

# **201X National Green Building Standard**

## **ANSI Standard Revision Process**

### **Public Comment Draft**

### **(Legislative Version)**

**September 23, 2011**

### **Foreword**

This draft is provided for the purpose of soliciting public comments on the changes to the 2008 National Green Building Standard. Only the changes to the 2008 Standard are open for public comment. In addition, all point assignments and all reference standards are open for public comment. Any comments on any other provisions of the Standard that have not changed from the 2008 Standard will not be accepted.

Public comments are accepted through **November 7, 2011** via a web-based form at [www.nahbrc.com/ngbs](http://www.nahbrc.com/ngbs).

Two versions of the Draft Standard are available for review: Legislative Version and Non-Legislative Version. Both versions are posted at [www.nahbrc.com/ngbs](http://www.nahbrc.com/ngbs).

The Legislative Version shows all changes in underline/~~striketrough~~ format. The existing language that has not been changed is shown only for the purpose of providing context for review of the changes.

The Non-Legislative Version is provided to facilitate review of the Draft Standard by the public.

Portions of the Draft Standard include provisions, including point assignments, designated as TBD (to be determined). Those provisions will be finalized by the Consensus Committee and will be open for comment during the next public comment period.

The final draft of the revised Standard will be editorially reviewed for spelling, grammar, and format after all substantive changes will have been processed by the Consensus Committee.

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# CHAPTER 1

## SCOPE AND ADMINISTRATION

### SECTION 101 - GENERAL

**101.1 Title.** The title of this document is the *National Green Building Standard™*, hereinafter referred to as “this Standard.”

**101.2 Scope.** This Standard provides criteria for rating the environmental impact of design and construction practices to achieve conformance with specified performance levels for green residential buildings.

**101.3 Intent.** This Standard shall establish practices for the design and construction of green residential buildings, building sites, subdivisions, and renovation thereof. This Standard is intended to provide flexibility to permit the use of innovative approaches and techniques. This Standard is not intended to abridge safety, health, or environmental requirements contained in other applicable laws, codes, or ordinances.

### SECTION 102 - APPLICABILITY

**102.1 Applicability.** The provisions of this Standard shall apply to design and construction of the residential portion(s) of any building not classified as an institutional use in all climate zones ~~within the United States~~. This Standard shall also be used for subdivisions, building sites, and the residential portions of alterations, additions, renovations, mixed-use residential buildings, and historic buildings, where applicable.

**102.2 Referenced documents.** The codes, standards, and other documents referenced in this Standard shall be considered part of the requirements of this Standard to the prescribed extent of each such reference. The version of the codes, standard or other referenced documents shall be the version referenced in chapter 11.

**102.3 Appendices.** Where specifically required by a provision in this Standard, that appendix shall apply. Appendices not specifically required by a provision of this Standard shall not apply unless specifically adopted.

### SECTION 103 - CONFORMANCE

**103.1 Mandatory practices.** This Standard does not require compliance with any specific practice except those noted as mandatory.

**103.2 Conformance language.** The green building provisions are written in mandatory language by way of using the verbs “to be,” “is,” “are,” etc. The intent of the language is to require the user to conform to a particular practice in order to qualify for the number of points assigned to that practice. Where the term “shall” is used, or the points are designated as “mandatory,” the provision or practice is mandatory.

**103.3 Documentation.** Verification of conformance to green building practices shall be the appropriate construction documents, architectural plans, site plans, specifications, builder certification and sign-off, inspection reports, or other data that demonstrates conformance as determined by the Adopting Entity. Where specific documentation is required by a provision of the Standard, that documentation is noted with that provision.

**103.4 Alternative compliance methods.** Alternative compliance methods shall be acceptable where the Adopting Entity finds that the proposed green building practice meets the intent of this Standard.

## SCOPE AND ADMINISTRATION

### SECTION 104 - ADMINISTRATION

**104.1 Administration.** The Adopting Entity shall specify performance level(s) to be achieved as identified in Chapter 3 and shall provide a verification process to ensure compliance with this Standard.

## CHAPTER 2

# DEFINITIONS

### SECTION 201 - GENERAL

**201.1 Scope.** Unless otherwise expressly stated, the following words and terms shall, for the purposes of this Standard, have the meanings shown in this chapter.

**201.2 Interchangeability.** Words used in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

**201.3 Terms defined in other documents.** Where terms are not defined in this Standard, and such terms are used in relation to the reference of another document, those terms shall have the definition in that document.

**201.4 Terms not defined.** Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies.

### SECTION 202 – DEFINITIONS

**ADDITION.** An extension or increase in floor area or height of a building or structure.

**ADOPTING ENTITY.** The governmental jurisdiction, green building program, or any other third-party compliance assurance body that adopts this Standard, and is responsible for implementation and administration of the practices herein.

**ADVANCED FRAMING.** Code compliant layout, framing and engineering techniques that minimize the amount of framing products used and waste generated to construct a building while maintaining the structural integrity of the building.

**AFUE (Annual Fuel Utilization Efficiency).** The ratio of annual output energy to annual input energy which includes any non-heating season pilot input loss, and for gas or oil-fired furnaces or boilers, does not include electrical energy.

**AIR BARRIER.** ~~Continuous layer or assembly of material(s) designed and constructed to control airflow between a conditioned space and an unconditioned space. The air barrier system is the primary air enclosure boundary that separates indoor (conditioned) air and outdoor (unconditioned) air. Material (s) assembled and joined together to provide a barrier to air leakage through the building envelope. An air barrier may be a single material, or a combination of materials.~~

**AIR HANDLER.** A blower or fan used for ~~the purpose of~~ distributing supply air to a ~~minimum of one~~ room, space, or area.

**AIR INFILTRATION.** The uncontrolled inward air leakage into a building caused by the pressure effects of wind or the effect of differences in the indoor and outdoor air density or both.

**AIR, MAKE-UP.** Air that is provided to replace air being exhausted.

~~**Alteration.** Any construction or renovation to an existing structure other than repair or addition that requires a permit. Also, a change in a mechanical system that involves an extension, addition or change to the arrangement, type or purpose of the original installation that requires a permit.~~

**ARCHITECTURAL COATINGS.** ~~A coating (paint or stain) recommended for field application to stationary structures and their appurtenances, to portable buildings, to pavements, or to curbs. The definition of architectural coating does not include adhesives and coatings recommended by the manufacturer or importer solely for shop applications.~~ A material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealers, and stains. An architectural coating is a material applied to stationary structures or their appurtenances at the site of installation. Coatings applied in shop applications, sealants and adhesives are not considered architectural coatings.

**BIOBASED PRODUCT.** A commercial or industrial product used in site development or building construction that is composed, in whole or in significant part, of biological products, renewable agricultural materials (including plant, animal, and marine materials), or forestry materials.

**BROWNFIELD (also EPA-Recognized Brownfield).** Real property, the expansion, redevelopment, or reuse that may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant, and includes Brownfield Site as defined in Public Law 107-118 (H.R. 2869) - "Small Business Liability Relief and Brownfields Revitalization Act."

*(i.e.: Pub.L. 107-118, § 1, Jan. 11, 2002, 115 Stat. 2356, provided that: "This Act [enacting 42 U.S.C.A. § 9628, amending this section, 42 U.S.C.A. § 9604, 42 U.S.C.A. § 9605, 42 U.S.C.A. § 9607, and 42 U.S.C.A. § 9622, and enacting provisions set out as notes under this section and 42 U.S.C.A. § 9607] may be cited as the „Small Business Liability Relief and Brownfields Revitalization Act’.”)*

~~**BUILDING, EXISTING.** Building erected prior to the adoption of this Standard or one for which a legal building permit has been issued.~~

**CERTIFIED GEOTHERMAL SERVICE CONTRACTOR.** A person who has a current certification from the International Ground Source Heat Pump Association as an installer of ground source heat pump systems or as otherwise approved by the Adopting Entity.

**CLIMATE ZONE.** Climate zones are determined based on Figure 6(1).

**CLUSTER DEVELOPMENT.** A design technique that concentrates residential buildings and related infrastructure at a higher density within specified areas on a site. The remaining land on the site can then be used for low intensity uses such as recreation, common open space, farmland, or the preservation of historical sites and environmentally sensitive areas.

**COGENERATION.** An energy process that consecutively generates useful thermal and electric energy from the same fuel source.

**COMMON AREA(S).** Areas within a Site or Lot. Common Area(s) are predominantly open spaces and consist of non-residential structures, landscaping, recreational facilities, roadways and walkways, which are owned and maintained by an incorporated or chartered entity such as a homeowner’s association or governmental jurisdiction, or Areas of a multi-unit building that are outside the boundaries of a dwelling unit and are shared among or serve the dwelling units; including, but not limited to, hallways, amenity and resident services areas, parking areas, property management offices, mechanical rooms, and laundry rooms.

**COMPOST FACILITY.** An outdoor bin or similar structure designed for the decomposition of organic material such as leaves, twigs, grass clippings, and vegetative food waste.

**CONDITIONED SPACE.** An area or room within a building being heated or cooled, containing uninsulated ducts, or with a fixed opening directly into an adjacent conditioned space.

**CONSTRUCTED WETLAND.** An artificial wetland, marsh, or swamp created as a new or restored habitat for native and migratory wildlife, for anthropogenic discharge such as wastewater, stormwater runoff, or sewage

treatment, for land reclamation after mining, refineries, or other ecological disturbances such as required mitigation for natural wetlands lost to a development.

**CONSTRUCTION WASTE MANAGEMENT PLAN.** A system of measures designed to reduce, reuse, and recycle the waste generated during construction and to properly dispose of the remaining waste.

**CONTINUOUS PHYSICAL FOUNDATION TERMITE BARRIER.** An uninterrupted, non-chemical method of preventing ground termite infestation (e.g., aggregate barriers, stainless steel mesh, flashing, or plastic barriers).

**COP (Coefficient of Performance).** A measure of the heating efficiency of ground and air source heat pumps defined as the ratio of the rate of heat provided by the heat pump to the rate of energy input, in consistent units, for a complete heat pump under defined operating conditions. (See EER as a measure of the cooling efficiency of heat pumps.)

**DEMAND CONTROLLED HOT WATER LOOP.** A hot water circulation (supply and return) loop with a pump that runs "on demand" when triggered by a user-activated switch or motion-activated sensor.

**DESUPERHEATER.** An auxiliary heat exchanger that uses superheated gases from an air conditioner's or heat pump's vapor-compression cycle to heat water.

**DIRECT VENT (APPLIANCE).** A fuel-burning appliance with a sealed combustion system that draws all air for combustion from the outside atmosphere and discharges all flue gases to the outside atmosphere.

**DRAIN-WATER HEAT RECOVERY.** A system to recapture the heat energy in drain water and use it to preheat cold water entering the water heater or other water fixtures.

**DURABILITY.** The ability of a building or any of its components to perform its required functions in its service environment over a period of time without unforeseen cost for maintenance or repair.

**DWELLING UNIT.** A single unit providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation.

**EER (Energy Efficiency Ratio).** A measure of the instantaneous energy efficiency of electric air conditioning defined as the ratio of net equipment cooling capacity in Btu/h to total rate of electric input in watts under designated operating conditions. When consistent units are used, this ratio becomes equal to COP. (See also Coefficient of Performance.)

**ENERGY MANAGEMENT CONTROL SYSTEM.** An integrated computerized control system that is intended to operate the heating, cooling, ventilation, lighting, water heating, and/or other energy-consuming appliances and/or devices for a building in order to reduce energy consumption. Also known as Building Automation Control (BAC) or Building Management Control System (BMCS).

**ENERGY MONITORING DEVICE.** A device installed within a building or dwelling unit that can provide near real-time data on whole building or dwelling unit energy consumption.

**ENGINEERED WOOD PRODUCTS.** Products that are made by combining wood strand, veneers, lumber or other wood fiber with adhesive or connectors to make a larger composite structure.

**ENVIRONMENTAL IMPACT.** See [LCA \(Life Cycle Analysis/Assessment\)](#)~~Life Cycle Analysis/Assessment (LCA).~~

**ENVIRONMENTALLY SENSITIVE AREA.** Areas within wetlands as defined by federal, state, or local regulations; areas of steep slopes; "Prime Farmland" as defined by the U.S. Department of Agriculture; areas of "critical habitat" for any federal or state threatened or endangered species, areas defined by state or local jurisdiction as environmentally sensitive.

**EROSION CONTROLS.** Measures that prevent soil from being removed by wind, water, ice, or other disturbance.

**EXISTING BUILDING.** Building completed and occupied prior to any renovation considered under this Standard.

**EXISTING SUBDIVISION.** An area of land defined as "Site" in this Chapter, that has received all development approvals and has been platted and all infrastructure is complete at time of application to the NGBS.

**FROST-PROTECTED SHALLOW FOUNDATION.** A foundation that does not extend below the design frost depth and is protected against the effects of frost in compliance with SEI/ASCE 32-01 or the provisions for frost-protected shallow foundations of the ICC IBC or IRC, as applicable.

**GRADE PLANE.** A reference plane representing the average of the finished ground level adjoining the building at all exterior walls. Where the finished ground level slopes away from the exterior walls, the reference plane shall be established by the lowest points within the area between the building and the lot line or, where the lot line is more than 6 feet (1830 mm) from the building between the structure and a point 6 feet (1830 mm) from the building.

**GRAY WATER.** Waste discharged from lavatories, bathtubs, showers, clothes washers, and laundry trays.

**GREYFIELD SITE.** A previously developed site with abandoned or underutilized structures, and little or no contamination or perceived contamination.

**GROUND SOURCE HEAT PUMP.** Space conditioning and/or water heating systems that employs a geothermal resource such as the ground, groundwater, or surface water as both a heat source and a heat sink and use a reversible refrigeration cycle to provide both heating and cooling.

**HARDSCAPE.** ~~Stone, masonry, concrete, asphalt, wood~~ Asphalt, concrete, masonry, stone, wood and other non-plant elements external to the building shell on a landscape.

**HEAT PUMP.** An appliance having heating or heating/cooling capability and that uses refrigerants to extract heat from air, liquid, or other sources.

**HIGH Efficiency Lighting-EFFICACY LAMPS.** Compact fluorescent lamps, LED, T-8 or smaller diameter linear fluorescent lamps, or lamps with a minimum efficacy of: 1) 60 lumens per watt for lamps over 40 watts; 2) 50 lumens per watt for lamps over 15 watts to 40 watts; and 3) 40 lumens per watt for lamps 15 watts or less.

**HISTORIC BUILDING.** Buildings that are listed in or eligible for listing in the National Register of Historic Places (NRHP) or designated as being of historic or architectural significance under an appropriate state or local law.

**HSPF (Heating Seasonal Performance Factor).** The total seasonal heating output of a heat pump, in Btu, divided by the total electric energy input during the same period, in watt-hours using a defined test methodology.

**HYDROZONING.** A landscape practice that groups plants with similar watering needs together in an effort to conserve water.

**ICF (INSULATING CONCRETE FORMS).** ~~Forms for poured concrete walls made of foam or other insulation in preformed blocks or panels that stay in place as a permanent part of the wall assembly. A concrete forming system using stay-in-place forms of rigid foam plastic insulation, a hybrid of cement and foam insulation, a hybrid of cement and wood chips, or other insulating material for constructing cast-in-place concrete walls.~~

**IMPERVIOUS SURFACE.** Hard-covered ground area that prevents/retards the entry of water into the soil at that location resulting in water flowing to another location. (also see HARDSCAPE)

~~**INDIGENOUS MATERIAL.** Material that is originated, produced, grows naturally, or occurs naturally in a region within 500 miles (804.7 km) of the construction site.~~

**INDIRECT-FIRED WATER HEATER.** A water storage tank, typically with no internal heating elements, that is connected by piping to an external heating source such as a gas or oil fired boiler.

~~**INFILL Site.** A location including vacant or underutilized land that may apply to either a Site or a Lot includes two or more of the following: road, electrical power, sewer, or water and is located in an area served by existing infrastructure such as centralized water and sewer connections, roads, drainage, etc., and the site boundaries are adjacent to existing development on at least one side.~~

**INTEGRATED PEST MANAGEMENT.** A sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools in a way that minimizes economic, health, and environmental risks.

**LANDSCAPE PRACTICE, (LANDSCAPING).** Any activity that modifies the visible features of an area of land and may include living elements, such as flora or fauna; natural elements such as terrain shape and elevation, or bodies of water; human elements such as fences or other material objects created and/or installed by humans; and abstract elements such as the weather and lighting conditions.

**LAVATORY FAUCET.** A valve for dispensing hot and/or cold water to a basin used for washing hands and face, but not for food preparation.

**LCA (Life Cycle Analysis/Assessment) (LCA).** An accounting and evaluation of the environmental aspects and potential impacts of materials, products, assemblies, or buildings throughout their life—from raw material acquisition through manufacturing, construction, use, operation, demolition, and disposal.

**LOT.** A single parcel of land generally containing one primary structure or use. -Lot development, as defined, may include multiple ownership (such as with a condominium building) or multiple uses (such as with a mixed-use building). -A lot is predominately represented by a single-family dwelling unit, a multi-family structure, or a ~~retail, commercial, industrial mixed-use~~ building also containing offices and shops. Lots maybe located in urban, suburban and rural locations. -A lot can be located within a site. (also see SITE)

**LOW-IMPACT DEVELOPMENT.** A storm water management approach that attempts to recreate the predevelopment hydrology of a site by using lot level topography and landscape to deter storm water runoff and promote soil infiltration and recharge.

**LOW-VOC (PRODUCTS).** Products or materials with volatile organic compound (VOC) emissions equal to or below the established thresholds as defined in the referenced VOC emissions requirements for each applicable section in this document. (also see VOC)

**MAJOR COMPONENT.**

1. All structural members and structural systems.
2. Building materials or systems that are typically applied as a part of over 50% of the surface area of the foundation, wall, floor, ceiling, or roof assemblies.

**MAJOR REMODEL.** A renovation and/or addition project with a scope that is broader than a single room or area of the building.

**MANUFACTURED HOME CONSTRUCTION.** Three-dimensional sections of the complete building or dwelling unit built in a factory to the Manufactured Home Construction and Safety Standards (24 CFR, Part 3280) and transported to the jobsite to be joined together on a foundation.

~~**MASS WALLS.** Walls constructed of concrete block, concrete, insulated concrete form (ICF), masonry cavity, brick, earth (adobe, compressed earth block, rammed earth), and/or solid timber/logs, with a minimum of 50 percent of the required R-value on the exterior of the wall. Above-grade masonry or concrete walls having a mass greater than or equal to 30 pounds per square foot (146 kg/m<sup>2</sup>), solid wood walls having a mass greater than or~~



equal to 20 pounds per square foot (98 kg/m<sup>2</sup>), and any other walls having a heat capacity greater than or equal to 6 Btu/ft<sup>2</sup> °F [266 J/(m<sup>2</sup> • K)] with a minimum of 50 percent of the required R-value on the exterior side of the wall's centerline.

**MERV (Minimum Efficiency Reporting Value).** The Minimum Efficiency Reporting Value for filters in accordance with criteria contained in ASHRAE 52.2.

**MINOR COMPONENT.** Building materials or systems that are not considered major.

**MINOR REMODEL.** A limited renovation or addition involving only a kitchen renovation, a bathroom renovation, a basement renovation, a one-room addition, or a one-room addition plus one bathroom or kitchen.

**MIXED-USE BUILDING.** A building that incorporates a mixture of uses (e.g. residential, retail, commercial) in a single structure.

**MIXED-USE DEVELOPMENT.** A project that incorporates a mixture of uses (e.g., residential, retail, commercial) ~~in a single structure or~~ on the same site.

**MODULAR CONSTRUCTION.** Three-dimensional sections of the complete building or dwelling unit built in a factory and transported to the jobsite to be joined together on a permanent foundation.

**MULTI-UNIT BUILDING.** A building containing multiple dwelling units and classified as R-2 under the ICC IBC.

**NET DEVELOPABLE AREA.** The land on which buildings may be constructed. Any land where buildings cannot be constructed due to environmental restrictors, or that is used for infrastructure or public purposes such as parks, schools, etc., is not considered net developable area.

**NEW CONSTRUCTION.** Construction of a new building or construction that completely replaces more than 75% of an existing building.

**OPEN SPACE.** An area of land or water that either remains in its natural state, is used for agriculture, or is otherwise free from intensive development.

**PANELIZED ASSEMBLIES.** Factory-assembled wall panels, roof trusses, and/or other components installed on-site.

**PERFORMANCE PATH.** An alternative set of standards (to the Prescriptive Path) with defined performance metrics, as specified in Chapter 7 of this Standard.

**PERMEABLE MATERIAL.** A material that permits the passage of water vapor and/or liquid.

**PLUMBING FIXTURE.** A receptor or device that requires both a water-supply connection and a discharge to the drainage system, such as water closets, lavatories, bath tubs, and sinks.

~~**POST-CONSUMER RECYCLED CONTENT.** Proportion of recycled material in a product generated by households or by commercial, industrial, and institutional facilities in their role as end users of the product that can no longer be used for its intended purpose. This includes returns of material from the distribution chain.~~

~~**PRE-CONSUMER (POST-INDUSTRIAL) RECYCLED CONTENT.** Proportion of recycled material in a product diverted from the waste stream during the manufacturing process. Pre-consumer recycled content does not include reutilization of materials such as rework, regrind, or scrap generated in a process and capable of being reclaimed within the same process that generated it.~~

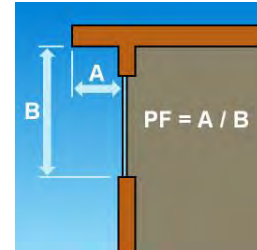
**PRECUT.** Materials cut to final size prior to delivery to site and ready for assembly.

**PRESCRIPTIVE PATH.** A set of provisions in a code or standard that must be adhered to for compliance.

**PRESERVATION.** The process of applying measures to maintain and sustain the existing materials, integrity, and/or form of a building, including its structure and building artifacts.

**PROGRAMMABLE COMMUNICATING THERMOSTAT.** A whole building or whole dwelling unit thermostat that can be monitored and controlled remotely.

**PROJECTION FACTOR.** The ratio of the overhang width to the overhang height above the door threshold or window sill ( $PF = A/B$ ).



**Projection Factor**

**R-VALUE (THERMAL RESISTANCE).** The inverse of the time rate of heat flow through a body from one of its bounding surfaces to the other surface for a unit temperature difference between the two surfaces, under steady state conditions, per unit area ( $h \times ft^2 \times ^\circ F/Btu$ ) [ $m^2 \times K/W$ ].

**RECYCLED CONTENT.** Resources containing post-consumer or pre-consumer (post-industrial) recycled content.

**POST-CONSUMER RECYCLED CONTENT.** Proportion of recycled material in a product generated by households or by commercial, industrial, and institutional facilities in their role as end users of the product that can no longer be used for its intended purpose. This includes returns of material from the distribution chain.

**PRE-CONSUMER (POST-INDUSTRIAL) RECYCLED CONTENT.** Proportion of recycled material in a product diverted from the waste stream during the manufacturing process. Pre-consumer recycled content does not include reutilization of materials such as rework, regrind, or scrap generated in a process and capable of being reclaimed within the same process that generated it.

**REGIONAL MATERIAL.** Material that is originated, produced, grows naturally, or occurs naturally within 500 miles (804.7 km) of the construction site if transported by truck or 1500 miles (2414 km) of the construction site if transported for not less than 80% of the total transport distance by rail or water.

**REMODELING.** The process of restoring or improving an existing building, dwelling unit, or property.

**RENEWABLE ENERGY.** Energy derived from sources that are regenerative or cannot be depleted.

**RENEWABLE ENERGY SOURCE.** Source of energy (excluding minerals) derived from incoming solar radiation, including natural solar radiation itself, photosynthetic processes; from phenomenon resulting therefrom, including wind, hydropower, waves and tides, and lake or pond thermal differences; from decomposition of waste material, including methane from landfills; from processes that use regenerated materials, including wood and bio-based products; and from the internal heat of the earth, including nocturnal thermal exchanges.

~~**RENOVATION.** The process of restoring or improving an existing building or dwelling unit that may include changes to the landscape and hardscape.~~

**REPLACEMENT.** The act or process of replacing material or systems.

**SEDIMENT CONTROLS.** Practices used on building sites to minimize the movement of sand, soil, and particulates or dust from construction from reaching waterways.

**SEER (Seasonal Energy Efficiency Ratio).** The total cooling output of an electric air conditioner (or heat pump) during its normal annual usage period for cooling, in Btu, divided by the total electric energy input during the same period, in watt-hours (Wh), expressed as Btu/Wh. SEER is the cooling performance equivalent measurement of HSPF.

**SHGC (Solar Heat Gain Coefficient).** ~~The ratio of the solar heat gain entering the space through the fenestration assembly to the incident solar radiation. Solar heat gain includes directly transmitted solar heat and absorbed solar radiation that is then released into the space. A lower SHGC lowers the amount of transmitted solar energy into the space.~~ The ratio of the solar heat gain entering the space through the fenestration assembly to the incident solar radiation. Solar heat gain includes directly transmitted solar heat and absorbed solar radiation which is then reradiated, conducted, or convected into the space.

**SIP (Structural Insulated Panel).** A structural sandwich panel that consists of a light-weight foam plastic core securely laminated between two thin, rigid wood structural panel facings; a structural panel that consists of light weight foam plastic and cold-formed steel sheet or structural cold-formed steel members; or other similar non-interrupted structural panels.

**SITE.** Any area of land that is or will be developed into two or more parcels of land intended for multiple ownership, uses, or structures and designed to be part of an integrated whole such as a residential subdivision, mixed-use development, or master planned community. Site, as defined, generally contains multiple lots. (also see LOT)

**SMART APPLIANCE.** A product that has the capability to receive, interpret, and act on a signal received from a utility, third-party energy service provider, or home energy management device, and automatically adjust its operation depending on both the signal's contents and settings from the consumer. The product is sold with this capability, which can be built-in or added through an external device that easily connects to the appliance.

**SOLID FUEL-BURNING APPLIANCE.** A chimney connected device that burns solid fuel designed for purposes of heating, cooking, or both.

**STEEP SLOPES.** Slopes equal to or greater than 25 percent ( $\geq 25\%$ ).

**STORY.** That portion of a building included between the upper surface of a floor and the upper surface of the floor or roof next above.

**STORY ABOVE GRADE.** Any story having its finished floor surface entirely above grade, except that a basement shall be considered as a story above grade where the finished surface of the floor above the basement is:

1. More than 6 feet (1829 mm) above grade plane.
2. More than 6 feet (1829 mm) above the finished ground level for more than 50 percent of the total building perimeter.
3. More than 12 feet (3658 mm) above the finished ground level at any point.

**SUBDIVISION.** ~~A tract of land divided into two or more sites.~~ The division of a tract, lot, or parcel of land into two or more lots, plats, sites, or other divisions of land.

**SWPPP (Stormwater Pollution Prevention Plan).** A site specific, written document report to identify required features specifically represented in the NPDES (National Pollutant Discharge Elimination System) Construction General Permit.

**UA.** The total U-factor times area for a component or building.

**URBAN.** Areas within a designated census tract of 1,000 people per square mile or located within a Metropolitan Statistical Area primary city, as designated by the U.S. Census Bureau.

**U-FACTOR (THERMAL TRANSMITTANCE).** The coefficient of heat transmission (air to air) through a building envelope component or assembly, equal to the time rate of heat flow per unit area and unit temperature difference between the warm side and cold side air films (Btu/h • ft<sup>2</sup> • °F) [W/(m<sup>2</sup> • K)].

**VENTILATION.** The natural or mechanical process of supplying conditioned or unconditioned air to, or removing such air from, any space.

**VOC (Volatile Organic Compounds).** A class of carbon-based molecules in substances and organic compounds that readily release gaseous vapors at room temperature as indoor pollutants and when reacting with other exterior pollutants can produce ground-level ozone.

**WASTE HEAT.** Heat discharged as a byproduct of one process to provide heat needed by a second process.

**WATER FACTOR (WATER CONSUMPTION FACTOR).** The quotient of the total weighted per-cycle water consumption divided by the capacity of the clothes washer.

**WATER-RESISTIVE BARRIER.** A material behind an exterior wall covering that is intended to resist liquid water that has penetrated behind the exterior covering from further intruding into the exterior wall assembly.

**WETLANDS.** Areas that are saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands are further defined by the EPA in the *Code of Federal Regulations*.

**WILDLIFE HABITAT/CORRIDOR.** An ecological or environmental area that is inhabited by a particular species of animal, plant, or other type of organism. It is the natural environment in which an organism lives or the physical environment that surrounds (influences and is utilized by) a species population.

**WOOD-BASED PRODUCT.** Any material that consists of a majority of wood or constituents derived from wood (e.g., wood fiber) as measured by either weight or volume.

## CHAPTER 3

# COMPLIANCE METHOD

### 301 - GENERAL

**301.1 Environmental ~~performance-rating~~ levels.** The building, project, site, and/or development's environmental ~~performance-rating~~ level shall consist of all mandatory requirements, plus points assessed using the point system specified within this Chapter. The ~~rating~~ level ~~of performance~~ shall be in accordance with Table 302, 303, or 305.5, as applicable.

**301.2 Awarding of points.** Points shall be awarded as follows:

- (1) The maximum number of points that can be awarded for each practice is noted with that practice.
- (2) Point allocation for multi-unit buildings shall be as prescribed in Section 304.
- (3) The Adopting Entity shall allow new and innovative products and practices to be added where deemed to meet the intent of this Standard. Points assigned for any new product or practice shall be determined by the Adopting Entity. A maximum of 20 points may be awarded at the discretion of the Adopting Entity for innovative products or practices. Innovative practices and products shall fall under Categories 1-6 from Table 303; however points shall only be assigned under Category 7. Point values shall be determined by comparing the innovative product or practice to a practice or product already described in the Standard. The applicant shall supply demonstrable, quantified data to support the innovative product or practice and to determine the practice's functional equivalent in the Standard to determine the points to be awarded.

### 302 - GREEN SUBDIVISIONS

**302.1 Site design and development.** The threshold points required for the environmental ~~performance-rating~~ levels to qualify a new or existing subdivision as green under this Standard shall be in accordance with Table 302 and based on points in Chapter 4.

**Table 302**  
**Threshold Point Ratings for Site Design and Development**

Green Subdivision Category		<del>Performance-Rating</del> Level Points			
		One Star	Two Stars	Three Stars	Four Stars
Chapter 4	Site Design and Development	79	104	134	175

### 303 - GREEN BUILDINGS

**303.1 Green buildings.** The threshold points required for the environmental ~~performance-rating~~ levels for a green building shall be in accordance with Table 303. To qualify for one of these ~~performance-rating~~ levels, all of the following shall be satisfied:

- (1) The threshold number of points, in accordance with Table 303, shall be achieved as prescribed in Categories 1 through 6. The lowest level achieved in any category shall determine the overall ~~performancerating~~ level achieved for the building.
- (2) In addition to the threshold number of points in each category, all mandatory provisions of each category shall be implemented.

**COMPLIANCE METHOD**

- ~~(3) In addition to Section 701, either Section 702 (Performance Path) or Section 703 (Prescriptive Path) shall be used to establish the threshold performance level under Category 3 (Energy Efficiency).~~
- ~~(43) In addition to the threshold number of points prescribed in Categories 1 through 6, the additional points prescribed in Category 7 shall be achieved from any of the categories. Where deemed appropriate by the Adopting Entity and based on regional conditions, additional points from Category 7 may be assigned to another category (or categories) to increase the threshold points required for that category (or categories). Points shall not be reduced by the Adopting Entity in any of the six other categories.~~

**Table 303  
Threshold Point Ratings for Green Buildings**

Green Building Categories			Performance Rating Level Points <sup>(1) (2)</sup>			
			BRONZE	SILVER	GOLD	EMERALD
1.	Chapter 5	Lot Design, Preparation, and Development	39	66	93	119
2.	Chapter 6	Resource Efficiency	45	79	113	146
3.	Chapter 7	Energy Efficiency	30	60	100	120
4.	Chapter 8	Water Efficiency	14	26	41	60
5.	Chapter 9	Indoor Environmental Quality	36	65	100	140
6.	Chapter 10	Operation, Maintenance, and Building Owner Education	8	10	11	12
7.		Additional Points from any category	50	100	100	100
<b>Total Points:</b>			<b>222</b>	<b>406</b>	<b>558</b>	<b>697</b>

- (1) In addition to the threshold number of points in each category, all mandatory provisions of each category shall be implemented.
- (2) For dwelling units greater than 4,000 square feet (372 m<sup>2</sup>), the number of points in Category 7 (Additional Points from any category) shall be increased in accordance with Section 601.1. The "Total Points" shall be increased by the same number of points.

**304 - GREEN MULTI-UNIT BUILDINGS**

**304.1 Multi-unit buildings.** ~~All residential portions of a building shall meet the requirements of this Standard and partial compliance shall not be allowed. Unless otherwise noted, all units and residential common areas within a multi-unit building shall: 1) meet all mandatory requirements; and 2) achieve the threshold number of points required for the chosen environmental rating level in accordance with Table 303; and 3) achieve the same environmental rating level.~~ For multi-unit buildings, points for the green building practices that apply to multiple units shall be credited once for the entire building. Where points are credited, practices shall be implemented in all units, as applicable. Where application of a prescribed practice allows for a different number of points for different units in a multi-unit building, the fewer number of points shall be awarded.

