



# Energy Smart Design™– Office Trade-Off Trade-Off Package C Lighting Only

TECHNICAL SPECIFICATIONS

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## CHAPTER 1: PRESCRIPTIVE PATH FOR Energy Smart Design™ – Offices

### 1.0 Eligibility Requirements for Energy Smart Design™ – Offices: Buildings located in the City of Seattle are not eligible for Package C.

**a)** To be eligible, a project shall be a new office building, an office addition, or a major renovation for an office. A renovation requires multiple changes in end-uses. The building can be mixed use, but the incentive will only apply to the office area. Banks, libraries, dental offices and medical offices qualify as offices for this prescriptive path. The incentive calculation is based on the conditioned square footage of office occupancy. In the case of office occupancies in other building types, the incentive calculation is based on the area of office occupancy in the building. Partial office occupancy projects shall include all of the listed measures to be eligible under this prescriptive path.

**b)** The new office building shall use one or more of the following HVAC systems for at least 70 percent of the conditioned space:

1. Packaged variable-air-volume system with electric reheat
2. Packaged variable-air-volume system with a non-electric reheat
3. Heat pump
4. Packaged or split system single zone equipment with non-electric heat

**c)** The building shall be 3 stories or less, a maximum of 100,000 square feet and have a maximum Window-to-Wall Ratio of 30%. Window wall area ratio is defined as the total exterior window area (including glazed doors) divided by the total exterior wall area, including demising walls but not including below grade walls. Window wall ratio calculation shall not include semi-conditioned spaces, mechanical penthouses, and parking garages.

**d)** Energy savings must be documented as greater than or equal to Energy Smart Design™ – Office Pkg C, 1 kWh per square foot.

### 1.1 Prescriptive Path Package C for New Offices:

Description	Requirements
Lighting Budget (whole building)	0.75 Watts/SF Maximum, while providing illuminance levels as recommended by IESNA
Lighting Controls	Occupancy Sensors-install where lighting loads are over 100 watts

Trade-Offs Buildings must address both measures to qualify. Slight deviations can be qualified using the Trade-Off form in Appendix 3, as long as the building savings will be greater than or equal to the package savings.

Lighting Power Density Installed lighting power density (LPD) shall not exceed 0.75 watts per square foot using a whole building calculation. Installed lighting power calculations shall be consistent with ASHRAE 90.1 2004 or local codes. Light levels in the space shall meet the design and illumination standards of the Illuminating Engineering Society of North America (IESNA) appropriate for each space within the building.

#### **Documentation:**

- Provide an LPD calculation table in a format similar to those required by regional code jurisdictions for project approval. This form shall indicate building floor area and fixture quantity and watt consumption for each type of fixture installed.

Automatic Lighting Controls Occupancy sensors shall be installed to control general lighting in all spaces with connected lighting loads over 100 watts. Occupancy sensors shall be commissioned and time delays shall be no more than 10 minutes. Information about occupancy sensor performance shall be included in the building commissioning report.

Automatic Lighting Controls are not required in the following areas:

- Lighting required by a health or life safety statute, ordinance or regulation, including but not limited to emergency lighting.
- Emergency lighting.
- Health care patient rooms.

**Documentation:**

- Provide a completed Lighting Control Checklist (a sample is available in appendix 4 of these specifications) documenting that the occupancy sensors operate in an efficient manner.

1.2 Existing Codes and Regulations: These specifications are intended to meet or exceed applicable existing building codes and Federal regulations. In any case where a Federal, State or local code or regulation exceeds these requirements, that code or regulation applies.

1.3 Qualification: Building design and construction shall be reviewed and verified by the design professional to meet these Energy Smart Design™– Office Trade-Off Technical Specifications. Any deviation from the specifications shall have written BPA approval.

1.4 Additional Utility Requirements: Utilities may add requirements more stringent than those in this specification.

# Appendices

Appendix 1  
**Sample Certification letter**

Energy Smart Design™ – Office Package C  
**Sample Certification letter**

Date

Participating Utility Representative Name & Title

Utility Name

Address

This letter is a certification that all the measures installed and commissioned meet the specifications for Energy Smart Design™ – Office Package C for the new office building located at ( address ) and owned by

( owner's name and address ). Construction on this building started on ( date ) and this building has ( building area ) square feet of conditioned space. The building uses the following packaged HVAC systems for at least 70 percent of the conditioned space: ( VAV with electric reheat, VAV with non-electric reheat, heat pumps, single zone equipment with non-electric heat ). (Cross out all systems that have not been installed.)

