BUILT SMART℠

Sub-Contractor Alerts

www.seattle.gov/light/conserve/resident
(206) 684-3800

Seattle City Light

Revised November, 2007

Seattle City Light

BUILT SMART℠

Contractor Alert
Site Superintendent

For a detailed explanation of these requirements, refer to the April 2004 edition of the BUILT SMART Technical Specifications - Chapter 2 given to your General Contractor or available at www.seattle.gov/light/conserve/resident

Please contact your BUILT SMART field inspector for a required inspection at the following times:

- **Slab-On-Grade/Full Under-Slab Insulation:** *Prior to concrete slab pour.*
- **Exterior Wall Framing:** *Prior to installation of wall insulation* - to confirm that all enclosed exterior wall framing cavities are insulated.
- **Ceiling/Roof Framing:** *Prior to installation of ceiling insulation* – to confirm that clearances are adequate for full insulation coverage.
- **Glazing:** *When windows are delivered to site* – to confirm that glazing meets the required U-Values based on the approved design criteria of your building. NOTE: The window supplier must supply the BUILT SMART representative with a window schedule identifying total glazing square footage, window sizes, U-Value for each type of window/glass door, and the weighted average U-Value calculation.
- **Caulking and Air Sealing:** *Prior to cover* by insulation and/or gypsum wallboard.
- **Insulation:** *Prior to cover* by any other materials (polyethylene [or other sheet] vapor retarder, gypsum wallboard (GWB), etc.).
- **Vapor Retarder:**
  1) For sheet-type vapor retarders, *prior to cover by GWB or other material* (Polyethylene is not recommended.)
  2) For vapor retarder primers, *at time of application*
- **In-Unit Exhaust Ventilation Fans:** *Prior to installation*.
- **HVAC Equipment:** *Prior to installation*.

At the final inspection, the following will be confirmed:

- BUILT SMART-approved heating thermostats are installed.
- Ventilation exhaust fans have correct airflow.
- Correct number of fresh air inlets are installed and working properly.
- Interior doors have ½-inch minimum undercut from finish floor.
- Whole house exhaust fan timers are installed and working properly.
- Lighting fixtures and controls meet specifications.
- Appliance and other equipment upgrades meet specifications, if required.

For more information, **contact your BUILT SMART representative.**

6/05

Seattle City Light

BUILT SMART℠

Contractor Alert:
Air Sealing and Insulation

For a detailed explanation of these requirements, refer to the April 2004 edition of the BUILT SMART Technical Specifications - Chapter 3 given to your General Contractor or available at www.seattle.gov/light/conserve/resident

Air Sealing Requirements

All penetrations through the building envelope shall be sealed with appropriate material (caulking, insulating foam, mineral wool, backer rod, etc.) to limit air-leakage, including:

- Around all window and door frames to control air-leakage.
- At all exterior penetrations in the rim joist framing including blocking where the floor joists are cantilevered to support an exterior deck.
- At the bottom of the wall plate where wall meets the slab floor.
- Around any penetrations in the building envelope to ducts, through-the-wall air inlet vents and accesses hatches.
- Around all outlets, switches, or other electrical boxes in the exterior walls, ceilings or floors. (Foam gaskets behind electrical cover plates meet this requirement.)
- All recessed fixtures (e.g. wall heaters, exhaust fans, medicine cabinets, recessed lights, etc.) shall be sealed to the assembly in all exterior walls and ceilings and in all ceilings between floors of stacked multifamily units.

Insulation Requirements

Seattle City Light BUILT SMART Inspectors will thoroughly inspect the quality of all insulation applications, including the following areas:

- Perimeter slab on grade insulation must be R-10.
- Exhaust ducts in unheated spaces shall be insulated to R-8.
- Insulation must be cut to fit cavity. No voids or compression are allowed.
- All framing cavities in exterior wall must be fully insulated (no voids).
- All headers must be insulated to R-10 or maximum possible. (See Specs 3.2.2)
- Split or cut batts around all plumbing and wiring.
- All rim joists between floors shall be insulated to the above-grade wall R-value.
- Insulation shall be installed in a permanent manner and include required vapor barrier.
- All fan and recessed light housing on the top floor only must be fully insulated above.
- Eaves shall be insulated with R-38 fiberglass batts.

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- Hatches connecting the conditioned spaces to attics and crawlspaces shall be insulated to at least the minimum requirement for the appropriate component. The insulation shall be held in place in a permanent manner.
- Vapor barrier required on all exterior walls and exterior ceiling.
- All interior stairwell and elevator shaft walls adjacent to any residential unit, or any other conditioned residential space shall be insulated to a minimum of R-21.
- All concrete exterior walls above and below grade must be insulated to a minimum of R-21.