**305 - GREEN ~~REMODELING~~RENOVATIONS AND ADDITIONS**

~~**305.1 Applicability.** This section shall apply to:~~

- ~~(1) Renovations~~
- ~~(2) Additions as follows:~~
  - ~~(a) The area of the addition shall be less than 75 percent of an existing building or dwelling unit's conditioned floor area. The conditioned floor area shall be determined as follows:~~

- ~~(i) as defined by ICC-IRC, and~~
- ~~(ii) is calculated in accordance with NAHBRC Z765, and~~
- ~~(iii) only stories above grade plane are included in the calculation of the conditioned floor area.~~

~~(b) Additions of 75 percent or more of an existing building or dwelling unit's conditioned floor area shall comply with Section 303 or Section 304, as applicable.~~

~~305.1.1 A project that includes both addition and renovation in the scope of work shall use either the Addition Note, Renovation Note, or both as appropriate. Projects that include only addition or renovation elements shall use the note appropriate to the scope of work.~~

~~305.2 Point allocations for renovations and additions. Thresholds for specific practices shall be applied to additions and renovations as follows:~~

~~305.2.1 Section 305.3 shall be used to achieve a threshold environmental performance level, as applicable.~~

~~305.2.2 Practices listed in Chapters 5 through 10 may include mandatory and/or specific criteria or point modifications that are applicable to additions and renovations.~~

~~305.2.3 If there are specific renovation and/or addition criteria included in a practice, the practice shall be modified as indicated. The criteria may modify the original practice intended for new buildings so that the requirement becomes a mandatory or non-mandatory practice for existing buildings.~~

~~305.2.4 If the specific addition and/or renovation criteria provides for additional points, the additional points shall be in addition to the points for that practice. The additional points shall be awarded only if the practice, or one or more items within that practice, is used and compliance with the specific criteria outlined in the addition or renovation note is achieved.~~

~~305.2.5 If there are no specific renovation or addition criteria included in a practice, the practice is intended to apply the same as for new buildings.~~

~~305.3 Threshold environmental performance for renovations/additions. The building or dwelling unit shall comply with either Section 305.4 (Green Building Path) or Section 305.5 (Green Remodel Path), as applicable.~~

~~305.3.1 The mandatory provisions required by Sections 302, 303, and 304 shall not apply to the renovation/addition threshold performance requirements of Section 305.~~

#### ~~305.4 Green Building Path.~~

~~305.4.1. Applicability. The Green Building Path shall be applicable to all buildings and dwelling units constructed during or after 1980.~~

~~305.4.2 The mandatory renovation/addition practices shall be implemented for the entire existing building or dwelling unit, including any renovation/addition.~~

~~305.4.3 The minimum point thresholds in accordance with Table 303 for the selected performance level shall be achieved. Points associated with the mandatory renovation/addition practices shall be included in the points used to achieve the selected performance level of Table 303.~~

#### ~~305.5 Green Remodel Path.~~

~~305.5.1 **Applicability.** The Green Remodel Path shall apply to buildings and dwelling units constructed prior to 1980. As an alternative, the Green Building Path, as outlined in Section 305.4, may be used for buildings or dwelling units constructed prior to 1980.~~

~~305.5.2 Building or dwelling unit permit date shall be verified as prior to or on December 31, 1979.~~

~~305.5.3 Indoor environmental quality requirements of Sections 901.1.1, 901.5, 902.1, 902.4(2), and 904.3(1) shall be implemented.~~

~~305.5.4 Baseline consumption in both of the following categories shall be measured:~~

- ~~(1) **Energy consumption:** Energy consumption shall be based on the estimated annual energy use due to heating, cooling, and water heating as determined by a third-party energy audit.~~
- ~~(2) **Water consumption:** Water consumption shall be based on the estimated annual use. Reduction in water consumption shall be evaluated based on points in Chapter 8.~~

~~305.5.5 Consumption in both categories of Section 305.5.4(1) and (2) shall be reduced to achieve the desired performance level of Table 305.5.~~

**Table 305.5  
Threshold Ratings for Green Remodels**

Green Remodel Practice	Performance Level			
	BRONZE	SILVER	GOLD	EMERALD
Reduction in energy and water consumption in accordance with Section 305.5.5	20%	34%	43%	50%

305.1 **Applicability.** This section shall apply to any existing building where improvements are made via renovation and/or addition to the structure or landscape/hardscape. At least one major structural element of the existing building must remain (e.g. foundation). Complete tear downs must follow the new construction path of section 303 or 304 including all appropriate mandatory requirements. Buildings with additions of greater than 75% of the existing conditioned floor area must comply with section 303 or 304.

**305.1.1 Practices**

305.1.1 **Major Remodels.** Remodel projects must initially be evaluated according to section 305.2. Projects that do not qualify for meeting the requirements of 305.2 shall be considered per section 305.3.

305.2.1 **Mandatory Practices.** The building shall comply with all applicable mandatory practices in Chapter 11[new] regardless of whether the project scope of work addresses the mandatory practice

305.2.2 Consumption for both energy and water consumption shall be estimated for both before and after the remodeling. The occupancy and life style assumed and the method of making the consumption comparison should be the same for both estimates.

- (1) **Energy consumption comparison:** Energy consumption shall be based on the estimated annual energy use due to heating, cooling, and water heating as determined by a third-party energy audit or analysis. The comparison is based on the percentage difference between the HERS index before and the HERS index after the remodeling calculated as follows:

$$(HERS_{before} - HERS_{after}) / HERS_{before} * 100.$$

- (2) **Water consumption:** Water consumption shall be based on the estimated annual use as determined by audit or analysis. The comparison is based on the percentage difference between the consumption before and the after the remodeling calculated as follows:



\_\_\_\_\_ (Usage before – Usage after)/Usage before\*100

305.2.3 Consumption in both categories of Section 305.3(1) and (2) shall be reduced to achieve the desired performance level of Table 305.4.

<b>Table 305.2.3 Threshold Ratings for Green Remodels</b>				
<b>Green Remodel Practice</b>	<b>Performance Level</b>			
	<b>BRONZE</b>	<b>SILVER</b>	<b>GOLD</b>	<b>EMERALD</b>
<u>Reduction in energy and water consumption in accordance with Section 305.2.2</u>	<u>20%</u>	<u>34%</u>	<u>43%</u>	<u>50%</u>
<u>Reduction water consumption in accordance with Section 305.2.2</u>	<u>20%</u>	<u>34%</u>	<u>43%</u>	<u>50%</u>

305.2.4 Green Practices

Additional green practices shall be selected from sections 11.5, 11.6, and 11.9 to achieve the thresholds of Minimum Point Percentage listed in table 305.2.4 based on practices applicable to the scope of the project. The point percentage is calculated as follows:

\_\_\_\_\_ (Points from practices implemented) / (Total Potential Applicable Points from the section)\*100.

Applicable points are points available by implementing practices that are within the scope of the project. Practices that would require effort outside of the scope of the project are not included as Applicable Points. For example, if carpet is not being replaced as part of the project, the points for 11.901.5 are not Applicable Points. When a practice has multiple sub-practices the points for all the sub-practices are considered Applicable Points even if the scope of the project calls for only doing one of the sub-practices. For example, practice 11.503.1 concerning conservation of natural resources has 6 sub-practices; if any of the 6 sub-practices are included in the scope of the project work, then the applicable points for that practice would be 24 points in most situations. If the lot did not have any trees then the points related to sub-practices (4) & (5) would not be appropriate and then the Applicable Points would be 18 points. Points are not considered as Applicable Points simply because the existing building (prior to remodeling) exhibited the feature(s) required by the practice. Points are only available and Applicable if the points are due to a practice that falls within the scope of the project. Features of the existing building that address mandatory practices contribute to the building meet the mandatory practice.

<b>Table 305.2.4 Threshold Ratings for Green Remodels</b>				
<b>Green Remodel Practice</b>	<b>Minimum Point Percentage</b>			
	<b>BRONZE</b>	<b>SILVER</b>	<b>GOLD</b>	<b>EMERALD</b>
<u>Section 11.5</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>
<u>Section 11.6</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>
<u>Section 11.9</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>

When no practices from either section 11.5, 11.6, or 11.9 are applicable, those thresholds are not applicable to achieving a rating level.

305.2.5 The rating level for major renovations is determined by the lowest rating achieved by the project achieved in table 305.2.3 or table 305.2.4.

### 305.3 Minor Remodels

Minor remodeling projects are projects that are too small to achieve at least the Bronze level in section 305.2. Minor remodeling projects include kitchens, bathrooms, single story single room additions (less than 400 square feet), and basements. Green minor remodeling projects are not recognized as bronze, silver, gold, or emerald. Green minor remodeling projects are recognized as compliant when the project meets the applicable criteria in Chapter 12 for that specific type of project. Compliant projects must meet all the mandatory practices and at least 50% of the optional practices for that project type as specified in Chapter 12. If the small addition includes a kitchen and/or bathroom, then that project must meet all the applicable project type criteria.

## CHAPTER 4

# SITE DESIGN AND DEVELOPMENT

GREEN BUILDING PRACTICES	POINTS
<b>400 SITE DESIGN AND DEVELOPMENT</b>	
<b>400.0 Intent.</b> This section applies to land development for the eventual construction of buildings or additions thereto that contain dwelling units. The rating earned under Section 303 based on practices herein, applies only to the site as defined in Chapter 2. The buildings on the site earn their own performance level by complying with the provisions of Section 303, 304, or 305.5, as applicable.	
<b>401 SITE SELECTION</b>	
<b>401.0 -Intent.</b> The site is selected to minimize environmental impact by one or more of the following:	
<b>401.1 -Infill site.</b> An infill site is selected.	<b>4</b>
<b>401.2 Greyfield/<del>brownfield</del> site.</b> A greyfield site <del>and/or EPA-recognized brownfield site</del> is selected.	<b>5</b>
<b>401.3 <del>Brownfield site.</del></b> <del>A brownfield site is selected.</del>	<del><b>TBD</b></del>
<b>401.4 <del>Low-slope site.</del></b> <del>A site with an average slope calculation of less than 15% is selected.</del>	<del><b>TBD</b></del>
<b>402 PROJECT TEAM, MISSION STATEMENT, AND GOALS</b>	
<b>402.0 Intent.</b> The site is designed and constructed by a team of qualified professionals trained in green development issues.	
<b>402.1 Team.</b> A knowledgeable team is established and team member roles are identified with respect to green lot design, preparation, and development. The project's green goals and objectives are written into a mission statement.	<b>4</b>
<b>402.2 Training.</b> Training is provided to on-site supervisors and team members regarding the green development practices to be used on the project.	<b>3</b>
<b>402.3 Project checklist.</b> A checklist of green development practices to be used on the project is created, followed, and completed by the project team regarding the site.	<b>Mandatory 3</b>
<b>402.4 <del>Development Agreements.</del></b> <del>Developer requires purchaser(s) of lots to build the homes to a minimum NGBS certified green building bronze level or equivalent through a developer agreement or equivalent.</del>	<del><b>TBD</b></del>

**403  
SITE DESIGN**

**403.0 Intent.** The project is designed to avoid detrimental environmental impacts, minimize any unavoidable impacts, and mitigate for those impacts that do occur. The project is designed to minimize environmental impacts and to protect, restore, and enhance the natural features and environmental quality of the site.

**(To acquire points allocated for the design, the intent of the design is implemented.)**

<b>403.1 Natural resources.</b> Natural resources are conserved by one or more of the following:	
(1) A natural resources inventory is used to create the site plan.	<b>Mandatory</b> 5
(2) A plan to protect and maintain priority natural resources/areas during construction is created. (also see Section 404 for guidance in forming the plan.)	<b>Mandatory</b> 5
(3) Member of builder’s project team participates in a natural resources conservation program.	4
(4) Streets, buildings, and other built features are located to conserve high priority vegetation.	4

<b>403.2 Building orientation.</b> A minimum of 75 percent of the building sites are designed with the longer dimension of the structure to face within 20 degrees of south.	<b>6</b>
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<b>403.3 Slope disturbance.</b> Slope disturbance is minimized by one or more of the following: <del>(Points awarded only if there are developable steep slopes in the project area.)</del>	
<del>(1) All or a percentage of development on steep slopes is avoided.</del>	
<del>(a) less than 25 percent</del>	<del>2</del>
<del>(b) 25 percent to 75 percent</del>	<del>3</del>
<del>(c) greater than 75 percent</del>	<del>4</del>
(21) Hydrological/soil stability study <del>for steep slopes</del> is completed and used to guide the design of all buildings on the site.	4
(32) All or a percentage of roads are aligned with natural topography to reduce cut and fill.	
(a) less than 25 percent	1
(b) 25 percent to 75 percent	3
(c) greater than 75 percent	5
(43) Long-term erosion effects are reduced by the use of <u>clustering</u> , terracing, retaining walls, landscaping, and restabilization techniques.	6

<b>403.4 Soil disturbance and erosion.</b> <del>Soil disturbance and erosion are minimized by one or more of the following: (also see Section 404)</del> A site Stormwater Pollution Prevention Plan (SWPPP) is developed in accordance with applicable stormwater construction general permits. The plan includes one or more of the following:	
(1) Construction activities are scheduled to minimize length of time that soils are exposed.	4

(2)	Utilities are installed by alternate means such as directional boring in lieu of open-cut trenching. Shared easements or common utility trenches are utilized to minimize earth disturbance. Low ground pressure equipment or temporary matting is used to minimize excessive soil consolidation.	4
(3)	Limits of clearing and grading are demarcated <del>in the plan</del> .	4

<b>403.5 Storm water management.</b> Storm water <del>is managed using management design includes</del> one or more of the following low-impact development techniques:		
(1)	Natural water and drainage features are preserved and used.	6
(2)	<del>A storm water management plan is developed to minimize concentrated flows and simulate flows found in natural hydrology by the u</del> Use of vegetative swales, French drains, wetlands, drywells, rain gardens, and similar <u>infiltration</u> features.	6
(3)	Permeable materials are selected/specified for <u>common area</u> roads, driveways, parking areas, walkways, and patios.	
(a)	less than 25 percent	1
(b)	25 percent to 75 percent	3
(c)	greater than 75 percent	5
(4)	<del>Stormwater management practices that manage rainfall on-site and prevent the off-site discharge from all storms up to and including the volume of the 95th percentile storm event.</del>	<u>TBD</u>
(5)	<del>A hydrologic analysis is conducted that results in the design of a stormwater management system that maintains the pre-development (stable, natural) runoff hydrology of the site throughout the development or redevelopment process. Post construction runoff rate, volume, and duration do not exceed predevelopment rates.</del>	<u>TBD</u>
(6)	<del>Storm water management features/structures are designed for the reduction of nitrogen, phosphorus and sediment.</del>	<u>TBD</u>

<b>403.6 Landscape plan.</b> A landscape plan is developed to limit water and energy use <u>in common areas</u> while preserving or enhancing the natural environment <u>utilizing one or more of the following</u> . <del>Examples of techniques may include, but are not limited to, one or more of the following:</del>		
(1)	A plan is formulated to restore or enhance natural vegetation that is cleared during construction. Landscaping is phased to coincide with achievement of final grades to ensure denuded areas are quickly vegetated.	5
(2)	On-site native or regionally appropriate trees and shrubs are conserved, maintained and reused for landscaping to the greatest extent possible.	5
(3)	Turf grass species, other vegetation, and trees that are native or regionally appropriate for local growing conditions are selected.	4
(4)	The percentage of all turf areas are limited as part of the landscaping.	
(a)	0 percent	4
(b)	greater than 0 percent to less than <u>25-20</u> percent	3
(c)	<u>25-20</u> percent to less than <u>50-40</u> percent	2
(d)	<u>50-40</u> percent to <u>75-60</u> percent	1

**SITE DESIGN AND DEVELOPMENT**

(5)	Plants with similar watering needs are grouped (hydrozoning).	5
(6)	Species and locations for tree planting are identified and utilized to increase summer shading of streets, parking areas, and buildings and moderate temperatures.	5
(7)	Vegetative wind breaks or channels are designed as appropriate to local conditions.	4
(8)	On-site tree trimmings or stump grinding of regionally appropriate trees are used to provide protective mulch during construction or as base for walking trails, and cleared trees are recycled as sawn lumber or pulp wood.	3
(9)	An integrated <u>common area</u> pest management plan to minimize chemical use in pesticides and fertilizers is developed.	4
(10)	Plans for the common area landscape watering system include a weather-based or moisture-based controller. Required irrigation systems should be designed in accordance with the Irrigation Association's <i>Turf and Landscape Best Management Practices</i> .	6
(11)	Trees that might otherwise be lost due to site <del>grading</del> <u>are preserved by the use of retaining walls or tree wells</u> construction are transplanted to other areas on site or off site, using tree-transplanting techniques to ensure a high rate of survival.	3
(12)	<u>Greywater irrigation systems are used to water common areas. Greywater used for irrigation conforms to all criteria within Section 802.1.</u>	<u>TBD</u>
(13)	<u>Cisterns, rain barrels, and similar tanks are structures designed to intercept and store runoff. These systems may be above or below ground, and they may drain by gravity or be pumped. Stored water may be slowly released to a pervious area, and used for irrigation of lawn, trees, and gardens located in common areas. X percent of site area is to be irrigated by these means and demonstrated on the site plan.</u>  <u>(Secretariat Note: percentage to be assigned in public comment)</u>	<u>TBD</u>
<b>403.7 Wildlife habitat.</b> Measures are planned that will support wildlife habitat.		<b>5</b>
<b>403.8 Operation and maintenance plan.</b> An operation and maintenance plan (manual) is prepared and outlines ongoing service of common open <u>spacearea</u> , utilities (storm water, waste water), and environmental management activities.		<b>5</b>
<b>403.9 Existing buildings.</b> Existing building(s) and structure(s) is/are preserved, reused, modified, or disassembled for reuse or recycling of building materials.		<b>6</b>
<b>403.10 Existing and recycled materials.</b> Existing or recycled materials are used as follows. <b>(Points awarded for every 10 percent of total <u>building construction</u> materials that are reused, deconstructed, and/or salvaged. <u>The percentage is consistently calculated on a weight, volume, or cost basis.</u>)</b>		<b>1</b>
(1)	Existing pavements, curbs, and aggregates are salvaged or reincorporated into the development.	
(2)	Recycled asphalt or concrete is utilized in the project.	

<b>403.11 Environmentally sensitive areas.</b> Environmentally sensitive areas as follows:	
(1) Environmentally sensitive areas <u>including steep slopes, prime farmland, critical habitats, and wetlands</u> are avoided <u>as follows</u> :	<b>3</b>
(a) <u>&lt; 25% of site undeveloped</u>	<b>TBD</b>
(b) <u>25% - 75% of site undeveloped</u>	<b>TBD</b>
(c) <u>&gt; 75% of site undeveloped</u>	<b>TBD</b>
(2) Compromised environmentally sensitive areas are mitigated or restored.	<b>3</b>

<del><b>403.12 Density.</b> The average density on a net developable area basis is:</del>	
<del>(1) 7 to less than 14 dwelling units per acre (per 4047 m<sup>2</sup>)</del>	<del><b>4</b></del>
<del>(2) 14 to less than 21 dwelling units per acre (per 4047 m<sup>2</sup>)</del>	<del><b>7</b></del>
<del>(3) 21 or greater dwelling units per acre (per 4047 m<sup>2</sup>)</del>	<del><b>10</b></del>

<del><b>403.13 Mixed-use development.</b> Mixed-use development is incorporated.</del>	<del><b>6</b></del>
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**404  
SITE DEVELOPMENT AND CONSTRUCTION**

<b>404.0 Intent.</b> Environmental impact during construction is avoided to the extent possible; impacts that do occur are minimized, and any significant impacts are mitigated.	
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<b>404.1 On-site supervision and coordination.</b> On-site supervision and coordination is provided during clearing, grading, trenching, paving, and installation of utilities to ensure that specified green development practices are implemented. (also see Section 403.4)	<b>4</b>
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<b>404.2 Trees and vegetation.</b> Designated trees and vegetation are preserved by one or more of the following:	
(1) Fencing or equivalent is installed to protect trees and other vegetation.	<b>4</b>
(2) Trenching, significant changes in grade, compaction of soil, and other activities are avoided in critical root zones (canopy drip line) in “tree save” areas.	<b>4</b>
(3) Damage to designated existing trees and vegetation is mitigated during construction through pruning, root pruning, fertilizing, and watering.	<b>4</b>

<b>404.3 Soil disturbance and erosion.</b> On-site soil disturbance and erosion are minimized by <u>implementation of</u> one or more of the following:	
(1) Limits of clearing and grading are staked out prior to construction.	<b>5</b>
(2) “No disturbance” zones are created using fencing or flagging to protect vegetation and sensitive areas from construction vehicles, material storage, and washout.	<b>4</b>
(3) Sediment and erosion controls are installed and maintained.	<b>5</b>
(4) Topsoil is stockpiled and covered with tarps, straw, mulch, chipped wood, vegetative cover, or other means capable of protecting it from erosion for later use to establish landscape plantings.	<b>5</b>

**SITE DESIGN AND DEVELOPMENT**

(5) Soil compaction from construction equipment is reduced by distributing the weight of the equipment over a larger area by laying lightweight geogrids, mulch, chipped wood, plywood, OSB (oriented strand board), metal plates, or other materials capable of weight distribution in the pathway of the equipment.	4
(6) Disturbed areas are stabilized within the EPA recommended 14-day period.	4
(7) Soil is improved with organic amendments and mulch.	4

<b>404.4 Wildlife habitat.</b> Measures are implemented to support wildlife habitat.	
(1) Wildlife habitat is maintained.	5
(2) Measures are instituted to establish or promote wildlife habitat.	4
(3) Open space is preserved as part of a wildlife corridor.	5
(4) Builder or member of builder’s project team participates in a wildlife conservation program.	5

**405 INNOVATIVE PRACTICES**

**405.0 Intent.** Innovative site design, preparation, and development practices are used to enhance environmental performance. Waivers or variances from local development regulations are obtained, and innovative zoning practices are used to implement such practices, as applicable.

<b>405.1 Driveways and parking areas.</b> <del>Driveways or parking areas are shared. In a multi-unit project, parking capacity is not to exceed the local minimum requirements.</del> <u>Driveways and parking areas are minimized by one or more of the following:</u>	5
(1) <u>Off-street parking areas are shared or driveways are shared. An environmental and green approach to shared parking and driveways is achieved through the removal of driveways, and utilization of on-street parking and the use of alleys (shared common area driveways) for rear-loaded garages.</u>	5
(2) <u>In a multi-unit project, parking capacity is not to exceed the local minimum requirements.</u>	5
(3) <u>Structured parking is utilized to reduce the footprint of surface parking areas.</u>	
<u>(a) 25 % to less than 50%</u>	2
<u>(b) 50% to 75%</u>	3
<u>(c) greater than 75%</u>	4

<b>405.2 Street widths.</b>	
(1) Street pavement widths are <del>the</del> minimized per local code and are in accordance with Table 405.2.	6



Facility Type	Maximum Width
Collector street with parking (one side only)	31 feet
Collector street without parking	26 feet
Local access with parking (one side only)	27 feet
Local access street without parking	20 feet
Queuing (one-lane) streets with parking	24 feet
Alleys and queuing (one-lane) streets without parking	17 feet

For SI: 1 foot = 304.8 mm

<b>(2)</b> <u>A waiver was secured by the developer from the local jurisdiction to allow for construction of streets below minimum width requirement.</u>	<b>TBD</b>
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<p><b>405.3 Cluster development.</b> Cluster development enables and encourages flexibility of design and development of land in such a manner as to preserve the natural and scenic qualities of the site <del>and is implemented in accordance with the following by utilizing an alternative method for the layout, configuration and design of lots, buildings and structures, roads, utility lines and other infrastructure, parks, and landscaping.</del></p>	<b>10</b>
<p><del>(1) Natural or scenic qualities of the site are preserved by utilizing an alternative method for the layout, configuration and design of lots, buildings and structures, roads, utility lines and other infrastructure, parks, and landscaping.</del></p>	<del>10</del>

<p><b>405.4 Zoning.</b> Innovative zoning techniques are implemented in accordance with the following:</p>	
<p>(1) Innovative zoning ordinances or local laws are used or developed for permissible adjustments to population density, area, height, open space, mixed-use, or other provisions for the specific purpose of open space, natural resource preservation or protection and/or mass transit usage. Other innovative zoning techniques may be considered on a case-by-case basis.</p>	<b>6</b>
<p><del>(2) An increase in zoned use on sites where environmental effects are minimized and infrastructure is readily available and adequate, while providing for reduced development on sensitive sites. An increase to the permissible density, area, height, use, or other provisions of a local zoning law for a defined green benefit.</del></p>	<del>6</del>
<p><del>(3) Community-based amenities (e.g., parks, plazas, mixed use, open space) are provided that promote higher density living beyond code requirements. Place-based amenities such as plazas, squares, and attached greens, located around civic, commercial, and mixed-use property are accessible by sidewalks, on-street parking, or provide for bike racks, for the purpose of promoting higher density living.</del></p>	<del>6</del>

<p><b>405.5 Wetlands.</b> Constructed wetlands or other natural innovative wastewater <u>or storm water</u> treatment technologies are used.</p>	<b>7</b>
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<p><del><b>405.6 Mass transit Multi-modal transportation.</b> Mass transit Multi-modal transportation access is provided in accordance with one or more of the following:</del></p>	
<p>(1) A site is selected <u>with a boundary</u> within one-half mile (805 m) of pedestrian access to a mass transit system or within five miles of a mass transit station with available parking.</p>	<b>3</b>

**SITE DESIGN AND DEVELOPMENT**

<u>(2) A site is selected where all lots within the site are located within one-half mile (805 m) of pedestrian access to a mass transit system.</u>	<b>TBD</b>
<u>(32) Walkways, bikeways, street crossings, and entrances designed to promote pedestrian activity are provided. New buildings are connected to existing sidewalks and areas of development.</u>	<b>3</b>
<u>(4) Bicycle parking and racks are indicated on the site plan and constructed for mixed-use, multi-family buildings, and/or common areas.</u>	<b>TBD</b>
<u>(5) Bike sharing programs participate with the developer, and their facilities are planned for and constructed.</u>	<b>TBD</b>
<u>(6) Car sharing programs participate with the developer, and their facilities are planned for and constructed.</u>	<b>TBD</b>
<b>405.7 Density.</b> The average density on a net developable area basis is:	
<u>(1) 7 to less than 14 dwelling units per acre (per 4047 m2)</u>	<u>4</u>
<u>(2) 14 to less than 21 dwelling units per acre (per 4047 m2)</u>	<u>7</u>
<u>(3) 21 or greater dwelling units per acre (per 4047 m2)</u>	<u>10</u>
<b>405.8 Mixed-Use Development.</b> <u>(1) Mixed-use development is incorporated, or (2) for single-use sites 20 acres or less in size with boundaries adjacent to a minimum of two uses containing retail, services, and employment may achieve the mixed-use points, given that a pedestrian network of streets, sidewalks, pathways, or plazas exist that connect a majority of lots within the site with the adjacent non-residential uses.</u>	<b>TBD</b>
<b>405.9 Open Space.</b> <u>A portion of the gross area of the community is set aside as open space beyond local code requirement.</u> <b><u>(Points awarded for every 10 percent of the community set aside as open space beyond local code requirement)</u></b>	<b>1</b>
<b>405.10 Community Garden(s).</b> <u>A portion of the site is established as a community garden(s), available to residents of the site, to provide for local food production to residents or area consumers.</u>	<b>TBD</b>

CHAPTER 5

LOT DESIGN, PREPARATION, AND DEVELOPMENT

GREEN BUILDING PRACTICES	POINTS
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**500  
LOT DESIGN, PREPARATION, AND DEVELOPMENT**

**500.0 Intent.** This section applies to lot development for the eventual construction of residential buildings, multi-unit buildings, or additions thereto that contain dwelling units. The buildings on the lot earn their own performance level by complying with the provisions of Sections 303, 304, or 305.5, as applicable.

**501  
LOT SELECTION**

<b>501.1 Lot.</b> The lot is selected to minimize environmental impact by one or more of the following:	
(1) <del>The builder selects a lot within an NGBS certified green community or equivalent on which to build.</del>	<del>4 for 4-star 3 for 3-star 2 for 2-star 1 for 1-star green community</del>
(2) An infill lot is selected.	<del>46</del>
(2) <del>A greyfield lot or an EPA-recognized brownfield lot is selected.</del> An infill lot is selected	<del>58</del>
(3) <del>that is a greyfield.</del>	
(4) An EPA-recognized brownfield lot is selected.	<del>10</del>
(5) A lot with an average slope calculation of less than 15% is selected.	<del>TBD</del>
<del>(63 Addition and Renovation Note: A renovation or addition project is implemented. )</del>	<del>5</del>
<del>(Points awarded for using an existing building and infrastructure.)</del>	

<b>501.2 Mass-Multi-modal transportation.</b> A range of <del>mass-multi-modal</del> transportation choices are promoted by one or more of the following:	
(1) A lot is selected within one-half mile (805 m) of pedestrian access to a mass transit system or within five miles (8046 m) of a mass transit station with provisions for parking.	<b>3</b>
(2) Walkways, street crossings, and entrances designed to promote pedestrian activity are provided. New buildings are connected to existing sidewalks and areas of development.	<b>3</b>
(3) A lot is selected within one-half mile (805 m) of six or more community resources [e.g., recreational facilities (such as pools, tennis courts, basketball courts), parks,	<b>3</b>

GREEN BUILDING PRACTICES	POINTS
grocery store, post office, place of worship, community center, daycare center, bank, school, restaurant, medical/dental office, laundromat/dry cleaner].	
<u>(4) Bicycle use is promoted by building on a lot located within a community that has rights-of-way specifically dedicated to bicycle use in the form of paved paths or bicycle lanes or on an infill lot located within 1/2 mile of a bicycle lane designated by the jurisdiction.</u>	<b>TBD</b>

**502  
PROJECT TEAM, MISSION STATEMENT, AND GOALS**

<b>502.1 Project team, mission statement, and goals.</b> A knowledgeable team is established and team member roles are identified with respect to green lot design, preparation, and development. The project’s green goals and objectives are written into a mission statement.	<b>4</b>
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**503  
LOT DESIGN**

**503.0 Intent.** The lot is designed to avoid detrimental environmental impacts first, minimize any unavoidable impacts, and mitigate for those impacts that do occur. The project is designed to minimize environmental impacts and to protect, restore, and enhance the natural features and environmental quality of the lot.

