Wisconsin
Department of Commerce

THE INTERNATIONAL ENERGY CONSERVATION CODE (IECC) IN COMBINATION WITH CHAPTER COMM 63 PLAN CHECK WORKSHEETS

SECTION I. ENERGY/HVAC FORM INDEX

SECTION II. BUILDING ENVELOPE

SECTION III. LIGHTING

The worksheets listed above, or equivalent information, are required to be prepared for use with each project.

The building envelope worksheets, or a printout from the computer program **COMcheck-EZ,** are required to be submitted with the commercial or high-rise residential building plans in order to demonstrate compliance (via COMM 63.1014(1) & 63.1016). **COMcheck-EZ** may be downloaded via the internet at the following address: http://www.energycodes.gov.

ONLY the building envelope portion of **COMcheck-EZ** has been approved for use in demonstrating code compliance for commercial or high-rise residential buildings in Wisconsin. The HVAC or lighting portions have not been approved for use. The program must be set for use with IECC 2000.

Calculations demonstrating compliance with IECC Chapter 8 would also be acceptable.

Low rise residential, consisting of buildings 3 stories or less, with 3 dwelling units or more, must demonstrate compliance with the requirements in the IECC Chapters 4, 5 or 6; or a printout from the computer program **REScheck**. Compliance materials are required to be submitted with the low-rise residential plans. The program may be downloaded at the same site as **COMcheck-EZ**, and must be set for use with IECC 2000.

Wisconsin
Department of Commerce

Transaction ID #	Submitter's Name
Owner's Name	Date
Building Location (Number & Street)	City Village Township of

All constructions or installations shall be supervised by a Wisconsin registered architect or engineer under section Comm 61.50, except that a Wisconsin registered HVAC designer may supervise the installation of heating, ventilating and air conditioning systems, and a registered electrical designer may supervise the installation of illumination systems. The plans, specifications, and calculations require the signature and seal or stamp of an appropriate professional listed above per Comm 61.31(1).

Registration Stamp & Signature

ENERGY EFFICIENCY PLAN CHECK WORKSHEETS

Check below if included with submittal

I. ENERGY/HVAC FORM INDEX

I-1: Index ✓

II. BUILDING ENVELOPE PLAN CHECK WORKSHEETS

E-1: Building Envelope Summary _____
E-2: Fenestration Worksheet _____
E-3: Opaque Surfaces Worksheet _____
E-4: Skylight Exemption Worksheet _____
E-5: Opaque Trade-Off Worksheet _____

III. LIGHTING PLAN CHECK WORKSHEETS

L-1: Lighting Summary _____
L-2: Exterior Lighting Power Worksheet _____
L-3: Installed Interior Lighting Power Worksheet _____
L-4: Complete Building/Area Category Methods Worksheet _____
L-5: Activity Method Worksheet _____

The information you provide may be used by other agency programs [Privacy Law, s. 15.04 (1)(m)].

SBD-10512 (R.12/01)

II. BUILDING ENVELOPE PLAN CHECK DOCUMENTS

This section describes the forms and procedures for documenting compliance with the commercial and high rise residential building envelope energy efficiency requirements of the code. It does not describe the details of the requirements; these are presented in the code. Determination of code compliance will be based on the actual code section. The following discussion is addressed to the designer preparing construction documents and compliance statements and to the plan reviewers who are examining those documents for compliance with the code.

The use of each form is briefly described below. The complete instructions for each form are presented in the following subsections.

E-1: Building Envelope Summary.

This information is required for every project involving the building envelope.

E-2: Fenestration Worksheet.

This worksheet is used only for the Component Standards. This worksheet produces area-weighted average values for the Fenestration U-Value and Shading Coefficient (SC_x).

E-3: Opaque Surfaces Worksheet.

This worksheet is used only for the Component Standards method. This worksheet produces the area-weighted average values for the U-values of roof, walls (including opaque doors), and floor assemblies.

E-4: Skylight Exemption Worksheet.

This information will only be required when skylights are to be exempt from the roof area thermal performance calculation.

E-5: Opaque Trade-Off Worksheet.

This information will only be required when opaque trade-offs are used per the requirements of Comm 63.1015 (3) & (4).

BUILDING ENVELOPE SUMMARY E-1

This worksheet is applicable to all projects involving commercial or high-rise residential building envelope.

Project Information

This information asks for the project name and address and those people responsible for the building design and compliance forms.

Compliance Approach

Check one of the three boxes:

Component Standards: If this box is checked, provide the number of the region in which the building is located from Figure 63.1015-2 of the code and the Alternate Component Package (ACP) Table letter.

System Standards: If this box is checked, provide the computer printout or other documentation of envelope compliance, or appropriate thermal performance calculations for factories, automatic car washes, and warehouses as listed in Comm 63.1014 (2).

System Analysis Design: If the project is demonstrating compliance through the System Analysis Design method, check this box. A complete analysis must be provided.

Basic Requirements

Fill the boxes in this column with either a check mark or "X" to indicate a positive response or "N/A" to indicate a negative response. If the skylight exemption is marked (see "Special Considerations"), attach the Skylight Exemption Worksheet (E-4).

