowance from LTG-INT-DISPLAY					
Lobby Art/Exhibit Display Allowance from LTG-INT-DISPLAY <small>NOTE 8</small>					
Allowed Watts					

Proposed Lighting Wattage NOTE 3

Location (plan #, room #)	Fixture Description <small>NOTE 4, 5, 6</small>	Number of Fixtures	Watts/Fixture <small>NOTE 7</small>		Watts Proposed
Proposed Retail Display Lighting from LTG-INT-DISPLAY					
Total Proposed Watts may not exceed Total Allowed Watts for Interior Lighting					
Total Proposed Watts					

Interior Lighting Power Allowance

- Note 1 - List all unique space types per Table C405.4.2(2) that occur in the project scope. Select space type category per from drop down menu.
- Note 2 - Indicate ceiling height for atriums and spaces utilizing the ceiling height adjustment per Table C405.4.2(2), Footnotes d thru f.
- Note 3 - List all proposed lighting fixtures including exempt lighting equipment and existing-to-remain fixtures.
- Note 4 - For proposed Fixture Description, indicate fixture type, lamp type (e.g. T-8), number of lamps in the fixture, and ballast type (if included). For track lighting, list the length of the track (in feet) in addition to the fixture, lamp, and ballast information.
- Note 5 - For lighting equipment eligible for exemption per C405.4.1, note exception number and leave Watts/Fixture blank.
- Note 6 - Existing-to-remain fixtures shall be included in the Proposed Lighting Wattage table in the same manner as new fixtures. Identify as existing in fixture description.
- Note 7 - For proposed Watts/Fixture enter the luminaire wattage for installed lamp and ballast using manufacturer or other approved source. For luminaires with screw-in lamps, enter the manufacturer's listed maximum input wattage of the fixture (not the lamp wattage). For low voltage lighting, enter the wattage of the transformer. For line voltage track/busway systems, enter the larger of the attached luminaire wattage or 50 watts/lineal foot, or enter the wattage limit of permanent current limiting device.
- Note 8 - Lobby Art/Exhibit Display Allowance is independent of the Maximum Allowed Lighting Wattage.
- Note 9 - Calculation Area Details:
 - a. Lighting fixtures in a building addition may comply as a stand alone project, or they may be combined with the overall existing building lighting systems to demonstrate compliance. Refer to C502.1.
 - b. For alterations and building additions, provide Space Types and gross interior areas in the Maximum Allowed Lighting Wattage table. If a building addition will comply as combined with the overall existing building lighting systems, include all applicable existing Space Types and gross interior areas.
 - c. If less than 50% of existing lighting fixtures will be replaced, provide total existing lighting wattage (prior to alteration) in the space provided in the Maximum Allowed Lighting Wattage table.

Interior Display Lighting - Space-by-Space

LTG-INT-DISPLAY

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1

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Project Title: Fill this line out on LGT-SUM	Date 7/1/2016
General Note - In Sales areas, an increase in lighting power allowance is permitted for lighting installed specifically for the purpose of highlighting merchandise. Only Sales areas illuminated with eligible merchandise display lighting may be included in the Gross Interior Area under each Retail category. This lighting power allowance is the Maximum Retail Display Allowance OR the Total Retail Proposed Display Watts, whichever is less. Proposed retail display lighting wattage that exceeds this allowance is applied to general area lighting.	For Building Department Use

Maximum Allowed Retail Display Lighting Wattage

Location (plan #, room #)	Retail Sales Area Type ^{NOTE 1}	Gross Interior Area in ft ²	Allowed Watts per ft ² ^{NOTE 2}	Watts Allowed (watts/ft ² x area)
Total Retail With Display Area			Total Watts	
Retail Display Lighting Base Allowance				
Maximum Retail Display Allowance ^{NOTE 3}				

Proposed Retail Display Lighting Wattage ^{NOTE 4}

Retail Area	Location (plan #, room #)	Fixture Description ^{NOTE 5}	Number of Fixtures	Watts per Fixture ^{NOTE 6}	Watts Proposed
Total Retail Proposed Display Watts ^{NOTE 7}					
Retail Display Power Allowance ^{NOTE 8}					

