Chapter 12
REMODELING OF FUNCTIONAL AREAS AND SMALL ADDITIONS

Item #	Green Building Practices

12.00	REMODELING OF FUNCTIONAL AREAS

12.0	**Intent.** This chapter sets forth the mandatory green practices for remodeling functional areas of buildings. The intent of Chapter 12 is to address the most common remodeling projects: complete kitchen, full bathroom, complete basement, or an addition under 400 square feet. Chapter 12 is not intended to be used for rating minor alterations.

12.305.4	**Criteria for remodeling functional areas of buildings**
13.305.4.1	**Applicability.** The provisions of Section 305.4 shall apply to remodeling of one or more of the following functional areas of the existing building as follows:
1.	Addition, kitchen, bathroom, or basement in buildings other than multi-unit buildings.
2.	Kitchen or bathroom of an individual dwelling unit in a multi-unit building.
12.305.4.1.1	**Additions.** The total above-grade conditioned area added during a remodel that are less than 400 Conditioned square feet.

12.305.4.2	**Compliant.** Projects that meet all applicable requirements of Chapter 12 for that functional area shall be designated as *compliant.*

12.305.4.3	**Designation.** The designation achieved under Section 305.4 applies only to the specific functional area of the existing building. The existing building may have more than one *compliant* functional area.

12.305.4.4	**Additions.** A bathroom(s), kitchen, or finished basement included in an addition shall comply with all criteria specifically applicable to those functional areas in accordance with the provisions of Chapter 12.

305.4.5	**Mandatory.** Projects shall satisfy all applicable practices designated as mandatory in Chapter 12.

12.305.4.6	**Existing attributes.** The attributes of the existing building that were in compliance with the applicable provisions of Chapter 12 prior to the remodel and remain in compliance after the remodel shall be eligible for contributing to demonstration of compliance under Section 305.4.

12.701.4.3.1	**Building Thermal Envelope.** The portions of the building thermal envelope that are exposed or created during the remodel is durably sealed to limit infiltration. The sealing methods between dissimilar materials allow for differential expansion and contraction. The following are caulked, gasketed, weather-stripped or otherwise sealed with an air barrier material, suitable film or solid material:
(a)	All joints, seams and penetrations.
(b)	Site-built windows, doors and skylights.

(c)	Openings between window and door assemblies and their respective jambs and framing.
(d)	Utility penetrations.
(e)	Dropped ceiling or chases adjacent to the thermal envelope.
(f)	Knee walls.
(g)	Walls and ceilings separating a garage from conditioned spaces.
(h)	Behind tubs and showers on exterior walls.
(i)	Common walls between dwelling units.
(j)	Attic access openings.
(k)	Rim joist junction.
(l)	Other sources of infiltration.

12.701.4.3.2 **Air Sealing and insulation.** Grade 3 insulation installation is not permitted for newly installed insulation. The compliance of the portions of the building envelope that are exposed or created during the remodel for air tightness and insulation installation are considered acceptable when the items listed in Table 1`2.1.701.4.3.2(2) applicable method of construction are field verified.

Table 12.1.701.4.3.2(2)

Air Barrier and Insulation Inspection Component Criteria

Component Criteria	Criteria
Air barrier and thermal barrier	• Exterior thermal envelope insulation for framed walls is installed in substantial contact and continuous alignment with building envelope air barrier.
	• Breaks or joints in the air barrier are filled or repaired.
	• Air-permeable insulation is not used as a sealing material.
	• Air-permeable insulation is not installed with an air barrier.
Ceiling/Attic	• Air barrier in dropped ceiling/soffit is substantially aligned with insulation and any gaps are sealed.
	• Attic access (except unvented attic), knee wall door, or dropdown stair is sealed.
Exterior Walls	• Corners and headers are insulated.
	• Junction of foundation and sill plate is sealed.
Windows and doors	• Space between windows/door jambs is sealed.
Rim joints	• Rim joists are insulated and include an air barrier.
Floors (including above-garage and cantilevered floors)	• Insulation is installed to maintain permanent contact with underside of subfloor decking.
	• Air barrier is installed at any exposed edge of insulation.
Crawlspace walls	• Where installed, insulation is permanently attached to walls.
	• Exposed earth in unvented crawlspaces is covered with Class I vapor retarder with overlapping joints taped.
Shafts, penetrations	• Duct shafts, flue shafts, and utility penetrations, opening to the exterior or an unconditioned space are sealed.