Prescriptive/Performance Requirements

If the project is demonstrating compliance through the Component Standards method, all of these items must be completed. The area-weighted properties such as components U-values and fenestration SC_x are obtained from the Fenestration Worksheet (E-2) and Opaque Surfaces Worksheet (E-3). The items under "Requirements" are obtained from the ACP Table.

If the System Standards method is used (e.g., DOE/PNNL's **COMcheck-EZ** computer program), none of the Envelope worksheets are required to be submitted. However, a printout from the program must be submitted with the building plans, and be properly signed and sealed by the registered professional that prepared the information.

If the Opaque Trade-Off is used, provide the design information and demonstrate that the Total Design U•Area is equal to or less than the Total Required U•Area.

If the System Analysis Design method (e.g., ASHRAE's Energy Cost Budget method) is used, the items in the design column should be filled in, where applicable, to speed the plan review.

Additional Data

This column serves as a reference for additional building envelope forms and calculations. If Worksheets E-2 through E-5 are submitted, it should be indicated on Form I-1. Boxes are provided for other submittal data. An additional blank is provided to indicate attached calculations such as calculation of mass wall heat capacity or interpolations of tables.

FENESTRATION WORKSHEET E-2

This worksheet is applicable to projects that demonstrate compliance through the Component Standards method. It is not applicable to projects that demonstrate compliance through the System Standards method or the System Analysis Design method.

Project Information

A box for basic project information and identification of the document author is provided in the upper part of this form. This should match the information contained in the Basic Project Information section of the Building Envelope Summary (E-1) form.

Area-Weighted Properties

Assembly ID: Insert a descriptor of the particular assembly. A separate ID must be supplied for each group of assemblies that have unique U-values or shading coefficients.

Area: Enter the Total Area (in ft^2) for that fenestration assembly (glazing and frame) on a project-wide basis. The values from all entries in this column should be summed into the box marked "Total Area" at the bottom of the column.

U-Value (or shading coefficient, SC_x): Enter the appropriate property for each fenestration assembly (glazing and frame).

U (or SC_x) •Area: This column is the product of the assembly area (second column) by the fenestration U-value (or SC_x from the third column). The values from all entries in this column should be summed into the box marked "Total U•Area" at the bottom of the column.

The area-weighted U-value (or SC_x) is calculated by dividing the value in "Total U•Area" by the value in "Total Area."

OPAQUE SURFACES WORKSHEET E-3

This worksheet is applicable to projects that demonstrate compliance through the Component Standards method. It is not applicable to projects that demonstrate compliance through the System Standards method or the System Analysis Design method.

Project Information

A box for basic project information and identification of the document author is provided in the upper part of this form. This should match the information contained in the Basic Project Information section of the Building Envelope Summary (E-1) form.

Assembly ID: Insert a descriptor of the particular assembly. This may be a descriptor or number from the appropriate schedule in the plans. A separate item must be supplied for each group of assemblies that have unique U-values.

Area: Enter the Total area (in ft^2) for that assembly (roof, wall, or floor) on a project-wide basis. The values from all entries in this column should be summed into the box marked "Total Area" at the bottom of the column.

U-Value: Enter the appropriate property for each assembly. Overall thermal transmittance of assemblies must be calculated in accordance with s. Comm 63.1019. The calculation procedure must consider the effect of framing.

If skylights are installed, they must be included in the overall U-value calculation of the roof unless an exemption is obtained under s. Comm 63.1012. A skylight exemption worksheet (E-4) must be included.

U•Area: This column is the product of the assembly area (second column) by the assembly U-value. The values from all entries in this column should be summed into the box marked "Total U•Area" by the value in "Total Area."

The area-weighted U-value is calculated by dividing the value in "Total U•Area" by the value in "Total Area."

SKYLIGHT EXEMPTION WORKSHEET E-4

This worksheet is applicable when skylights are exempt from the roof area overall U-value calculation per the requirements of Comm 63.1012. It may be used with any method of compliance.

Project Information

A box for basic project information and identification of the document author is provided in the upper part of this form. This should match the information contained in the Basic Project Information section of the Building Envelope Summary (E-1) form.

Skylight Exemption Worksheet

All of the boxes except the item marked "Special Consideration" (50% shading device credit) must be filled in with a check or "X" to indicate affirmation. The 50% shading device credit box must be filled in with either a check, "X," or "N/A."

All of the "Design" and "Requirement" information must be completed. The skylight-to-roof ratio requirement is the maximum percent of skylight area taken from ASHRAE 90.1-1989,
Tables 8-3a and 8-3b of Table A63.1012. The maximum area will depend on the visible light transmittance (VLT) and whether or not shading is provided for the skylight.

The lighting power density may be taken from the allowed lighting power density from section Comm 63.1047, 63.1048, or 63.1049, or the actual installed lighting power density adjusted for controls under s. Comm 63.1045 (2) may be used.

The design lighting level, in foot-candles, is the judgment of the designer, but should be in general agreement with the recommendations of the Illuminating Engineering Society. (Refer to the IES Lighting Handbook,

application volume, 1987.) The designer should choose the lighting level in the table closest to the condition in the proposed building. Interpolation or extrapolation for lighting level is not permitted.