Proposed Retail Display Lighting Totals from LTG-INT-DISPLAY

Retail 1	Retail 2	Retail 3	Retail 4

- Note 1 - Select retail sales areas from drop down menu. Only retail sales areas that comply with C405.4.2.2.1 may be entered in this table.
- Note 2 - Retail display lighting power allowances per C405.4.2.2.1, Equation 4-11.
- Note 3 - Maximum retail display wattage allowance as calculated per C405.4.2.2.1, Equation 4-11.
- Note 4 - Only separately controlled retail display fixtures that are independent of general area lighting per C405.4.2.2.1 may be entered in this table.
- Note 5 - For proposed Fixture Description, list ALL proposed display lighting fixtures. Indicate fixture type, lamp type (e.g. T-8), number of lamps in the fixture, and ballast type (if included). For track lighting, list the length of the track (in feet) in addition to the fixture, lamp, and ballast information.
- Note 6 - For proposed Watts/Fixture enter the luminaire wattage for installed lamp and ballast using manufacturer or other approved source. For luminaires with screw-in lamps, enter the manufacturer's listed maximum input wattage of the fixture (not the lamp wattage). For low voltage lighting, enter the wattage of the transformer. For line voltage track/busway systems, enter the larger of the attached luminaire wattage or 50 watts/lineal foot, or enter the wattage limit of permanent current limiting device.
- Note 7 - Total Retail Proposed Display Watts is automatically entered into the Proposed Fixture Wattage table in LTG-INT-SPACE.
- Note 8 - Retail display lighting power allowance is the lesser of the Maximum Retail Display Allowance OR the Total Retail Proposed Display Watts. Retail display wattage allowance is automatically entered in the Maximum Allowed Lighting Wattage table in LTG-INT-SPACE.
- Note 9 - Enter a unique title for each lobby area in project that has art/exhibit display lighting.
- Note 10 - Lobby art and exhibit display wattage allowance per Table C405.4.2(2), Footnote c = 0.5 W/ft².
- Note 11 - Proposed display lighting totals for each lobby area per information entered into Proposed Lobby Art/Display Lighting Wattage table.
- Note 12 - Only separately controlled display fixtures installed in lobbies for the purpose of highlighting art and exhibits, that are independent of general area lighting, may be entered in this table.
- Note 13 - Lobby Art/Exhibit Display Allowance is automatically entered in LTG-INT-SPACE.

Exterior Lighting

LTG-EXT

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1

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Project Title: Fill this line out on LGT-SUM		Date 7/1/2016
Exterior Lighting Zone <i>Table C405.5.2(1) Specified by jurisdiction.</i>	<input type="radio"/> Zone 1 <input type="radio"/> Zone 2 <input type="radio"/> Zone 3 <input type="radio"/> Zone 4 <i>Zone selection required to enable LTG-EXT form</i>	For Building Department Use
	<input type="radio"/> <input type="radio"/> Alteration with < 50% ext. wattage replaced <input type="radio"/> Addition - stand alone <input type="radio"/> Addition + existing <input type="radio"/> Alteration with ≥ 50% ext. wattage replaced	
Calculation Area		
Building Grounds <i>Applies to luminaires > 100 Watts</i>	<input type="checkbox"/> Efficacy > 80 lumens/watt <input type="checkbox"/> Exemption _____ <input type="checkbox"/> Controlled by motion sensor _____	

Tradable Maximum Allowed Lighting Wattage ^{NOTE 1} Base Site Allowance: 0

Tradable Surfaces	Surface Description	Area (ft ²), perimeter (lf) or # of items	Allowed Watts per ft ² or per lf	Allowed Watts x ft ² (or x lf)

Total Allowed Tradable + Site Allowance Watts:

Tradable Proposed Lighting Wattage ^{NOTE 2}

Tradable Surface	Fixture Description ^{NOTE 3, 4}	Number of Fixtures	Watts per Fixture ^{NOTE 5}	Watts Proposed

Total proposed tradable watts may not exceed the sum of total allowed tradable watts plus the base site allowance. Any base site allowance not needed to make tradable watts comply can be applied to individual non-tradable categories.

Total Proposed Tradable Watts:

Non-Tradable Maximum Allowed Lighting Wattage ^{NOTE 1} Site Allowance Remaining: 0

Non-Tradable Surfaces	Surface Description	Area (ft ²), perimeter (lf) or # of items	Allowed Watts per ft ² or per lf	Allowed Watts x ft ² (or x lf)

Non-Tradable Proposed Lighting Wattage ^{NOTE 2}

Non-Tradable Surface	Fixture Description ^{NOTE 3, 4}	Number of Fixtures	Watts per Fixture ^{NOTE 5}	Watts Proposed

Non-tradable proposed watts may not exceed allowed watts for any individual surface unless the total excess watts for all non-tradable surfaces are less than the remaining site allowance.