**(To be awarded points allocated for design the intent of the design is implemented.)**

<b>503.1 Natural resources.</b> Natural resources are conserved by one or more of the following:	
(1) A natural resources inventory is completed under the direction of a qualified professional.	<b>5</b>
(2) A plan is implemented to conserve the elements identified by the resource inventory as high-priority resources.	<b>6</b>
(3) Items listed for protection in the resource inventory plan are protected under the direction of a qualified professional.	<b>4</b>
(4) Basic training in tree or other natural resource protection is provided for the on-site supervisor.	<b>4</b>
(5) All tree pruning on-site is conducted by a Certified Arborist.	<b>2</b>
(6) Ongoing maintenance of vegetation <u>on the lot</u> during construction is in accordance with TCIA A300 <u>or locally accepted best practices.</u>	<b>3</b>
<u>(7) Where a lot adjoins a landscaped common area, a protection plan from construction activities next to the common area is implemented.</u>	<b>5</b>
<i><b>Addition and Renovation Note:</b> Section 503.1 applies to additions that increase building footprint on the lot; and to renovations that include landscape, hardscape and outdoor living area.</i>	<b>1 Additional Point</b>
<i><b>-(Additional points awarded for each strategy implemented.)</b></i>	

<b>503.2 Slope disturbance.</b> Slope disturbance is minimized by <u>the use of terrain adaptive</u>	
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GREEN BUILDING PRACTICES	POINTS
<p><u>architecture including terracing, retaining walls, landscaping, or other re-stabilization techniques</u><del>one or more of the following.</del></p> <p><b>(Points awarded only if there are developable steep slopes on the lot.)</b></p> <p><del>(1) All or a percentage of development on steep slopes is avoided.</del></p>	
<p><del>(a) less than 25 percent</del></p>	2
<p><del>(b) 25 percent to 75 percent</del></p>	3
<p><del>(c) greater than 75 percent</del></p>	4
<p><del>(2) Hydrological/soil stability study for steep slopes</del> is completed and used to guide the design of all buildings on the site.</p>	5
<p><del>(3) All or a percentage of roads/driveways</del> and parking are aligned with natural topography to reduce cut and fill.</p>	
<p><del>(a) less than 25 percent</del></p>	1
<p><del>(b) 25 percent to 75 percent</del></p>	3
<p><del>(c) greater than 75 percent</del></p>	5
<p><del>(4) Long-term erosion effects are reduced through the design and implementation of terracing, retaining walls, landscaping, and/or</del> restabilization techniques.</p>	6
<p><del>(5) Underground parking uses the natural slope for parking entrances.</del></p>	4
<p><u>Addition and Renovation Note:</u> <i>Section 503.2 applies to additions that increase building footprint on the lot; and to renovations that include landscape, hardscape and outdoor living area.</i></p> <p><i>(Additional points awarded for each strategy implemented.)</i></p>	2 Additional Points
<p><b>503.3 Soil disturbance and erosion.</b> Soil disturbance and erosion are minimized by one or more of the following: (also see Section 504.3)</p>	
<p>(1) Construction activities are scheduled to minimize length of time that soils are exposed.</p>	5
<p>(2) <u>At least 75% of total length of the installed Utilities on the lot</u> are installed using one or more alternative means:</p>	5
<p>(a) tunneling instead of trenching</p>	
<p>(b) use of smaller (low ground pressure) equipment or geomats to spread the weight of construction equipment</p>	
<p>(c) shared utility trenches or easements</p>	
<p>(d) placement of utilities under paved surfaces instead of yards</p>	
<p>(3) Limits of clearing and grading are demarcated on the <u>lot</u> plan.</p>	5
<p><b>503.4 Storm water management.</b> <del>Storm water is managed using</del> <u>A storm water management design includes</u> one or more of the following low-impact development techniques:</p> <p><b><u>(For lots in a development, the points for items (1), (2), and (3) may be awarded for the lot when there is a community storm water management plan implemented and the builder does not violate that plan with respect to water leaving the lot.)</u></b></p>	
<p>(1) Natural water and drainage features are preserved and used.</p>	6

GREEN BUILDING PRACTICES	POINTS
(2) <del>A storm water management plan is developed and implemented</del> Facilities that minimizes concentrated flows and simulates flows found in natural hydrology <u>by the use of (e.g., vegetative swales, french drains, wetlands, drywells, and rain gardens,) and similar infiltration features.</u>	6
(3) All or a percentage of impervious surfaces are minimized and permeable materials are used for driveways, parking areas, walkways, and patios.	
(a) less than 25 percent	1
(b) 25 percent to 75 percent	3
(c) greater than 75 percent	5
(4) A minimum of <del>75</del> 50 percent of the roof is vegetated (green roof) <u>using technology capable of withstanding the climate conditions of the jurisdiction and the microclimate conditions of the building site. Invasive plant species are not permitted.</u>	3
(5) <del>Stormwater management practices that manage rainfall on-site and prevent the off-site discharge from all storms up to and including the volume of the 95th percentile storm event.</del>	TBD
(6) <del>Conduct a hydrologic analysis that results in the design of a stormwater management system that maintains the pre-development (stable, natural) runoff hydrology of the site throughout the development or redevelopment process. Post-construction runoff rate, volume, and duration cannot exceed predevelopment rates.</del>	TBD
<del><b>Addition and Renovation Note:</b> Section 503.4 applies to additions that increase the building footprint on the lot; and to renovations that include hardscape and outdoor living area.  (To be awarded these points, the amount of storm water runoff is not to exceed existing conditions.)</del>	1 Additional Point

<b>503.5 Landscape plan.</b> A landscape plan <u>for the lot</u> is developed to limit water and energy use while preserving or enhancing the natural environment. <u>(Where "front" only or "rear" only plan is implemented, only half of the points (rounding down to a whole number) are awarded for items 1-6)</u>	
(1) <u>Where a lot is less than 50% turf, A</u> plan is formulated to restore or enhance natural vegetation that is cleared during construction. Landscaping is phased to coincide with achievement of final grades to ensure denuded areas are quickly vegetated.	5
(2) Turf grass species, other vegetation, and trees are selected <u>and specified on the lot plan</u> that are native or regionally appropriate for local growing conditions.	4
(3) <del>A</del> The percentage <del>or all of</del> turf areas <u>that is designed to be mowed are</u> limited <u>and shown on the lot plan. The percentage is based on the landscaped area of the lot not including the home footprint, hardscape, and any undisturbed natural areas.</u>	
(a) 0 percent	4
(b) greater than 0 percent to less than <del>25</del> 20 percent	3
(c) <del>25-20</del> percent to less than <del>50</del> 40 percent	2
(d) <del>50</del> 40 percent to <del>75</del> 60 percent	1
(4) Plants with similar watering needs are grouped (hydrozoning) <u>and shown on the lot plan.</u>	5
(5) <del>Species and locations for tree planting are identified that will provide summer shading</del>	5

GREEN BUILDING PRACTICES	POINTS
<del>of streets, parking areas, and buildings to moderate temperatures. Summer shading by planting installed to shade a minimum of 30% of building walls. To conform to summer shading, the effective shade coverage is the arithmetic mean of the shade coverage calculated at 10 am for eastward facing walls, noon for southward facing walls, and 3 pm for westward facing walls on the summer solstice five years after planting.</del>	
(6) Vegetative wind breaks or channels are designed <u>to protect the lot and immediate surrounding lots</u> as appropriate for local conditions.	4
(7) On-site <u>(or community generated)</u> tree trimmings or stump grinding of regionally appropriate trees are used <u>on the site</u> to provide protective mulch during construction <u>or for landscaping, and cleared trees are recycled as sawn lumber or pulp wood.</u>	3
(8) An integrated pest management plan is developed to minimize chemical use in pesticides and fertilizers.	4
<del><b>Addition and Renovation Note:</b> Section 503.5 applies to plans that address protection and renovation of existing vegetation during and after construction and the preservation or enhancement of the natural environment.</del>	<b>2 Additional Points</b>

<b>503.6 Wildlife habitat.</b> Measures are planned that will support wildlife habitat <u>and include at least two of the following:-</u>	4
<del>(1) Plants and gardens that will encourage wildlife, such as bird and butterfly gardens.</del>	<del>TBD</del>
<del>(2) Inclusion of a certified “backyard wildlife” program.</del>	<del>TBD</del>
<del>(3) Lots are adjacent to wildlife corridors, fish and game parks, or preserved areas and are designed with regard for this relationship.</del>	<del>TBD</del>
<del>(4) Outdoor lighting techniques are utilized with regard for wildlife.</del>	<del>TBD</del>
<del><b>Addition and Renovation Note:</b> Section 503.6 applies to additions that increase building footprint on the lot, and to renovations that include landscape, hardscape, and outdoor living area. The existing landscape is either maintained to preserve a wildlife habitat, or improved to create a new or expanded habitat.</del>	
<del>(1) Maintain wildlife habitat</del>	<del>1 Additional Point</del>
<del>(2) Expand wildlife habitat</del>	<del>2 Additional Points</del>

<del><b>503.7 Mixed-use development.</b> Mixed-use development is incorporated.</del>	<del>6</del>
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<del><b>503.8-7 Environmentally sensitive areas.</b> Environmentally sensitive areas.</del>	
<del>(1) Environmentally sensitive areas are avoided. The lot does not contain any environmentally sensitive areas that are disturbed by the construction.</del>	<del>3</del>
<del>(2) Compromised environmentally sensitive areas are mitigated or restored.</del>	<del>3</del>

<del><b>503.9 Density.</b> The average density on a net developable area basis is:-</del>	
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GREEN BUILDING PRACTICES	POINTS
<del>(1) 7 to less than 14 dwelling units per acre (per 4047 m<sup>2</sup>)</del>	<del>4</del>
<del>(2) 14 to less than 21 dwelling units per acre (per 4047 m<sup>2</sup>)</del>	<del>7</del>
<del>(3) 21 or greater dwelling units per acre (per 4047 m<sup>2</sup>)</del>	<del>10</del>

**504  
LOT CONSTRUCTION**

**504.0 Intent.** Environmental impact during construction is avoided to the extent possible; impacts that do occur are minimized, and any significant impacts are mitigated.

<b>504.1 On-site supervision and coordination.</b> On-site supervision and coordination is provided during clearing, grading, trenching, paving <u>on the lot</u> , and installation of utilities <u>on the lot</u> to ensure that specified green development practices are implemented. -(also see Section 503.3)	<b>4</b>
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<b>504.2 Trees and vegetation.</b> Designated trees and vegetation are preserved by one or more of the following:	
(1) Fencing or equivalent is installed to protect trees and other vegetation.	<b>3</b>
(2) Trenching, significant changes in grade, and compaction of soil and critical root zones in <u>all</u> “tree save” areas <u>as shown on the lot plan</u> are avoided.	<b>4</b>
(3) Damage to designated existing trees and vegetation is mitigated during construction through pruning, root pruning, fertilizing, and watering.	<b>4</b>

<b>504.3 Soil disturbance and erosion <u>implementation</u>.</b> On-site soil disturbance and erosion are minimized by one or more of the following <u>in accordance with the SWPPP or applicable plan</u> : (also see Section 503.3)	
<del>(1) <u>Sediment and erosion controls are installed on the lot and maintained in accordance with the storm water pollution prevention plan, where required.</u></del>	<del><b>5</b></del>
<del>(2) Limits of clearing and grading are staked out <u>on the lot</u>.</del>	<del><b>5</b></del>
<del>(3) “No disturbance” zones are created using fencing or flagging to protect vegetation and sensitive areas <u>on the lot</u> from construction activity.</del>	<del><b>5</b></del>
<del>(3) <u>Sediment and erosion controls are installed and maintained in accordance with the storm water pollution prevention plan, where required.</u></del>	<del><b>5</b></del>
(4) Topsoil <u>from either the lot or the site development</u> is stockpiled and stabilized for later use <u>and used</u> to establish landscape plantings <u>on the lot</u> .	<b>5</b>
(5) Soil compaction from construction equipment is reduced by distributing the weight of the equipment over a larger area (laying lightweight geogrids, mulch, chipped wood, plywood, OSB, metal plates, or other materials capable of weight distribution in the pathway of the equipment).	<b>3</b>
(6) Disturbed areas <u>on the lot</u> that are complete or to be left unworked for 21 days or more are stabilized within 14 days using methods as recommended by the EPA, or in	<b>3</b>



GREEN BUILDING PRACTICES	POINTS
the approved storm water pollution prevention plan, where required.	
(7) Soil is improved with organic amendments and mulch.	3
(8) Utilities <u>on the lot</u> are installed using one or more alternative means (e.g., tunneling instead of trenching, use of smaller equipment, use of low ground pressure equipment, use of geomats, shared utility trenches or easements).	5
(9) <u>Inspection reports of storm water best management practices are available.</u>	<u>TBD</u>
<i><u>Addition and Renovation Note: Additional points for Section 504.3 apply only where on-site construction staging and storage areas are planned and located to avoid soil and vegetation disturbance in areas where no construction occurs.</u></i>	<b>2 Additional Points</b>

## 505

### INNOVATIVE PRACTICES

**505.0 Intent.** Innovative lot design, preparation and development practices are used to enhance environmental performance. Waivers or variances from local development regulations are obtained, and innovative zoning practices are used to implement such practices.

**505.1 Driveways and parking areas.** ~~Driveways or parking areas are shared. Waivers or variances from local development regulations are obtained to implement such practices, as applicable. In a multi-unit project, parking capacity is not to exceed the local minimum requirements.~~ Driveways and parking areas are minimized by one or more of the following:

(1) Off-street parking areas are shared or driveways are shared. Waivers or variances from local development regulations are obtained to implement such practices, if required.

(2) In a multi-unit project, parking capacity is not to exceed the local minimum requirements.

(3) Structured parking is utilized to reduce the footprint of surface parking areas.

(a) 25 % to less than 50%

(b) 50% to 75%

(c) greater than 75%

*Addition and Renovation Note: Section 505.1 applies only where existing impervious driveway and parking area(s) are reduced.*

**505.2 Heat island mitigation.** ~~Heat island mitigation. Any combination~~ One or more of the following strategies are provided for a minimum of 50 percent of the horizontal surface area of the hardscape on the lot:

(1) Shading of hardscaping: Shade is provided from existing or new vegetation (within five years) or from trellises. Shade of hardscaping is to be measured on the summer solstice at noon.

(2) Light-colored hardscaping: Horizontal hardscaping materials are installed with a solar reflectance index of 29 or greater.

(3) Permeable hardscaping: Permeable hardscaping materials are installed.

GREEN BUILDING PRACTICES	POINTS
<p><b>(4)</b> <u>Roofs: Not less than 75 percent of the surface of the roof meets one or a combination of the following methods.</u></p> <p><b>(a)</b> <u>Minimum initial Solar Reflectance Index of 78 for a low-sloped roof (a slope less than or equal to 2:12) and a minimum initial Solar Reflectance Index of 29 for a steep-sloped roof (a slope of more than 2:12).</u></p> <p><b>(b)</b> <u>Roof is vegetated using technology capable of withstanding the climate conditions of the jurisdiction and the microclimate conditions of the building site. Invasive plant species are not permitted.</u></p>	
<p><b>505.3 Density.</b> <u>The average density on the lot on a net developable area basis is:</u></p>	
<p><b>(1)</b> <u>7 to less than 14 dwelling units per acre (per 4047 m<sup>2</sup>)</u></p>	<b><u>4</u></b>
<p><b>(2)</b> <u>14 to less than 21 dwelling units per acre (per 4047 m<sup>2</sup>)</u></p>	<b><u>7</u></b>
<p><b>(3)</b> <u>21 or greater dwelling units per acre (per 4047 m<sup>2</sup>)</u></p>	<b><u>10</u></b>
<p><b>505.4 Mixed-use development.</b> <u>The lot contains a mixed-use building.</u></p>	<b><u>6</u></b>
<p><b>505.5 Community Garden(s).</b> <u>A portion of the lot is established as a community garden(s), available to residents of the lot, to provide for local food production to residents or area consumers.</u></p>	<b><u>TBD</u></b>

## CHAPTER 6

# RESOURCE EFFICIENCY

GREEN BUILDING PRACTICES	POINTS										
<b>601</b> <b>QUALITY OF CONSTRUCTION MATERIALS AND WASTE</b>											
<b>601.0 Intent.</b> Design and construction practices that minimize the environmental impact of the building materials are incorporated, environmentally efficient building systems and materials are incorporated, and waste generated during construction is reduced.											
<p><b>601.1 Conditioned floor area.</b> <del>Conditioned-Finished</del> floor area, <del>as defined by ICC-IRC and calculated in accordance with NAHBRC Z765, of a dwelling unit</del> is limited. <del>Dwelling unit size Finished floor area</del> is <del>to be</del> calculated in accordance with NAHBRC Z765. Only the <del>conditioned-finished</del> floor area for stories above grade plane is <del>to be</del> included in the calculation.</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%; padding: 2px 5px;">(1) less than or equal to 1,000 square feet (93 m<sup>2</sup>)</td> <td style="width: 20%; text-align: center; padding: 2px 5px;"><b>15</b></td> </tr> <tr> <td style="padding: 2px 5px;">(2) less than or equal to 1,500 square feet (139 m<sup>2</sup>)</td> <td style="text-align: center; padding: 2px 5px;"><b>12</b></td> </tr> <tr> <td style="padding: 2px 5px;">(3) less than or equal to 2,000 square feet (186 m<sup>2</sup>)</td> <td style="text-align: center; padding: 2px 5px;"><b>9</b></td> </tr> <tr> <td style="padding: 2px 5px;">(4) less than or equal to 2,500 square feet (232 m<sup>2</sup>)</td> <td style="text-align: center; padding: 2px 5px;"><b>6</b></td> </tr> <tr> <td style="padding: 2px 5px;">(5) greater than 4,000 square feet (372 m<sup>2</sup>)</td> <td style="text-align: center; padding: 2px 5px;"><b>Mandatory</b></td> </tr> </table> <p style="text-align: center; padding: 5px;"><b>(For every 100 square feet (9.29 m<sup>2</sup>) over 4,000 square feet (372 m<sup>2</sup>), one point is to be added in Table 303, Category 7 for each performance level.)</b></p>	(1) less than or equal to 1,000 square feet (93 m <sup>2</sup> )	<b>15</b>	(2) less than or equal to 1,500 square feet (139 m <sup>2</sup> )	<b>12</b>	(3) less than or equal to 2,000 square feet (186 m <sup>2</sup> )	<b>9</b>	(4) less than or equal to 2,500 square feet (232 m <sup>2</sup> )	<b>6</b>	(5) greater than 4,000 square feet (372 m <sup>2</sup> )	<b>Mandatory</b>	
(1) less than or equal to 1,000 square feet (93 m <sup>2</sup> )	<b>15</b>										
(2) less than or equal to 1,500 square feet (139 m <sup>2</sup> )	<b>12</b>										
(3) less than or equal to 2,000 square feet (186 m <sup>2</sup> )	<b>9</b>										
(4) less than or equal to 2,500 square feet (232 m <sup>2</sup> )	<b>6</b>										
(5) greater than 4,000 square feet (372 m <sup>2</sup> )	<b>Mandatory</b>										
<i><b>Multi-Unit Building Note:</b> For a multi-unit building, use a weighted average of the individual unit sizes in qualifying for available points.</i>											
<p><b>601.2 Material usage.</b> <del>Building-code-compliant</del>sStructural systems <u>are designed</u> or <del>advanced-framing</del>construction techniques are implemented that <u>reduce and</u> optimize material usage.</p> <p style="text-align: center; color: blue;"><b>(Points awarded for each system or framing technique implemented.)</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%; padding: 2px 5px;">(1) <u>Minimum structural member or element sizes necessary for strength and stiffness in accordance with advanced framing techniques or structural design standards are selected.</u></td> <td style="width: 20%; text-align: center; padding: 2px 5px;"><b>3</b></td> </tr> <tr> <td style="padding: 2px 5px;">(2) <u>Higher-grade or higher-strength of the same materials than commonly specified for structural elements and components in the building are used and element or component sizes are reduced accordingly.</u></td> <td style="text-align: center; padding: 2px 5px;"><b>3</b></td> </tr> <tr> <td style="padding: 2px 5px;">(3) <u>Performance-based structural design is used to optimize lateral force-resisting systems.</u></td> <td style="text-align: center; padding: 2px 5px;"><b>3</b></td> </tr> </table>	(1) <u>Minimum structural member or element sizes necessary for strength and stiffness in accordance with advanced framing techniques or structural design standards are selected.</u>	<b>3</b>	(2) <u>Higher-grade or higher-strength of the same materials than commonly specified for structural elements and components in the building are used and element or component sizes are reduced accordingly.</u>	<b>3</b>	(3) <u>Performance-based structural design is used to optimize lateral force-resisting systems.</u>	<b>3</b>	<b>3</b> <b>9 Points Max</b>				
(1) <u>Minimum structural member or element sizes necessary for strength and stiffness in accordance with advanced framing techniques or structural design standards are selected.</u>	<b>3</b>										
(2) <u>Higher-grade or higher-strength of the same materials than commonly specified for structural elements and components in the building are used and element or component sizes are reduced accordingly.</u>	<b>3</b>										
(3) <u>Performance-based structural design is used to optimize lateral force-resisting systems.</u>	<b>3</b>										
<p><b>601.3 Building dimensions and layouts.</b> Building dimensions and layouts are designed to reduce material cuts and waste. This practice is used for a minimum of 80 percent of the following areas:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%; padding: 2px 5px;">(1) floor area</td> <td style="width: 20%; text-align: center; padding: 2px 5px;"><b>3</b></td> </tr> <tr> <td style="padding: 2px 5px;">(2) wall area</td> <td style="text-align: center; padding: 2px 5px;"><b>3</b></td> </tr> </table>	(1) floor area	<b>3</b>	(2) wall area	<b>3</b>							
(1) floor area	<b>3</b>										
(2) wall area	<b>3</b>										

GREEN BUILDING PRACTICES	POINTS
(3) roof area	3
(4) cladding or siding area	3
(5) penetrations or trim area	1
<b>601.4 Framing and structural plans.</b> Detailed framing or structural plans, material quantity lists and on-site cut lists for framing, structural materials, and sheathing materials are provided.	4
<b>601.5 Prefabricated components.</b> Precut or preassembled components, or panelized or precast assemblies are utilized for a minimum of 90 percent for the following system or building:	
(1) floor system	4
(2) wall system	4
(3) roof system	4
(4) modular construction for the entire building located above grade	13
(5) manufactured home construction for the entire building located above grade	13
<b>601.6 Stacked stories.</b> Stories above grade are stacked, such as in 1½-story, 2-story, or greater structures. The area of the upper story is a minimum of 50 percent of the area of the story below, based on areas with a minimum ceiling height of 7 feet (2134 mm).	<b>8 Points Max</b>
(1) first stacked story	4
(2) for each additional stacked story	2
<b>601.7 Site-applied finishing materials.</b> Building materials or assemblies <del>are utilized listed below</del> that do not require additional site-applied material for finishing <u>are incorporated in the building.</u>	<b>12 Points Max</b>
(1) 90 percent or more of the installed building materials or assemblies listed below: <b>(Points awarded for each type (a-g) of material or assembly.)</b>	5
(2) 50 percent to less than 90 percent of the installed building material or assembly listed below: <b>(Points awarded for each type (a-g) of material or assembly.)</b>	2
<del>(3) 35 percent to less than 50 percent of the installed building material or assembly listed below:</del> <b>(Points awarded for each type (a-g) of material or assembly.)</b>	<del>1</del>
(a) pigmented, stamped, decorative, or final finish concrete or masonry (b) <u>interior</u> trim not requiring paint or stain (c) <u>exterior trim not requiring paint or stain</u> (d) window, skylight, and door assemblies not requiring paint or stain on exterior <del>and</del> or interior surfaces (e) <u>interior</u> wall coverings or systems not requiring paint or stain or other type of	

GREEN BUILDING PRACTICES	POINTS
finishing application <b>(f)</b> <u>exterior wall coverings or systems not requiring paint or stain or other type of finishing application</u> <b>(g)</b> <u>pre-finished hardwood flooring</u>	
<b>601.8 Foundations.</b> <u>A foundations system that minimizes soil disturbance, excavation quantities and material usage, such as frost-protected shallow foundations, isolated pier and pad foundations, deep foundations, post foundations, or helical piles and other similar foundation types, are is selected, designed, and constructed. The foundation is used on 50 percent or more of the building footprint.</u>	<b>3</b>
<b>601.9 Above grade wall systems.</b> One or more of the following above grade wall systems that provide sufficient structural and thermal characteristics are used for a minimum of 75 percent of the gross exterior wall area of the building:	<b>4</b>
<b>(1)</b> adobe <b>(2)</b> concrete and/or masonry <b>(3)</b> logs <b>(4)</b> rammed earth	

**602  
ENHANCED DURABILITY AND REDUCED MAINTENANCE**

**602.0 Intent.** Design and construction practices are implemented that enhance the durability of materials and reduce in-service maintenance.

<b><u>602.1 Moisture Management – Building Envelope</u></b>	
<b><u>602.1.1 Capillary breaks</u></b>	
<b><u>602.1.1.1</u></b> A capillary break and vapor retarder are installed at all concrete slabs adjoining living space in accordance with Sections 602.1.1.1(1) or 602.1.1.1(2), as modified by Section 602.1.1.1(3):	<b><u>Mandatory</u></b>
<b>(1)</b> <u>A minimum 4-inch-thick (102 mm) bed of ½-inch (13 mm) diameter or greater clean aggregate, covered with polyethylene or polystyrene sheeting in direct contact with the concrete slab, with the sheeting joints lapped in accordance with Section 602.1.4.</u>	
<b>(2)</b> <u>A minimum 4-inch-thick (102 mm) uniform layer of sand, overlain with a layer or strips of geotextile drainage matting, covered with polyethylene sheeting, with the sheeting joints lapped in accordance with Section 602.1.4.</u>	
<b>(3)</b> <u>Modification: In areas with free-draining soils, identified as Group 1 in the ICC IRC by a certified hydrologist, soil scientist, or engineer through a site visit, a gravel bed or geotextile matting is not required.</u>	
<b><u>602.1.1.2</u></b> Add a capillary break on footing to prevent moisture migration into foundation wall.	<b><u>3</u></b>
<b><u>602.1.2 Foundation waterproofing.</u></b> Enhanced foundation waterproofing is installed:	<b><u>4</u></b>
<b>(1)</b> <u>rubberized coating, or</u> <b>(2)</b> <u>drainage mat</u>	

GREEN BUILDING PRACTICES	POINTS
<b><u>602.1.3 Foundation drainage.</u></b>	
<b><u>602.1.3.1</u></b> Where required by the ICC IRC or IBC for habitable and usable spaces below grade, exterior drain tile is installed.	<b><u>Mandatory</u></b>
<b><u>602.1.3.2</u></b> Interior and exterior foundation perimeter drains are installed and sloped to discharge to daylight, dry well, or sump pit.	<b><u>4</u></b>
<b><u>602.1.4 Crawlspace.</u></b>	
<b><u>602.1.4.1</u></b> Crawlspace vapor retarder is in accordance with the following, as applicable. Joints of vapor retarder overlap a minimum of 6 inches (152 mm) and are taped.	
(1) Floors. Minimum 6 mil vapor retarder installed on the crawlspace floor and extended up the wall sufficient to allow the material to be affixed with glue and furring strips.	<b><u>6</u></b>
(2) Walls. Damp-proof walls are provided below finished grade.	<b><u>Mandatory</u></b>
<b><u>602.1.4.2</u></b> Crawlspace that is built as a conditioned area is sealed to prevent outside air infiltration and provided with conditioned air at a rate not less than 0.02 cfm (.009 L/s) per square foot of horizontal area and one of the following is implemented:	
(1) a concrete slab over lapped 6 mil polyethylene or polystyrene.	<b><u>10</u></b>
(2) 6 mil polyethylene sheeting, lapped a minimum of 6 inches (152 mm), and taped at the seams.	<b><u>8</u></b>
<b><u>602.1.5 Termite barrier.</u></b> Continuous physical foundation termite barrier used with low toxicity treatment or with no chemical treatment is installed in geographical areas that have subterranean termite infestation potential determined in accordance with Figure 6(3).	<b><u>4</u></b>
<b><u>602.1.6 Termite-resistant materials.</u></b> Termite-resistant materials are used as follows:	
(1) In areas of slight to moderate termite infestation probability [as defined by Figure 6(3)] for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, exterior decks, and exterior claddings within the first 2 feet (610 mm) above the top of the foundation.	<b><u>2</u></b>
(2) In areas of moderate to heavy termite infestation probability [as defined by Figure 6(3)] for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, exterior decks, and exterior claddings within the first 3 feet (914 mm) above the top of the foundation.	<b><u>4</u></b>
(3) In areas of very heavy termite infestation probability [as defined by Figure 6(3)] for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, exterior decks, and exterior claddings.	<b><u>6</u></b>
<b><u>602.1.7 Moisture control measures</u></b>	
<b><u>602.1.7.1</u></b> Moisture control measures are in accordance with the following:	
(1) Building materials with visible mold are not installed or are cleaned or encapsulated prior to concealment and closing.	<b><u>2</u></b>

GREEN BUILDING PRACTICES	POINTS
<u>(2) Insulation in cavities is dry in accordance with manufacturer's installation instructions when enclosed (e.g., with drywall).</u>	<b>Mandatory</b> <u>2</u>
<u>(3) The moisture content of lumber is sampled to ensure it does not exceed 19 percent prior to the surface and/or cavity enclosure.</u>	<u>4</u>
<u>602.1.7.2 Moisture content of subfloor, substrate, or concrete slabs is in accordance with the appropriate industry standard for the finish flooring to be applied.</u>	<u>2</u>
<u>602.1.8 Water-resistive barrier. Where required by the ICC IRC or IBC, a water-resistive barrier and/or drainage plane system is installed behind exterior veneer and/or siding.</u>	<b>Mandatory</b>
<u>602.1.9 Flashing. Flashing is provided 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.</u>	
<u>(1) Flashing are installed at all of the following locations, as applicable:</u> <u>(a) around exterior fenestrations, skylights and doors</u> <u>(b) at roof valleys</u> <u>(c) at deck, balcony, porch or stair to building intersections</u> <u>(d) at roof-to-wall intersections, at roof-to-chimney intersections, at wall-to-chimney intersections, and at parapets.</u> <u>(e) at ends of and under masonry, wood, or metal copings and sills</u> <u>(f) above projecting wood trim</u> <u>(g) at built-in roof gutters</u> <u>(h) drip edge is installed at eaves and rake edges.</u>	<b>Mandatory</b>
<u>(2) All window head and jamb flashing are self-adhered flashing complying with AAMA 711-07.</u>	<u>2</u>
<u>(3) Pan flashing is installed at sills of all exterior windows and doors</u>	<u>2</u>
<u>(4) Seamless, preformed kickout flashing, or prefabricated metal with soldered seams is provided at all roof-to-wall intersections. The type and thickness of the material used for roof flashing including but not limited kickout and step flashing is commensurate with the anticipated service life of the roofing material.</u>	<u>2</u>
<u>(5) A rainscreen wall design is used for exterior wall assemblies</u>	<b>2 Points Max</b>
<u>(a) a system designed with minimum ¼" inch air space exterior to the water-resistive barrier, vented to the exterior at top and bottom of the wall and integrated with flashing details. OR</u>	<u>2</u>
<u>(b) either a cladding material or a water-resistive barrier with enhanced drainage, meeting 75% drainage efficiency requirement of ASTM E2273.</u>	<u>1</u>
<u>(6) A drip cap is provided above windows and doors that are not flashed or protected by covering in accordance with Section 602.1</u>	<u>2</u>
<u>(7) Through wall flashing is installed at transitions between wall cladding materials, or wall construction types.</u>	<u>2</u>

GREEN BUILDING PRACTICES	POINTS
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<b>(8) Flashing is installed at expansion joints in stucco walls</b>	<b>2</b>															
<i><u>Additional Note:</u> Section 602.12 applies to the new construction portion of additions.</i>	<i><u>0 Additional Points</u></i>															
<i><u>Renovation Note:</u> Section 602.12 applies to renovations that involve removal and replacement of roof or wall cladding, addition or removal and replacement of windows, doors or skylights, and demolition/reconfiguration of exterior walls.</i>	<i><u>0 Additional Points</u></i>															
<b>602.1.10 Exterior doors.</b> Entries at exterior door assemblies, inclusive of side lights, are covered by one of the following methods to protect the building from the effects of precipitation and solar radiation. A projection factor of 0.375 minimum is provided. Eastern- and western-facing entries in Climate Zones 1, 2, and 3, as determined in accordance with Figure 6(1) <u>or Appendix C</u> , have a projection factor of 1.0 minimum, unless otherwise protected from direct solar radiation by other means (e.g., screen wall, vegetation).	<b>5 Points Max</b>															
<ul style="list-style-type: none"> <li>(a) installing a porch roof or awning</li> <li>(b) extending the roof overhang</li> <li>(c) recessing the exterior door</li> </ul>																
(1) main entrance door	<b>3</b>															
(2) additional covered door assembly	<b>1</b>															
<b>602.1.11 Tile backing materials.</b> <u>Tile backing materials installed under tiled surfaces in wet areas are in accordance with ASTM C1178, C1278, C1288, or C1325.</u>	<b>Mandatory</b>															
<b>602.1.12 Roof overhangs.</b> Roof overhangs, based on inches of rainfall in Table 602.2, are provided over a minimum of 90 percent of exterior walls to protect the building envelope.	<b>4</b>															
<p><b>Table 602.2</b> <b>Minimum Roof Overhang for One- &amp; Two-Story Buildings</b></p> <table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Inches Rainfall <sup>(1)</sup></th> <th style="text-align: center;">Eave Overhang (Inches)</th> <th style="text-align: center;">Rake Overhang (Inches)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><del>Less than 20</del></td> <td style="text-align: center;"><del>12</del></td> <td style="text-align: center;"><del>12</del></td> </tr> <tr> <td style="text-align: center;"><del>21 to ≤40</del></td> <td style="text-align: center;">12</td> <td style="text-align: center;">12</td> </tr> <tr> <td style="text-align: center;"><del>&gt;41 to and ≤70</del></td> <td style="text-align: center;">18</td> <td style="text-align: center;">12</td> </tr> <tr> <td style="text-align: center;"><del>More than &gt; 70</del></td> <td style="text-align: center;">24</td> <td style="text-align: center;">12</td> </tr> </tbody> </table> <p>(1) <del>Average annual mean total precipitation in inches of rainfall areas</del> in accordance with Figure 6(2).</p> <p>For SI: <del>12 foot-inches</del> = 304.8 mm</p>		Inches Rainfall <sup>(1)</sup>	Eave Overhang (Inches)	Rake Overhang (Inches)	<del>Less than 20</del>	<del>12</del>	<del>12</del>	<del>21 to ≤40</del>	12	12	<del>&gt;41 to and ≤70</del>	18	12	<del>More than &gt; 70</del>	24	12
Inches Rainfall <sup>(1)</sup>	Eave Overhang (Inches)	Rake Overhang (Inches)														
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<del>21 to ≤40</del>	12	12														
<del>&gt;41 to and ≤70</del>	18	12														
<del>More than &gt; 70</del>	24	12														
<i><u>Additional Note:</u> Section 602.2 applies to the new construction portion of additions.</i>	<i><u>0 Additional Points</u></i>															
<i><u>Renovation Note:</u> Section 602.2 applies to renovations that alter the existing roof.</i>	<i><u>1 Additional Point</u></i>															
<b>602.3 Foundation drainage.</b>																
<b>602.3.1</b> <del>Where required by the ICC IRC or IBC for habitable and usable spaces below grade, exterior drain tile is installed.</del>	<b>Mandatory</b>															



GREEN BUILDING PRACTICES	POINTS
<del>602.3.2 Interior and exterior foundation perimeter drains are installed and sloped to discharge to daylight, dry well, or sump pit.</del>	4
<del><b>Addition Note:</b> Section 602.3.2 applies to the new construction portion of additions.</del>	<b>0 Additional Points</b>
<del><b>Renovation Note:</b> Section 602.3.2 applies to renovations that involve the demolition/reconfiguration of exterior walls and/or modification of the existing foundation drainage system.</del>	<b>2 Additional Points</b>
<b>602.1.134 Drip edge.</b> Drip edge is installed at eaves and gable roof edges.	3
<b>602.1.14 Ice barrier.</b> In areas where there has been a history of ice forming along the eaves causing a backup of water, an ice barrier is installed in accordance with the ICC IRC or IBC at roof eaves of pitched roofs and extends at a minimum of 24 inches (610 mm) inside the exterior wall line of the building.	<b>Mandatory</b>
<b>602.1.15 Architectural features.</b> Architectural features that increase the potential for the water intrusion are avoided:	
(1) No roof configurations that create horizontal valleys in roof design.	<b>2</b>
(2) No recessed windows and architectural features that trap water on horizontal surfaces.	<b>2</b>
(3) All horizontal ledgers are sloped away to provide gravity drainage as appropriate for the application.	<b>Mandatory</b>
<b>602.2 Roof surfaces.</b> A minimum of 90 percent of roof surfaces, not used for roof penetrations and associated equipment, on-site renewable energy systems such as photovoltaics or solar thermal energy collectors, or rooftop decks, amenities and walkways, are constructed of one or both of the following:	<b>3</b>
(1) products that are in accordance with the ENERGY STAR® cool roof certification or equivalent	
(2) a vegetated roof system	
<b>602.53 Roof water discharge.</b> A gutter and downspout system or splash blocks and effective grading are provided to carry water a minimum of 5 feet (1524 mm) away from perimeter foundation walls.	4
<del><b>Renovation Note:</b> Section 602.5 applies only to renovations.</del>	<b>1 Additional Point</b>
<del><b>602.64 Finished grade.</b> Finish grade at all sides of a building is sloped to provide a minimum of 6 inches (150 mm) of fall within 10 feet (3048 mm) of the edge of the building. Where lot lines, walls, slopes, or other physical barriers prohibit 6 inches (152 mm) of fall within 10 feet (3048 mm), the final grade is sloped away from the edge of the building at a minimum slope of 5 percent and the water is directed to drains or swales to ensure drainage away from the structure.</del>	<b>Mandatory</b>
<b>602.4.1</b> Finished grade at all sides of a building is sloped to provide a minimum of 6 inches (150 mm) of fall within 10 feet (3048 mm) of the edge of the building. Where lot lines, walls, slopes, or other physical barriers prohibit 6 inches (152 mm) of fall within 10 feet (3048 mm).	<b>Mandatory</b>