OPAQUE TRADE-OFF WORKSHEET E-5

This worksheet is applicable to projects that demonstrate compliance through Opaque Trade-Offs as used with the requirements of Comm 63.1015 (3) & (4).

Project Information

A box for basic project information and identification of the document author is provided in the upper part of this form. This should match the information contained in the Basic Project Information section of the Building Envelope Summary (E-1) form.

Assembly ID:	Insert a descriptor of the particular assembly. This may be a descriptor or number from the appropriate schedule in the plans. A separate item must be supplied for each group of assemblies that have unique U-values.
Area:	Enter the Total area (in ft^2) for that assembly (roof, wall, or floor) on a project-wide basis. The values from all entries in this column should be summed into the box marked "Total Area" at the bottom of the column.
U-Value:	Enter the appropriate property for each assembly. Overall thermal transmittance of assemblies must be calculated in accordance with s. Comm 63.1019. The calculation procedure must consider the effect of framing. If skylights are installed, they must be included in the overall U-value calculation of the roof unless an exemption is obtained under s. Comm 63.1012. A skylight exemption worksheet (E-4) must be included.
U•Area:	This column is the product of the assembly area (second column) by the assembly U-value.
Total Design U•Area:	Add all U•Area values associated with the Design column. The U•Area values are to be derived from the designed roofs, walls adjacent to unconditioned spaces, above grade exterior walls, and floors over unconditioned spaces.
Total Required U•Area:	Add all U•Area values associated with the Requirement column. The U•Area values are to be derived from code required roofs, walls adjacent to unconditioned spaces, above grade exterior walls, and floors over unconditioned spaces

Compliance is shown when the "Total Design U•Area" is less than or equal to the "Total Required U•Area."

IECC/COMM Chapter 63 -- BUILDING ENVELOPE SUMMARY E-1

Wisconsin
Department of Commerce

Transaction ID #	Submitter's Name
Owner's Name	Date
Building Location (Number & Street)	City Village Township of

Compliance Approach Component Standards (See Comm 63.1015) System Standards (See Comm 63.1016) System Analysis Design (See Comm 63.1070)

Region_____ ACP Table _____
(See Fig. 63.1015-2)

	Basic Requirements	Prescriptive/Performance Requirements	Design	Requirement	Additional Data
Fenestration	☐ U-values reported on this form are area-weighted averages. Comm 63.1019 (2) ☐ Windows and doors meet the air infiltration requirements. Comm 63.1011 ☐ Fenestration U-values are certified by NFRC or from IECC Table 102.5.2(1) ☐ Fenestration shading coefficients are obtained from either testing based on NFRC 100 or IECC Table 102.5.2(3) with SHGC values divided by 0.87 ☐ Exterior joints, cracks, and holes in the building envelope are caulked, gasketed, weather stripped, or otherwise sealed. Comm 63.1011 ☐ Double entry vestibule? (Optional--check if provided) ☐ Windows with reflective glazing? (Optional---check if provided)	**Fenestration Properties** Window Area (WA) Comm 63.1005 (79) Gross Exterior Wall Area (GWA) Comm 63.1005 (28) Comm 63.1019 (3)(b) & (4) Window-Wall Ratio (WA/GWA) Comm 63.1005 (80) Window U-value Comm 63.1019 (3)(b) Window SCx Comm 63.1019 (5) Skylights Installed	____ ____ ____ ____ ____ Yes	If using Component Standards, see ACP Table Fig. 63.1015-2 ≤_____ ____ No	Fenestration Worksheet (E-2) Opaque Surfaces Worksheet (E-3) Skylight Exemption Worksheet (E-4) Opaque Trade-off Worksheet (E-5) ☐ Marked Up ACP Table Included
Exterior Opaque Surfaces	☐ U-values reported on this form are area-weighted averages. Comm 63.1019 (2) ☐ An approved method which accounts for the thermal bridging of framing is used to calculate U-values for envelope assemblies. Comm 63.1019 (2)&(3) ☐ Exterior joints, cracks, and holes in the building envelope are caulked, gasketed, weather stripped, or otherwise sealed. Comm 63.1011 ☐ Vapor barriers are installed to prevent deterioration of insulation performance. Comm 63.1011 (4) ☐ **Special Consideration** The skylight exemption is applied. Comm 63.1012 (Attach Skylight Exemption Worksheet E-4)	**Wall Design** U-value Comm 63.1019 (3)(a) Heat Capacity (HC) Comm 63.1005 (34) Appendix A63.1015 (3)(b) Insulation position (interior or exterior) Comm 63.1005 (44) **U-Values** Roof Comm 63.1019 (3)(a) Walls adjacent to unconditioned space Comm 63.1019 (3)(a) Floors over unconditioned space Comm 63.1019 (3)(a)	____ ____ ____ ____ ____ ____	≤_____ ≤_____ ≤_____	☐ **COMcheck-EZ** Computer Report Included ☐ **ENVSTD** Output Included
Below Grade	☐ R-values reported on this form for slab-on-grade floors and walls below grade include only the insulating material. Comm 63.1015 (5) and (6) ☐ Insulation continuity is maintained. Comm 63.1015 (6)	**R-Values** Walls below grade Comm 63.1019 (3)(a) Slab-on-grade Comm 63.1019 (3)(a)	____ ____	≥_____ ≥_____	

The information you provide may be used by other agency programs [Privacy Law 15.04 (1)(m)].