Non-Tradable Watts Exceeding LPA: _____
Remaining Site Allowance: _____

Exterior Lighting

- Note 1** - List all unique exterior surfaces per Table C405.5.2(2) that occur in the project scope. Select exterior surface categories from drop down menu.
- Note 2** - List all proposed lighting fixtures including existing-to-remain fixtures.
- Note 3** - For proposed Fixture Description, indicate fixture type, lamp type, number of lamps in the fixture, and ballast type (if applicable).
- Note 4** - Existing-to-remain fixtures shall be included in the Tradable and Non-Tradable Proposed Lighting Wattage tables in the same manner as new fixtures. Identify as existing in fixture description.
- Note 5** - For proposed Watts/Fixture enter the luminaire wattage for installed lamp and ballast using manufacturer or other approved source. For luminaires with screw-in lamps, enter the manufacturer's listed maximum input wattage of the fixture (not the lamp wattage). For low voltage lighting, enter the wattage of the transformer.

Lighting, Motor, and Electrical Permit Checklist, Pg. 1

LTG-CHK

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1

Revised July 2016

Project Title:	Fill this line out on LGT-SUM	Date	7/1/2016
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The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions.

Applicability (yes,no,na)	Code Section	Component	Compliance information required in permit documents	Location in Documents	Building Department Notes
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LIGHTING CONTROLS

	C405.2	Lighting controls, general	For all lighting fixtures, indicate lighting control method on plans for spaces and lighting zone(s) served, or exception taken		
	C405.2	Luminaire level lighting controls (LLLC)	Indicate on plans all fixtures provided with LLLC in lieu of C405.2 lighting controls; provide description of control capabilities and performance parameters		
	C405.1	Lighting in dwelling units	For permanently installed lighting fixtures in dwelling units, indicate lighting control method on plans for spaces and lighting zone(s) served, or demonstrate compliance with high efficacy exception		
	C405.2.3 C405.2.1.1 C405.2.2.2 C405.2.4 C405.2.5	Manual controls	Indicate on plans the method of manual lighting control (whether combined with occupancy sensor, automatic light reduction, daylight responsive or specific application controls), location of manual control device and area or specific application it serves		
	C405.2.2.1 C405.2.2.2 C405.2.3	Manual interior lighting controls	Indicate on plans which method of manual 50% lighting load reduction is provided, or whether lighting load is reduced via occupancy sensors or daylight responsive controls		
	C405.2.2	Method of automatic shut-off control	Indicate on plans the method of automatic shut-off control during unoccupied periods (occupancy sensor or time switch) for all lighting zones; Indicate locations where automatic shutoff is provided by other methods (occupancy sensor or digital timer switch) or which time switch control exception applies		
	C405.2.1 C405.2.1.1	Occupancy sensor controls	Indicate on plans the spaces served by occupancy sensors; Indicate whether occupancy sensor controls are configured to be manual-on, automatic 50%-on, or serve a space eligible for automatic 100%-on per exception		
	C405.2.1.2	Occupancy sensor controls - warehouses	Indicate aisleways and open areas in warehouse spaces provided with occupancy sensor controls that reduce lighting power by 50%		
	C405.2.6	Digital timer switch	Indicate required digital timer switch control function when control is used		
	C405.2.2.1	Automatic time switch controls	Indicate locations of override switches on plans and the lighting zone(s) served, include area sq. ft.		
	C405.2.4.2 C405.2.4.3	Daylight zones - Sidelight and toplight	Indicate primary and secondary sidelight daylight zone areas on plans, include sq. ft.; Indicate toplight daylight zone areas on plans, include sq. ft.; For small vertical fenestration assemblies (rough opening less than 10 percent of primary daylight zone) where daylight responsive controls are not required, provide fenestration area to daylight zone calculation(s)		
	C405.2.4	Daylight responsive controls	Indicate on plans lighting zone(s) served by daylight responsive controls; Identify sidelight and toplight daylight zones that are not provided with daylight sensing controls and the exception(s) that apply; Indicate on plans the lighting load reduction method - continuous dimming, or stepped dimming that provides at least two even steps between 0%-100% of rated power; Indicate that daylight sensing controls are configured to completely shut off all controlled lights in the lighting zone		
	C405.2.5	Additional controls - Specific application lighting controls	Identify spaces and lighting fixtures on plans that require specific application lighting controls per this section		
	C405.2.5 - Items 1&2	Display and accent lighting	Indicate on plans that display and accent lighting, and display case lighting are controlled independently from both general area lighting and other lighting applications within the same space; Indicate manual and automatic lighting control method		