GREEN BUILDING PRACTICES	POINTS
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<del>the final grade is sloped away from the edge of the building at a minimum slope of 2 percent.</del>	
<del><b>602.4.2</b> The final grade is sloped away from the edge of the building at a minimum slope of 5 percent.</del>	<del><b>1</b></del>
<del><b>602.4.3</b> Water is directed to drains or swales to ensure drainage away from the structure.</del>	<del><b>1</b></del>
<del><b>Addition Note:</b> Section 602.6 applies only to additions that increase the footprint of the building.</del>	<del><b>Mandatory 0-Additional Points</b></del>
<del><b>Renovation Note:</b> The additional points for Section 602.6 apply only to renovations.</del>	<del><b>2-Additional Points</b></del>

<del><b>602.7 Termite barrier.</b> Continuous physical foundation termite barrier used with or without low toxicity treatment is installed in geographical areas that have subterranean termite infestation potential determined in accordance with Figure 6(3).</del>	<del><b>4</b></del>
<del><b>Addition Note:</b> Section 602.7 applies only to the new construction portion of additions.</del>	<del><b>0-Additional Points</b></del>
<del><b>Renovation Note:</b> The additional points for Section 602.7 apply only to renovations as follows:</del>	
<del>(1) new non-chemical termite barrier is provided</del>	<del><b>1-Additional Point</b></del>
<del>(2) existing chemical barrier is removed and replaced with a non-chemical barrier</del>	<del><b>3-Additional Points</b></del>
<del><b>602.8 Termite-resistant materials.</b> Termite-resistant materials are used as follows:</del>	
<del>(1) In areas of slight to moderate termite infestation probability [as defined by Figure 6(3)] for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, exterior decks, and exterior claddings within the first 2 feet (610 mm) above the top of the foundation.</del>	<del><b>2</b></del>
<del>(2) In areas of moderate to heavy termite infestation probability [as defined by Figure 6(3)] for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, exterior decks, and exterior claddings within the first 3 feet (914 mm) above the top of the foundation.</del>	<del><b>4</b></del>
<del>(3) In areas of very heavy termite infestation probability [as defined by Figure 6(3)] for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, exterior decks, and exterior claddings.</del>	<del><b>6</b></del>

<del><b>602.9 Water resistive barrier.</b> Where required by the ICC IRC or IBC, a water resistive barrier and/or drainage plane system is installed behind exterior veneer and/or siding.</del>	<del><b>Mandatory</b></del>
<del><b>Addition Note:</b> Section 602.9 applies to the new construction portion of additions.</del>	<del><b>Mandatory 0-Additional Points</b></del>
<del><b>Renovation Note:</b> Section 602.9 applies to renovations that include exterior veneer</del>	<del><b>Mandatory</b></del>

GREEN BUILDING PRACTICES	POINTS
<del>and/or siding replacement.</del>	<b>0 Additional Points</b>
<del><b>602.10 Ice barrier.</b> In areas where there has been a history of ice forming along the eaves causing a backup of water, an ice barrier is installed in accordance with the ICC IRC or IBC at roof eaves and extends at a minimum of 24 inches (610 mm) inside the exterior wall line of the building.</del>	<b>Mandatory</b>
<b>602.11 Foundation waterproofing.</b> Enhanced foundation waterproofing is installed:  (1) rubberized coating, or (2) drainage mat	<b>4</b>
<b>Addition Note:</b> Section 602.11 applies to the new construction portion of additions.	<b>0 Additional Points</b>
<b>Renovation Note:</b> Section 602.11 applies to renovations that involve the demolition/reconfiguration of exterior walls, modification of the foundation wall, or an effort to improve foundation waterproofing.	<b>2 Additional Points</b>
<b>602.12 Flashing.</b> Flashing details are shown on plans and flashing is installed at all of the following locations, as applicable:  (1) around exterior fenestrations, skylights and doors (2) roof valleys (3) deck/balcony to building intersections (4) at roof to wall intersections and at roof to chimney intersections (5) a drip cap is provided above windows and doors that are not flashed or protected by covering in accordance with Section 602.1	<b>6</b>

<del>602.13 Roof surfaces. A minimum of 90 percent of roof surfaces are constructed of one or both of the following:</del>	<del>3</del>
<del>(1) products that are in accordance with the ENERGY STAR® cool roof certification or equivalent</del> <del>(2) a green (landscaped) roof system</del>	
<del>Renovation Note: Section 602.13 applies to renovations that include roof replacement.</del>	<del>1 Additional Point</del>

<del>602.14 Recycling. Occupant recycling is facilitated by one or more of the following methods:</del>	
<del>(1) A built-in collection space in each kitchen and an aggregation/pick-up space in a garage, covered outdoor space, or other area for recycling containers</del>	<del>3</del>
<del>(2) Compost facility provided on-site</del>	<del>3</del>

**603  
REUSED OR SALVAGED MATERIALS**

**603.0 Intent.** Practices that reuse or modify existing structures, salvage materials for other uses, or use salvaged materials in the building’s construction are implemented.

<b>603.1 Reuse of existing building.</b> Existing Major elements or components of existing buildings and structures are reused, modified, or deconstructed <u>for later use</u> in lieu of demolition.  (Points awarded for every 200 square feet (18.5 m <sup>2</sup> ) of floor area.)	<b>1 12 Points Max</b>
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<b>603.2 Salvaged materials.</b> Reclaimed and/or salvaged materials and components are used. The total material <u>value</u> and labor cost of salvaged materials is equal to or exceeds 1 percent of the total construction cost.  <u>(Points awarded per 1% of salvaged materials used based on the total construction cost.)</u>	<b>3 1 9 Points Max</b>
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<b>603.3 Scrap materials.</b> Facilitation for sorting and reuse of scrap building material (e.g., provide a central storage area or dedicated bins).	<b>4</b>
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**604  
RECYCLED-CONTENT BUILDING MATERIALS**

<b>604.1 Recycled content.</b> Building materials with recycled content are used for two minor and/or two major components of the building.	<b>Points per Table 604.1</b>											
<p style="text-align: center;"><b>Table 604.1 Recycled Content</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Material Percentage Recycled Content</th> <th>Points Per 2 Minor</th> <th>Points Per 2 Major</th> </tr> </thead> <tbody> <tr> <td>25% to less than 50%</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>50% to less than 75%</td> <td style="text-align: center;">2</td> <td style="text-align: center;">4</td> </tr> <tr> <td>more than 75%</td> <td style="text-align: center;">3</td> <td style="text-align: center;">6</td> </tr> </tbody> </table>		Material Percentage Recycled Content	Points Per 2 Minor	Points Per 2 Major	25% to less than 50%	1	2	50% to less than 75%	2	4	more than 75%	3
Material Percentage Recycled Content	Points Per 2 Minor	Points Per 2 Major										
25% to less than 50%	1	2										
50% to less than 75%	2	4										
more than 75%	3	6										

**605**

## RECYCLED CONSTRUCTION WASTE

**605.0 Intent.** Waste generated during construction is recycled. All waste classified as hazardous shall be properly handled and disposed.

**(Points not awarded for hazardous waste removal.)**

**605.1 Construction waste management plan.** A construction waste management plan is developed, posted at the jobsite, and implemented with a goal of recycling or salvaging a minimum of 50 percent (by weight) of construction ~~and land-clearing~~ waste.

**6**

~~**Addition and Renovation Note:** The construction waste management plan includes information on the proper handling and disposal of hazardous wastes.~~

**Mandatory  
2 Additional  
Points**

**605.2 On-site recycling.** On-site recycling measures following applicable regulations and codes are implemented, such as the following:

**7**

- (a) Materials are ground or otherwise safely applied on-site as soil amendment or fill. A minimum of 50 percent (by weight) of construction and land-clearing waste is diverted from landfill.
- (b) Alternative compliance methods approved by the Adopting Entity.
- (c) Compatible untreated biomass material (lumber, posts, beams etc.) are set aside for combustion if a Solid Fuel Burning Appliance as per Section 901.2.1(2) will be available for on-site renewable energy.

~~**Addition and Renovation Note:** All waste classified as hazardous waste is properly handled and disposed of. The weight of this material is exempted from landfill diversion when Section 605.2 is applied to existing buildings.~~

**Mandatory  
0 Additional  
Points**

**605.3 Recycled construction materials.** Construction materials (e.g., wood, cardboard, metals, drywall, plastic, asphalt roofing shingles, or concrete) are recycled offsite.

**6 Points Max**

(1) a minimum of two types of materials are recycled

**3**

(2) for each additional recycled material

**1**

## 606

### RENEWABLE MATERIALS

**606.0 Intent.** Building materials derived from renewable resources are used.

**606.1 Biobased products.** The following biobased products are used:

**8 Points Max**

- (a) certified solid wood in accordance with Section 606.2
- (b) engineered wood
- (c) bamboo
- (d) cotton
- (e) cork
- (f) straw
- (g) natural fiber products made from crops (soy-based, corn-based)
- (h) products with the minimum biobased contents of the USDA 7 CFR Part 2902
- (i) other biobased materials with a minimum of 50 percent biobased content (by weight or volume)

(1) Two types of biobased materials are used, each for more than 0.5 percent of the

**3**

project's projected building material cost.	
(2) Two types of biobased materials are used, each for more than 1 percent of the project's projected building material cost.	<b>6</b>
(3) For each additional biobased material used for more than 0.5 percent of the project's projected building material cost.	<b>1 2 Points Max</b>

<b>606.2 Wood-based products.</b> Wood or wood-based products are certified to the requirements of one of the following recognized product programs:  (a) American Forest Foundation's <i>American Tree Farm System</i> ® (ATFS) (b) Canadian Standards Association's <i>Sustainable Forest Management System Standards</i> (CSA Z809) (c) <i>Forest Stewardship Council</i> (FSC) (d) <i>Program for Endorsement of Forest Certification Systems</i> (PEFC) (e) <i>Sustainable Forestry Initiative</i> ® Program (SFI) (f) other product programs mutually recognized by PEFC	
(1) Where a minimum of two certified wood-based products are used for minor elements of the building, such as all trim, cabinetry, or millwork.	<b>3</b>
(2) Where a minimum of two certified wood-based products are used in major elements of the building, such as walls, floors, or roof.	<b>4</b>

<b>606.3 Manufacturing energy.</b> Materials are used for major components of the building that are manufactured using a minimum of 33 percent of the primary manufacturing process energy derived from renewable sources, combustible waste sources, or renewable energy credits (RECs).  <p style="text-align: right;"><b>(2 points awarded per material.)</b></p>	<b>6 Points Max</b>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------

**607  
RECYCLING**

<b>607.1 Recycling.</b> <u>Occupant recycling is facilitated by one or more of the following methods:</u>	
(1) <u>A built-in collection space in each kitchen and an aggregation/pick-up space in a garage, covered outdoor space, or other area for recycling containers</u>	<b><u>3</u></b>
(2) <u>Compost facility provided on-site</u>	<b><u>3</u></b>

**6087  
RESOURCE-EFFICIENT MATERIALS**

<b>6078.1 Resource-efficient materials.</b> Products containing fewer materials are used to achieve the same end-use requirements as conventional products, including but not limited to:  <p style="text-align: right;"><b>(3 points awarded for each material.)</b></p>	<b>9 Points Max</b>
(1) lighter, thinner brick with bed depth less than 3 inches and/or brick with coring of more than 25 percent	
(2) engineered wood or engineered steel products	
(3) roof or floor trusses	

**6098**

## INDIGENOUS REGIONAL MATERIALS

<b>6098.1 Indigenous-Regional materials.</b> <del>Indigenous-Regional</del> materials are used for major elements <u>or components</u> of the building.	<b>10 Points Max</b>
(1) one type of material	<b>2</b>
(2) for each additional material	<b>2</b>

## 610 LIFE CYCLE ANALYSIS

<b>610.1 Life cycle analysis.</b> A life cycle analysis (LCA) tool is used to select environmentally preferable products or assemblies, or an LCA is conducted on the entire building. Points are awarded in accordance with 6010.1.1, 610.1.2(1), or 610.1.2(2). Only one method of analysis may be utilized. A reference service life for the building is to be 60 years for any life cycle analysis tool. Results of the LCA are reported in the manual required in Section 1003.1(1) of this standard in terms of the environmental impacts listed in this practice and it states if operating energy was included in its preparation.	<b>15 Points Max</b>
<b>610.1.1 Whole-building life cycle analysis.</b> A whole-building LCA is performed using a life cycle assessment and data compliant with ISO 14044 or other recognized standards.	<b>15</b>
<del>609.4</del> <b>610.1.2 Life cycle analysis for a product or assembly.</b> A <del>more</del> An environmentally preferable product or assembly is selected for an application based upon the use of an <u>Life Cycle Assessment (LCA)</u> tool <u>that incorporates data methods</u> compliant with ISO 14044 or other recognized standards that compare the environmental impact of <u>building materials, products or assemblies,</u> <del>or the whole building.</del>	<del>10 Points Max</del> <b>15 Points Max</b>
(1) <del>per product/system comparison</del>	<b>3</b>
(2) <del>whole building LCA analysis</del>	<b>15</b>
(1) <u>Two products with the same intended use are compared based on LCA and the product with a 15% improvement in fossil fuel consumption and global warming potential is used.</u> <b>(Points awarded per product/system comparison.)</b>	<b>2</b> <b>10 Points Max</b>
(2) <u>An assembly is selected for the project that has environmental impact measures that are better than a functionally comparable assembly. The full life cycle, from resource extraction to demolition and disposal (including but not limited to on-site construction, maintenance and replacement, material and product embodied acquisition, and process and transportation energy), is assessed. The assemblies considered include all structural elements, insulation, and wall coverings:</u> <u>(a) exterior walls</u> <u>(b) roof/ceiling</u> <u>(c) interior walls or ceilings</u> <u>(d) intermediate floors</u>  <u>Exception: Electrical and mechanical equipment and controls, plumbing products, fire detection and alarm systems, elevators, and conveying systems are not included in the assessment.</u>  <u>The environmental impact measures to be considered are chosen from the following:</u> <u>(a) Fossil fuel consumption</u> <u>(b) Global warming potential</u> <u>(c) Acidification potential</u> <u>(d) Eutrophication potential</u> <u>(e) Ozone depletion potential</u>	<b>Points per</b> <b>Table 610.1.2(2)</b> <b>10 Points Max</b>

**(f) Human health respiratory effects potential from particulates**

**(Points are awarded based on the number of assemblies that improve upon environmental impact measures by 15%.)**

**Table 610.1.2(2)  
Assembly LCA**

	<b><u>4 Measures</u></b>	<b><u>6 Measures</u></b>
	<b><u>POINTS</u></b>	
<b><u>2 Assemblies</u></b>	<b><u>3</u></b>	<b><u>6</u></b>
<b><u>3 Assemblies</u></b>	<b><u>4</u></b>	<b><u>8</u></b>
<b><u>4 Assemblies</u></b>	<b><u>5</u></b>	<b><u>10</u></b>

**640611**

**INNOVATIVE PRACTICES**

**640.4—611.1 Manufacturer’s environmental management system concepts.** Product manufacturer’s operations and business practices include environmental management system concepts, and the production facility is registered to ISO 14001 ~~certified~~ or equivalent. The aggregate value of building products from registered ISO 14001 ~~certified~~ or equivalent production facilities is 1 percent or more of the estimated total building materials cost.

**10 points Max**

**(1 point awarded per percent.)**

**611.2 Sustainable Products.** One or more of the following products are used for at least 30% of the floor or wall area of the entire dwelling unit, as applicable. Certification third-party agency is ISO Guide 65 accredited.

**4 Points Max**

- |                                                                                                                               |                 |
|-------------------------------------------------------------------------------------------------------------------------------|-----------------|
| <b><u>(1) 50% or more of carpet installed (by square feet) is third-party certified to NSF/ANSI 140.</u></b>                  | <b><u>1</u></b> |
| <b><u>(2) 50% or more of resilient flooring installed (by square feet) is third-party certified to NSF/ANSI 332.</u></b>      | <b><u>1</u></b> |
| <b><u>(3) 50% or more of the insulation installed (by square feet) is third-party certified to EcoLogo CCD-016.</u></b>       | <b><u>1</u></b> |
| <b><u>(4) 50% or more of interior wall coverings installed (by square feet) is third-party certified to NSF/ANSI 342.</u></b> | <b><u>1</u></b> |

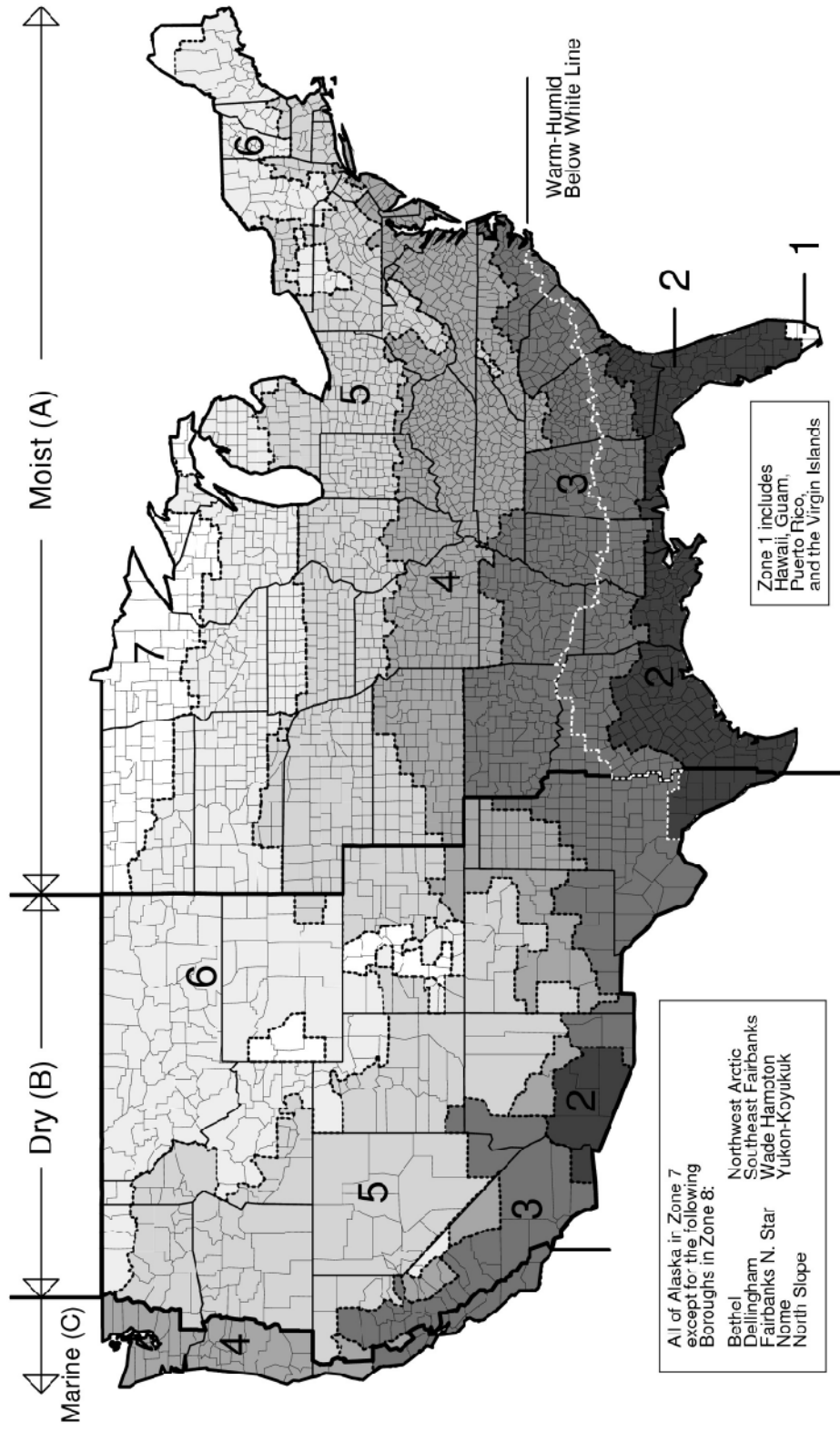
**611.3 Universal Design Elements.** Dwelling incorporates one or more of the following universal design elements.

**10 Points Max**

- |                                                                                                                                                                                                                                                                                                                                                                                            |                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| <b><u>(1) Any no-step entrance into the dwelling which is accessible from a substantially level parking or drop-off area (no more than 2%) via an accessible path which has no individual change in elevation or other obstruction of more than 1-1/2 inches in height, whose pitch does not exceed 1 in 12 and which provides a minimum 32-inch wide clearance into the dwelling.</u></b> | <b><u>3</u></b> |
| <b><u>(2) Minimum 36-inch wide accessible route from the no-step entrance into at least one visiting room in the dwelling and into at least one full or half bathroom which has a minimum 32 inch clear door width and a 30 inch by 48 inch clear area inside the bathroom outside the door swing.</u></b>                                                                                 | <b><u>3</u></b> |
| <b><u>(3) Minimum 36-inch wide accessible route from the no-step entrance into at least one bedroom which has a minimum 32 inch clear door width.</u></b>                                                                                                                                                                                                                                  | <b><u>3</u></b> |



(4) Blocking or equivalent installed in the accessible bathroom walls for future installation of grab bars at commode and bathing fixture, if applicable.	<u>1</u>	
<i>Note: Reasonable construction tolerances are allowed.</i>		
<b>611.4 Food waste disposers.</b> A minimum of one food waste disposer is installed at the primary kitchen sink.	<u>1</u>	



**FIGURE 6(1)  
CLIMATE ZONES**

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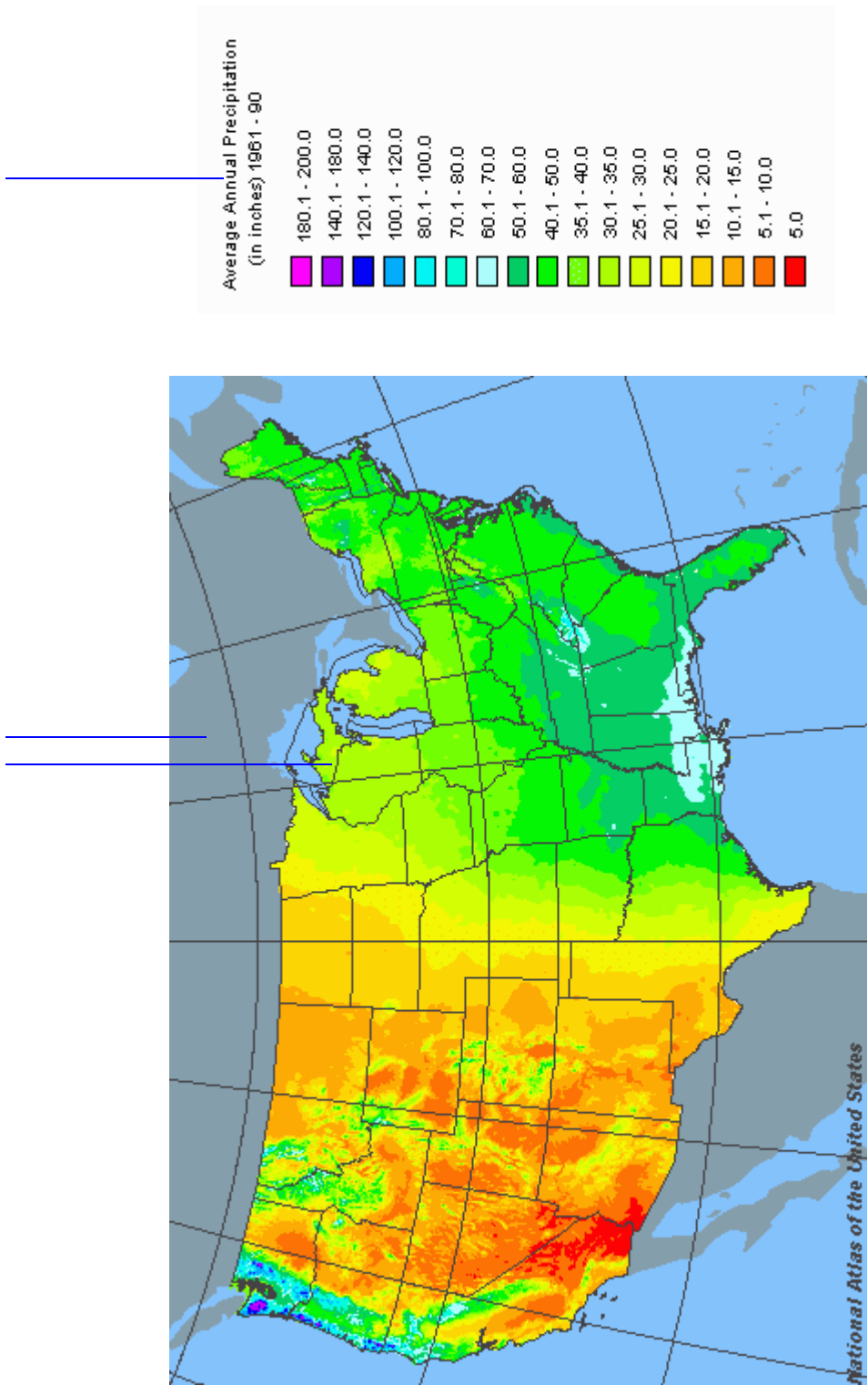
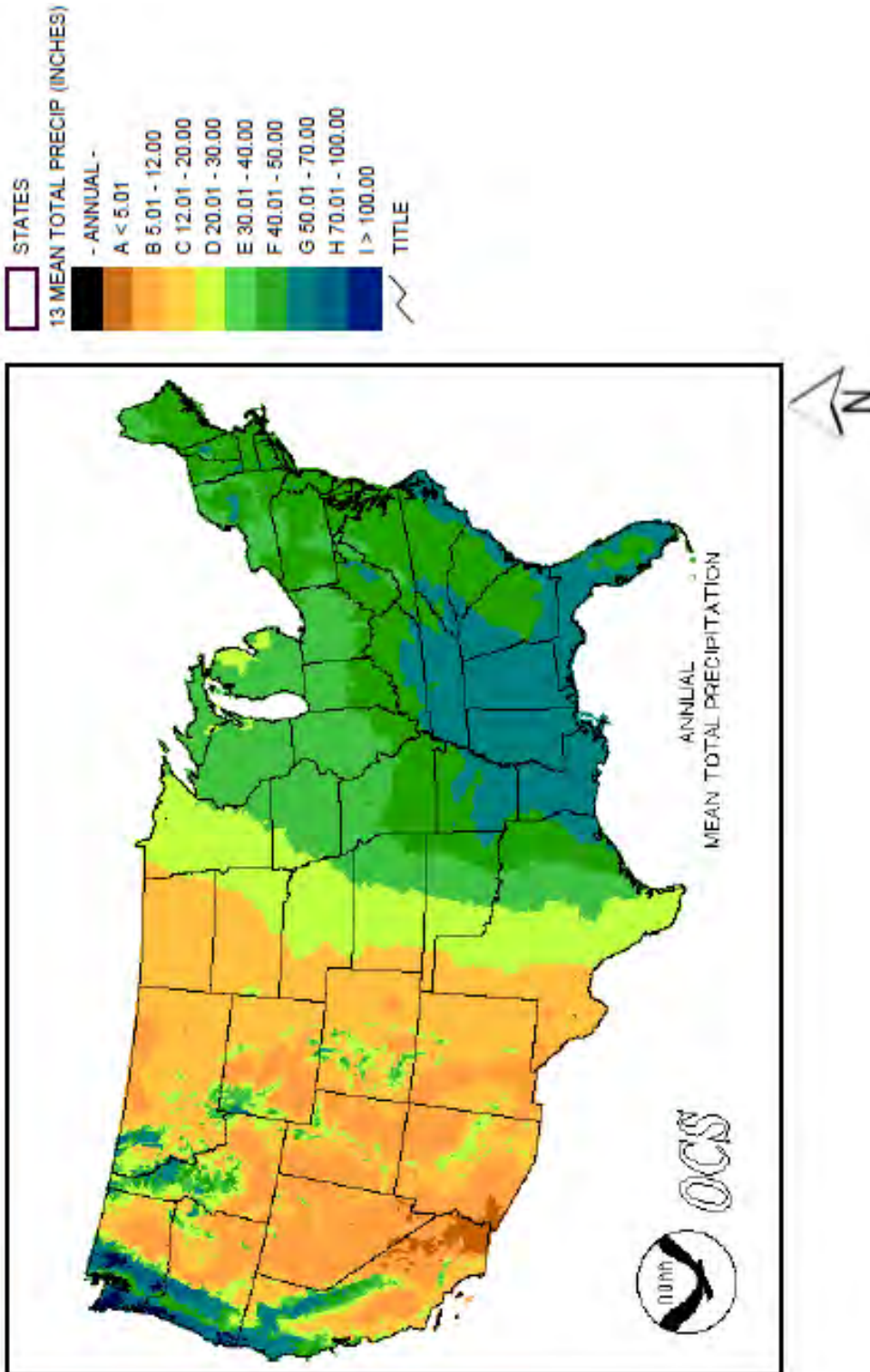


FIGURE 6(2)  
AVERAGE-ANNUAL MEAN TOTAL PRECIPITATION  
(inches) (Source: <http://cdo.ncdc.noaa.gov/climaps/prec0113.pdf>[www.nationalatlas.gov](http://www.nationalatlas.gov))



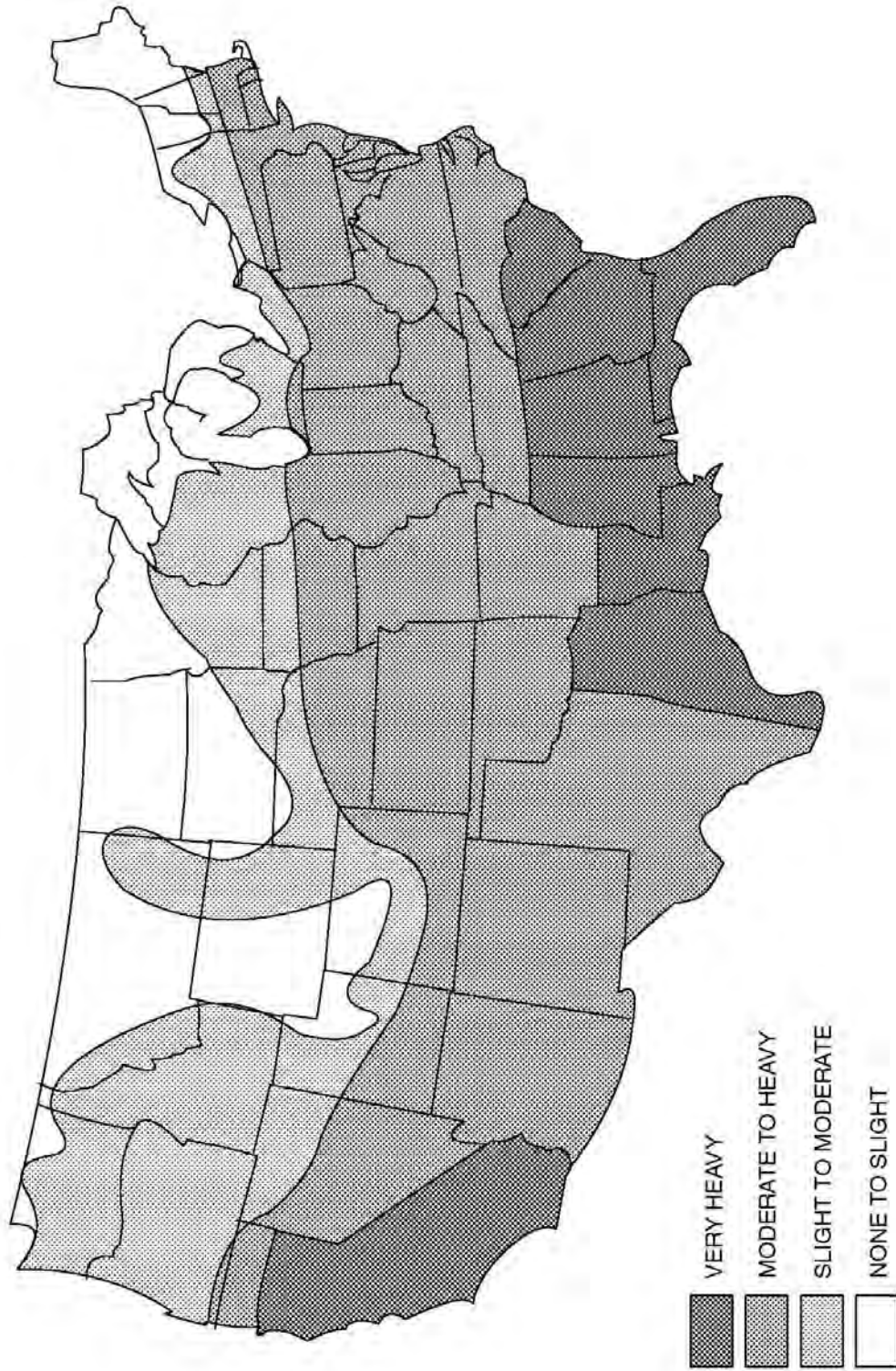


FIGURE 6(3)  
TERMITE INFESTATION PROBABILITY MAP

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## CHAPTER 7

# ENERGY EFFICIENCY

GREEN BUILDING PRACTICES	POINTS
<b>701 MINIMUM ENERGY EFFICIENCY REQUIREMENTS</b>	
<p><b>701.1 Mandatory requirements.</b> The building shall comply with either Section 702 (Performance Path) or Section 703 (Prescriptive Path). Items listed as “mandatory” in Section 701.4 apply to both the Performance and Prescriptive Paths.</p>	
<p><del><i><b>Addition Note:</b> Section 701, including mandatory items, applies only to the new construction portion of additions.</i></del></p> <p><del><i><b>Renovation Note:</b> Section 701 applies to existing buildings as follows:</i></del></p> <p><del><i>(1) For the Green Building Path (Section 305.4), the existing building or dwelling unit shall comply with the mandatory renovation/addition practices and shall achieve the points indicated in Table 303.</i></del></p> <p><del><i>(2) For the Green Remodel Path (Section 305.5), the existing building or dwelling unit shall comply with Table 305.5.</i></del></p>	
<p><b>701.1.1 Minimum Performance Path requirements.</b> A building complying with Section 702 shall exceed the baseline minimum performance required by the ICC IECC by 15 percent, and shall include a minimum of two practices from Section 704.</p> <p><b>701.1.2 Minimum Prescriptive Path requirements.</b> A building complying with Section 703 shall obtain a minimum of 30 points from Section 703, and shall include a minimum of two practices from Section 704.</p> <p><b>701.1.3 Alternative bronze level compliance.</b> As an alternative, any building that qualifies as an ENERGY STAR <a href="#">Version 3.0</a> Qualified Home or <a href="#">equivalent demonstrates compliance with the 2012 IECC or Chapter 11 of the 2012 IRC</a> achieves the bronze level for Chapter 7.</p> <p><b>701.2 Emerald level points.</b> The Performance Path shall be used to achieve the emerald level.</p> <p><b>701.3 Adopting Entity review.</b> A review by the Adopting Entity or designated third party shall be conducted to verify design and compliance with Chapter 7.</p>	
<b>701.4 Mandatory practices.</b>	
<b>701.4.1 HVAC systems.</b>	
<b>701.4.1.1 <a href="#">HVAC system sizing.</a></b> Space heating and cooling system/equipment is sized according to heating and cooling loads calculated using ACCA Manual J, or equivalent. <a href="#">Equipment is selected using ACCA Manual S or equivalent.</a>	<b>Mandatory</b>
<del><i><b>Addition and Renovation Note:</b> Section 701.4.1.1 is mandatory for both additions and renovations where new HVAC equipment is installed.</i></del>	<del><i><b>Mandatory 0-Additional Points</b></i></del>