SBD-10373 (R.12/01)

Wisconsin
Department of Commerce

Transaction ID #	Submitter's Name
Owner's Name	Date
Building Location (Number & Street)	City Village Township of

Area-Weighted Properties - Comm 63.1019

Fenestration **U-Value** (U_{of}) see Comm 63.1019 (3)(b)

Assembly ID	Area	U-Value	U•Area
	X		=
	x		=
	x		=
	x		=
	x		=
	x		=
	x		=
	x		=
Total Area→		Total U•Area→	

$$\frac{\text{Total U•Area}}{\text{Total Area}} = \boxed{}$$

Fenestration **Shading Coefficient** (SC_x) see Comm 63.1019 (5)

Assembly ID	Area	SC_x	SC_x•Area
	x		=
	x		=
	x		=
	x		=
	x		=
	x		=
	x		=
	x		=
Total Area→		Total SC_x•Area→	

$$\frac{\text{Total } SC_x\text{•Area}}{\text{Total Area}} = \boxed{}$$

IECC/COMM Chapter 63 -- OPAQUE SURFACES WORKSHEET E-3

Wisconsin
Department of Commerce

Transaction ID #	Submitter's Name
Owner's Name	Date
Building Location (Number & Street)	City Village Township of

Area-Weighted Properties - Comm 63.1019

Roofs see Comm 63.1019 (3)(a)

Assembly ID	Area	U-Value	U•Area
	x		=
	x		=
	x		=
	x		=
Total Area→		Total U•Area→	

Walls Adjacent to Unconditioned Spaces see Comm 63.1019 (3)(a)

Assembly ID	Area	U-Value	U•Area
	x		=
	x		=
	x		=
	x		=
Total Area→		Total U•Area→	

Above Grade Exterior Walls see Comm 63.1019 (3)(a)

Assembly ID	Area	U-Value	U•Area
	X		=
	X		=
	X		=
	X		=
Total Area→		Total U•Area→	

Floors Over Unconditioned Spaces see Comm 63.1019 (3)(a)

Assembly ID	Area	U-Value	U•Area
	x		=
	x		=
	x		=
	x		=
Total Area→		Total U•Area→	

IECC/COMM Chapter 63 -- SKYLIGHT EXEMPTION WORKSHEET E-4

Wisconsin
Department of Commerce

Transaction ID #	Submitter's Name
Owner's Name	Date
Building Location (Number & Street)	City Village Township of

Skylight Exemption Requirements see Comm 63.1012	Skylight Design Data	Design	Requirement	Additional Data
☐ U-values of skylight curbs are less than 0.21 Btu/hr•ft^2•°F.				☐ **COMcheck-EZ** output
☐ Overall thermal transmittance of skylight assemblies is less than 0.70 Btu/hr•ft^2•°F.	Skylight Area (SA)	_____		☐ Calculation of allowed skylight percent.
	Gross Roof Area (GRA)	_____		
	Skylight-to-Roof Ratio (SA/GRA)	_____	≤ _____	
☐ Air leakage is less than 0.5 cfm/ft^2 of skylight.				☐ Sketch of shading devices.
☐ Automatic daylighting controls installed to reduce electric lighting by 50%.	Skylight U-value	_____		
	Skylight VLT	_____		
Special Consideration ☐ Shading devices used to block 50% of the solar gain during peak cooling conditions.	Lighting Power Density (LPD/ft^2)	_____		
	Design lighting level (footcandles)	_____		

OPAQUE ASSEMBLY TRADE-OFF WORKSHEET E-5

Wisconsin
Department of Commerce

Transaction ID #	Submitter's Name
Owner's Name	Date
Building Location (Number & Street)	City Village Township of

DESIGN

Design - Roofs See Comm 63.1019 (3)(a)

Assembly ID	Area	U-Value	U•Area
	x	=	
	x	=	
	x	=	
	x	=	
Total Area→			

Design - Above Grade Exterior Walls

See Comm 63.1019 (3)(a)

Assembly ID	Area	U-Value	U•Area
	x	=	
	x	=	
	x	=	
	x	=	
Total Area→			

Design - Walls Adjacent to Unconditioned Space

See Comm 63.1019 (3)(a)

Assembly ID	Area	U-Value	U•Area
	x	=	
	x	=	
	x	=	
	x	=	
Total Area→			

Design - Floors Over Unconditioned Space

See Comm 63.1019 (3)(a)

Assembly ID	Area	U-Value	U•Area
	x	=	
	x	=	
	x	=	
	x	=	
Total Area→			

REQUIREMENT

Required - Roofs See Comm 63.1015 (4)

Total Area	Required U-Value	U•Area
x	=	

Required - Above Grade Exterior Walls

See Comm 63.1015 (4)

Total Area	Required U-Value	U•Area
x	=	

Required - Walls Adjacent to Unconditioned Space See Comm 63.1015 (4)

Total Area	Required U-Value	U•Area
x	=	

Required - Floors Over Unconditioned Space

See Comm 63.1015 (4)

Total Area	Required U-Value	U•Area
x	=	

Σ Total Design U•Area [ ] ≤ **Σ Total Required U•Area** [ ]

The Total Design U•Area must be less than or equal to the Total Required U•Area

III. LIGHTING PLAN CHECK DOCUMENTS

This section describes the forms and procedures for documenting compliance with the lighting energy efficiency requirements of the code. It does not describe the details of the requirements; these are presented in the code. The following discussion is addressed to the designer preparing construction documents and compliance statements and to the plan reviewers who are examining those documents for compliance with the code.