	Narrow cavities	• Batts in narrow cavities are cut to fit, or narrow cavities are filled by sprayed/blown insulations.
	Garage separation	• Air sealing is provided between the garage and conditioned spaces.
	Recessed lighting	• Recessed light fixtures not installed in the conditioned space are air tight, IC rated, and sealed to drywall.
	Plumbing and wiring	• Insulation is placed between the outside and pipes. Batt insulation is cut to fit around wiring and plumbing, or sprayed/blown insulation extends behind piping and wiring.
	Shower/tub adjacent to exterior wall	• Showers and tubs adjacent to exterior walls have insulation and an air barrier separation from the exterior.
	Electrical/phone box in exterior walls	• Air barrier extends behind boxes or air sealed-type boxes are installed.
	Common wall	• Air barrier is installed in common walls between dwelling units.
	HVAC register boots	• HVAC register boots that penetrate building envelope are sealed to subfloor or drywall.
	Fireplace	• Fireplace walls include an air barrier.

12.1.701.4.3.4	**Recessed lighting.** Newly installed recessed luminaires installed in the building thermal envelope are sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires are IC-rated and labeled as meeting ASTM E 283 when tested at 1.57 psf (75 Pa) pressure differential with no more than 2.0 cfm (0.944 L/s) of air movement from the conditioned space to the ceiling cavity. All luminairs are sealed with a gasket or caulk between the housing and the interior of the wall or ceiling covering.

12.1.701.4.4	**High-efficiency lighting.** A minimum of 50 percent of the hard-wired lighting fixtures and bulbs in the remodeled portion of the building, or the bulbs in those fixtures, qualify as high efficacy or equivalent.

12.1.701.4.5	**Boiler supply piping.** Newly installed boiler supply piping in unconditioned space that is accessible during the remodel is insulated.

12.1.703.5.3	**Appliances.** All newly installed major appliances in the remodeled portion of the building are ENERGY STAR or equivalent.

12.1.901.1.4	**Gas-fired equipment.** Newly installed gas-fired fireplaces and direct heating equipment is listed and is installed in accordance with the NMAC. Gas-fired fireplaces and direct heating equipment are vented to the outdoors.

12.1.901.2.1	**Solid fuel-burning appliances.** Newly installed solid fuel-burning fireplaces, inserts, stoves, and heaters are code compliant and are in accordance with the following requirements:
(1)	Site-built masonry wood-burning fireplaces are equipped with outside combustion air and a means of sealing the flue and the combustion air outlets to minimize interior air (heat) loss when not in operation.
(2)	Factory-built, wood-burning fireplaces are in accordance with the certification requirements of UL 127 and are EPA certified.

(3)	Wood stove and fireplace inserts, as defined in UL 1482 Section 3.8, are in accordance with the certification requirements of UL 1482 and are in accordance with the emission requirements of the EPA Certification and the State of Washington WAC 173-433-100(3).
	Pellet (biomass) stoves and furnaces are in accordance with the requirements of ASTM E1509 or are EPA certified.
	Masonry heaters are in accordance with the definitions in ASTM E1602 and ICC IBC, Section 2112.1.

12.1.902.4	**HVAC System Protection.** One of the following HBAC system protection measures is performed.
(1)	HVAC supply registers (boots), return grilles, and rough-ins are covered during construction activities to prevent dust and other pollutants from entering the system.

12.1.903.2	**Duct insulation.** All newly installed, exposed, or modified All HVAC ducts, plenums, and trunks in unconditioned attics, basements, and crawl spaces are insulated to a minimum of R-6. Outdoor air supplies to ventilation systems are insulated to a minimum of R-6.

12.2 KITCHEN REMODELS

12.2.0	**Applicability.** In addition to the practices listed in Section 12.1, the following practices are mandatory for all kitchen remodels.

12.2.607.1	**Recycling.** Recycling by the occupants is facilitated by means of a built-in collection space in or near the kitchen and an aggregation/collection space in a garage, covered outdoor space, or other area for recycling containers.