GREEN BUILDING PRACTICES	POINTS
<del><b>Addition and Renovation Note:</b> The additional points for Section 701.4.1.1 apply to additions or renovations that include one or both of the following:</del>	<b>2 Additional Points</b>
<del>(1) a change to heating and cooling loads</del>	
<del>(2) a replacement and/or addition of mechanical equipment</del>	
<b>701.4.1.2 Radiant and hydronic space heating.</b> Where installed as a primary heat source in the building, radiant or hydronic space heating system is designed using industry-approved guidelines <u>and standards</u> (e.g., ACCA Manual J, <del>GAMA H-22</del> AHRI I=B=R, ANSI/ACCA 5 QI-2010, or an accredited design professional's and manufacturer's recommendations).	<b>Mandatory</b>
<b>701.4.2 Duct systems.</b>	
<b>701.4.2.1 Duct air sealing.</b> Ducts are <u>air sealed</u> <del>with tape complying with UL 181, mastic, gaskets, or an approved system as required by the ICC IRC, Section M1601.3.1, or ICC IMC, Section 603.9, to reduce leakage.</del> All duct sealing materials are rated to UL 181A or UL 181B specifications and are used in accordance with manufacturer's instructions.	<b>Mandatory</b>
<del><b>Addition and Renovation Note:</b> Section 701.4.2.1 applies only to the new portions of a duct system, except as follows:</del>	<b>Mandatory 0 Additional Points</b>
<del>(1) For renovations of existing buildings, the entire duct system, both existing and new, is permitted to be sealed with mastic or an aerosol spray-applied duct sealant.</del>	<b>0 Additional Points</b>
<del>(2) For existing duct systems, where the existing duct system is not in accordance with Section 701.4.2.1, the overall duct system leakage is reduced by using any approved methods in Section 701.4.2.1, or aerosol spray-applied duct sealant.</del>	
<del><b>Additional points apply only when the duct system is tested and overall duct system leakage is reduced by the following:</b></del>	
<del>(a) 25 percent to less than 50 percent</del>	<b>1 Additional Point</b>
<del>(b) 50 percent to less than 75 percent</del>	<b>2 Additional Points</b>
<del>(c) 75 percent to less than 100 percent</del>	<b>3 Additional Points</b>
<del>(d) 100 percent</del>	<b>4 Additional Points</b>
<del>(e) the entire system is upgraded in accordance with Section 704.6.2.2</del>	<b>5 Additional Points</b>
<b>701.4.2.2 Supply ducts.</b> Building cavities are not used as supply ducts.	<b>Mandatory</b>
<del><b>Addition Note:</b> Section 701.4.2.2 is mandatory for new construction portion of additions.</del>	<b>Mandatory 0 Additional Points</b>

GREEN BUILDING PRACTICES	POINTS
<del><b>Renovation Note:</b> Section 701.4.2.2 applies to renovations that involve one of the following: (1) the demolition, reconfiguration, or addition of interior walls or a modification in the duct system of the building</del>	<del><b>1 Additional Point</b></del>
<del>(2) a focused effort to solve the use of building cavities as supply ducts</del>	<del><b>2 Additional Points</b></del>
<b>701.4.2.3 Duct system sizing.</b> Duct system is sized and designed in accordance with ACCA Manual D or equivalent.	<b>Mandatory</b>
<del><b>Addition Note:</b> New construction portion of additions.</del>	<del><b>Mandatory 0 Additional Points</b></del>
<del><b>Renovation Note:</b> Section 701.4.1 applies only where the duct system in the existing building is readily accessible, and the duct system is sized, designed, and installed in accordance with ACCA Manual D or equivalent. A minimum of 75% of the duct runs and a minimum of 75% of the supply/return grilles are in accordance with ACCA Manual T.</del>	<del><b>1 Additional Point</b></del>
<b>701.4.3 Insulation and air sealing.</b>	
<b>701.4.3.1 General.</b> Insulation and air sealing is in accordance with the following:	
<del>(1) <b>Insulation.</b> Insulation is installed in accordance with the manufacturer's instructions or local code, as applicable.</del>	<del><b>Mandatory</b></del>
<del>(2) <b>Shafts (duct shaft, piping shaft/penetrations, flue shaft).</b> Openings to unconditioned space are fully sealed with solid blocking or flashing and any remaining gaps are sealed with caulk or foam. Fire-rated collars and caulking are installed where required.</del>	<del><b>Mandatory</b></del>
<del><b>Addition and Renovation Note:</b> Section 701.4.3.1(1) is mandatory for the new construction portion of additions and renovations.</del>	<del><b>Mandatory 0 Additional Points</b></del>
<del><b>Renovation Note:</b> Existing openings to unconditioned spaces are sealed.</del>	<del><b>2 Additional Points</b></del>
<b>701.4.3.2 Floors, foundations, and crawlspaces</b>	
<del>(1) <b>Floors.</b> (including insulated floors above garages and cantilevered floors) (a) Insulation is installed to maintain permanent contact with the underside of the subfloor decking, enveloping any attached ductwork within the thermal envelope without compression or air gaps in the insulation. This practice does not apply to ducts or other mechanical equipment that is adjacent to the underside of the subfloor. (b) Batt and loose-fill insulation is held in place by permanent attachments or systems in accordance with the manufacturer's instructions.</del>	<del><b>Mandatory</b></del>
<del><b>Renovation Note:</b> Insulate existing uninsulated floors.</del>	<del><b>2 Additional Points</b></del>
<del>(2) <b>Crawlspace.</b> Where insulated, crawlspace wall insulation is permanently attached to the walls. Exposed earth in unvented crawlspaces is covered with continuous vapor retarder with overlapping joints that are taped or masticed.</del>	<del><b>Mandatory</b></del>



GREEN BUILDING PRACTICES	POINTS
<u>Renovation Note:</u> In accordance with Section 701.4.3.2(2):	
(1) <del>existing uninsulated crawlspace is insulated</del>	<b>2 Additional Points</b>
(2) <del>exposed earth in existing crawlspace is covered</del>	<b>2 Additional Points</b>
<b>701.4.3.3 Walls</b>	
(1) <del>Windows and doors. Caulking, gasketing, adhesive flashing tape, foam sealant, or weatherstripping is installed forming a complete air barrier.</del>	<b>Mandatory</b>
<u>Renovation Note:</u> Existing windows and doors are weather-stripped and sealed.	<b>1 Additional Point</b>
(2) <del>Band joist and rim joists. Band and rim joists are insulated and air sealed.</del>	<b>Mandatory</b>
<u>Renovation Note:</u> Existing uninsulated rim and/or band joists are insulated.	<b>1 Additional Point</b>
(3) <del>Between foundation and sill plate bottom plate.</del> (a) <del>Sill sealer or other material that will expand and contract is installed between foundation and sill plate.</del> (b) <del>Caulk or the equivalent is installed to seal the bottom plate of exterior walls.</del>	<b>Mandatory</b>
<u>Renovation Note:</u> Existing perimeter sill plates are sealed.	<b>1 Additional Point</b>
(4) <del>Skylights and knee walls. Skylight shafts and knee walls are insulated to the same level as the exterior walls.</del>	<b>Mandatory</b>
<u>Renovation Note:</u> Existing skylight shafts and knee walls are insulated.	<b>1 Additional Point</b>
(5) <del>Exterior architectural features. Code required building envelope insulation and air sealing are not disrupted at exterior architectural features such as stairs and decks.</del>	<b>Mandatory</b>
<b>701.4.3.4 Ceilings and attics.</b>	
(1) <del>Attic access (except unvented attics). Attic access, knee wall door, or drop-down stair is covered with insulation and gasketed. Knee wall door is an insulated unit or is covered with insulation.</del>	<b>Mandatory</b>
<u>Renovation Note:</u> Existing attic access, knee wall door, or drop-down stairs are insulated.	<b>1 Additional Point</b>
(2) <del>Recessed lighting. Recessed light fixtures that penetrate the thermal envelope are airtight, IC-rated, and sealed with gasket, caulk, or foam.</del>	<b>Mandatory</b>
<u>Renovation Note:</u> Replace existing recessed lights that penetrate the thermal envelope with airtight, IC-rated recessed light fixtures that are sealed to drywall with gasket, caulk, or foam.	<b>1 Additional Point</b>
<del>-(Additional point per fixture.)</del>	

GREEN BUILDING PRACTICES	POINTS				
<p><del>(3) <b>Eave vents.</b> Where ceiling/attic assemblies or designs have eave vents, baffles or other means are implemented to minimize air movement into or under the insulation.</del></p>	<b>Mandatory</b>				
<p><del><b>Renovation Note:</b> Provide blocking or baffle at eaves to ensure ventilation over attic insulation.</del></p>	<b>2 Additional Points</b>				
<p><b>701.4.3.1 Building Thermal Envelope.</b> The building thermal envelope 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:</p>	<b>Mandatory</b>				
<ul style="list-style-type: none"> <li>(a) All joints, seams and penetrations.</li> <li>(b) Site-built windows, doors and skylights.</li> <li>(c) Openings between window and door assemblies and their respective jambs and framing.</li> <li>(d) Utility penetrations.</li> <li>(e) Dropped ceilings or chases adjacent to the thermal envelope.</li> <li>(f) Knee walls.</li> <li>(g) Walls and ceilings separating a garage from conditioned spaces.</li> <li>(h) Behind tubs and showers on exterior walls.</li> <li>(i) Common walls between dwelling units.</li> <li>(j) Attic access openings.</li> <li>(k) Rim joist junction.</li> <li>(l) Other sources of infiltration.</li> </ul>					
<p><b>701.4.3.2 Air sealing and insulation.</b> The compliance of the building envelope air tightness and insulation installation is demonstrated in accordance with Section 701.4.3.2(1) or 701.4.3.2(2).</p>	<b>Mandatory</b>				
<p><b>(1) Testing option.</b> Building envelope tightness and insulation installation is considered acceptable when tested air leakage is less than seven air changes per hour (ACH) when tested with a blower door at a pressure of 33.5 psf (50 Pa). Testing is conducted after rough-in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation and combustion appliances. During testing:</p>					
<ul style="list-style-type: none"> <li>(a) Exterior windows and doors, fireplace and stove doors are closed, but not sealed;</li> <li>(b) Dampers are closed, but not sealed, including exhaust, intake, makeup air, backdraft and flue dampers;</li> <li>(c) Interior doors are open;</li> <li>(d) Exterior openings for continuous ventilation systems and heat recovery ventilators are closed and sealed;</li> <li>(e) Heating and cooling system(s) is turned off;</li> <li>(f) HVAC ducts are not sealed; and</li> <li>(g) Supply and return registers are not sealed.</li> </ul>					
<p><b>(2) Visual inspection option.</b> Building envelope tightness and insulation installation are considered acceptable when the items listed in Table 701.4.3.2(2) applicable to the method of construction, are field verified.</p>					
<p style="text-align: center;"><b>Table 701.4.3.2(2)</b> <b>Air Barrier and Insulation Inspection Component Criteria</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%; text-align: center;">COMPONENT</th> <th style="text-align: center;">CRITERIA</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Air barrier and thermal barrier</td> <td style="text-align: center;">Exterior thermal envelope insulation for framed walls is installed in substantial contact</td> </tr> </tbody> </table>		COMPONENT	CRITERIA	Air barrier and thermal barrier	Exterior thermal envelope insulation for framed walls is installed in substantial contact
COMPONENT	CRITERIA				
Air barrier and thermal barrier	Exterior thermal envelope insulation for framed walls is installed in substantial contact				

GREEN BUILDING PRACTICES		POINTS
	<p><u>and continuous alignment with building envelope air barrier.</u>  <u>Breaks or joints in the air barrier are filled or repaired.</u>  <u>Air-permeable insulation is not used as a sealing material.</u>  <u>Air-permeable insulation is inside of an air barrier.</u></p>	
Ceiling/attic	<p><u>Air barrier in any dropped ceiling/soffit is substantially aligned with insulation and any gaps are sealed.</u>  <u>Attic access (except unvented attic), knee wall door, or drop down stair is sealed.</u></p>	
Walls	<p><u>Corners and headers are insulated.</u>  <u>Junction of foundation and sill plate is sealed.</u></p>	
Windows and doors	<p><u>Space between window/door jambs and framing is sealed.</u></p>	
Rim joists	<p><u>Rim joists are insulated and include an air barrier.</u></p>	
Floors (including above-garage and cantilevered floors)	<p><u>Insulation is installed to maintain permanent contact with underside of subfloor decking.</u>  <u>Air barrier is installed at any exposed edge of insulation.</u></p>	
Crawl space walls	<p><u>Insulation is permanently attached to walls.</u>  <u>Exposed earth in unvented crawl spaces is covered with Class I vapor retarder with overlapping joints taped.</u></p>	
Shafts, penetrations	<p><u>Duct shafts, utility penetrations, knee walls and flue shafts opening to exterior or unconditioned space are sealed.</u></p>	
Narrow cavities	<p><u>Batts in narrow cavities are cut to fit, or narrow cavities are filled by sprayed/blown insulation.</u></p>	
Garage separation	<p><u>Air sealing is provided between the garage and conditioned spaces.</u></p>	
Recessed lighting	<p><u>Recessed light fixtures are air tight, IC rated, and sealed to drywall.</u>  <u>Exception—fixtures in conditioned space.</u></p>	
Plumbing and wiring	<p><u>Insulation is placed between outside and pipes. Batt insulation is cut to fit around wiring and plumbing, or sprayed/blown insulation extends behind piping and wiring.</u></p>	
Shower/tub on exterior wall	<p><u>Showers and tubs on exterior walls have insulation and an air barrier separating them from the exterior wall.</u></p>	
Electrical/phone box on exterior walls	<p><u>Air barrier extends behind boxes or air sealed-type boxes are installed.</u></p>	
Common wall	<p><u>Air barrier is installed in common wall between dwelling units.</u></p>	
HVAC register boots	<p><u>HVAC register boots that penetrate building envelope are sealed to subfloor or drywall.</u></p>	
Fireplace	<p><u>Fireplace walls include an air barrier.</u></p>	
<p><b>701.4.3.3 Fenestration air leakage.</b> <u>Windows, skylights and sliding glass doors have an air infiltration rate of no more than 0.3 cfm per square foot (1.5 L/s/m<sup>2</sup>), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/ m<sup>2</sup>), when tested according to NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and listed and labeled by the manufacturer.</u></p>		<b>Mandatory</b>
<p><b>Exception:</b> <u>Site built windows, skylights and doors.</u></p>		
<p><b>701.4.3.4 Recessed lighting.</b> <u>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 recessed luminaires are sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.</u></p>		<b>Mandatory</b>
<p><b>701.4.4 High-efficacy lighting.</b> <u>A minimum of 50 percent of the total hard-wired lighting fixtures, or the bulbs in those fixtures, qualify as high efficacy or equivalent.</u></p>		<b>Mandatory</b>
<p><b>701.4.4 Fenestration</b></p>		

GREEN BUILDING PRACTICES	POINTS																					
<p><del>701.4.4.1 NFRC-certified U-factor and SHGC windows, exterior doors, skylights, and tubular daylighting devices (TDDs) are in accordance with ENERGY STAR, or equivalent, or Table 701.4.4.1. Decorative fenestration elements with a maximum area of 15 square feet (1.39 m<sup>2</sup>) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.</del></p>	<b>Mandatory</b>																					
<p style="text-align: center;"><b>Table 701.4.4.1 Fenestration Specifications</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Climate Zones</th> <th>U-Factor Windows and Exterior Doors (maximum certified ratings)</th> <th>SHGC</th> </tr> </thead> <tbody> <tr> <td>1 and 2</td> <td>0.65</td> <td>0.40</td> </tr> <tr> <td>3</td> <td>0.40</td> <td>0.40</td> </tr> <tr> <td>4 to 8</td> <td>0.35</td> <td>Any</td> </tr> <tr> <td></td> <td colspan="2" style="text-align: center;">Skylights and TDDs (maximum certified ratings)</td> </tr> <tr> <td>1 to 3</td> <td>0.75</td> <td>0.40</td> </tr> <tr> <td>4 to 8</td> <td>0.60</td> <td>Any</td> </tr> </tbody> </table>	Climate Zones	U-Factor Windows and Exterior Doors (maximum certified ratings)	SHGC	1 and 2	0.65	0.40	3	0.40	0.40	4 to 8	0.35	Any		Skylights and TDDs (maximum certified ratings)		1 to 3	0.75	0.40	4 to 8	0.60	Any	
Climate Zones	U-Factor Windows and Exterior Doors (maximum certified ratings)	SHGC																				
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4 to 8	0.60	Any																				
<p><b>701.4.5 Boiler supply piping.</b> Boiler supply piping is insulated in unconditioned spaces.</p>	<b>Mandatory</b>																					
<p><b>702 PERFORMANCE PATH</b></p>																						
<p><b>702.1 Point allocation.</b> Points from Section 702 (Performance Path) shall not be combined with points from Section 703 (Prescriptive Path).</p>	<b>Mandatory</b>																					
<p><b>702.2 Energy cost performance levels.</b> <del>Energy efficiency features are implemented to achieve energy cost performance that exceeds the ICC IECC by the following. A documented analysis using software in accordance with ICC IECC, Section 404, or ICC IECC Section 506.2 through 506.5, applied as defined in the ICC IECC, is required.</del></p>																						
<p><b>702.2.1 ICC IECC analysis.</b> <del>Energy efficiency features are implemented to achieve energy cost performance that meets the ICC IECC. A documented analysis using software in accordance with ICC IECC, Section 405, or ICC IECC Section 506.2 through 506.5, applied as defined in the ICC IECC, is required.</del></p>	<b>TBD</b>																					
<p><b>702.2.2 Energy cost performance analysis.</b> <del>Savings levels above the ICC IECC are determined through an analysis that includes improvements in building envelope, air infiltration, heating system efficiencies, cooling system efficiencies, duct sealing, water heating system efficiencies, lighting, and appliances.</del></p>																						
<table border="0"> <tr> <td>(1)</td> <td>15 percent</td> <td style="text-align: center;"><b>30</b></td> </tr> <tr> <td>(2)</td> <td>30 percent</td> <td style="text-align: center;"><b>60</b></td> </tr> <tr> <td>(3)</td> <td>50 percent</td> <td style="text-align: center;"><b>100</b></td> </tr> <tr> <td>(4)</td> <td>60 percent</td> <td style="text-align: center;"><b>120</b></td> </tr> </table>	(1)	15 percent	<b>30</b>	(2)	30 percent	<b>60</b>	(3)	50 percent	<b>100</b>	(4)	60 percent	<b>120</b>										
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(4)	60 percent	<b>120</b>																				
<p><del><b>Renovation Note:</b> Application of Section 702.2: A baseline energy use measurement is calculated for the existing building.</del></p> <p style="text-align: center;"><del><b>(Based on the reduction in whole building energy use, points are given</b></del></p>	<b>0 Additional Points</b>																					

<b>GREEN BUILDING PRACTICES</b>	<b>POINTS</b>
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*for every increase in efficiency in accordance with Section 702.2.)*

**703  
PRESCRIPTIVE PATH**

**703.1 Building envelope**

**703.1.1 UA improvement.** Where the total building thermal envelope UA is less than required by ICC IECC, Section 402.1.4, the total building thermal envelope UA is in accordance with Table 703.1.1. The total building thermal envelope UA is in accordance with Table 703.1.2 and is less than or equal to the total UA resulting from the U-factors provided in Table 703.1.1. Where insulation is used to achieve these percentages UA improvements, a third-party grading of the installation as achieving Grade 1 is required. A documented analysis is performed using RESCheck version 4.0.1 or later, or equivalent, based on a comparison to the ICC IECC, IRC, or IBC. Total UA is documented using RESCheck or equivalent report and supplied to verify the baseline and the UA improvement.

**Points per  
Table  
703.1.1**

Table 703.1.1  
Equivalent U-Factors<sup>a</sup>

Climate Zone	Fenestration U-Factor	Skylight U-Factor	Ceiling U-Factor	Frame Wall U-Factor	Mass Wall U-Factor <sup>b</sup>	Floor U-Factor	Basement Wall U-Factor	Crawl Space Wall U-Factor <sup>c</sup>
1	1.2	0.75	0.035	0.082	0.197	0.064	0.36	0.477
2	0.65	0.75	0.035	0.082	0.165	0.064	0.36	0.477
3	0.5	0.65	0.035	0.082	0.141	0.047	0.91	0.136
4 except Marine	0.35	0.6	0.03	0.082	0.141	0.047	0.059	0.065
5 and Marine 4	0.35	0.6	0.03	0.057	0.082	0.033	0.059	0.065
6	0.35	0.6	0.026	0.057	0.06	0.033	0.05	0.065
7 and 9	0.35	0.6	0.026	0.057	0.057	0.028	0.05	0.065

a. Nonfenestration U-factors shall be obtained from measurement, calculation or an approved source.  
 b. When more than half the insulation is on the interior, the mass wall U-factors is a maximum of 0.17 in Zone 1, 0.14 in Zone 2, 0.12 in Zone 3, 0.10 in Zone 4 except in Marine, and the same as the frame wall U-factor in Marine Zone 4 and Zones 5 through 8.  
 c. Basement wall U-factor of 0.360 in warm-humid locations.

Table 703.1.2  
Improvement in Total Building Thermal Envelope UA

Minimum UA Improvement	Climate Zone					
	1	2	3	4	5-6	7-8
-	Points					
0 to <5%	0	0	0	0	0	0
5% to <10%	0	5	6	7	8	9
10% to <15%	0	10	12	14	16	18
15% to <20%	0	15	18	21	24	27
≥20%	0	20	24	28	32	36

GREEN BUILDING PRACTICES	POINTS
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**Table 703.1.1  
Total Building Thermal Envelope UA**

	Climate Zone				
	2	3	4	5-6	7-8
	<b>Points</b>				
10% UA improvement	10	12	14	16	18
20% UA improvement	20	24	28	32	36

~~**Addition Note:** Section 703.1.1 applies to the new construction portion of additions.~~

~~0  
Additional  
Points~~

~~**Renovation Note:** The existing whole building thermal envelope UA is evaluated. One of the following is selected based on the evaluation.~~

~~(1) If the overall thermal performance meets or exceeds the requirements of ICC IECC, Section 402.1.4, Section 703.1.1 applies to the renovation.~~

~~Mandatory  
0  
Additional  
Points~~

~~(2) If the existing overall thermal performance is below the requirements of ICC IECC, Section 402.1.4, the overall thermal performance of the whole building thermal envelope UA is improved a minimum of the following:~~

~~(a) 15 percent~~

~~15~~

~~(b) 30 percent~~

~~30~~

~~(c) 45 percent, or meets the requirements of ICC IECC, Section 402.1.4~~

~~45~~

**703.1.2 Insulation installation.** The insulation installation is graded by a third party and is in accordance with Sections 703.1.2.1, 703.1.2.2, and/or 703.1.2.3, and/or 703.1.2.4, as applicable. Grade 3 insulation installation is not permitted. Grade 2 installation is permitted only for bronze level buildings.

**Points per  
Table  
703.1.2**

**(Points not awarded in this section if already awarded under Section 703.1.1.)**

**Table 703.1.2  
Insulation Installation Grades**

Grade	POINTS
1	15
2	10
3	0

**703.1.2.1** Both Grade 1 and Grade 2 installations are in accordance with the following:

~~(1) Grades apply Grading applies to cavity fill insulation, continuous rigid insulation, and any other field-installed insulation products. Grading applies to ceilings, walls, rim joists, conditioned basements and crawlspaces, except as specifically noted. Inspection is conducted before insulation is covered.~~

~~(2) Grading applies to ceilings, walls, floors, band joists, rim joists, conditioned attics~~

## GREEN BUILDING PRACTICES

## POINTS

basements and crawlspaces, except as specifically noted.

~~(3) Inspection is conducted before insulation is covered.~~

~~(2) Insulation is installed in accordance with the manufacturer's instructions and/or industry standards.~~

~~(34) Wall cavity Air permeable insulation is enclosed on all six sides and is in substantial contact with the sheathing material on one or more sides (interior or exterior) of the cavity. Air permeable insulation in ceilings is not required to be enclosed when the insulation is installed in substantial contact with the surfaces it is intended to insulate.~~

**703.1.2.2** Grade 1 installation is in accordance with the following:

- (1) Cavity insulation uniformly fills each cavity side-to-side and top-to-bottom, without substantial gaps or voids around obstructions (such as blocking or bridging).
- (2) Cavity insulation compression or incomplete fill amounts to 2 percent or less, presuming the ~~compression or fill is compressed or incomplete areas are~~ a minimum of 70 percent of the intended fill thickness; occasional small gaps are acceptable.
- (3) Exterior rigid insulation has substantial contact with the structural framing members or sheathing materials and is tightly fitted at joints.
- (4) Cavity insulation is split, installed, and/or fitted tightly around wiring and other services.
- (5) Exterior sheathing is not visible from the interior through gaps in the cavity insulation.
- (6) Faced batt insulation is permitted to have side-stapled tabs, provided the tabs are stapled neatly with no buckling, and provided the batt is compressed only at the edges of each cavity, to the depth of the tab itself.
- (7) Where properly installed, ICFs, SIPs, and other wall systems that provide integral insulation are deemed in compliance with the Grade 1 insulation installation requirements.
- (8) Grade 1 insulation meets or exceeds all requirements for Grade 2 insulation.

**703.1.2.3** Grade 2 installation is in accordance with the following:

- (1) A maximum of 2 percent of the surface area of insulation is missing. Compression or incomplete fill amounts to 10 percent or less, presuming the ~~compression or fill is compressed or incomplete areas are~~ a minimum of 70 percent of the intended fill thickness.
- (2) In unconditioned basements or crawlspaces ~~the following apply: insulation is installed in substantial contact with the subfloor surfaces.~~
  - ~~(a) insulation is installed in complete contact with the subfloor surfaces.~~
  - ~~(ba) floor insulation over vented or ambient conditions is enclosed on six sides.~~
  - (b) floor insulation over unconditioned basements is not required to be

GREEN BUILDING PRACTICES	POINTS
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<p style="text-align: center;"><u>enclosed on six sides.</u></p> <p><del>(3) Floor insulation over unconditioned basements is not required to be enclosed on six sides.</del></p>																		
<p>(43) Ceiling insulation is not required to be enclosed when the insulation is installed in <u>complete-substantial</u> contact with the drywall or plywood surfaces it is intended to insulate.</p> <p>(54) Eave baffles or equivalent construction is installed to prevent wind <del>washing intrusion.</del></p> <p>(65) Installation with occasional installation defects is permitted: gaps around wiring, electrical outlets, plumbing and other intrusions; rounded edges or shoulders.</p> <p><del>703.1.2.4 Grade 3 installation is in accordance with the following:</del></p> <p><del>(1) Standard insulation installation not in accordance with Grade 1 or Grade 2 criteria.</del></p>																		
<p><b>703.1.3 Mass walls.</b> More than 75 percent of the above-grade exterior opaque wall area of the building is mass walls.</p> <p style="text-align: center;"><b>Table 703.1.3 Exterior Mass Walls</b></p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">Mass Construction</th> </tr> <tr> <th>≥3 in. to &lt;6 in.</th> <th>≥6 in.</th> </tr> <tr> <th></th> <th colspan="2"><b>POINTS</b></th> </tr> </thead> <tbody> <tr> <td>Climate Zones 1, 2, 3, 4 except marine, and 5 dry.</td> <td><b>4</b></td> <td><b>6</b></td> </tr> <tr> <td>Climate Zones 4 marine, 5 except dry, and 6.</td> <td><b>3</b></td> <td><b>5</b></td> </tr> <tr> <td>Climate Zones 7 and 8</td> <td><b>0</b></td> <td><b>0</b></td> </tr> </tbody> </table> <p>For SI: 1 inch = 25.4 mm</p>		Mass Construction		≥3 in. to <6 in.	≥6 in.		<b>POINTS</b>		Climate Zones 1, 2, 3, 4 except marine, and 5 dry.	<b>4</b>	<b>6</b>	Climate Zones 4 marine, 5 except dry, and 6.	<b>3</b>	<b>5</b>	Climate Zones 7 and 8	<b>0</b>	<b>0</b>	<p><b>Points per Table 703.1.3</b></p>
		Mass Construction																
	≥3 in. to <6 in.	≥6 in.																
	<b>POINTS</b>																	
Climate Zones 1, 2, 3, 4 except marine, and 5 dry.	<b>4</b>	<b>6</b>																
Climate Zones 4 marine, 5 except dry, and 6.	<b>3</b>	<b>5</b>																
Climate Zones 7 and 8	<b>0</b>	<b>0</b>																
<p><b>703.1.4</b> <u>A radiant barrier with an emittance of 0.05 or less is used. The product is tested in accordance with ASTM C-1371-98 or ASTM E408-71 (2002) and is installed in accordance with the manufacturer's installation specifications.</u></p> <p style="text-align: center;"><b>Table 703.1.4 Radiant Barriers</b></p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Climate Zone</th> <th>POINTS</th> </tr> </thead> <tbody> <tr> <td><u>1-3</u></td> <td><u>2</u></td> </tr> <tr> <td><u>4</u></td> <td><u>1</u></td> </tr> <tr> <td><u>5-8</u></td> <td><u>0</u></td> </tr> </tbody> </table>	Climate Zone	POINTS	<u>1-3</u>	<u>2</u>	<u>4</u>	<u>1</u>	<u>5-8</u>	<u>0</u>	<p><b>Points per Table 703.1.4</b></p>									
Climate Zone	POINTS																	
<u>1-3</u>	<u>2</u>																	
<u>4</u>	<u>1</u>																	
<u>5-8</u>	<u>0</u>																	

<p><b>703.2 Insulation and air sealing</b></p> <p><del>703.2.1 Insulation and air sealing is installed in accordance with all of the following, as applicable:</del></p> <p><del>(1) third-party verification performed</del></p> <p><del>(2) no third-party verification performed</del></p> <p><b>703.2.1.1 General</b></p>	
<p><del>(1) third-party verification performed</del></p>	<b>15</b>
<p><del>(2) no third-party verification performed</del></p>	<b>3</b>



GREEN BUILDING PRACTICES	POINTS
<p><b>703.2.1.1.1 Air and thermal barriers</b></p> <p><del>(1) Thermal insulation is installed in substantial contact with interior and exterior air barrier to provide continuous alignment of the insulation with the air barrier. The following are deemed to be their own air barrier:</del></p> <ul style="list-style-type: none"> <li><del>(a) Any spray or rigid foam insulation with an air permeance of 0.02 L/s·m<sup>2</sup> or less at 75 Pa.</del></li> <li><del>(b) ICFs, SIPS, and other wall systems that provide their own air barrier, except at interfaces with other materials or assemblies, or penetrations.</del></li> <li><del>(c) Spray foam that complies with all of the following:                     <ul style="list-style-type: none"> <li><del>(i) continuously attached to the top, bottom and both sides of the cavity.</del></li> <li><del>(ii) continuous in the cavity without any unrepaired breaks.</del></li> <li><del>(iii) air impermeable.</del></li> </ul> </del></li> <li><del>(d) Air impermeable insulation.</del></li> </ul>	

~~(2) Voids or areas of incomplete fill (less than 30 percent of full thickness) are 2 percent or less of the insulated area.~~

~~(3) Insulation is in substantial contact with sheathing materials on one or more sides.~~

~~(4) Any exterior rigid insulation is tightly fitted or interlocking at the joints.~~

#### ~~703.2.1.1.2 Plumbing and wiring~~

~~(1) At a minimum, insulation is placed between the outside (ceiling, wall, or floor) and the pipes.~~

~~(2) Batt insulation is split or cut to fit around wiring and plumbing.~~

~~(3) Sprayed insulation is installed to encapsulate pipes where the pipe temperature is 180 degrees F (82.2 C) or less. Wiring is fastened in place to prevent displacement prior to spraying.~~

~~703.2.1.1.3 Narrow cavities. Narrow cavities are filled and batts are cut to fit.~~

~~703.2.1.1.4 HVAC register boots. HVAC register boots that penetrate the building envelope are caulked or sealed to the subfloor or drywall.~~

~~703.2.1.1.5 Masonry fireplaces. Masonry fireplaces are equipped with gasketed doors, outside combustion air, and a chimney top damper.~~

~~703.2.1.2 Air barriers. Air barrier is installed at any exterior edge of insulation at floors, foundations, and crawlspaces including insulated floors above garages and cantilevered floors.~~

#### ~~703.2.1.3 Walls~~

~~(1) Exterior wall(s) behind the tub/shower is insulated and includes an interior and exterior air barrier.~~

~~(2) Air-sealed type electrical outlet boxes are installed or the air barrier extends completely behind the boxes. Insulation is placed between the sheathing and the rear of electrical or phone boxes located on exterior walls. Electrical outlet boxes are covered prior to spraying insulation.~~

~~(3) Duplex and townhouse construction: In the common walls between dwelling units (e.g., gypsum shaft wall), an air barrier is installed to seal the gap between the common wall and the structural framing.~~

~~(4) Skylight shafts and knee walls are air sealed. Insulation on attic knee walls and skylight shafts are physically supported by stapling in place, netting, or using other mechanical attachment.~~

~~(5) Fireplace walls: Air barrier that is aligned with insulation; any gaps are sealed with caulk or foam.~~

#### ~~703.2.1.4 Ceilings and attics~~

~~(1) At dropped ceilings and soffits, the air barrier is substantially aligned with insulation and any gaps are sealed with caulk, foam, or tape.~~

- (2) Access to vented attics, including knee wall doors and/or drop down stairs, is caulked, gasketed, or otherwise sealed.
- (3) An insulated cover is gasketed or sealed to the attic opening where a whole building or whole dwelling unit fan penetrates into the attic.