The use of each form is briefly described below. The complete instructions for each form are presented in the following subsections.

L-1: Lighting Summary.

This information is required for every project involving lighting and lighting controls.

L-2: Exterior Lighting Power Worksheet.

This information is also required for every project involving lighting and lighting controls.

L-3: Installed Interior Lighting Power Worksheet.

This information is also required for every project involving lighting and lighting controls.

L-4: Complete Building/Area Category Methods Worksheet

This information will only be required when calculating the Interior Lighting Power Allowance using either the Complete Building Method or the Area Category Method.

L-5: Activity Method Worksheet.

This information will only be required when calculating the Interior Lighting Power Allowance using the activity method.

SBD-10377 (R.12/01)

LIGHTING SUMMARY L-1

The Lighting Summary (L-1) form is in four parts. A copy of these forms must be submitted to the Division along with the rest of the compliance submittal at the time of building plan review.

A. Lighting Summary (L-1) Part 1

Project Information

Part 1 of the Lighting Summary form asks for the project name and address and those people responsible for the lighting design and compliance forms. The project name and address should be the same as on the Building Envelope forms for the project.

Method of Interior Lighting Compliance

Check one of the four boxes:

Complete Building: If this box is checked, the Complete Building/Area Category Methods Worksheet (L-4) must be provided.

Area Category: If this box is checked, the Complete Building/Area Category Methods Worksheet (L-4) must be provided.

Activity: If this box is checked, the Activity Method Worksheet (L-5) must be provided.

Other: If compliance for the project is demonstrated through the System Analysis Design method of ss. Comm 63.1070 where all energy-using systems are considered together, check this box. A complete analysis must be provided.

Basic Requirements

All of the boxes in this column must be filled with either a check or "X" to indicate affirmation or "N/A" to indicate not applicable. For exterior lighting, enter the Exterior Lighting Power (ELP) and the Exterior Lighting Power Allowance (ELPA). These are obtained from the Exterior Lighting Power Worksheet (L-2).

Prescriptive/Performance Requirements

Enter the Installed Interior Lighting Power (ILP) and the Interior Lighting Power Allowance (ILPA). The ILP is obtained from the Interior Lighting Power Allowance Worksheet (L-3). The ILPA is obtained from the Complete Building/Area Category Methods Worksheet (L-4) if either the Complete Building Method or the Area Category Method is used. The ILPA is obtained from the Activity Method Worksheet (L-5) if the if the Activity Method is used. The lighting power control credits box is filled with a check or "X" when control credits are taken, otherwise enter "N/A."

Worksheets

Indicate which worksheets are attached.

B. Lighting Summary (L-1) Parts 2 to 4

Parts 2 to 4 of the Lighting Summary should be used to describe the installed lighting schedule, and the control devices associated with the building design. If necessary, make extra copies of the forms. The information on the L-1 parts 2 to 4 forms may be incorporated into equipment schedules on the plans along with light fixture information, rather than presented on the forms. If this is done, however, the same information should be included in one schedule and in a similar format as the forms.

Lighting Summary (L-1) Part 2

Luminaire Name: Record the description by name or type.

Lamp Type: Record the type of lamp (Incandescent, Fluorescent or High-Intensity discharge).

Watts/Lamp: Record the listed watts per lamp. For track and incandescent medium base socket fixture, see s. Comm 63.1045 (4) for how to determine the watts of these types of luminaires. If track lighting is used and the fixtures are not shown on the Installed Lighting Schedule, 45 watts per foot of track is entered in this column.

Ballasts Type: Record the ballast type -- Standard Magnetic (S), Electronic High Frequency (E) or Other (O). If Electronic High Frequency or Other ballast types are used, the exact ballast type and model number should be specified.

Number/Luminaire: Record the number of ballasts installed in each Luminaire.

Mandatory Controls (L-1) Part 3

The Mandatory Controls portion is where those devices to meet the mandatory control requirements are listed. This would include devices for building shut-off, individual room control, and control of exterior lights. If some mandatory controls meet the requirements of s. Comm 63.1045 (2), the information should also be recorded on Part 4, Automatic Controls for Credit, if control credits are taken in the ILP calculation.

Control Location: Record the location of the control on the plans.

Control Identification: Record the symbol of the control on the plans.

Control Type: Record the type of certified control device used to meet the mandatory automatic control requirement.

Space Controlled: Record the location of controlled lights.

Typical controls may be covered by general notation.

Automatic Controls for Credit (L-1) Part 4

The Automatic Controls for Credit portion is similar to the Mandatory Controls portion. The only difference is the last column.

Luminaires Controlled: Record the luminaire type and quantity controlled for credit.

Type: Record the same name as on the plans.

Number of Luminaires: Record the number of luminaires of that type that are controlled by the control type.