12.3 BATHROOM REMODELS

12.3.611.3	**Universal design elements.** Where existing stud walls are exposed and where new walls are constructed, blocking or equivalent is installed to accommodate the future installation of grab bars at water closet(s) and bathing fixtures(s).

12.3.801.4	**Showerheads.** The total maximum combined flow rate of all newly installed showerheads that are controlled by a single valve at any point in time in a shower compartment is 1.6 to less than 2.5 gpm. Maximum of two valves are installed per shower compartment. The flow rate is tested at 80 psi (552 kPa) in accordance with ASME A112.18.1. Showerheads are served by an automatic compensating valve that complies with ASSE 1016 or ASME A112.18.1 and specifically designed to provide thermal shock and scald protection at the flow rate of the showerhead.

12.3.801.5.1	**Faucets.** Newly installed lavatory faucets have a maximum flow rate of 1.5 gpm (5.68 L/m) or less when tested at 60 psi (414 kPa) in accordance with ASME A112.18.1.

12.3.801.6	**Water Closets.** All newly installed water closets have an effective flush volume of 1.28 gallons (4.85 L) or less when tested in accordance with ASME A112.19.2 or ASME A112.19.14, as applicable, and is in accordance with EPA WaterSense Tank-Type Toilets.

12.4	BASEMENT REMODELS

12.4.0	**Applicability.** In addition to the practices listed in Section 12.1, the following practices are mandatory for all basement remodels.

12.4.2	**Kitchen.** When the basement remodel includes a kitchen, the remodel shall also comply with the practices in Section 12.2.

12.4.3	**Bathroom.** When the basement remodel includes a bathroom, the remodel shall also comply with the practices in Section 12.3.

12.4.4	**Radon control.** Passive or active radon control system is installed in accordance with ICC IRC Appendix F unless a radon test is performed demonstrating that the level is less than the USEPA mitigation action level of 4 pCi/L. (The USEPA recommends, but does not require, mitigation between 2 and 4 pCi/L) or unless it is structurally infeasble.

12.5	ADDITIONS

12.5.0	**Applicability.** In addition to the practices listed in Section 12.1, the following practices are mandatory for all addition remodels.

12.5.1	**Kitchen.** When the addition includes a kitchen, the remodel shall also comply with the practices in Section 12.2.

12.5.2	**Bathroom.** When the addition includes a bathroom, the remodel shall also comply with the practices in Section 12.3.

12.5.602.1.9	**Flashing.** Flashing is provided for the addition and for the intersection where the addition joins the existing building, to minimize water entry into wall and roof assemblies and to direct water to exterior surfaces or exterior water-resistive barriers for drainage. Flashing details are provided in the construction documents and are in accordance with the fenestration manufacturer's instructions, the flashing manufacturer's instructions, or as detailed by a registered design professional. Flashing is installed at all of the following locations, as applicable:
(a)	around exterior fenestrations, skylights and doors
(b)	at roof valleys
(c)	at all building-to-deck, -balcony, -porch, and -stair intersections
(d)	at roof-to-wall intersections, at roof-to-chimney intersections, at wall-to-chimney intersections, and at parapets.
(e)	at ends of an under masonry, wood, or metal copings and sills
(f)	above projecting wood trim
(g)	at built-in roof gutters and canales, and
(f)	drip edge is installed at eaves and rake edges.

12.5.602.1.14	**Ice barrier.** In areas where there has been a history of ice forming along the eaves causing backup of water, an ice barrier is installed on the addition in accordance with the ICC IRC at roof eaves of pitched roofs and extends a minimum of 24 inches (610 mm) inside the exterior wall line of the building.

12.5.602.1.15	**Architectural features.** New architectural features that increase the potential for water intrusion are avoided.
(1)	No roof configurations that create horizontal valleys in roof designs.
(2)	No recessed windows and architectural features that trap water on horizontal surfaces.
(3)	All horizontal ledgers are sloped away to provide gravity drainage as appropriate for the application.

12.5.902.3	**Radon control.** Passive or active radon control system is installed in accordance with ICC IRC Appendix F unless a radon test is performed in the existing house demonstrating that the level is less than the USEPA mitigation action level of 4 pCi/L. (The USEPA recommends, but does not require, mitigation between 2 and 4 pCi/L).