**Addition Note:** Section 703.2.1 applies only to the new construction portion of additions.

**0 Additional Points**

**Renovation Note:** The air infiltration of the existing whole building envelope is evaluated. Based on the evaluation, choose one of the following:

*(Additional points awarded only where third-party verification is not performed.)*

(1) Where the overall air infiltration rate is equal to or less than the requirements for new construction (as indicated in Section 704.6.2.1), this item applies to the renovation.

**1 Additional Point**

(2) Where the overall air infiltration rate is greater than the requirements for new construction (as indicated in Section 704.6.2.1), reduce the air infiltration of the whole building envelope by:

(a) 15 percent

**1 Additional Point**

(b) 30 percent

**2 Additional Points**

(c) 50 percent

**3 Additional Points**

**703.1.5 Building envelope leakage.** The maximum leakage rate is in accordance with the following:

- (a) 5 ACH50
- (b) 4 ACH50
- (c) 3 ACH50
- (d) 2 ACH50
- (e) 1 ACH50

**3**  
**6**  
**9**  
**12**  
**15**

**703.3–1.6 Fenestration**

**703.1.6.1 NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights, and tubular daylighting devices (TDDs) are in accordance with Table 703.1.6.1. Decorative fenestration elements with a combined total maximum area of 15 square feet (1.39 m<sup>2</sup>) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.**

**Mandatory**

**Table 703.1.6.1  
Fenestration Specifications**

Climate Zones	U-Factor	SHGC
	Windows and Exterior Doors (maximum certified ratings)	
1	0.65	0.30
2	0.65	0.30
3	0.40	0.30
4 to 8	0.35	Any
	Skylights and TDDs (maximum certified ratings)	

<a href="#">1 and 2</a>	<a href="#">0.75</a>	<a href="#">0.30</a>
<a href="#">3</a>	<a href="#">0.65</a>	<a href="#">0.30</a>
<a href="#">4 to 8</a>	<a href="#">0.60</a>	<a href="#">Any</a>

**Addition and Renovation Note:** ~~Section 703.1.6.1 is mandatory for both additions and renovations where new windows are installed.~~

**703.31.6.4—2** The NFRC-certified (or equivalent) U-factor and SHGC ~~for~~ of windows, exterior doors, skylights, and tubular daylighting devices (TDDs) are in accordance with Table 703.31.6.42(a) or (b). Decorative fenestration elements with a [combined total](#) maximum area of 15 square feet (1.39 m<sup>2</sup>) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.

**Points per Table 703.31.6.42(a) or Table 703.31.6.42(b)**

**Table 703.3.12(a)  
Enhanced Fenestration Specifications**

Climate Zones	U-Factor	SHGC
	Windows and Exterior Doors (maximum certified ratings)	
<a href="#">1 and 2</a>	<a href="#">0.45</a>	<a href="#">0.30</a>
<a href="#">3</a>	<a href="#">0.35</a>	<a href="#">0.30</a>
<a href="#">4 to 8</a>	<a href="#">0.30</a>	<a href="#">Any</a>
	Skylights and TDDs (maximum certified ratings)	
<a href="#">1 to 3</a>	<a href="#">0.55</a>	<a href="#">0.35</a>
<a href="#">4 to 8</a>	<a href="#">0.55</a>	<a href="#">Any</a>
Points		
<b>Zones 1-3</b>	<b>8</b>	
<b>Zones 4-5</b>	<b>5</b>	
<b>Zones 6-8</b>	<b>6</b>	

**Table 703.1.6.2(a)  
Enhanced Fenestration Specifications**

Climate Zones	U-Factor	SHGC	POINTS
	Windows and Exterior Doors (maximum certified ratings)		
<a href="#">1 and 2</a>	<a href="#">0.60</a>	<a href="#">0.27</a>	<a href="#">TBD</a>
<a href="#">3</a>	<a href="#">0.35</a>	<a href="#">0.30</a>	<a href="#">TBD</a>
<a href="#">4</a>	<a href="#">0.32</a>	<a href="#">0.40</a>	<a href="#">TBD</a>
<a href="#">5 to 8</a>	<a href="#">0.30</a>	<a href="#">Any</a>	<a href="#">TBD</a>
	Skylights and TDDs (maximum certified ratings)		
<a href="#">1 and 2</a>	<a href="#">0.70</a>	<a href="#">0.30</a>	<a href="#">TBD</a>
<a href="#">3</a>	<a href="#">0.57</a>	<a href="#">0.30</a>	<a href="#">TBD</a>
<a href="#">4</a>	<a href="#">0.55</a>	<a href="#">0.40</a>	<a href="#">TBD</a>
<a href="#">5 to 8</a>	<a href="#">0.55</a>	<a href="#">Any</a>	<a href="#">TBD</a>

[For Climate Zones 5-8 an equivalent energy performance is permitted based on either \(1\) windows with a U-factor = 0.31 and an SHGC ≥ 0.35, or, a U-factor = 0.32 and an SHGC ≥ 0.40 or \(2\) windows meeting the ENERGY STAR Equivalent Energy Performance requirements.](#)

**Table 703.3.12(b)  
Enhanced Fenestration Specifications**

Climate Zones	U-Factor	SHGC
	Windows and Exterior Doors (maximum certified ratings)	
1 and 2	0.45	0.25
3	0.35	0.25
4 to 8	0.25	Any
Skylights and TDDs (maximum certified ratings)		
1 to 3	0.50	0.35
4 to 8	0.50	Any
Points		
Zones 1-3	10	
Zones 4-5	10	
Zones 6-8	12	

**Table 703.1.6.2(b)  
Enhanced Fenestration Specifications**

Climate Zones	U-Factor	SHGC	Points
	Windows and Exterior Doors (maximum certified ratings)		
1 and 2	0.40	0.25	TBD
3	0.30	0.25	TBD
4	0.28	0.40	TBD
4	0.25	0.40	TBD
5 to 8	0.25	Any	TBD
5 to 8	0.22	Any	TBD
Skylights and TDDs (maximum certified ratings)			
1 & 2	0.50	0.30	TBD
3	0.50	0.35	TBD
4	0.50	0.40	TBD
5 to 8	0.50	Any	TBD

~~Addition Note: Section 703.31.6.12 applies only to the new construction portion of additions.~~

**0 Additional Points**

~~[Points available on the basis of a ratio of new window area to total window area (new window area/total window area).]~~

~~Renovation Note: Section 703.31.6.12 applies only to the replacement of existing windows.~~

**2 Additional Points**

~~[Points available on the basis of a ratio of new window area to total window area (new window area/total window area).]~~

**703.4-2 HVAC equipment efficiency**

**703.42.1** Combination space heating and water heating system (combo system) is installed using either a coil from the water heater connected to an air handler to provide heat for the building or dwelling unit, or a space heating boiler using an indirect-fired water heater. Devices have a combined annual efficiency of 0.80.

**4**

**703.42.2** Furnace and/or boiler efficiency is in accordance with one of the following:  
(Where multiple systems are used, points awarded based on the system with the lowest efficiency.)

<p>(1) Gas and propane heaters:</p> <p style="text-align: center;"><b>Table 703.42.2(1)</b> <b>Gas and Propane Heaters</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th rowspan="2"></th> <th colspan="6">Climate Zone</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6-8</th> </tr> </thead> <tbody> <tr> <td></td> <td colspan="6" style="text-align: center;"><b>POINTS</b></td> </tr> <tr> <td>≥ 90% AFUE</td> <td>0</td> <td>2</td> <td>5</td> <td>8</td> <td>11</td> <td>14</td> </tr> <tr> <td>≥ 92% AFUE</td> <td>0</td> <td>2</td> <td>6</td> <td>9</td> <td>12</td> <td>15</td> </tr> <tr> <td>≥ 94% AFUE</td> <td>0</td> <td>3</td> <td>7</td> <td>10</td> <td>14</td> <td>17</td> </tr> </tbody> </table>		Climate Zone						1	2	3	4	5	6-8		<b>POINTS</b>						≥ 90% AFUE	0	2	5	8	11	14	≥ 92% AFUE	0	2	6	9	12	15	≥ 94% AFUE	0	3	7	10	14	17	<p><b>Points per Table 703.42.2(1)</b></p>
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<p><b>703.42.3</b> Boiler is equipped with temperature reset control or burner delay control.</p>	<p><b>1</b></p>																																									
<p><b>703.42.4</b> Heat pump heating efficiency is in accordance with Table 703.42.4. Refrigerant charge is verified for compliance with manufacturer's instructions.</p> <p style="text-align: center; color: blue;"><u>(Where multiple systems are used, points awarded based on the system with the lowest efficiency.)</u></p> <p style="text-align: center;"><b>Table 703.42.4</b> <b>Heat Pump Heating</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th rowspan="2"></th> <th colspan="6">Climate Zone</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6-8</th> </tr> </thead> <tbody> <tr> <td></td> <td colspan="6" style="text-align: center;"><b>POINTS</b></td> </tr> </tbody> </table>		Climate Zone						1	2	3	4	5	6-8		<b>POINTS</b>						<p><b>Points per Table 703.42.4</b></p>																					
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**ENERGY EFFICIENCY**

8.2 HSPF (11.5 EER)	0	1	2	5	7*	7*
9.0 HSPF (12.5 EER)	0	2	5	10	11*	12*

\* Zones 5-8 require consideration for use of resistance heat in cold climates when installing a heat pump.

**703.42.5** Cooling efficiency is in accordance with one of the following. Refrigerant charge is verified for compliance with manufacturer's instructions.

(Where multiple systems are used, points awarded based on the system with the lowest efficiency.)

(1) Air conditioner and heat pump cooling:

**Table 703.42.5(1)  
Air Conditioner and Heat Pump Cooling**

	Climate Zone					
	1	2	3	4	5	6-8
	<b>POINTS</b>					
≥ 14 SEER (11.5 EER)	8	6	2	2	1	1
≥ 15 SEER (12.5 EER)	12	10	4	3	2	2
≥ 17 SEER (12.5 EER)	18	14	6	4	3	3
≥ 19+ SEER (12.5 EER)	24	18	8	4	3	3

**Points per  
Table  
703.42.5(1)**

(2) Water source and cooled air conditioners:

**Table 703.42.5(2)  
Water Source and Cooled Air Conditioners**

	Climate Zone					
	1	2	3	4	5	6-8
	<b>POINTS</b>					
≥ 15 EER, 4.0 COP	18	14	6	4	3	3

**Points per  
Table  
703.42.5(2)**

**703.42.6** Ground source heat pump is installed by a Certified Geothermal Service Contractor in accordance with one of the following ENERGY STAR levels:

(Where multiple systems are used, points awarded based on the system with the lowest efficiency.)

(1) Open loop: ≥ 16.2 EER / ≥ 3.6 COP

**20**

(2) Closed loop: ≥ 14.1 EER / ≥ 3.3 COP

**20**

(3) Direct expansion: ≥ 15.0 EER / ≥ 3.5 COP

**20**

(4) Any type (open, closed, direct expansion): ≥ 24 EER / ≥ 4.3 COP

**30**

(5) Any type (open, closed, direct expansion): ≥ 28 EER / ≥ 4.8 COP

**35**

703.42.7 ENERGY STAR, or equivalent, ceiling fan(s) are installed. (Points awarded per building.)	1
703.42.8 Whole building or whole dwelling unit fan(s) with insulated louvers and a sealed enclosure is installed. (Points awarded per building.)	2
703.42.9 In multi-unit buildings, an advanced electric and fossil fuel submetering system is installed to monitor electricity and fossil fuel consumption for each unit. At a minimum, the information is available to the occupants on a monthly basis.	
(1) Install a device providing monthly consumption information.	1
(2) Install a device that can provide near real-time energy consumption information.	4
703.42.10 An ENERGY STAR, or equivalent, programmable thermostat is installed to control each heating and cooling zone. (Points awarded per dwelling unit.)	1
<del>Addition Note: Section 703.4.10 applies to the new construction portion of additions.</del>	<del>0 Additional Points</del>
<del>Renovation Note: Replace existing nonprogrammable thermostat.</del>	<del>1 Additional Point</del>

<b>703.3 Duct Systems</b>	
<u>703.3.1 All space heating is provided by a system(s) that does not include air ducts.</u>	<b>15</b>
<u>703.3.2 All space cooling is provided by a system(s) that does not include air ducts.</u>	<b>15</b>
<u>703.3.3 Ductwork is in accordance with all of the following:</u>	<b>12</b>
(1) <u>Building cavities are not used as return ductwork.</u> (2) <u>Heating and cooling ducts and mechanical equipment are installed within the conditioned building space.</u> (3) <u>Ductwork is not installed in exterior walls.</u>	
<del>Addition Note: Section 703.3.3 applies to the new construction portion of additions.</del>	<del>0 Additional Points</del>
<del>Renovation Note: Section 703.3.3 applies to renovations that involve the demolition, reconfiguration, and/or addition of interior walls, or a modification in the duct system of the building, or an intentional effort to implement the practices in Section 703.3.3.</del>	<del>2 Additional Points</del>
<u>703.3.4 Duct Leakage. The entire central HVAC duct system, including air handlers and register boots, is tested by a third party for leakage at a pressure differential of 0.1 inches w.g. (25 Pa). The maximum leakage as a percent of the system design flow rate is in accordance with the following:</u>	
(1) <u>6 percent for ductwork entirely outside the building's thermal envelope</u>	<b>15</b>
(2) <u>6 percent for ductwork entirely inside the building's thermal envelope</u>	<b>5</b>
(3) <u>6 percent for ductwork both inside and outside the building's thermal envelope</u>	<b>15</b>



**703.5-4 Water heating design, equipment, and installation**

**703.54.1** Water heater Energy Factor (EF) is equal to or greater than the following:  
(Where multiple systems are used, points awarded based on the system with the lowest efficiency.)

**(1) Gas water heating**

**Table 703.54.1(1)(a)  
Gas Water Heating**

(Storage with input rate of 75,000 Btu/h or less or instantaneous input rate of 200,000 Btu/h or less)

Size (gallons)	Energy Factor	POINTS
30 to < 40	0.64	1
40 to < 50	0.62	1
50 to < 65	0.60	1
65 to < 75	0.58	1
≥75	0.56	1
Any	0.80	10

For SI: 1 gallon = 3.785 L

**Table 703.54.1(1)(b)  
Gas Water Heating**

(Storage with input rate of greater than 75,000 Btu/h or instantaneous input rate greater than 200,000 Btu/h)

Size (gallons)	Thermal Efficiency	POINTS
Any	82-86%	1
Any	> 86%	10

**Points per Table 703.54.1(1)(a) or Table 703.54.1(1)(b)**

**(2) Electric water heating**

**Table 703.54.1(2)  
Electric Water Heating**

Size (gallons)	Energy Factor	POINTS
30 to < 40	0.95	1
40 to < 50	0.94	1
50 to < 65	0.92	1
65 to < 80	0.90	1
80 to < 100	0.88	1
≥100	0.86	1

For SI: 1 gallon = 3.785 L

**Points per Table 703.54.1(2)**

**(3) Oil water heating**

**Table 703.54.1(3)  
Oil Water Heating**

Size (gallons)	Energy Factor	POINTS
30 to < 50	0.59	1
≥50	0.55	1

For SI: 1 gallon = 3.785 L

**Points per Table 703.54.1(3)**

**(4) Heat pump water heating**

**Points per**

Table 703.54.1(4) Heat Pump Water Heating			Table 703.54.1(4)
	Energy Factor	<b>POINTS</b>	
Heat Pump	1.5	<b>7</b>	
Heat Pump	2.0	<b>10</b>	
703.54.2 Desuperheater is installed by a qualified installer or is pre-installed in the factory.			<b>Points per Table 703.54.2</b>
Table 703.54.2 Desuperheater			
	Climate Zone		
	Zone 1-4	Zone 5-8	
	<b>POINTS</b>		
Desuperheater	<b>5</b>	<b>2</b>	
703.54.3 Drain-water heat recovery system is installed in multi-family units. (Points awarded per building.)			<b>2</b>
703.5.4 Insulating hot water pipes			
703.5.4.1 Hot water lines are insulated to a minimum of R-4.			<b>4</b>
703.5.4.2 Boiler supply piping is insulated in unconditioned spaces.			<b>4</b>
<del>Addition Note: Section 703.5.4 applies only to new or modified plumbing associated with the addition.</del>			<del><b>0-Additional Points</b></del>
<del>Renovation Note: Where hot water lines in the existing building are accessible, the hot water lines are insulated in accordance with Section 703.5.4. (To receive additional points, a minimum of 50 percent of the existing hot water lines are insulated.)</del>			<del><b>1-Additional Point</b></del>
703.54.5-4 Indirect-fired water heater storage tanks heated from boiler systems are installed.			<b>1</b>
703.4.5 Solar water heater. SRCC (Solar Rating & Certification Corporation) OG 300 rated, or equivalent, solar domestic water heating system is installed. Solar Energy Factor (SEF as defined by SRCC) is in accordance with Table 703.4.5.			<b>Points per Table 703.4.5</b>
Table 703.4.5 Solar Hot Water Systems			
<b>SEF - Electric Tank</b>	<b>SEF - Gas Tank</b>	<b>POINTS</b>	
<u>1.30 - 1.50</u>	<u>0.85 - 1.00</u>	<u><b>8</b></u>	
<u>1.51 - 1.80</u>	<u>1.01 - 1.20</u>	<u><b>11</b></u>	
<u>1.81 - 2.30</u>	<u>1.21 - 1.50</u>	<u><b>14</b></u>	
<u>2.31 - 3.00</u>	<u>1.51 - 2.00</u>	<u><b>17</b></u>	
<u>≥ 3.01</u>	<u>≥ 2.01</u>	<u><b>20</b></u>	
<del>Addition and Renovation Note: Section 703.4.5 applies to systems in additions and/or</del>			<del><b>1-Additional</b></del>

<u>existing buildings.</u>	<u>Point</u>
<b>703.5 Lighting and appliances</b>	
<b>703.5.1 Hard-wired lighting.</b> Hard-wired lighting is in accordance with one of the following:	
(1) <u>A minimum of 50 percent of the total hard-wired lighting fixtures qualify as ENERGY STAR or equivalent.</u>	<u>8</u>
(2) <u>A minimum of 80 percent of the exterior lighting wattage has an efficiency of 40 lumens per watt minimum or be a solar-powered light fixture.</u>	<u>TBD</u>
<i><u>Addition Note: Section 704.2.1 applies only to the new construction portion of additions.</u></i>	<i><u>0 Additional Points</u></i>
<i><u>Renovation Note: A percentage of the total lighting fixtures, or the lights in those fixtures, are replaced with fixtures or lights that qualify as ENERGY STAR or equivalent.</u></i>	
(1) <u>50 percent</u>	<u>1 Additional Point</u>
(2) <u>75 percent</u>	<u>2 Additional Points</u>
(3) <u>100 percent</u>	<u>3 Additional Points</u>
<b>703.5.2 Recessed lighting fixtures.</b> The number of recessed light fixtures that penetrate the thermal envelope are less than 1 per 400 square feet (37.16 m <sup>2</sup> ) of total conditioned floor area and are in accordance with Section 701.4.3.4.	<u>2</u>
<i><u>Addition Note: Section 703.5.2 is mandatory for the new construction portion of additions.</u></i>	<i><u>Mandatory 0 Additional Points</u></i>
<i><u>Renovation Note: Section 703.5.2 applies where room for installation within the conditioned envelope is available.</u></i>	<i><u>1 Additional Point</u></i>
<i><u>(To receive additional points, a minimum of 50 percent of the total recessed ceiling lights are in accordance with Section 703.5.2.)</u></i>	
<b>703.5.3 Appliances.</b> ENERGY STAR or equivalent appliance(s) are installed:	
(1) <u>Refrigerator</u>	<u>5</u>
(2) <u>Dishwasher</u>	<u>2</u>
(3) <u>washing machine</u>	<u>4</u>
<i><u>Addition and Renovation Note: Section 703.5.3 applies as follows:</u></i>	
(1) <u>replace existing refrigerator</u>	<u>2 Additional Points</u>
(2) <u>replace existing dishwasher</u>	<u>1 Additional Point</u>

<del>(3) replace existing washing machine</del>	<del>1-Additional Point</del>
<b>703.5.4 Induction cooktop.</b> Induction cooktop is installed.	<u>1</u>

**703.6 Passive solar design**

**703.6.1 Sun-tempered design.** Building orientation, sizing of glazing, and design of overhangs are in accordance with all of the following: 5

- (1) The long side (or one side if of equal length) of the building faces within 20 degrees of true south.
- (2) Vertical glazing area is between 5 and 7 percent of the gross conditioned floor area on the south face [also see Section 703.6.1(8)].
- (3) Vertical glazing area is less than 2 percent of the gross conditioned floor area on the west face, and glazing is ENERGY STAR compliant or equivalent.
- (4) Vertical glazing area is less than 4 percent of the gross conditioned floor area on the east face, and glazing is ENERGY STAR compliant or equivalent.
- (5) Vertical glazing area is less than 8 percent of the gross conditioned floor area on the north face, and glazing is ENERGY STAR compliant or equivalent.
- (6) Skylights, where installed, are in accordance with the following:
  - (a) shades and insulated wells are used, and all glazing is ENERGY STAR compliant or equivalent
  - (b) horizontal skylights are less than 0.5 percent of finished ceiling area
  - (c) sloped skylights on slopes facing within 45 degrees of true south, east or west are less than 1.5 percent of the finished ceiling area
- (7) Overhangs or adjustable canopies or awnings or trellises provide shading on south-facing glass for the appropriate climate zone in accordance with Table 703.6.1(7):

**Table 703.6.1(7)  
South-Facing Window Overhang Depth**

		<u>Vertical distance between bottom of overhang and top of window sill</u>				
		<u>≤ 7' 4"</u>	<u>≤ 6' 4"</u>	<u>≤ 5' 4"</u>	<u>≤ 4' 4"</u>	<u>≤ 3' 4"</u>
<u>Climate Zone</u>	<u>1 &amp; 2 &amp; 3</u>	<u>2' 8"</u>	<u>2' 8"</u>	<u>2' 4"</u>	<u>2' 0"</u>	<u>2' 0"</u>
	<u>4 &amp; 5 &amp; 6</u>	<u>2' 4"</u>	<u>2' 4"</u>	<u>2' 0"</u>	<u>2' 0"</u>	<u>1' 8"</u>
	<u>7 &amp; 8</u>	<u>2' 0"</u>	<u>1' 8"</u>	<u>1' 8"</u>	<u>1' 4"</u>	<u>1' 0"</u>

For SI: 1 inch = 25.4 mm

- (8) The south face windows have a SHGC of 0.40 or higher.
- (9) Return air or transfer grilles/ducts are in accordance with Section 704.3.

~~**Addition Note:** Section 703.6.1 applies to the new construction portion of additions.~~ 0-Additional Points

~~**-[Points are available on the basis of a ratio of new building area to**~~

<b><u>total building area (new building area/total building area).1</u></b>	
<b><u>Renovation Note: Section 703.6.1 applies to existing construction.</u></b>	<b><u>1 Additional Point</u></b>
<b><u>703.6.2 Window shading.</u></b> Automated solar protection is installed to provide shading for windows.	<b><u>1</u></b>
<b><u>703.6.3 Passive cooling design.</u></b> Passive cooling design features are in accordance with three or more of the following:	
<b><u>Points for three items:</u></b>	<b><u>3</u></b>
<b><u>Points for one additional item:</u></b>	<b><u>1</u></b>
<p><b><u>(1)</u></b> Exterior shading is provided on east and west windows using one or a combination of the following:</p> <p><b><u>(a)</u></b> Vine-covered trellises with the vegetation separated a minimum of 1 foot (305 mm) from face of building</p> <p><b><u>(b)</u></b> moveable awnings or louvers</p> <p><b><u>(c)</u></b> covered porches</p> <p><b><u>(d)</u></b> attached or detached conditioned/unconditioned enclosed space that provides full shade of east and west windows (e.g., detached garage, shed, or building)</p> <p><b><u>(2)</u></b> Overhangs are installed to provide shading on south-facing glazing in accordance with Section 703.6.1(7).</p> <p style="text-align: center;"><b><u>(Points not awarded if points are taken under Section 703.6.1.)</u></b></p> <p><b><u>(3)</u></b> Windows and/or venting skylights are located to facilitate cross ventilation.</p> <p><b><u>(4)</u></b> Solar reflective roof or radiant barrier is installed in climate zones 1, 2, or 3 and roof material achieves a 3-year aged criteria of 0.50.</p> <p><b><u>(5)</u></b> Internal exposed thermal mass is a minimum of three inches (76 mm) in thickness. Thermal mass consists of concrete, brick, and/or tile that are fully adhered to a masonry base or other masonry material and is in accordance with one or a combination of the following:</p> <p><b><u>(a)</u></b> A minimum of 1 square foot (0.09 m<sup>2</sup>) of exposed thermal mass of floor per 3 square feet (2.8 m<sup>2</sup>) of gross finished floor area.</p> <p><b><u>(b)</u></b> A minimum of 3 square feet (2.8 m<sup>2</sup>) of exposed thermal mass in interior walls or elements per square foot (0.09 m<sup>2</sup>) of gross finished floor area.</p> <p><b><u>(6)</u></b> Roofing material is installed with a minimum 0.75 inch (19 mm) continuous air space offset from the roof deck from eave to ridge.</p>	
<b><u>Addition Note: Section 703.6.3 applies to the new construction portion of additions.</u></b>	<b><u>0 Additional Points</u></b>
<b><u>-[Points available on the basis of a ratio of new building area to total building area (new building area/total building area).1</u></b>	
<b><u>Renovation Note: Section 703.6.3 applies to existing construction. A minimum of one design feature is required.</u></b>	<b><u>1 Additional Point</u></b>
<b><u>703.6.4 Passive solar heating design.</u></b> In addition to the sun-tempered design features in Section 703.6.1, all of the following are implemented:	<b><u>4</u></b>

<p><b>(1)</b> <u>Additional glazing, no greater than 12 percent, is permitted on the south wall. This additional glazing is in accordance with the requirements of Section 703.6.1.</u></p> <p><b>(2)</b> <u>Additional thermal mass for any room with south-facing glazing of more than 7 percent of the finished floor area is provided in accordance with the following:</u></p> <p><b>(a)</b> <u>Thermal mass is solid and a minimum of 3 inches (76 mm) in thickness. Where two thermal mass materials are layered together (e.g., ceramic tile on concrete base) to achieve the appropriate thickness, they are fully adhered to (touching) each other.</u></p> <p><b>(b)</b> <u>Thermal mass directly exposed to sunlight is provided in accordance with the following minimum ratios:</u></p> <p><b>(i)</b> <u>Above latitude 35 degrees: 5 square feet (0.465 m<sup>2</sup>) of thermal mass for every 1 square foot (0.0929 m<sup>2</sup>) of south-facing glazing.</u></p> <p><b>(ii)</b> <u>Latitude 30 degrees to 35 degrees: 5.5 square feet (0.51 m<sup>2</sup>) of thermal mass for every 1 square foot (0.0929 m<sup>2</sup>) of south-facing glazing.</u></p> <p><b>(iii)</b> <u>Latitude 25 degrees to 30 degrees: 6 square feet (0.557 m<sup>2</sup>) of thermal mass for every 1 square foot (0.0929 m<sup>2</sup>) of south-facing glazing.</u></p> <p><b>(c)</b> <u>Thermal mass not directly exposed to sunlight is permitted to be used to achieve thermal mass requirements of Section 703.6.4 (2) based on a ratio of 40 square feet (3.72 m<sup>2</sup>) of thermal mass for every 1 square foot (0.0929 m<sup>2</sup>) of south-facing glazing.</u></p> <p><b>(3)</b> <u>In addition to return air or transfer grilles/ducts required by Section 703.6.1(9), provisions for forced airflow to adjoining areas are implemented as needed.</u></p>	
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## 704

### ADDITIONAL PRACTICES

<p><b>704.1 Application of additional practice points.</b> Points from Section 704 can be added to points earned in Section 702 (Performance Path), Section 703 (Prescriptive Path), or Section 701.1.3 (alternative bronze level compliance).</p>	
<p><b>704.2 Lighting and appliances</b></p>	
<p><b>704.2.1</b> <del>Hard-wired lighting is in accordance with one of the following:</del></p>	
<p><del>(1)</del> A minimum of 50 percent of the total hard-wired lighting fixtures, or the bulbs in those fixtures, qualify as ENERGY STAR or equivalent.</p>	<del>-4</del>
<p><del>(2)</del> A minimum of 50 percent of the total hard-wired lighting fixtures qualify as ENERGY STAR or equivalent.</p>	<del>-8</del>
<p><del>(3)</del> A minimum of 80 percent of the exterior lighting wattage has an efficiency of 40 lumens per watt minimum or be a solar-powered light fixture.</p>	
<p><b>Addition Note:</b> <i>Section 704.2.1 applies only to the new construction portion of additions.</i></p>	<b>0-Additional Points</b>
<p><b>Renovation Note:</b> <i>A percentage of the total lighting fixtures, or the lights in those fixtures, are replaced with fixtures or lights that qualify as ENERGY STAR or equivalent.</i></p>	
<p><b>(1)</b> 50 percent</p>	<b>1-Additional</b>

ENERGY EFFICIENCY

	<i>Point</i>
<del>(2) 75 percent</del>	<del>2 Additional Points</del>
<del>(3) 100 percent</del>	<del>3 Additional Points</del>
<del>704.2.2 The number of recessed light fixtures that penetrate the thermal envelope are less than 1 per 400 square feet (37.16 m<sup>2</sup>) of total conditioned floor area and are in accordance with Section 701.4.3.4(2).</del>	<del>2</del>
<del><u>Addition Note:</u> Section 704.2.2 is mandatory for the new construction portion of additions.</del>	<del>Mandatory 0 Additional Points</del>
<del><u>Renovation Note:</u> Section 704.2.2 applies where room for installation within the conditioned envelope is available.</del>	<del>1 Additional Point</del>
<del>(To receive additional points, a minimum of 50 percent of the total recessed ceiling lights are in accordance with Section 704.2.2.)</del>	
<del>704.2.3—1 <u>Occupancy sensors.</u> Occupancy sensors are installed on indoor lights, and photo or motion sensors are installed on outdoor lights to control lighting.</del>	
<del>(1) 25 percent of lighting</del>	<del>2</del>
<del>(2) 50 percent of lighting</del>	<del>4</del>
<del>704.2.4—2 <u>TDDs and skylights.</u> Tubular daylighting device (TDD) or a skylight with sealed, insulated, low-E glass is installed in rooms without windows.</del>	<del>2</del>
<del>(Points awarded per building.)</del>	
<del>704.2.5 ENERGY STAR or equivalent appliance(s) are installed:</del>	
<del>(1) refrigerator</del>	<del>-5</del>
<del>(2) dishwasher</del>	<del>-2</del>
<del>(3) washing machine</del>	<del>-4</del>
<del><u>Addition and Renovation Note:</u> Section 704.2.5 applies as follows:</del>	
<del>(1) replace existing refrigerator</del>	<del>2 Additional Points</del>
<del>(2) replace existing dishwasher</del>	<del>1 Additional Point</del>
<del>(3) replace existing washing machine</del>	<del>1 Additional Point</del>
<del>704.2.6 Induction cooktop is installed.</del>	<del>4</del>
<del>704.2.7—3 <u>Lighting outlets.</u> Occupancy sensors are installed for a minimum of 80 percent of hard-wired lighting outlets.</del>	<del>1</del>