Typical controls may be covered by general notation.

Reviewer Notes

This space is used by the Department Plan Examiner during review of the submitted information.

EXTERIOR LIGHTING POWER WORKSHEET L-2

This worksheet is applicable to all projects.

Project Information

A box for basic project information and identification of the document author is provided in the upper part of this form. This should match the information contained in the Project Information section of the Lighting Summary (L-1) form.

Exterior Lighting Power Allowance -- ELPA

Area Description: This is a descriptor of each line. These descriptors match those in Comm Table 63.1043.

Allowance: This is the allowance in either W/ft^2 or watts of lineal feet. These allowances match those in Comm Table 63.1043.

Area or Lineal Feet in Proposed Design: Record the area (ft^2) or lineal footage (lf) as appropriate. These values should be project-wide values.

ELPA: Multiply the allowance from Column B by the area (or lineal footage) from Column C. Record the resultant ELPA in Column D. The values should be summed into the box marked "Total ELPA" at the bottom of the column.

Installed Exterior Lighting Power

Do not include luminaires that are exempted under s. Comm 63.1042.

Fixture Type: Record the description of the luminaires that are included.

Number of Luminaires: Record the total number of similar luminaires in the project.

Watts per Luminaire: Record the input wattage for each luminaire, including the ballast.

Installed Wattage: Multiply the number of luminaires from Column B by the wattage per luminaire from Column C. Enter the resultant installed wattage in Column D. The values from all entries in the column should be summed into the box marked "Total ELP" at the bottom of the column.

INSTALLED INTERIOR LIGHTING POWER WORKSHEET L-3

The Installed Interior Lighting Power Worksheet (L-3) will be completed and submitted with all applications. Either the Complete Building/Area Category Method Worksheet (L-4), the Activity Method Worksheet (L-5), or System Analysis Design documentation will be included with L-3, depending on the ILPA calculation method chosen.

Project Information

A box for basic project information and identification of the document author is provided in the upper part of this form. This should match the information contained in the Project Information section of the Lighting Summary (L-1) form.

Installed Interior Lighting Power

The calculated interior lighting power to be installed is determined by completing this form. Do not include luminaires that are exempted under s. Comm 63.1045. If necessary, make extra copies of this form. Use as many sheets as needed for the project.

Luminaire Name or ID No.: Record the name or symbol. It should be consistent with what is used in the lighting schedule.

Description: Record a short list of the technical features (i.e., luminaire size and type, lamp type and number, ballast type, lens/louver type).

Number of Luminaires: Record the quantity of each fixture type in the building. If track lighting is used and the fixtures are not shown on the plans, the length of the track is entered in this column.

(Tip: If control credits are to be used and all of any type of luminaires are not controlled or used with the same control, split the luminaries up over several lines, one for each control type.)

Watts per Luminaire: Record the total wattage of each luminaire type (including ballasts for fluorescent or high intensity discharge fixtures). For track and incandescent medium base socket fixtures, see s. Comm 63.1045 (4) for how to determine the watts of these types of luminaires. If track lighting is used and the fixtures are not shown on the Installed Lighting Schedule, 30 watts per foot of track is entered in this column. The wattage may be a standard value from the data in Table A63.1045. Nonstandard values not from Table A63.1045 must be substantiated with manufacturer's data sheets.

Total Watts: Record the product of the quantity of each luminaire listed times its watts per luminaire. If credit for automatic lighting controls is not sought, the interior lighting power is the sum of this Column E.

LPAF for Automatic Controls: If lighting power control credits are used, enter the appropriate lighting power adjustment factor from Table 63.1045. If this credit is not used, leave Columns F, G, and H blank.

Control Credit: Multiply the total watts of luminaires associated with the control of Column E by the LPAF of Column F. Record the resultant control credit in Column G.

Adjusted Watts: Subtract the control credit of Column G from the total watts of Column E. Record the remainder in Column H.

The sum of Column E (or Column H if control credits are used) is the calculated interior lighting power for the building. If more than one sheet is used, enter the total for all sheets. This total cannot be greater than the Interior Lighting Power Allowance calculated on worksheet L-4 or L-5.

COMPLETE BUILDING/AREA CATEGORY METHODS WORKSHEET L-4

This worksheet will be attached to L-3 whenever the Complete Building Method or the Area Category Method is used to calculate the Interior Lighting Power Allowance.

Project Information

A box for basic project information and identification of the document author is provided in the upper part of this form. This should match the information contained in the Project Information section of the Lighting Summary (L-1) form.

Interior Lighting Power Allowance

The Interior Lighting Power Allowance (ILPA) is determined by calculating the maximum total watts of lighting that may be installed. As noted on the Lighting Summary, L-1, there are four different methods that may be used. These methods may not be mixed in the same building permit application. This form is used when the ILPA is calculated by the Complete Building or Area Category Method.

Complete Building Method

This method may only be used when plans and specifications for the entire building are included in the application.

Building Type of Use: This is taken from Table 63.1047 for the type of use of the building. If the building has a mixture of uses, the major use must be at least 80 percent of the conditioned floor area. If there is no major use, this method may not be used.

Watts per Square Foot: Record the allowed lighting power density in watts per square foot for this building type taken from Comm Table 63.1047.