Required Inspections

A BUILT SMART inspector must conduct the following inspections:

- All slab-on-grade insulation prior to concrete pour.
- All caulking prior to covering with insulation.
- All insulation and vapor barrier(s) prior to covering with wallboard.
- All outside exterior wall insulation prior to covering with exterior finish.

For more information, **contact your BUILT SMART representative**.

Seattle City Light

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Contractor Alert: Electrical

For a detailed explanation of these requirements, refer to the April 2004 edition of the BUILT SMART Technical Specifications - Chapter 5 given to your General Contractor or available at www.seattle.gov/light/conserve/resident.

To qualify for the BUILT SMART incentive, whole house fans must draw less than 30 watts.

CODE REQUIREMENTS

Whole House Ventilation for Low to Mid-Rise Buildings* *--Intermittently-Operated*

- Fans must meet the following Washington Ventilation and Indoor Air Quality code prescriptive sizing requirements:

Unit Square footage	Number of Bedrooms	Minimum /Maximum Fan Flow at 0.25 in W.G.
Less than 500	2 or less	50-75 cfm
501-1000	2 or less	55-83 cfm
1001-1500	2 or less	60-90 cfm
501-1000	3 bedrooms	70-105 cfm
1001-1500	3 bedrooms**	75-113 cfm

**for more than 3 bedrooms, see code table.

- Fans shall have both automatic and manual controls. Automatic controls shall include a time clock or cycle timer. Automatic control apparatus shall not be removable.
- Surface mounted fans must have a sone rating of 1.5 or less.
- Whole house fan motors shall be rated for continuous use.
- All exhaust fans must vent to the building exterior.

Whole House Ventilation for Low to Mid-Rise Buildings* *--Continuously-Operated*

# of Bedrooms	Min. Fan Flow at 0.25 in W.G.	Max. Fan Flow at 0.25 in W.G.
1	30 cfm	60 cfm
2	50 cfm	75 cfm
3	60 cfm	90 cfm

*Larger buildings – see Ventilation Code.

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For tenant comfort, we *recommend* for continuously-operated whole house fans, that:

- Fan motors are rated for continuous use;
- Airflow capacities are rated at 0.25 wg external pressure by HVI;
- Fan noise levels do not exceed 1.0 sones;
- Fan motor power draw does not exceed 30 watts; and
- Fans are sized to meet the ASHRAE 62.2 recommendation.

Spot Ventilation for Low to Mid-Rise Buildings*

- All bathroom spot ventilation fans must have a min.-listed rating of 50 cfm @ 0.25 WG.
- All kitchen spot ventilation fans must have a min.-listed rating of 100 cfm @ 0.25 WG.
- Fans (or other non-heat-recovery systems) exhausting from the building shall be ducted to the outside and have a back draft or automatic damper in the exhaust duct.

Heat Lamp/Fan Combinations

All heat lamp/fan combinations located in bathrooms must be wired and switched to operate separately. NOTE: If the bathroom fan is not a whole house fan, a one-hour crank timer in place of a switch is recommended.

In-Wall Heaters

In-wall heaters must be mounted on interior walls or insulated from the exterior to full value of wall insulation.

Exterior Wall Cover Gaskets

Exterior-wall electrical cover plates must have foam gaskets or be caulked and sealed to limit air leakage.

Recessed Light Fixtures

All recessed light fixtures must be of **low air leakage type** (interior use, between floors).

Zone Heating Thermostats

Each separate heating system in the unit shall have at least one thermostat per zone mounted on an interior wall, at the manufacturer's recommended height, to regulate temperature. Each thermostat shall have numerical degree settings. Thermostat accuracy shall be +/-2 degrees F or less. Electronic or vapor-diaphragm thermostat types are allowed. Other thermostats must be verified by 3rd party testing.

For more information, **contact your BUILT SMART representative.**

Seattle City Light

BUILT SMART℠

Contractor Alert:
Lighting Supplier – Optional Lighting

For a detailed explanation of these requirements, refer to the April 2004 edition of the BUILT SMART Technical Specifications - Chapter 7 given to your General Contractor or available at www.seattle.gov/light/conserve/resident

Interior common area lighting controls and efficient in-unit lighting fixtures are optional measures. Seattle City Light strongly encourages you to install these efficient fixtures and controls whenever possible. All controls and fixtures shall be reviewed and approved prior to installation and inspected after installations.

Interior Common Area Controls Locations

Controls may be installed in meeting rooms, office spaces, exercise rooms, laundry rooms and other common areas within the building.

Interior Common Area Controls Specifications

Any occupancy control "manual on" switch must not override "automatic off" feature.

In-Unit Fixture Locations

Fluorescent fixtures in kitchen, dining room, living room, bedroom, bathroom, entry, hallways and stairwells are eligible for an incentive if they are Energy Star labeled.