<b>704.3 Renewable energy and solar heating and cooling</b>																																	
<b>704.3.1 Solar space heating and cooling</b>																																	
<del>704.3.1.1 Sun tempered design. Building orientation, sizing of glazing, and design of overhangs are in accordance with all of the following:</del>		<del>-5</del>																															
<p>(1) The long side (or one side if of equal length) of the building faces within 20 degrees of true south.</p> <p>(2) Vertical glazing area is between 5 and 7 percent of the gross conditioned floor area on the south face [also see Section 704.3.1.1(8)].</p> <p>(3) Vertical glazing area is less than 2 percent of the gross conditioned floor area on the west face, and glazing is ENERGY STAR compliant or equivalent.</p> <p>(4) Vertical glazing area is less than 4 percent of the gross conditioned floor area on the east face, and glazing is ENERGY STAR compliant or equivalent.</p> <p>(5) Vertical glazing area is less than 8 percent of the gross conditioned floor area on the north face, and glazing is ENERGY STAR compliant or equivalent.</p> <p>(6) Skylights, where installed, are in accordance with the following:</p> <ul style="list-style-type: none"> <li>(a) shades and insulated wells are used, and all glazing is ENERGY STAR compliant or equivalent</li> <li>(b) horizontal skylights are less than 0.5 percent of finished ceiling area</li> <li>(c) sloped skylights on slopes facing within 45 degrees of true south, east or west are less than 1.5 percent of the finished ceiling area</li> </ul> <p>(7) Overhangs or adjustable canopies or awnings or trellises provide shading on south-facing glass for the appropriate climate zone in accordance with Table 704.3.1.1:</p>																																	
<p><b>Table 704.3.1.1</b> <b>South-Facing Window Overhang Depth</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" rowspan="2"></th> <th colspan="5">Vertical distance between bottom of overhang and top of window sill</th> </tr> <tr> <th>≤ 7' 4"</th> <th>≤ 6' 4"</th> <th>≤ 5' 4"</th> <th>≤ 4' 4"</th> <th>≤ 3' 4"</th> </tr> </thead> <tbody> <tr> <th rowspan="3" style="writing-mode: vertical-rl; transform: rotate(180deg);">Climate Zone</th> <th>1 &amp; 2 &amp; 3</th> <td>2' 8"</td> <td>2' 8"</td> <td>2' 4"</td> <td>2' 0"</td> <td>2' 0"</td> </tr> <tr> <th>4 &amp; 5 &amp; 6</th> <td>2' 4"</td> <td>2' 4"</td> <td>2' 0"</td> <td>2' 0"</td> <td>1' 8"</td> </tr> <tr> <th>7 &amp; 8</th> <td>2' 0"</td> <td>1' 8"</td> <td>1' 8"</td> <td>1' 4"</td> <td>1' 0"</td> </tr> </tbody> </table> <p>For SI: 1 inch = 25.4 mm</p>					Vertical distance between bottom of overhang and top of window sill					≤ 7' 4"	≤ 6' 4"	≤ 5' 4"	≤ 4' 4"	≤ 3' 4"	Climate Zone	1 & 2 & 3	2' 8"	2' 8"	2' 4"	2' 0"	2' 0"	4 & 5 & 6	2' 4"	2' 4"	2' 0"	2' 0"	1' 8"	7 & 8	2' 0"	1' 8"	1' 8"	1' 4"	1' 0"
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<p><b>Addition Note:</b> Section 704.3.1.1 applies to the new construction portion of additions.</p> <p style="text-align: center;"><del>[Points are available on the basis of a ratio of new building area to total building area (new building area/total building area).]</del></p>		<b>0 Additional Points</b>																															
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<del>704.3.1.2 Automated solar protection is installed to provide shading for windows.</del>	<del>1</del>
<del>704.3.1.3 Passive cooling design features are in accordance with three or more of the following:</del>	
<del>Points for three items:</del>	<del>3</del>
<del>Points for one additional item:</del>	<del>1</del>
<p><del>(1) Exterior shading is provided on east and west windows using one or a combination of the following:</del></p> <ul style="list-style-type: none"> <li><del>(a) Vine-covered trellises with the vegetation separated a minimum of 1 foot (305 mm) from face of building</del></li> <li><del>(b) moveable awnings or louvers</del></li> <li><del>(c) covered porches</del></li> <li><del>(d) attached or detached conditioned/unconditioned enclosed space that provides full shade of east and west windows (e.g., detached garage, shed, or building)</del></li> </ul> <p><del>(2) Overhangs are installed to provide shading on south-facing glazing in accordance with Section 704.3.1.1(7).</del></p> <p style="text-align: center;"><del>(Points not awarded if points are taken under Section 704.3.1.1.)</del></p> <p><del>(3) Windows and/or venting skylights are located to facilitate cross-ventilation.</del></p> <p><del>(4) Solar reflective roof or radiant barrier is installed in climate zones 1, 2, or 3 and roof material achieves a 3-year aged criteria of 0.50.</del></p> <p><del>(5) Internal exposed thermal mass is a minimum of three inches (76 mm) in thickness. Thermal mass consists of concrete, brick, and/or tile that are fully adhered to a masonry base or other masonry material and is in accordance with one or a combination of the following:</del></p> <ul style="list-style-type: none"> <li><del>(a) A minimum of 1 square foot (0.09 m<sup>2</sup>) of exposed thermal mass of floor per 3 square feet (2.8 m<sup>2</sup>) of gross finished floor area.</del></li> <li><del>(b) A minimum of 3 square feet (2.8 m<sup>2</sup>) of exposed thermal mass in interior walls or elements per square foot (0.09 m<sup>2</sup>) of gross finished floor area.</del></li> </ul> <p><del>(6) Roofing material is installed with a minimum 0.75-inch (19 mm) continuous air space offset from the roof deck from eave to ridge.</del></p>	
<del><b>Addition Note:</b> Section 704.3.1.3 applies to the new construction portion of additions.</del>	<del><b>0 Additional Points</b></del>
<del><b>[Points available on the basis of a ratio of new building area to total building area (new building area/total building area).]</b></del>	
<del><b>Renovation Note:</b> Section 704.3.1.3 applies to existing construction. A minimum of one design feature is required.</del>	<del><b>1 Additional Point</b></del>

<p><b>704.3.1.4 Passive solar heating design.</b> In addition to the sun-tempered design features in Section 704.3.1.1, all of the following are implemented:</p>	<p><b>4</b></p>																		
<p>(1) Additional glazing, no greater than 12 percent, is permitted on the south wall. This additional glazing is in accordance with the requirements of Section 704.3.1.1.</p> <p>(2) Additional thermal mass for any room with south-facing glazing of more than 7 percent of the finished floor area is provided in accordance with the following:</p> <p>(a) Thermal mass is solid and a minimum of 3 inches (76 mm) in thickness. Where two thermal mass materials are layered together (e.g., ceramic tile on concrete base) to achieve the appropriate thickness, they are fully adhered to (touching) each other.</p> <p>(b) Thermal mass directly exposed to sunlight is provided in accordance with the following minimum ratios:</p> <p>(i) Above latitude 35 degrees: 5 square feet (0.465 m<sup>2</sup>) of thermal mass for every 1 square foot (0.0929 m<sup>2</sup>) of south-facing glazing.</p> <p>(ii) Latitude 30 degrees to 35 degrees: 5.5 square feet (0.51 m<sup>2</sup>) of thermal mass for every 1 square foot (0.0929 m<sup>2</sup>) of south-facing glazing.</p> <p>(iii) Latitude 25 degrees to 30 degrees: 6 square feet (0.557 m<sup>2</sup>) of thermal mass for every 1 square foot (0.0929 m<sup>2</sup>) of south-facing glazing.</p> <p>(c) Thermal mass not directly exposed to sunlight is permitted to be used to achieve thermal mass requirements of Section 704.3.1.4 (2) based on a ratio of 40 square feet (3.72 m<sup>2</sup>) of thermal mass for every 1 square foot (0.0929 m<sup>2</sup>) of south-facing glazing.</p> <p>(3) In addition to return air or transfer grilles/ducts required by Section 704.3.1.1, provisions for forced airflow to adjoining areas are implemented as needed.</p> <p><b>704.3.2 Solar water heating</b></p>																			
<p><b>704.3.2.1 Solar water heater.</b> SRCC (Solar Rating &amp; Certification Corporation) OG 300 rated, or equivalent, solar domestic water heating system is installed. Solar Energy Factor (SEF as defined by SRCC) is in accordance with Table 704.3.2.1.</p>	<p><b>Points per Table 704.3.2.1</b></p>																		
<p><b>Table 704.3.2.1 Solar Hot Water Systems</b></p> <table border="1" style="margin: auto;"> <thead> <tr> <th style="text-align: center;">SEF—Electric Tank</th> <th style="text-align: center;">SEF—Gas Tank</th> <th style="text-align: center;">POINTS</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.30—1.50</td> <td style="text-align: center;">0.85—1.00</td> <td style="text-align: center;"><b>8</b></td> </tr> <tr> <td style="text-align: center;">1.51—1.80</td> <td style="text-align: center;">1.01—1.20</td> <td style="text-align: center;"><b>11</b></td> </tr> <tr> <td style="text-align: center;">1.81—2.30</td> <td style="text-align: center;">1.21—1.50</td> <td style="text-align: center;"><b>14</b></td> </tr> <tr> <td style="text-align: center;">2.31—3.00</td> <td style="text-align: center;">1.51—2.00</td> <td style="text-align: center;"><b>17</b></td> </tr> <tr> <td style="text-align: center;">≥3.01</td> <td style="text-align: center;">≥2.01</td> <td style="text-align: center;"><b>20</b></td> </tr> </tbody> </table>	SEF—Electric Tank	SEF—Gas Tank	POINTS	1.30—1.50	0.85—1.00	<b>8</b>	1.51—1.80	1.01—1.20	<b>11</b>	1.81—2.30	1.21—1.50	<b>14</b>	2.31—3.00	1.51—2.00	<b>17</b>	≥3.01	≥2.01	<b>20</b>	
SEF—Electric Tank	SEF—Gas Tank	POINTS																	
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≥3.01	≥2.01	<b>20</b>																	
<p><b>Addition and Renovation Note:</b> Section 704.3.2.1 applies to systems in additions and/or existing buildings.</p>	<p><b>1 Additional Point</b></p>																		
<p><b>704.3.3 Additional renewable energy options</b></p>																			
<p><b>704.3.3.1</b> Photovoltaic panels are installed on the property.</p>	<p><b>1</b></p>																		

ENERGY EFFICIENCY

	<del>(Points awarded per 1/10 kW.)</del>	
<del>704.3.3.2 Other on-site renewable energy source is installed (e.g., wind energy, on-site micro-hydro power, active solar space heating systems).</del>		<del>One-half</del>
	<del>(Points awarded per 1/10 kW.)</del>	
<b>704.4 Ducts</b>		
<del>704.4.1 Duct system is sized, designed, and installed in accordance with ACCA Manual D or equivalent.</del>		<del>5</del>
<del><b>Addition Note:</b> New construction portion of additions.</del>		<del>Mandatory 0 Additional Points</del>
<del><b>Renovation Note:</b> Section 704.4.1 applies only where the duct system in the existing building is readily accessible, and the duct system is sized, designed, and installed in accordance with ACCA Manual D or equivalent. A minimum of 75% of the duct runs and a minimum of 75% of the supply/return grilles are in accordance with ACCA Manual T.</del>		<del>1 Additional Point</del>
<del>704.4.2 <u>1</u> Space heating is provided by a system that does not include air ducts.</del>		<del>15</del>
<del>704.4.3 <u>2</u> Space cooling is provided by a system that does not include air ducts.</del>		<del>15</del>
<del>704.4.4 <u>3</u> Ductwork is in accordance with all of the following:</del>		<del>12</del>
<del>(1) Building cavities are not used as return ductwork. (2) Heating and cooling ducts and mechanical equipment are installed within the conditioned building space. (3) Ductwork is not installed in exterior walls.</del>		
<del><b>Addition Note:</b> Section 704.4.4 <u>3</u> applies to the new construction portion of additions.</del>		<del>0 Additional Points</del>
<del><b>Renovation Note:</b> Section 704.4.4 <u>3</u> applies to renovations that involve the demolition, reconfiguration, and/or addition of interior walls, or a modification in the duct system of the building, or an intentional effort to implement the practices in Section 704.4.4<u>3</u>.</del>		<del>2 Additional Points</del>
<del>704.3 Return ducts and transfer grilles. 704.4.5—Return ducts or transfer grilles are installed in every room with a door. This practice does not apply to bathrooms, kitchens, closets, pantries, and laundry rooms.</del>		<del>5</del>
<del><b>Addition Note:</b> Section 704.4.5<u>3</u> applies to the new construction portion of additions.</del>		<del>0 Additional Points</del>
<del><b>Renovation Note:</b> Section 704.4.5<u>3</u> applies to renovations that involve the demolition, reconfiguration, and/or addition of interior walls, or a change in the heating, cooling and ventilation system of the building, or a test of the building for balanced pressure from room to room.</del>		<del>2 Additional Points</del>
<b>704.5.4 HVAC design and installation</b>		
<del>704.5.1 ACCA Manual S or equivalent is used to select heating and/or cooling equipment.</del>		<del>4</del>
<del>704.5.2—<u>1</u> HVAC contractor and service technician are certified by a nationally or regionally recognized program (e.g., North American Technician Excellence, Inc. (NATE),</del>		<del>1</del>

<a href="#">Air Conditioning Contractors of Americas Quality Assured Program (ACCA/QA)</a> , Building Performance Institute (BPI), Radiant Panel Association, or manufacturers' training program).	
<b>704.5.3-2</b> Performance of the heating and/or cooling system is verified by the HVAC contractor in accordance with all of the following:	<b>3</b>
<ol style="list-style-type: none"> <li>(1) Start-up procedure is performed in accordance with the manufacturer's instructions.</li> <li>(2) Refrigerant charge is verified by super-heat and/or sub-cooling method.</li> <li>(3) Burner is set to fire at input level listed on nameplate.</li> <li>(4) Air handler setting/fan speed is set in accordance with manufacturer's instructions.</li> <li>(5) Total airflow is within 10 percent of design flow.</li> <li>(6) Total external system static does not exceed equipment capability at rated airflow.</li> </ol>	
<del>704.5.4-3 HVAC equipment operates using an alternative refrigerant containing no HCFCs (hydrochlorofluorocarbons).</del> <b>(Points are awarded only until January 20, 2010.)</b>	<b>4</b>
<b>704.5.5-4</b> Manufacturer's label or printed specifications for sealed air handler (except furnaces) indicates the leakage is less than or equal to 2 percent of design airflow at a pressure of 1-inch w.g. (1250 Pa). Air handlers are tested with inlets, outlets, and condensate drain ports sealed, and filter box in place.	<b>4</b>

<b>704.6.5 Installation and performance verification.</b>	
<b>704.6.5.1</b> Third-party on-site inspection is conducted to verify compliance with all of the following, as applicable. Minimum of two inspections are performed. One inspection after insulation is installed and prior to being covered, and another inspection upon completion of the project. Where multiple buildings or dwelling units of the same model are built by the same builder, a representative sample inspection of a minimum of 15 percent of the buildings or dwelling units is permitted.	<b>5</b>
<ol style="list-style-type: none"> <li>(1) Ducts are installed in accordance with the ICC IRC or IMC and ducts are sealed.</li> <li>(2) Building envelope air sealing is installed.</li> <li>(3) Insulation is installed in accordance with Section 703.1.2.</li> <li>(4) Windows, skylights, and doors are flashed, caulked, and sealed in accordance with manufacturer's recommendations and in accordance with Section <del>703-2-11.4.3.</del></li> </ol>	
<b>704.6.5.2 Testing.</b> <del>Third-party testing above mandatory requirements</del> is conducted to verify performance.	
<b>704.6.5.2.1 Building envelope leakage testing rate is demonstrated by blower door test. In addition to the test, the following practices are required:.</b>	
(1) <del>Whole building ventilation is provided in accordance with Section 902.2</del> Both a blower door test and visual inspection are performed as described in 701.4.3.2.	<b>5</b>
(2) <del>Fossil fuel furnace and water heater is sealed combustion or power vented in</del>	<b>5</b>

<del>accordance with Section 901.1 Third-party verification is completed.</del>	
<del>(3) Fireplaces and fuel-burning appliances are in accordance with Section 901.2.</del>	
<del>(43) The maximum leakage rate is in accordance with:</del>	
<del>(a) 5 ACH50</del>	<del>3</del>
<del>(b) 4 ACH50</del>	<del>6</del>
<del>(c) 3 ACH50</del>	<del>9</del>
<del>(d) 2 ACH50</del>	<del>12</del>
<del>(e) 1 ACH50</del>	<del>15</del>
<del>704.6.2.2 The entire central HVAC duct system, including air handlers and register boots, is tested by a third party for leakage at a pressure differential of 0.1 inches w.g. (25 Pa). The maximum leakage as a percent of the system design flow rate is in accordance with the following:</del>	
<del>(1) 6 percent for ductwork entirely outside the building's thermal envelope</del>	<del>15</del>
<del>(2) 6 percent for ductwork entirely inside the building's thermal envelope</del>	<del>5</del>
<del>(3) 6 percent for ductwork both inside and outside the building's thermal envelope</del>	<del>15</del>
<del>704.65.2.3–2 HVAC airflow testing. Balanced HVAC airflows are demonstrated by flow hood or other acceptable flow measurement tool by a third party.– Test results are in accordance with both of the following:</del>	<del>8</del>
<del>(1) Measured flow at each supply and return register is within 25 percent of design flow.</del>	
<del>(2) Total airflow is within 10 percent of design flow.</del>	
<del><b>Addition Note:</b> Section 704.56.2 applies to the new construction portion of additions. [Points are available on the basis of a ratio of new area to total area (new area / total area).]</del>	<del><b>0 Additional Points</b></del>
<del><b>Renovation Note:</b> Section 704.6.2 applies as follows: Evaluate the energy performance features of the existing whole building envelope. Choose one of the following based on the evaluation:</del>	
<del>(1) The overall energy performance features of the existing building are equal to or better than the requirements for new construction.</del>	<del><b>1 Additional Point</b></del>
<del>(2) If the overall energy performance features of the existing building are less than the requirements for new construction, third-party testing is conducted to verify performance claimed in Sections 701.4.2.1, 703.1, and 703.2.1.</del>	<del><b>3 Additional Points</b></del>
<del>704.5.3 Insulating hot water pipes. Insulation with a minimum thermal resistance (R-value) of at least R-3 is applied to the following:</del>	<del>1</del>
<del>(a) piping larger than 3/4 in. outside diameter</del>	
<del>(b) piping serving more than one dwelling unit</del>	
<del>(c) piping branches serving kitchen sinks</del>	
<del>(d) piping located outside the conditioned space</del>	
<del>(e) piping from the water heater to a distribution manifold</del>	
<del>(f) piping located under a floor slab</del>	
<del>(g) buried piping</del>	

- (h) [piping in recirculation systems other than demand recirculation systems](#)  
 (i) [all other piping except the piping that meets the length requirements of Table 704.5.3](#)

Table 704.5.3  
Maximum Pipe Run Length

Nominal Pipe Diameter of largest pipe in run (inches)	Maximum pipe length (feet) <sup>1</sup>
<a href="#">3/8</a>	<a href="#">30</a>
<a href="#">1/2</a>	<a href="#">20</a>
<a href="#">3/4</a>	<a href="#">10</a>

[1. Total length of all piping from the distribution manifold or the recirculation loop to a point of use.](#)

~~[Addition Note: Section 704.5.3 applies only to new or modified plumbing associated with the addition.](#)~~

~~[0 Additional Points](#)~~

~~[Renovation Note: Where hot water lines in the existing building are accessible, the hot water lines are insulated in accordance with Section 704.5.3.](#)~~

~~[1 Additional Point](#)~~

~~[\(To receive additional points, a minimum of 50 percent of the existing hot water lines are insulated.\)](#)~~

## 705 INNOVATIVE PRACTICES

**705.1 Energy consumption control.** A whole building or whole dwelling unit device is installed that controls or monitors energy consumption.

**7 Points Max**

- |                                           |          |
|-------------------------------------------|----------|
| (1) programmable communicating thermostat | <b>2</b> |
| (2) Energy-monitoring device              | <b>4</b> |
| (3) energy management control system      | <b>7</b> |

**705.2 Renewable energy service plan.** Renewable energy service plan is provided as follows:

- |                                                                                                                                                                                                                |          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| (1) Builder selects a renewable energy service plan provided by the local electrical utility for interim (temporary) electric service. The builder's local administrative office has renewable energy service. | <b>2</b> |
| (2) The buyer of the building selects a renewable energy service plan provided by the utility prior to occupancy of the building <a href="#">with a minimum two year commitment.</a>                           | <b>5</b> |

**705.3 Smart Appliances and Systems.** Smart Appliances and Systems are installed as follows:

- |                   |            |
|-------------------|------------|
| (1) Refrigerator  | <b>TBD</b> |
| (2) Freezer       | <b>TBD</b> |
| (3) Dishwasher    | <b>TBD</b> |
| (4) Clothes Dryer | <b>TBD</b> |

**ENERGY EFFICIENCY**

<u>(5) Clothes Washer</u>	<u>TBD</u>
<u>(6) Room Air Conditioner</u>	<u>TBD</u>
<u>(7) HVAC Systems</u>	<u>TBD</u>
<u>(8) Service Hot Water Heating Systems</u>	<u>TBD</u>
<b><u>Addition and Renovation Note: Section 705.3 applies as follows:</u></b>	
<del><u>(1) Replace existing refrigerator</u></del>	<del><u>TBD</u></del>
<del><u>(2) Replace existing freezer</u></del>	<del><u>TBD</u></del>
<del><u>(3) Replace existing dishwasher</u></del>	<del><u>TBD</u></del>
<del><u>(4) Replace existing clothes dryer</u></del>	<del><u>TBD</u></del>
<del><u>(5) Replace existing clothes washer</u></del>	<del><u>TBD</u></del>
<del><u>(6) Replace existing room air conditioner</u></del>	<del><u>TBD</u></del>
<del><u>(7) Replace HVAC Systems</u></del>	<del><u>TBD</u></del>
<del><u>(8) Replace Service Hot Water Heating Systems</u></del>	<del><u>TBD</u></del>

<b><u>705.4 Pumps.</u></b>	
<b><u>705.4.1 Pool, spa, and water features equipped with filtration pumps as follows:</u></b>	
<u>(1) Two-speed pump(s) is installed.</u>	<u>1</u>
<u>(2) Electronically controlled variable-speed pump(s) is installed (efficiencies 90% or greater).</u>	<u>3</u>
<b><u>705.4.2 Sump pump(s) with electrically commutated motors (ECMs) or permanent split capacitor (PSC) motors is installed (efficiencies 90% or greater).</u></b>	<u>1</u>

<b><u>705.5 Additional renewable energy options</u></b>	
<b><u>705.5.1 Photovoltaic panels are installed on the property. (Points awarded per 100 W of system rating per 2,000 square feet of total conditioned floor area of the building.)</u></b>	<u>1</u>
<b><u>705.5.2 Other on-site renewable energy source is installed (e.g., wind energy, on-site micro-hydro power, active solar space heating systems solar thermal hydronic heating system, photovoltaic hybrid heating system). (Points awarded per 100 W of system rating per 2,000 square feet of total conditioned floor area of the building.)</u></b>	<u>One-half</u>

<b><u>705.6 Parking garage efficiency. Structured parking garages are designed to require no mechanical ventilation for fresh air requirements.</u></b>	<u>2</u>
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## CHAPTER 8

# WATER EFFICIENCY

GREEN BUILDING PRACTICES	POINTS
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<b>801 INDOOR AND OUTDOOR WATER USE</b>
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<b>801.0 Intent.</b> Measures that reduce indoor and outdoor water usage are implemented.
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<b>801.1 Indoor hot water usage</b>	
<b>801.1.1</b> Indoor hot water usage is reduced by one of the following practices: <span style="color: red; font-weight: bold;">(Points awarded only for one of the items.)</span>	
<b>(1)</b> All hot water piping that runs to the plumbing fixtures in <del>both the all</del> kitchens and bathrooms is 40 feet (12,192 mm) or less in length from the water heater <u>or multi-unit building's recirculating loop</u> and is sized in accordance with the code for the specified application.	<b>2</b>
<b>(2)</b> All hot water piping that runs to the plumbing fixtures in <del>both the all</del> kitchens and bathrooms is 30 feet (9144 mm) or less from the water heater <u>or multi-unit building's recirculating loop</u> and is sized in accordance with the code for the specified application.	<b>3</b>
<b>(3)</b> One of the following piping system designs is implemented:	
<b>(a)</b> use of structured-type plumbing with demand-controlled hot water loops, in which the volume of water contained in the pipe and fixture fittings downstream of the recirculating trunk line is a maximum of 4 cups (0.95 liters) (57.75 cubic inches) (0.25 gallons), or	<b>6</b>
<b>(b)</b> engineered parallel piping system (i.e., manifold system) in which the hot water line distance from the water heater to the parallel piping system is less than 15 feet (4570 mm) and the parallel piping to <del>the any</del> fixture fittings contains a maximum of 8 cups (1.89 liters) (115.50 cubic inches) (0.50 gallons), or	<b>6</b>
<b>(c)</b> central core plumbing system with all plumbing fixture fittings (e.g., faucets, showerheads) located such that the volume of water contained in each pipe run between the water heater and <u>any</u> fixture fitting is a maximum of 6 cups (1.42 liters) (86.63 cubic inches) (0.38 gallons).	<b>8</b>
<span style="color: red; font-weight: bold;">(d)</span> <u>central hot water recirculation system in multi-unit buildings in which the hot water line distance from the recirculating loop to the engineered parallel piping system (i.e., manifold system) is less than 30 feet (9144 mm) and the parallel piping to the fixture fittings contains a maximum of 8 cups (1.89 liters) (115.50 cubic inches) (0.50 gallons).</u>	<b>TBD</b>
<b>(4)</b> Pipe runs exceeding 40 feet (12,192 mm) from the water heater to fixture locations are aided by one of the following:	<b>1</b>
<b>(a)</b> tankless water heater is installed at point of use and is served only by cold water or a solar-assisted system.	
<b>(b)</b> on-demand hot water recirculation system is installed <span style="color: red;">with a water temperature</span>	



GREEN BUILDING PRACTICES	POINTS
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<u>sensor pump switch.</u>	
<del><b>Addition Note:</b> Section 801.1 applies only to the new construction portion of addition(s) that alter portions of a building with hot water appliances and/or fixtures.</del>	<del><b>Mandatory 0 Additional Points</b></del>
<del><b>Renovation Note:</b> Section 801.1 applies only to renovation projects that have the ability to meet the requirements of Section 801.1.  -(Renovation projects that are unable to meet the length of pipe runs indicated in Section 801.1, but are able to shorten existing pipe runs by the following percentages, receive points as follows:)</del>	<del><b>Mandatory</b></del>
<del>(1) minimum of 25 percent to less than 50 percent reduction in total pipe length or volume.</del>	<del><b>Points Reduced by Half</b></del>
<del>(2) more than or equal to 50 percent reduction in total pipe length or volume.</del>	<del><b>0 Additional Points</b></del>
<del><b>Addition Note - Section 801.1.1(3):</b> Where a new hot water system is provided in an addition, this item applies.  -[Points for Section 801.1.1(3)(a), (b), and (c).]</del>	<del><b>Points Reduced by One-half</b></del>
<del><b>Addition and Renovation Note - Section 801.1.1(3):</b> Section 801.1.1(3) applies only where hot water lines in the existing building are accessible.  -(To receive additional points, a minimum of 50 percent of the hot water lines are in accordance with Section 801.1.1(3).)</del>	<del><b>2 Additional Points</b></del>

<b>801.2 Water-conserving appliances.</b> ENERGY STAR or equivalent water-conserving appliances are installed.	
(1) dishwasher	<b>2</b>
(2) washing machine, <u>or</u>	<b>8</b>
(3) washing machine with a water factor of 6.0 or less	<b>12</b>
<u><b>Multi-Unit Building Note:</b> Washing machines are installed in individual units or provided in common areas of multi-unit buildings.</u>	
<del><b>Addition and Renovation Note:</b> Section 801.2 applies as follows when existing appliance(s) are properly disposed of and not placed into secondary service in a dwelling unit:</del>	
<del>(1) replace existing dishwasher</del>	<del><b>1 Additional Point</b></del>
<del>(2) replace existing washing machine, <u>or</u></del>	<del><b>1 Additional Point</b></del>
<del>(3) replace existing washing machine with a water factor of 6.0 or less</del>	<del><b>1 Additional Point</b></del>

**GREEN BUILDING PRACTICES**

**POINTS**

<p><del>801.3 Food waste disposers. A minimum of one food waste disposer is installed at the primary kitchen sink.</del></p>	<p><b>4</b></p>
<p><b>801.4 Showerheads.</b> Showerheads are in accordance with the following:</p>	
<p>(1) The <del>total showerhead</del><u>maximum combined</u> flow rate <u>of all showerheads controlled by a single valve</u> at any point in time in <del>each a</del> shower compartment is 1.6 to less than 2.5 gpm. <u>Maximum of two valves are installed per shower compartment.</u> The <del>total</del> flow rate is tested at 80 psi (552 kPa) in accordance with ASME A112.18.1. <del>Showers are equipped with Showerheads are served by</del> 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. <b>(Points awarded per <del>showerhead</del> shower compartment.)</b></p>	<p><b>1</b> <b>3 Points Max</b></p>
<p>(2) All showerheads meet the requirements of 801.4(1). <del>In addition, all showerheads are in compliance with either 801.4(2)(a) or 801.4(2)(b).</del></p>	
<p><b>(Points awarded per shower compartment based on 801.4(2)(a) or 801.4(2)(b).)</b></p>	
<p>(a) 2.0 to less than 2.5 gpm</p>	<p><b>1 Additional Point</b></p>
<p>(b) 1.6 to less than 2.0 gpm</p>	<p><b>2 Additional Points</b></p>
<p>(3) <u>Any control that can shut off water flow without affecting temperature is installed.</u> <b>(Points awarded per shutoff.)</b></p>	<p><b>1</b> <b>3 Points Max</b></p>
<p>For SI: 1 gallon per minute = 3.785 L/m</p>	
<p><del><b>Addition Note:</b> Section 801.4 applies only to additions that include a minimum of one bath or shower.</del></p>	<p><b>0 Additional Points</b></p>
<p><del><b>Renovation Note:</b> Section 801.4 applies only to renovations that include one or more bathrooms with a bath or shower.</del> <b>(Points awarded per fixture.)</b></p>	<p><b>1 Additional Point</b></p>
<p><del><b>Addition and Renovation Note:</b> Existing showerhead is replaced with a showerhead that has a flow rate in accordance with Section 804.1.1801.4.</del> <b>(Points awarded per additional showerhead.)</b></p>	<p><b>1 Additional Point</b></p>
<p><b>801.5 Faucets</b></p>	
<p><b>801.5.1</b> Water-efficient lavatory faucets with 1.5 gpm (5.68 L/m) or less maximum flow rate when tested at 60 psi (414 kPa) in accordance with ASME A112.18.1 are installed:</p>	
<p>(1) a bathroom <u>(all faucets in a bathroom are in compliance)</u> <b>(Points awarded for each bathroom.)</b></p>	<p><b>1</b> <b>3 Points Max</b></p>
<p>(2) all lavatory faucets <u>in the dwelling unit and common areas</u></p>	<p><b>2 Additional Points</b></p>

GREEN BUILDING PRACTICES	POINTS
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<del><i>Addition Note: Section 801.5.1 applies only to additions that include a bathroom.</i></del>	<del><b>1 Additional Point</b></del>
<del><i>Renovation Note: Section 801.5.1 applies to renovations of existing bathrooms.</i></del>	<del><b>2 Additional Points</b></del>
<del><i>Addition and Renovation Note: Replace all faucets in non-renovated bathrooms with faucets that are in accordance with Section 801.5.1.</i></del>	<del><b>2 Additional Points</b></del>
<b>801.5.2</b> Self-closing valve, motion sensor, metering, or pedal-activated faucet is installed to enable intermittent on/off operation. <p style="text-align: right;"><b>(Points awarded per fixture.)</b></p>	<b>1 3 Points Max</b>
<del><i>Renovation Note: Additional points for Section 801.5.2 apply where installed.</i></del> <p style="text-align: right;"><del><b>(Additional points awarded per fixture.)</b></del></p>	<del><b>1 Additional Point 6 Points Max</b></del>

<b>801.6 Water closets and urinals.</b> Water closets and urinals are in accordance with the following: <p style="text-align: center;"><del><b>(For water closets, points awarded for either Section 801.6 or 802.2, not both.)</b></del></p>	
<b>(1)</b> Gold and emerald levels: All water closets and urinals are in accordance with <del>either</del> Section 801.6 <del>or 802.2.</del>	<b>Mandatory</b>
<b>(2)</b> A water closet is installed with an effective flush volume of 1.28 gallons (4.85 L) or less when tested in accordance with ASME A112.19.2 (all water closets) <del>and or when tested in accordance with</del> ASME A112.19.14 (all dual flush water closets), and is in accordance with EPA WaterSense <i>Tank-Type High-Efficiency Toilet</i> , <del>or</del> <p style="text-align: right;"><b>(Points awarded per fixture.)</b></p>	<b>6 18 Points Max</b>
<del><b>(3)</b> A urinal is installed with a flush volume of 0.5 gallons (1.9 L) or less when tested in accordance with ASME A112.19.2.</del> <p style="text-align: right;"><del><b>(Points are awarded per fixture.)</b></del></p>	<del><b>4 4 Points Max</b></del>
<del><b>(43)</b> All water closets and all urinals are in accordance with Section 801.6(2) or Section 801.6(3), as applicable.</del>	<del><b>6 Additional 24 Points</b></del>
<del><b>(a)</b> Dual flush (or other) water closets are used that have a flush volume of 1.2 gallons or less and comply with 801.6(2); and all other water closets comply with 801.6(2).</del> <p style="text-align: right;"><del><b>(Points awarded per toilet)</b></del></p>	<del><b>2 Additional Points 4 Additional Points Max</b></del>
<del><b>(b)</b> One or more urinals are installed with a flush volume of 0.5 gallons (1.9L) or less when tested in accordance with ASME A112.19.2 and all other water closets comply with 801.6(2).</del>	<del><b>2 Additional Points</b></del>
<del><b>(c)</b> One or more composting or waterless toilets and/or urinals are installed and all other water closets comply with 801.6(2).</del>	<del><b>8 Additional Points</b></del>
<del><i>Addition and Renovation Note: Section 801.6 applies only to additions and renovations that include bathrooms.</i></del>	<del><b>0 Additional Points</b></del>