Complete Building Area: Record the floor area of the entire building, including the floor area of minor occupancies. Allowed Watts: Record the product of the watts per square foot times the complete building area. This becomes the Interior Lighting Power Allowance for the building.

Area Category Method

This method may be used when different primary function areas of a building are included in the application.

Primary Function:	This is taken from Comm Table 63.1048 for the primary function of the area. If the building has a mixture of functions, each function area must be listed separately.
Watts per Square Foot:	Record the allowed lighting power density watts per square foot for this building type taken from Comm Table 63.1048.
Area:	Record the floor area (in square feet) of the primary function area measured from the inside of partitions.
Allowed Watts:	Record the product of the watts per square foot times the primary function area. This becomes the allowed lighting power for the area.

The sum of the allowed lighting power for each primary function area is the Interior Lighting Power Allowance for the building.

ACTIVITY METHOD WORKSHEET L-5

This worksheet is applicable to all projects including those that use the Activity Method of s. Comm 63.1049. If necessary, make extra copies of this form. Use as many sheets as needed for the project.

Project Information

A box for basic project information and identification of the document author is provided in the upper part of this form. This should match the information contained in the Project Information section of the Lighting Summary (L-1) form.

Interior Lighting Power Allowance -- ILPA

Column A:	Record the room number or room name. A range of similar rooms may also be entered.
Column B:	Record the average ceiling height of the room in feet.
Column C:	Record a description of each line item. The description shall match the appropriate description from Table 63.1049.
Column D:	Record any notes from Table 63.1049. These notes may limit the Area Factor used in Activity Method calculations.
Column E:	Record the appropriate unit lighting power density (UPD) from Table 63.1049.
Column F:	Record the floor area of the room (inside wall to inside wall, ft^2). Where multiple rooms are included in single line, this is the average area of each type of room and not the total area of all rooms.
Column G:	Record the area factor from either s. Comm 63.1049, Figure 63.1049, or an applicable footnote from Table 63.1049.
Column H:	Record the number of similar spaces.
Column I:	Multiply the UPD from Column E by the floor Column F by the area factor from Column G by the number of similar rooms from Column H. Record the resultant lighting power budget in Column I. The values from all entries in this column should be summed into the box marked "ILPA" at the bottom of the column.

IECC/COMM Chapter 63 -- LIGHTING SUMMARY L-1 Part 1 of 4

Wisconsin
Department of Commerce

Transaction ID #	Submitter's Name
Owner's Name	Date
Building Location (Number & Street)	City Village Township of

Method of Interior Lighting Compliance (check one)

- ☐ Complete Building s. Comm 63.1047
- ☐ Area Category s. Comm 63.1048
- ☐ Activity s. Comm 63.1049
- ☐ Other s. Comm 63.1070

Basic Requirements	Prescriptive/Performance	Additional Data
☐ Exterior lighting not intended for 24-hour use controlled by photocell. Comm 63.1050 (6)	_____ ≤ _____ Installed ELP ELPA Comm 63.1043	Exterior Lighting Power Worksheet (L-2)
☐ Shut-off control in each space enclosed by ceiling-high partitions. Comm 63.1050 (1) ☐ Controls to reduce lighting by 50%. Comm 63.1050 (2) ☐ Controls to reduce lighting in daylit areas. Comm 63.1050 (3) ☐ Automatic shut-off controls. Comm 63.1050 (4) ☐ Display lighting separately switched on circuits ≤ 20 amps. Comm 63.1050 (5) ☐ Hotel/motel guest rooms have master switches at the main door to turn off lights and receptacles. Comm 63.1050 (7)		
☐ Exit signs have installed wattage of 20 watts or less. Comm 63.1052 ☐ Fluorescent lamps use multiple lamp ballasts with tandem wiring as required. Comm 63.1053	_____ ≤ _____ ILP ILPA Comm 63.1047, 63.1048, or 63.1049 ☐ Lighting Power Control Credits Applied. Comm 63.1045 ☐ Daylight Sensing Controls ☐ Occupancy Sensors ☐ Programmable Timing Controls ☐ Lumen Maintenance Controls	Interior Lighting Power Worksheet (L-3) Interior Lighting Power Allowance Worksheet (L-4) Activity Method Worksheet (L-5)

The information you provide may be used by other agency programs [Privacy Law, s. 15.04 (1)(m)]. SBD-10377 (R.12/01)

Wisconsin
Department of Commerce

Transaction ID #	Submitter's Name
Owner's Name	Date
Building Location (Number & Street)	City Village Township of

INSTALLED LIGHTING SCHEDULE

Luminaire Name or ID Number (e.g., Type 1, Type 2, etc.)	Lamps					Ballasts				Note to Field
	Type					Type				
	I	F	H	No. of Lamps	Watts/Lamp	S	E*	O*	No./Luminaire	
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		
	☐	☐	☐			☐	☐	☐		

* Provide Supporting Documentation for total watts for lamp and ballast.