In-Unit Fixture Specifications

- All lamps must have a Color Rendition Index of 70 or better.
- Only T-5 or T-8 lamps are allowed where linear fluorescent fixtures are installed.
- T-5 or T-8 fixtures must have electronic ballasts.
- Compact fluorescent fixtures require high power factor ballasts and flicker free/ quick start lamps.
- All fixtures must be hardwired.
- No T-12 circline type lamp/fixtures are allowed.
- Where fluorescent lamps are used, low mercury content is strongly recommended.
- Must be Energy Star labeled.

Lighting for Commercial Areas within the Building

Financial incentives are available for the commercial areas of the building under Seattle City Light's ***Energy Smart Services*** Program at (206) 684-3254.

For more information, **contact your BUILT SMART representative.**

Seattle City Light

BUILT SMART℠

Contractor Alert:
Lighting Supplier – Required Lighting

For a detailed explanation of these requirements, refer to the BUILT SMART Technical Specifications - Chapter 6 given to your General Contractor or available at www.seattle.gov/light/conserve/resident

Energy efficient lighting is required in all residential common areas of any BUILT SMART project whether or not they are receiving incentives for thermal envelope upgrades.

All interior residential common area lighting installed in the common areas must be connected to the residential common house meter.

Interior Common Area Lighting Efficiency

Overall interior residential common area lighting must have a lighting power density maximum of 0.8 watts per square foot for standard multifamily housing and a maximum of 1.3 watts per square foot in Nursing Homes/Senior Housing (See Appendix A for Lighting Calculation Worksheets). The incentive amount is based on the actual installed lighting power density and will be identified in your BUILT SMART agreement.

Note: Seattle City Light recommends that all multifamily common areas have a minimum of 5 foot-candles over the entire space being considered. (See Category B of the Lighting Handbook 8th Edition, Reference and Application, IESNA for details.)

Interior Common Area Lighting Review

A set of architectural drawings (including common area square footages), a reflective ceiling plan, a fixture schedule and the manufacturer's specifications sheets for the residential common areas must be submitted for review prior to installation.

Interior Common Area Lighting Specifications

- All lamps must have a Color Rendition Index of 70 or better.
- Only T-5 or T-8 lamps are allowed where linear fluorescent fixtures are installed.
- T-5 or T-8 fixtures must have electronic ballasts.
- Compact fluorescent fixtures require high power factor ballasts, and if switched or controlled, require flicker free/quick start lamps.
- Fixtures must be hardwired.
- No T-12 circline type lamp/fixtures are allowed.
- All exit signs that exceeds 5 watts shall be included in the lighting power density calculation.

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Exterior Common Area Lighting Review and Inspections

All fixtures shall be reviewed and approved prior to installation and inspected after installations.

Exterior Common Area Lighting Locations

All exterior common area lighting fixtures located outside the thermal envelope of the building must be connected to the residential common house meter. Exception: townhouse type entry fixtures may be connected to tenant meter. (Refer to local energy code for parking garage lighting requirements.)

Exterior Common Area Lighting Specifications

- All lamps must have a Color Rendition Index of 70 or better – except HPS.
- Only T-5 or T-8 lamps are allowed where linear fluorescent fixtures are installed.
- T-5 or T-8 fixtures must have electronic ballasts.
- Compact fluorescent fixtures require high power factor ballasts.
- All fixtures must be hardwired.
- No T-12 circline type lamp/fixtures are allowed.
- Where fluorescent lamps are used, low mercury content is strongly recommended.
- All exterior fixtures must be suitable for damp or wet location, where required.
- All exterior fixtures must be controlled by a photocell.

Exceptions

This program allows deviations from the lighting requirements for specific unique architectural details. Any exception must be reviewed and approved on a case-by-case basis by a BUILT SMART Program representative.

For more information, **contact your BUILT SMART representative**.

Seattle City Light

BUILT SMART℠

Contractor Alert:
Window Supplier/Installer

For a detailed explanation of these requirements, refer to the April 2004 edition of the BUILT SMART Technical Specifications - Chapter 3 given to your General Contractor or available at www.seattle.gov/light/conserve/resident

NFRC Ratings

All windows and sliding glass doors shall be NFRC certified and labeled. Until NFRC ratings are available for skylights mounted in non-vertical positions, the default U-factors in the WSEC shall be used.

Window suppliers shall supply the following information to the BUILT SMART program manager:

1. A complete window schedule including sizes & U-values for each type of window & glass door, and total square footage of all glazing to be installed in the project
2. A calculation of the overall weighted average U-value of all glazing being installed in the project.

BUILT SMART Window Specifications

1. Maximum overall tested U-value shall be .33. (Overall weighted average is acceptable.)
2. One fresh-air inlet must be provided for each bedroom.
3. Two fresh-air inlets must be provided for each combined living/dining rooms.

For more information, **contact your BUILT SMART representative.**