Lighting, Motor, and Electrical Permit Checklist, Pg. 2

LTG-CHK

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1

Revised July 2016

Project Title:		Fill this line out on LGT-SUM			Date	7/1/2016
The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions.						
Applicability (yes,no,na)	Code Section	Component	Compliance information required in permit documents	Location in Documents	Building Department Notes	
	C405.2.5 - Item 3	Hotel/motel guest rooms	Indicate method of automatic control - vacancy or captive key control of all installed luminaires and switched receptacles in guest room			
	C405.2.5 - Item 4	Supplemental task lighting	Indicate method and location of automatic shut-off vacancy control for supplemental task lighting, including under-shelf or under-cabinet lighting			
	C405.2.5 - Item 5	Lighting for non-visual applications	Indicate on plans eligible non-visual lighting applications, include sq. ft. area of each lighting control zone;			
			Indicate on plans that non-visual lighting are controlled independently from both general area lighting and other lighting applications within the same space;			
			Indicate method of manual lighting control and applicable automatic lighting control			
	C405.2.5 - Item 6	Lighting equipment for sale or demonstration	Indicate on plans that lighting equipment for sale or demonstration are controlled independently from both general area lighting and other lighting applications within the same space;			
			Indicate method of manual lighting control and applicable automatic lighting control			
	C405.2.5 - Item 7	Means of egress lighting	Identify on plans egress fixtures that function as both normal and emergency means of egress illumination;			
			Provide calculation of lighting power density of total egress lighting;			
			If total egress lighting power density is greater than 0.02 W/sq. ft., indicate on plans egress fixtures requiring automatic shut-off during unoccupied periods;			
			Indicate method of automatic shut-off control			
	C405.2.7	Exterior lighting controls	Indicate on exterior lighting plans and fixture schedules the automatic lighting control method, control sequence, and locations served;			
			For building façade and landscape lighting, indicate automatic controls shut off lighting as a function of dawn/dusk and fixed opening/closing time;			
			For all other exterior lighting, indicate automatic controls shut off lighting as a function of available daylight; include control sequence that also reduces lighting power by at least 30% between 12am-6am, or from 1 hour after closing to 1 hour before opening, or based upon motion sensor			
	C405.5.1	Exterior building grounds lighting controls	For building grounds fixtures greater than 100 watts, indicate on plans whether fixtures have efficacy greater than 80 lumens or; are controlled by motion sensor, or are exempt lighting per C405.5.2			
	C405.2.5	Area controls - Master control switches and circuit power limit	Indicate location(s) of master control switch(es) intended to control multiple independent switches; circuit breaker may not be used as a master control switch;			
			Verify that no 20 amp circuit controlled by a single switch or automatic control is loaded beyond 80%			
	C406.4	Enhanced digital lighting controls	To comply with additional efficiency package option, indicate on plans all interior lighting fixtures that are individually addressed and provided with continuous dimming, or exception taken;			
			Include calculation of percent total installed interior lighting power that is configured with required enhanced lighting control functions (min 90% to comply with additional efficiency package option)			
	C405.13 C408.3	Lighting system functional testing	If claiming lighting system commissioning exemption provide supporting calculation;			
			Identify applicable commissioning documentation requirements per Section C408 or eligibility for exception;			
			Provide written procedures for functional testing of all automatic controls and describe the expected system response			