WHERE:	I = Incandescent	S = Standard Magnetic
	F = Fluorescent	E = Electronic High Frequency
	H = High- Intensity	O = Other

Wisconsin
Department of Commerce

Transaction ID #	Submitter's Name
Owner's Name	Date
Building Location (Number & Street)	City Village Township of

MANDATORY CONTROLS (s. Comm 63.1050)

(Optional if included on plans - Use as many sheets as necessary)

Control Location (Room #)	Control Identification	Control Type (Occupancy Sensors, Daylight, etc.)	Space Controlled	Note to Field

REVIEWER NOTES - For Department Use Only

Wisconsin
Department of Commerce

Transaction ID #	Submitter's Name
Owner's Name	Date
Building Location (Number & Street)	City Village Township of

CONTROLS FOR CREDIT (s. Comm Table 63.1045)

(Optional if included on plans - Use as many sheets as necessary)

Control Location (Room # or Drawing #)	Control Identification	Control Type (Occupant, Daylight, Dimming, etc.)	Luminaires Controlled		Note to Field
			Type	# of Luminaires	

REVIEWER NOTES - For Department Use Only

EXTERIOR LIGHTING POWER WORKSHEET L-2

Wisconsin
Department of Commerce

Transaction ID #	Submitter's Name
Owner's Name	Date
Building Location (Number & Street)	City Village Township of

EXTERIOR LIGHTING POWER ALLOWANCE - ELPA (s. Comm 63.1043)

A	B	C	D
Area Description	**Allowance (Table 63.1043)**	**Area or Lineal Feet in Proposed Design**	**ELPA (B x C)**
Canopies (not associated with an entrance)	4 W/ft^2		
Commerce or Merchandizing Areas	4 W/ft^2		
Exit (with or without canopy)	16 W/lf of door opening		
Entrance (without canopy)	20 W/lf of door opening		
High Traffic Entrance (with canopy)	6.6 W/ft^2 of canopied area		
Light Traffic Entrance (with canopy)	2.6 W/ft^2 of canopied area		
Loading Area	0.26 W/ft^2		
Loading Door	13 W/lf of door opening		
Building Exterior Surfaces or	0..16 W/ft^2 of illuminated		
Storage and Nonmanufacturing	0.13 W/ft^2		
Casual Use Areas (gardens, etc.)	0.06 W/ft^2		
Private Driveways or Walkways	0.06 W/ft^2		
Public Driveways or Walkways	0.10 W/ft^2		
Private Parking Lots	0.08 W/ft^2		
Public Parking Lots	0.12 W/ft^2		
Pump Island Canopies	4 W/ft^2		
		Total ELPA —	

INSTALLED EXTERIOR LIGHTING POWER - ELP (s. Comm 63.1042)

A	B	C	D
Fixture Type	**Number of Luminaires Installed**	**Watts per Luminaire (including ballast)**	**Installed Watts (B x C)**
		Total Installed ELP —	

INSTALLED INTERIOR LIGHTING POWER WORKSHEET L-3

Wisconsin
Department of Commerce

Transaction ID #	Submitter's Name
Owner's Name	Date
Building Location (Number & Street)	City Village Township of

INSTALLED INTERIOR LIGHTING POWER (s. Comm 63.1045)

(Use as many sheets as necessary)

A	B	C	D	E	F	G	H
Luminaire Name or ID No.	Luminaire Description	Number of Luminaires	Watts per Luminaire (including ballast)	Total Watts (C x D)	LPAF for Automatic Controls (Table 63.1045)	Control Credit (ExF)*	Adjusted Watts (E-G)

*Note: If control credits are taken, Form L-1, Part 3 must be completed or controls must be indicated on the plans.

Total for this Sheet		**Total for this Sheet**	
Total for all Sheets (if control credits not taken)		**Total for all Sheets** (Adjusted with control credits)	

COMPLETE BUILDING/AREA CATEGORY METHOD WORKSHEET L-4

Wisconsin
Department of Commerce

Transaction ID #	Submitter's Name
Owner's Name	Date
Building Location (Number & Street)	City Village Township of

INTERIOR LIGHTING POWER ALLOWANCE (ILPA) (s. Comm 63.1047 or 63.1048)

(Choose *one* method or use the Activity Method and Form L-5)

Complete Building Method

Building Type of Use From Table 63.1047	Watts/ft²	Complete Bldg. Area	Allowed Watts

Area Category Method

Primary Function From Table 63.1048	Watts/ft²	Area (sq. ft.)	Allowed Watts
	Totals		
		ft² Area	Watts

ACTIVITY METHOD WORKSHEET

L-5

Wisconsin
Department of Commerce

Transaction ID #	Submitter's Name
Owner's Name	Date
Building Location (Number & Street)	City Village Township of

INTERIOR LIGHTING POWER ALLOWANCE (ILPA) (s. Comm 63.1049)

(Use as many sheets as necessary)

A	B	C	D	E	F	G	H	I
Room Number or Name	Ceiling Height (ft)	Area/Activity Description (Table 63.1049)	Note	UPD (W/ft²)	Floor Area (ft²)	Area Factor*	# of Identical Spaces	LPB (W) (ExFxGxH)

Sheet Total ILPA ——

* Note b: Office Categories 2 & 3 Area Factors shall not exceed 1.00
Note d: Office Category 1 Area Factors shall not exceed 1.55
Area Factors less than 1.0, equal 1.0
Area Factors greater than 1.8 shall equal 1.8

Total ILPA from all sheets ——