Attached are the documents required for Energy Smart Design™ – Office Package C.

By signature below, the undersigned hereby acknowledges that the above is true to the best of his/her knowledge and that he/she is a professional familiar with the building design. Professionals can be a qualified utility representative, registered architect, licensed engineer or commissioning agent.

**Professional familiar with the building design:**

Name & Title: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**Attachments:**

- Copy of lighting budget form required for permit and “any submitted code compliance documents” (PDF format preferred).
- Building drawings in PDF format.
- Lighting Control Checklist

Appendix 2

# Package C Lighting Control Checklist

# Energy Smart Design™ – Office Package C

## Lighting Control Checklist

1) Area Served by occupancy sensor: \_\_\_\_\_ Connected Load (kW) \_\_\_\_\_  
(Specify: conference room, computer area, etc.) Time Delay (minutes) \_\_\_\_\_  
Occupancy sensor Manufacturer/Model #: \_\_\_\_\_

Comments: \_\_\_\_\_

2) Area Served by occupancy sensor: \_\_\_\_\_ Connected Load (kW) \_\_\_\_\_  
(Specify: conference room, computer area, etc.) Time Delay (minutes) \_\_\_\_\_  
Occupancy sensor Manufacturer/Model #: \_\_\_\_\_

Comments: \_\_\_\_\_

3) Area Served by occupancy sensor: \_\_\_\_\_ Connected Load (kW) \_\_\_\_\_  
(Specify: conference room, computer area, etc.) Time Delay (minutes) \_\_\_\_\_  
Occupancy sensor Manufacturer/Model #: \_\_\_\_\_

Comments: \_\_\_\_\_

4) Area Served by occupancy sensor: \_\_\_\_\_ Connected Load (kW) \_\_\_\_\_  
(Specify: conference room, computer area, etc.) Time Delay (minutes) \_\_\_\_\_  
Occupancy sensor Manufacturer/Model #: \_\_\_\_\_

Comments: \_\_\_\_\_

5) Area Served by occupancy sensor: \_\_\_\_\_ Connected Load (kW) \_\_\_\_\_  
(Specify: conference room, computer area, etc.) Time Delay (minutes) \_\_\_\_\_  
Occupancy sensor Manufacturer/Model #: \_\_\_\_\_

Comments: \_\_\_\_\_

6) Area Served by occupancy sensor: \_\_\_\_\_ Connected Load (kW) \_\_\_\_\_  
(Specify: conference room, computer area, etc.) Time Delay (minutes) \_\_\_\_\_  
Occupancy sensor Manufacturer/Model #: \_\_\_\_\_

Comments: \_\_\_\_\_

7) Area Served by occupancy sensor: \_\_\_\_\_ Connected Load (kW) \_\_\_\_\_  
(Specify: conference room, computer area, etc.) Time Delay (minutes) \_\_\_\_\_  
Occupancy sensor Manufacturer/Model #: \_\_\_\_\_

Comments: \_\_\_\_\_

Appendix 3  
**Trade-Off Form**

# Energy Smart Design™ – Office Trade-Off Form

This form must be submitted to the serving utility, along with all required documentation before an incentive can be paid.

Facility Name

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Submitters Name

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Company Name

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Submitters phone number

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Submitters email address

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1. Description of Energy Smart Design™ – Office feature which will not be included: \_\_\_\_\_  
(Specify: Cooling system minimum efficiency level, Effective window U-value, Window solar heat gain coefficient, Enhanced economizer, Integrated Design, Lighting Budget or Lighting Controls)

Description of why Trade Off is needed (why Energy Smart Design™ – Office feature cannot be incorporated):

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2. Description of Trade Off (attach equipment spec sheets, clearly delineating the Trade Off):

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3. Description of Energy Smart Design™ – Office feature electricity savings include calculations and assumptions:

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4. Description of Trade Off electricity savings (must be greater than or equal to Energy Smart Design™ – Office feature) include calculations and assumptions:

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5. Documentation of Trade Off incremental cost (Trade Off cost minus cost to build to code):

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6. Description of how Trade Off electricity savings can be verified: \_

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By signing and submitting this form, I certify that with this Trade Off, the building savings will be greater than or equal to the following package savings: Pkg A = 2 kWh/SF, Pkg B = 1 kWh/SF, Pkg C = 1 kWh/SF, over a building built to the code in force at the time of building permitting.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_