Lighting, Motor, and Electrical Permit Checklist, Pg. 3

LTG-CHK

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1

Revised July 2016

Project Title: Fill this line out on LGT-SUM			Date: 7/1/2016		
The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions.					
Applicability (yes,no,na)	Code Section	Component	Compliance information required in permit documents	Location in Documents	Building Department Notes
INTERIOR LIGHTING POWER & EFFICACY					
	C405.4.1 C405.4.1 C405.4.2	Total connected interior lighting power	<p>Include all luminaires in lighting fixture schedule; indicate fixture types, lamps, ballasts, and manufacturer's rated watts per fixture;</p> <p>Identify spaces eligible for lighting power exemption on plans and in compliance forms; indicate the exception applied;</p> <p>Identify lighting equipment eligible for lighting power exemption in fixture schedule and in compliance forms; indicate the exception applied;</p> <p>Indicate that exempt lighting equipment is in addition to general area lighting and is controlled independently</p>		
	C405.3	Exit signs	Indicate location of exit signs on plans and rated watts per fixture in lighting fixture schedule (maximum 5 watts per fixture)		
	C405.1	Lighting in dwelling units - lamp efficacy	If high efficacy exception is applied to permanently installed lighting fixtures in dwelling units, indicate in lighting fixture schedule if lamps in fixtures are high efficacy per R404.1. Calculate percentage of fixtures with high efficacy lamps in project (min 75% to comply with exception).		
	C406.3	Reduced lighting power density - dwelling unit lamp efficacy	For project with dwelling units, to comply with additional efficiency package option indicate in lighting fixture schedule if lamps in fixtures have efficacy rating of 60 lumens per watt or more. Calculate percentage of fixtures with lamps that have this efficacy rating (min 95% to comply with option).		
Lighting Power Calculation - Indicate compliance path taken					
	C405.4.2.1	Building Area Method	Complete required compliance forms – proposed wattage per building area does not exceed maximum allowed wattage per building area. Identify locations of building areas on plans		
	C405.4.2.2	Space-By-Space Method	Complete required compliance forms – total proposed wattage does not exceed maximum allowed wattage. Identify locations of space types on plans, including retail display areas, lobby art & exhibit display areas, and ceiling heights as applicable		
	C406.3	Reduced lighting power density	To comply with additional efficiency package option, demonstrate in compliance forms that total connected interior lighting wattage is 75% less than the total maximum allowed lighting wattage via Building Area Method or Space-By-Space Method		
EXTERIOR LIGHTING POWER & EFFICACY					
	C405.5.2	Total connected exterior lighting power	<p>Include all luminaires in lighting fixture schedule; indicate fixture types, lamps, ballasts, and manufacturer's rated watts per fixture;</p> <p>Identify exterior applications eligible for lighting power exemption on plans and in compliance forms; indicate exception applied;</p> <p>Indicate that exempt exterior lighting is controlled independently from non-exempt exterior lighting; include exception claimed for each fixture or group of fixtures under exception category</p>		
	Table C405.5.2(1)	Exterior lighting zone	Indicate building exterior lighting zone as defined by the AHJ		
	C405.5.1	Exterior building grounds lighting	For building grounds fixtures rated at greater than 100 watts that are complying based on efficacy, indicate rated lamp efficacy (in lumens per watt) in fixture schedule		
	C405.5.2	Exterior lighting power calculations	Complete required compliance form – proposed wattage for exterior lighting plus base site allowed does not exceed maximum allowed		

Lighting, Motor, and Electrical Permit Checklist, Pg. 4

LTG-CHK

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1

Revised July 2016

Project Title: **Fill this line out on LGT-SUM** **Date** **7/1/2016**

The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions.

Applicability (yes,no,na)	Code Section	Component	Compliance information required in permit documents	Location in Documents	Building Department Notes
MOTORS & TRANSFORMERS					
	C405.6	Electrical transformers	Include electrical transformer schedule on electrical plans; indicate transformer size, efficiency, or exception taken		
	C405.7	Dwelling unit electrical energy consumption	Indicate on electrical plans that each dwelling unit in Group R-2 has a separate electrical energy meter		
	C405.8	Electric motor efficiency	Include all motors, including fractional hp motors, in electric motor schedule on electrical plans; indicate hp, rpm, rated efficiency, or exception applied		
	C405.9.1	Elevator cabs	For luminaires in each elevator cab, provide calculated average efficacy of combined fixtures that indicates efficacy is not less than 35 lumens per watt;		
			Indicate rated watts per cfm for elevator cab ventilation fans do not exceed 0.33 watts per cfm;		
			Indicate automatic controls that de-energize lighting and ventilation fans when elevator is stopped and unoccupied for a period of 15 minutes or more		
	C405.9.2	Escalators and moving walks	Indicate escalators comply with ASME A17.1/CSA B44; automatic controls are configured to reduce operational speed to the minimum permitted when not in use		
	C405.9.3	Regenerative drive	Indicate all one-way down or reversible escalators are provided with a variable frequency regenerative drive		
	C405.10	Controlled receptacles	Identify all controlled and uncontrolled receptables on electrical plans in each space in which they are required; include receptacle configuration such as spacing between controlled and uncontrolled, duplex devices, etc;		
			Indicate on plans whether the method of automatic control for each controlled receptable zone is by occupant sensor or programmable time-of-day control		

If "no" is selected for any question, provide explanation:

End of Lighting, Motor & Transformer Permit Documents Checklist