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<del><i>Renovation Note: Renovations that do not include bathrooms receive points for replacing existing water closets with water closets in accordance with Section 801.6. (Points awarded per fixture.)</i></del>	<b>1 Additional Point</b>
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<b>801.7 Irrigation systems</b>	
<del><b>801.7.1</b> A low-volume irrigation system is installed for each landscape type utilized: (Points awarded once for each type of irrigation system installed.)</del>	<b>10 Points Max</b>
<del>(1) high-distribution uniformity (DU) rotating spray heads</del>	<b>2</b>
<del>(2) drip irrigation</del>	<b>4</b>
<del>(3) bubblers</del>	<b>4</b>
<del>(4) drip emitters</del>	<b>4</b>
<del>(5) soaker hose</del>	<b>4</b>
<del>(6) subsurface irrigation</del>	<b>6</b>
<del><b>Addition Note:</b> Section 801.7.1 applies only to additions that increase the building footprint or affect the irrigation system.</del>	<b>1 Additional Point</b>
<del><b>Renovation Note:</b> Section 801.7.1 applies only to renovations of the landscape, hardscape, or outdoor living areas with existing irrigation systems or to renovations that replace the irrigation system.</del>	<b>2 Additional Points</b>
<del><b>801.7.2</b> Irrigation system is in accordance with both of the following:</del>	<b>3</b>
<del>(1) designed by a professional in accordance with EPA WaterSense requirements, or equivalent</del>	
<del>(2) installed in accordance with EPA WaterSense program, or equivalent</del>	
<del><b>Addition Note:</b> Section 801.7.2 applies to additions that increase the building footprint or modify an existing irrigation system.</del>	<b>1 Additional Point</b>
<del><b>Renovation Note:</b> Section 801.7.2 applies to renovations with existing irrigation systems that are modified, or to renovations where a new irrigation system is installed or the existing irrigation system is replaced.</del>	<b>1 Additional Point</b>
<del><b>801.7.3</b> Irrigation system is zoned separately for turf and bedding areas.</del>	<b>2</b>
<del><b>Addition Note:</b> Section 801.7.3 applies to additions that increase the building footprint or affect the irrigation system.</del>	<b>1 Additional Point</b>
<del><b>Renovation Note:</b> Section 801.7.3 applies only to renovations with existing irrigation systems that are modified, or to renovations where a new irrigation system is installed or the existing irrigation system is replaced.</del>	<b>2 Additional Points</b>
<del><b>801.7.1</b> High-Distribution Uniformity (DU) rotating spray heads are installed in lieu of spray heads for turf or landscaping.</del>	<b>6</b>
<del><b>801.7.2</b> Drip Irrigation installed for each landscape type.</del>	<b>8</b>
<del><b>801.7.3</b> Landscape Plan &amp; Implementation are executed by a certified WaterSense Professional or equivalent as approved by adopting entity.</del>	<b>5 Additional Points</b>

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<b>801.7.4</b> <del>Drip Irrigation Zones Implemented show plant type by name and water use or need for each emitter.</del>	<b>5 Additional Points</b>
<b>801.7.4-5</b> The irrigation system(s) is controlled by a smart controller. <b>(Points for 801.7.4(3) are not additive with points for 801.7.4(a) or 801.7.4(b).)</b>	
(1) Evapotranspiration (ET) based irrigation controller with a rain sensor.	4
(2) Soil moisture sensor based irrigation controller.	4
(3) No irrigation is installed and a landscape plan is developed in accordance with Section 503.5, as applicable.	15

<b>801.8 Rainwater collection and distribution.</b> Rainwater collection and distribution is provided.	
<del>(1) Rainwater is collected and used.</del>	<del>6</del>
<del>(2) Rainwater is distributed using a renewable energy source or gravity.</del>	<del>2</del>
<b>801.8.1</b> Rainwater is used for irrigation in accordance with the following:	
(1) <u>Rainwater is diverted for landscape irrigation without impermeable water storage, or</u>	<u>5</u>
(2) <u>Rainwater is diverted for landscape irrigation with impermeable water storage.</u>	
<u>(a) 50 - 499 gallon storage capacity, or</u>	<u>5</u>
<u>(b) 500 - 2499 gallon storage capacity, or</u>	<u>10</u>
<u>(c) 2500 gallon or larger storage capacity (system is designed by a professional certified by The American Rainwater Catchment Systems Association or equivalent), or</u>	<u>15</u>
<u>(d) All irrigation demands are met by rainwater capture (documentation demonstrating the water needs of the landscape is provided and the system is designed by a professional certified by The American Rainwater Catchment Systems Association or equivalent).</u>	<u>25</u>
<b>801.8.2</b> Rainwater is used for interior demand in the following way (system is designed by a professional certified by The American Rainwater Catchment Systems Association or equivalent):	
(1) <u>Rainwater provides for partial domestic demand (any locally approved uses).</u>	<b>5 20 Points Max</b>
<b>(Points awarded per appliance or fixture.)</b>	
(2) <u>Rainwater provides for total domestic demand.</u>	25

<b>801.9</b> <del>Water Sediment filters.</del> Water filter is installed to <del>improve water quality</del> <u>reduce sediment and protect plumbing fixtures</u> for the whole building or whole dwelling unit.	1
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<b>802 INNOVATIVE PRACTICES</b>
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GREEN BUILDING PRACTICES	POINTS
<p><b>802.1 Reclaimed, <del>G</del>gray, or recycled water.</b> <del>Gray water, as specified in ICC IRC, Appendix O, is separated and reused, as permitted by local building code. Reclaimed, gray, or recycled water is used as permitted by applicable code.</del></p> <p style="text-align: center;"><del>[(Points awarded for either Section 802.1(1) or 802.1(2), not both.)]</del></p>	
<p>(1) each water closet flushed by reclaimed, <u>gray</u>, or recycled water</p> <p style="text-align: center;">(Points awarded per fixture <u>or appliance</u>.)</p>	<p><b>45</b> <b>20 Points</b> <b>Max</b></p>
<p>(2) irrigation from reclaimed, <u>gray</u>, or recycled water on-site</p>	<p><b>10</b></p>
<p><i><u>Addition and Renovation Note:</u> Additional points are available for Section 802.1 as follows:</i></p>	
<p><i>(1) each water closet flushed by reclaimed, <u>gray</u>, or recycled water</i></p>	<p><i><b>2 Additional</b></i> <i><b>Points</b></i></p>
<p><i>(2) irrigation from reclaimed, <u>gray</u>, or recycled water onsite</i></p>	<p><i><b>5 Additional</b></i> <i><b>Points</b></i></p>
<p><del><b>802.2 Composting or waterless toilets and/or urinals.</b> Composting or waterless toilets and/or urinals are in accordance with the following:</del></p> <p style="text-align: center;"><del>(For water closets, points awarded for either Section 802.2 or 801.6, not both)</del></p>	<p><del><b>24 Points</b></del> <del><b>Max</b></del></p>
<p><del>(1) Gold and emerald levels: All water closets and urinals are in accordance with either Section 802.2 or Section 801.6.</del></p>	<p><del><b>Mandatory</b></del></p>
<p><del>(2) Composting or waterless toilet and/or urinal is installed.</del></p> <p style="text-align: center;"><del>(Points awarded per fixture.)</del></p>	<p><del><b>8</b></del></p>
<p><del>(3) All toilets and urinals are in accordance with Section 802.2(2).</del></p>	<p><del><b>8 Additional</b></del> <del><b>Points</b></del></p>
<p><b>802.3-2 Automatic shutoff water devices.</b> One of the following automatic shutoff water supply devices is installed. Where a fire sprinkler system is present, installer is to ensure the device will not interfere with the operation of the fire sprinkler system.</p>	<p><b>2</b></p>
<p>(1) excess water flow <u>automatic</u> shutoff</p>	
<p>(2) leak detection system <u>with automatic shutoff</u></p>	
<p><b>802.3 Engineered Biological System or Intensive Bioremediation System.</b> An <u>Engineered Biological System or Intensive Bioremediation System</u> is installed and the <u>treated water is used on site. Design and implementation is approved by appropriate regional authority.</u></p>	<p><b>20</b></p>
<p><b>802.4 Recirculating humidifier.</b> Where a humidifier is required, a recirculating humidifier is used in lieu of a traditional "flow through" type.</p>	<p><b>1</b></p>
<p><b>802.5 Advanced wastewater treatment system.</b> Advanced wastewater (aerobic) treatment system is installed and treated water is used on site.</p> <p style="text-align: center;"><b>(Points awarded for either Section 802.5 or 802.1, not both.)</b></p>	<p><b>20</b></p>



CHAPTER 9

INDOOR ENVIRONMENTAL QUALITY

GREEN BUILDING PRACTICES	POINTS
<b>901 POLLUTANT SOURCE CONTROL</b>	
<b>901.0 Intent.</b> Pollutant sources are controlled.	
<b>901.1 Space and water heating options</b>	
<p><b>901.1.1</b> Natural draft <del>space heating or water heating equipment furnaces, boilers or water heaters are</del>is not located in conditioned spaces, including conditioned crawlspaces. Natural draft <del>furnaces, boilers and water heaters are equipment is</del>permitted to be installed within the conditioned spaces if located in a mechanical room that has an outdoor air source, and is otherwise sealed and insulated to separate it from the conditioned space(s).</p>	<b>5</b>
<p><del><i>Addition Note:</i> Section 901.1.1 applies to additions that include the use of natural draft furnaces, boilers, space heating or water heaters ing equipment.</del></p>	<del><b>Mandatory 0-Additional Points</b></del>
<p><del><i>Renovation Note:</i> Section 901.1.1 applies to renovations that include areas where a natural draft furnace, boiler or water heater space heating or water heating equipment is located.</del></p>	<del><b>Mandatory 0-Additional Points</b></del>
<p><del><i>Renovation Note:</i> Additional points are available for any renovation that modifies all of the existing building's natural draft furnaces, boilers, space heating or water heaters ing equipment in accordance with Section 901.1.1.</del></p>	<del><b>2-Additional Points</b></del>
<p><b>901.1.2</b> Air handling equipment or return ducts are not located in the garage, unless placed in isolated, air-sealed mechanical rooms with an outside air source.</p>	<b>5</b>
<p><del><i>Renovation Note:</i> Section 901.1.2 applies to renovations that modify existing duct systems.</del></p>	<del><b>2-Additional Points</b></del>
<p><b>901.1.3</b> The following combustion space heating <del>and or</del> water heating equipment is installed within conditioned space:</p>	
<p>(1) <del>all direct vent</del> furnaces or <del>all</del> boilers</p>	<del><b>5</b></del>
<p>(a) <del>power vent</del> furnace(s) or boiler(s)</p>	<del><b>TBD</b></del>
<p>(b) <del>direct vent</del> furnace(s) or boiler(s)</p>	<del><b>5</b></del>
<p>(2) <del>all</del> water heaters</p>	
<p>(a) <del>power vent</del> water heater(s)</p>	<b>3</b>
<p>(b) <del>direct vent</del> water heater(s)</p>	<b>5</b>
<p><del><i>Renovation Note:</i> Section 901.1.3 applies to renovations that replace existing central space heating and water heating combustion equipment with equipment in accordance with Section 901.1.3 for new construction.</del></p>	<del><b>2-Additional Points</b></del>
<p><b>901.1.4</b> Gas-fired fireplaces and direct heating equipment is listed and is installed in</p>	<b>Mandatory</b>



GREEN BUILDING PRACTICES	POINTS
<u>accordance with the National Fuel Gas Code or the applicable local gas appliance installation code. Gas-fired fireplaces and direct heating equipment are vented to the outdoors.</u>	
<u>901.1.5 Natural gas and propane fireplaces that are power vented or direct vented have permanently fixed glass fronts or gasketed doors, and comply with ANSI Z21.88/CSA 2.33 or ANSI Z21.50/CSA 2.22.</u>	<u>TBD</u>
<u>901.1.4-6</u> The following electric equipment is installed:	
(1) heat pump air handler in unconditioned space	2
(2) heat pump air handler in conditioned space	5
<del>901.2 Fireplaces and Solid fuel-burning appliances. Fireplaces and fuel-burning appliances (except cooking appliances, clothes dryers, water heaters, and furnaces) located in conditioned space are in accordance with the following:  [Section 901.2.1(2)(a) is not mandatory.]</del>	<b>Mandatory</b>
<del>901.2.1 Solid fuel-burning fireplaces, inserts, stoves and heaters are code compliant and are in accordance with the following requirements: Fireplaces and natural draft fuel-burning appliances are code compliant, vented to the outdoors, and have adequate combustion and ventilation air provided to minimize spillage or back-drafting, in accordance with the following, as applicable:</del>	
<del>(1) Natural gas and propane fireplaces that are power vented or direct vented, are equipped with permanently fixed glass fronts or gasketed doors, and comply with CSA Z21.88a/CSA 2.33a or CSA Z21.50/CSA 2.22.</del>	7
<del>(2) Solid fuel-burning appliances are in accordance with the following requirements:</del>	
<del>(a1) Site-built masonry <del>W</del>wood-burning fireplaces are equipped with <del>gasketed doors</del> designed to operate with the doors closed, outside combustion air, and a means <del>is provided for</del> sealing the flue <del>and the combustion air outlets</del> to minimize interior air (heat) loss when not in operation.</del>	4
<del>(b2) Factory-built, wood-burning fireplaces are in accordance with the certification requirements of UL 127 and are EPA certified.</del>	6
<del>(c3) 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).</del>	6
<del>(d4) Pellet (biomass) stoves and furnaces are in accordance with the requirements of ASTM E1509 or are EPA certified.</del>	6
<del>(e5) Masonry heaters are in accordance with the definitions in ASTM E1602 and ICC IBC, Section 2112.1.</del>	6
<del><b>Renovation Note:</b> Removal of or rendering permanently unusable an existing fireplace and/or othersolid fuel-burning appliances that are not in accordance with Section 901.2.1.</del>	<b>2-Additional Points</b>
<del><b>Renovation Note:</b> Additional points are awarded for the replacement of each existing solid</del>	<b>2-Additional</b>

GREEN BUILDING PRACTICES	POINTS
<del>fuel-burning fireplace that is not in accordance with Section 901.2.1 with a fireplace that is in accordance with Section 901.2.1 or Section 901.1.4.</del>	<del>Points</del>
<del>Renovation Note: Additional points are available for removing or rendering permanently unusable each existing wood-burning fireplace that is not in accordance with Section 901.2.1(1)(2)(a) in areas other than the main renovation area.</del>	<del>2 Additional Points</del>
<b>901.2.2</b> Fireplaces, woodstoves, pellet stoves, or masonry heaters are not installed.	<b>7</b>
<b>901.3 Garages.</b> Garages are in accordance with the following:	
(1) Attached garage	
(a) Where installed in the common wall between the attached garage and conditioned space, the door is tightly sealed and gasketed.	<b>Mandatory 2</b>
(b) A continuous air barrier is provided between walls and ceilings separating the garage space from the conditioned living spaces.	<b>Mandatory 2</b>
(c) For one- and two-family dwelling units, a 100 cfm (47 L/s) or greater ducted, or 70 cfm (33 L/s) cfm or greater unducted wall exhaust fan is installed and vented to the outdoors, designed and installed for continuous operation, or has controls (e.g., motion detectors, pressure switches) that activate operation for a minimum of 1 hour when either human passage door or roll-up automatic doors are operated. For ducted exhaust fans, the fan airflow rating and duct sizing are in accordance with Appendix A.	<b>48</b>
(2) A carport is installed, the garage is detached from the building, or no garage is installed.	<b>10</b>
<del>Addition Note: Section 901.3 applies where the addition is a garage or shares a continuous air barrier with a garage.</del>	<del>Mandatory 0 Additional Points</del>
<del>Renovation Note: Section 901.3 applies to renovations that involve construction adjacent to an attached garage.</del>	<del>1 Additional Point</del>
<del>Renovation Note: A focused effort to create a continuous air barrier between the garage and conditioned space, including penetrations, occurring between walls and ceilings separating the garage and conditioned space.</del>	<del>3 Additional Points</del>
<b>901.4 Wood materials.</b> A minimum of 85 percent of material within a product group (i.e., wood structural panels, countertops, composite trim/doors, custom woodwork, and/or component closet shelving) is manufactured in accordance with the following:	<b>10 Points Max</b>
(1) Structural plywood used for floor, wall, and/or roof sheathing is compliant with DOC PS 1 and/or DOC PS 2. OSB used for floor, wall, and/or roof sheathing is compliant with DOC PS 2. The panels are made with moisture-resistant adhesives. The trademark indicates these adhesives as follows: Exposure 1 or Exterior for plywood, and Exposure 1 for OSB.	<b>Mandatory</b>
(2) Particleboard and MDF (medium density fiberboard) is manufactured and labeled in accordance with CPA A208.1 and CPA A208.2, respectively.	<b>2</b>

GREEN BUILDING PRACTICES		POINTS
<b>(Points awarded per product group.)</b>		
(3) Hardwood plywood in accordance with HPVA HP-1 <del>and HUD Title 24, Part 3280.</del>	<b>2</b>	
<b>(Points awarded per product group.)</b>		
(4) Particleboard, MDF, or hardwood plywood is in accordance with CPA <del>23.</del>	<b>3</b>	
<b>(Points awarded per product group.)</b>		
(5) Composite wood or agrifiber panel products contain no added urea-formaldehyde or are in accordance with the CARB <i>Composite Wood Air Toxic Contaminant Measure Standard.</i>	<b>4</b>	
<b>(Points awarded per product group.)</b>		
(6) Non-emitting products.	<b>4</b>	
<b>(Points awarded per product group.)</b>		
<i>Renovation Note: Additional points for Section 901.4 apply to renovations that replace all existing countertops, shelving, and other nonstructural products.</i>		<b>2 Additional Points</b>
<del>901.5 Cabinets. A minimum of 85 percent of installed kitchen and bath vanity cabinets are in accordance with KCMA ESP 04 (or equivalent) or CARB Composite Wood Air Toxic Contaminant Measure Standard.</del>		<del><b>3</b></del>
<del>Renovation Note: Additional points for Section 901.5 apply to renovations that replace all existing kitchen and bath vanity cabinets.</del>		<del><b>2 Additional Points</b></del>
<b>901.56 Carpets.</b> Carpets are in accordance with the following:		
(1) Wall-to-wall carpeting is not installed adjacent to water closets and bathing fixtures.	<b>Mandatory</b>	
(2) A minimum of 85 percent of installed carpet area, carpet cushion (padding), and carpet adhesives are in accordance with the emission levels of CDPH/EHLB <u>Standard Method v1.1 when tested by a laboratory with the CDPH/EHLB Standard Method v1.1 within the laboratory scope of accreditation to ISO/IEC 17025 and certified by a third-party program accredited to ISO Guide 65, such as, but not limited to, those in Appendix D-01350, as certified by a third-party program, such as the Carpet and Rug Institute's (CRI) Green Label Plus Indoor Air Quality Program.</u>		
<del>Exception: Footnote b in Table 4.1 of CDPH/EHLB Standard Method v1.1 does not apply. Formaldehyde maximum allowable concentration is 16.5 µg/m<sup>3</sup> (13.5 ppb).</del>		
(a) carpet	<b>6</b>	
(b) carpet cushion	<b>2</b>	
(c) carpet adhesives	<b>2</b>	
<del>Renovation Note: Section 901.65(2) applies to renovations where existing carpet is replaced. Remove existing carpet and perform one of the following repair methods:</del>		<del><b>2 Additional Points</b></del>
(1) <del>Existing carpeted floor area is exposed, cleaned, and finished and is used as non-carpeted finished floor.</del>	<del><b>2 Additional Points</b></del>	
(2) <del>Carpet is installed in accordance with Section 901.56.</del>	<del><b>0 Additional Points</b></del>	

GREEN BUILDING PRACTICES	POINTS
<p><del>(3) New non-carpet flooring product in compliance with an approved green labeling program(s) is installed.</del></p>	<p><del>1 Additional Point</del></p>
<p><b>901.67 Hard-surface flooring.</b> A minimum of <u>10% of the conditioned floor space has pre-finished hard-surface flooring installed and at least 85 percent of all prefinished installed hard-surface flooring is in accordance with the emission concentration limits of CDPH/EHLB Standard Method v1.1-01350 (using the office scenario), as certified by a third party program, such as the Resilient Floor Covering Institute's FloorScore Indoor Air Certification Program or the GREENGUARD Environmental Institute's Children and Schools Certification Program, when tested by a laboratory with the CDPH/EHLB Standard Method v1.1 within the laboratory scope of accreditation to ISO/IEC 17025 and certified by a third-party program accredited to ISO Guide 65, such as, but not limited to, those found in Appendix D. Where post-manufacture coatings or surface applications have not been applied, the following hard surface flooring types are deemed to comply with the emission requirements of this section:</u></p> <p><u>Exception:</u> Footnote b in Table 4.1 of CDPH/EHLB Standard Method v1.1 does not apply. Formaldehyde maximum allowable concentration is 16.5 µg/m<sup>3</sup> (13.5 ppb).</p> <ul style="list-style-type: none"> <li><u>(a) Ceramic tile flooring</u></li> <li><u>(b) Organic-free, mineral-based flooring</u></li> <li><u>(c) Clay masonry flooring</u></li> <li><u>(d) Concrete masonry flooring</u></li> <li><u>(e) Concrete flooring</u></li> <li><u>(f) Metal flooring</u></li> <li><u>(g) Glass</u></li> </ul>	<p><b>6</b></p>
<p><b>901.78 Wall coverings.</b> <u>When at least 10% of the interior wall surfaces are covered, A-a minimum of 85 percent of wall coverings are in accordance with the emission concentration limits of CDPH/EHLB Standard Method v1.1 when tested by a laboratory with the CDPH/EHLB Standard Method v1.1 within the laboratory scope of accreditation to ISO/IEC 17025 and certified by a third-party program accredited to ISO Guide 65, such as, but not limited to, those in Appendix D-01350, as certified by a third party program, such as the Scientific Certification Systems (SCS) Indoor Advantage Gold Program or the GREENGUARD Environmental Institute's Children and Schools Certification Program.</u></p> <p><u>Exception:</u> Footnote b in Table 4.1 of CDPH/EHLB Standard Method v1.1 does not apply. Formaldehyde maximum allowable concentration is 16.5 µg/m<sup>3</sup> (13.5 ppb).</p>	<p><b>4</b></p>

**901.89 Architectural coatings.** A minimum of 85 percent of the architectural coatings are in accordance with either Section 901.89.1 or Section 901.89.2, not both:

**901.89.1** Site-applied interior ~~products~~ architectural coatings, which are inside the water proofing envelope, are in accordance with one or more of the following ~~standards~~:

- (1) Zero VOC as determined by EPA Method 24 (VOC content below the detection limit for the method)
- ~~(2) CARB Suggested Control Measure for Architectural Coatings~~
- ~~(32) GreenSeal GS-11 Standard for Paints and Coatings~~
- ~~(3) CARB Suggested Control Measure for Architectural Coatings (see Table 901.9.1).~~
- (4) VOC limits in accordance with:
  - (a) 50 grams/liter flat
  - (b) 100 grams/liter non flat
  - (c) 350 grams/liter clear wood varnish
  - (d) 550 grams/liter clear wood lacquer

**Table 901.9.1  
VOC Content Limits For Architectural Coatings<sup>c,d,e</sup>**

<u>Coating Category</u>	<u>LIMIT<sup>a</sup> (g/l)</u>
<u>Flat Coatings</u>	<u>50</u>
<u>Non-flat Coatings</u>	<u>100</u>
<u>Non-flat - High Gloss Coatings</u>	<u>150</u>
<u>Specialty Coatings:</u>	
<u>Aluminum Roof Coatings</u>	<u>400</u>
<u>Basement Specialty Coatings</u>	<u>400</u>
<u>Bituminous Roof Coatings</u>	<u>50</u>
<u>Bituminous Roof Primers</u>	<u>350</u>
<u>Bond Breakers</u>	<u>350</u>
<u>Concrete Curing Compounds</u>	<u>350</u>
<u>Concrete/Masonry Sealers</u>	<u>100</u>
<u>Driveway Sealers</u>	<u>50</u>
<u>Dry Fog Coatings</u>	<u>150</u>
<u>Faux Finishing Coatings</u>	<u>350</u>
<u>Fire Resistive Coatings</u>	<u>350</u>
<u>Floor Coatings</u>	<u>100</u>
<u>Form-Release Compounds</u>	<u>250</u>
<u>Graphic Arts Coatings (Sign Paints)</u>	<u>500</u>
<u>High Temperature Coatings</u>	<u>420</u>
<u>Industrial Maintenance Coatings</u>	<u>250</u>
<u>Low Solids Coatings</u>	<u>120<sup>b</sup></u>
<u>Magnesite Cement Coatings</u>	<u>450</u>
<u>Mastic Texture Coatings</u>	<u>100</u>

<u>Metallic Pigmented Coatings</u>	<u>500</u>
<u>Multi-Color Coatings</u>	<u>250</u>
<u>Pre-Treatment Wash Primers</u>	<u>420</u>
<u>Primers, Sealers, and Undercoaters</u>	<u>100</u>
<u>Reactive Penetrating Sealers</u>	<u>350</u>
<u>Recycled Coatings</u>	<u>250</u>
<u>Roof Coatings</u>	<u>50</u>
<u>Rust Preventative Coatings</u>	<u>250</u>
<u>Shellacs, Clear</u>	<u>730</u>
<u>Shellacs, Opaque</u>	<u>550</u>
<u>Specialty Primers, Sealers, and Undercoaters</u>	<u>100</u>
<u>Stains</u>	<u>250</u>
<u>Stone Consolidants</u>	<u>450</u>
<u>Swimming Pool Coatings</u>	<u>340</u>
<u>Traffic Marking Coatings</u>	<u>100</u>
<u>Tub and Tile Refinish Coatings</u>	<u>420</u>
<u>Waterproofing Membranes</u>	<u>250</u>
<u>Wood Coatings</u>	<u>275</u>
<u>Wood Preservatives</u>	<u>350</u>
<u>Zinc-Rich Primers</u>	<u>340</u>

- a. Limits are expressed as VOC Regulatory (except as noted), thinned to the manufacturer's maximum thinning recommendation, excluding any colorant added to tint bases.
- b. Limit is expressed as VOC actual.
- c. The specified limits remain in effect unless revised limits are listed in subsequent columns in the table.
- d. Values in this table are derived from those specified by the California Air Resources Board, Architectural Coatings Suggested Control Measure, February 1, 2008.
- e. Table 806.3(1) architectural coating regulatory category and VOC content compliance determination shall conform to the California Air Resources Board Suggested Control Measure for Architectural Coatings dated February 1, 2008.

<p><b>901.89.2</b> Site-applied interior products are in accordance with the emission levels of CDPH/EHLB Standard Method v1.1 -04350, <del>as certified by a third party program such as the GREENGUARD Environmental Institute's Children and Schools Certification Program or the Scientific Certification Systems Indoor Advantage Gold Program</del> when tested by a laboratory with the CDPH/EHLB Standard Method v1.1 within the laboratory scope of accreditation to ISO/IEC 17025 and certified by a third-party program accredited to ISO Guide 65, such as, but not limited to, those found in Appendix D.</p>	<p><b>8</b></p>
<p><b>Exception:</b> Footnote b in Table 4.1 of CDPH/EHLB Standard Method v1.1 does not apply. Formaldehyde maximum allowable concentration is 16.5 µg/m<sup>3</sup> (13.5 ppb).</p>	
<p><del><b>Addition and Renovation Note:</b> Section 901.89 applies when the building is occupied during construction.</del></p>	<p><b>Mandatory 1-Additional Point</b></p>

~~901.9 Adhesives and sealants.~~ A minimum of 85 percent of site-applied adhesives and sealants are in accordance with Section 901.9.1 and/or Section 901.9.2.

~~5~~

~~901.9.1 Exterior low-VOC adhesives and sealants:~~ A minimum of 85 percent of site-applied products used for the installation of subfloors and on the exterior of the project are in accordance with one of the following:

- ~~(1) The California Air Resources Board consumer products regulation as follows:
 
  - ~~(a) Construction Adhesives: VOC content not to exceed 7 percent by weight or 75 grams/liter, whichever is greater.~~
  - ~~(b) The VOC content of reactive sealants (i.e., silicones, polyurethanes, and hybrids, such as MS Polymer and silylated polyurethane resin or SPUR) not to exceed 4 percent by weight or 50 grams/liter, whichever is greater.~~
  - ~~(c) The VOC content of all other caulks and sealants not to exceed 2 percent by weight or 30 grams/liter, whichever is greater.~~
  - ~~(d) The VOC content of contact adhesives not to exceed 55 percent by weight or 480 grams/liter, whichever is greater.~~~~

~~(2) GS-36~~

~~901.9.10.2 Adhesives and sealants.~~ Interior low-VOC adhesives and sealants located inside the water proofing envelope:- A minimum of 85 percent of site-applied products used within the interior of the building are in accordance with one of the following, as applicable.

~~5~~

~~(1) The emission levels of CDPH/EHLB Standard Method v1.1 when tested by a laboratory with the CDPH/EHLB Standard Method v1.1 within the laboratory scope of accreditation to ISO/IEC 17025 and certified by a third-party program accredited to ISO Guide 65, such as, but not limited to, those found in Appendix D. — 01350, as certified by a third party program, such as the GREENGUARD Environmental Institute's Children and Schools Certification Program or the Scientific Certifications Systems Indoor Advantage Gold Program.~~

~~8~~

~~Exception: Footnote b in Table 4.1 of CDPH/EHLB Standard Method v1.1 does not apply. Formaldehyde maximum allowable concentration is 16.5 µg/m3 (13.5 ppb).~~

~~(2) GreenSeal GS-36 Adhesives for Commercial Use OR~~

~~5~~

~~(3) SCAQMD Rule 1168 (see Table 901.10.2), excluding products that are purchased in containers that are less than 16 ounces~~

~~5~~

**Table 901.10.2  
Site Applied Adhesive And Sealants Voc Limits<sup>a,b</sup>**

<u>ADHESIVE</u>	<u>VOC LIMIT (g/l)</u>
<u>Indoor carpet adhesives</u>	<u>50</u>
<u>Carpet pad adhesives</u>	<u>50</u>
<u>Outdoor carpet adhesives</u>	<u>150</u>
<u>Wood flooring adhesive</u>	<u>100</u>
<u>Rubber floor adhesives</u>	<u>60</u>
<u>Subfloor adhesives</u>	<u>50</u>
<u>Ceramic tile adhesives</u>	<u>65</u>
<u>VCT and asphalt tile adhesives</u>	<u>50</u>
<u>Dry wall and panel adhesives</u>	<u>50</u>
<u>Cove base adhesives</u>	<u>50</u>
<u>Multipurpose construction adhesives</u>	<u>70</u>
<u>Structural glazing adhesives</u>	<u>100</u>

<u>Single ply roof membrane adhesives</u>	<u>250</u>
<u>Architectural Sealants</u>	<u>250</u>
<u>Architectural Sealant Primer</u>	
<u>Non Porous</u>	<u>250</u>
<u>Porous</u>	<u>775</u>
<u>Modified Bituminous Sealant Primer</u>	<u>500</u>
<u>Other Sealant Primers</u>	<u>750</u>
<u>CPVC solvent cement</u>	<u>490</u>
<u>PVC solvent cement</u>	<u>510</u>
<u>ABS solvent cement</u>	<u>325</u>
<u>Plastic Cement Welding</u>	<u>250</u>
<u>Adhesive Primer for Plastic</u>	<u>550</u>
<u>Contact Adhesive</u>	<u>80</u>
<u>Special Purpose Contact Adhesive</u>	<u>250</u>
<u>Structural Wood Member Adhesive</u>	<u>140</u>

- a. VOC limit less water and less exempt compounds in grams/liter  
b. For low-solid adhesives and sealants, the VOC limit is expressed in grams/liter of material as specified in Rule 1168. For all other adhesives and sealants, the VOC limits are expressed as grams of VOC per liter of adhesive or sealant less water and less exempt compounds as specified in Rule 1168.

<del><b>901.10 Cabinets.</b> A minimum of 85 percent of kitchen and bath vanity cabinets are in accordance with one of the following:</del>	
<del><b>(Where more than one of the following practices is used, the practice with the fewer number of points is awarded.)</b></del>	
<del>(1) Kitchen and bath vanity cabinets in accordance with KCMA ESP-01, or equivalent, are installed.</del>	<del><b>2</b></del>
<del>(2) Kitchen and bath vanity cabinets in accordance with CARB Composite Wood Air Toxic Contaminant Measure Standard are installed.</del>	<del><b>3</b></del>
<del>(3) Kitchen and bath vanity cabinets are installed that contain no added urea formaldehyde or are in accordance with GGPS-EC-010-R0, ASTM D 6670, or equivalent.</del>	<del><b>5</b></del>
<del><b>Renovation Note:</b> Additional points for Section 901.10 apply to renovations that replace all existing kitchen and bath vanity cabinets.</del>	<del><b>2 Additional Points</b></del>

<del><b>901.11 Insulation.</b> Insulation is in accordance with the following: Emissions of wall, ceiling, and floor insulation materials are in accordance with the emission levels of CDPH/EHLB Standard Method v1.1 when tested by a laboratory with the CDPH/EHLB Standard Method v1.1 within the laboratory scope of accreditation to ISO/IEC 17025 and certified by a third-party program accredited to ISO Guide 65, such as, but not limited to, those in Appendix D.</del>	<del><b>4</b></del>
<del><b>Exception:</b> Footnote b in Table 4.1 of CDPH/EHLB Standard Method v1.1 does not apply. Formaldehyde maximum allowable concentration is 16.5 µg/m3 (13.5 ppb).</del>	
<del>(1) Formaldehyde emissions of wall, ceiling, and floor insulation materials are in accordance with the emission levels of CDPH 01350, as certified by a third-party program, such as the GREENGUARD Environmental Institute's Children and Schools Certification Program or the Scientific Certifications Systems Indoor Advantage Gold Program.</del>	<del><b>4</b></del>



<del>(2) Formaldehyde emissions of duct insulation materials are in accordance with the emission levels of CDPH 01350, as certified by a third-party program, such as the GREENGUARD Environmental Institute's Children and Schools Certification Program or the Scientific Certifications Systems Indoor Advantage Gold Program.</del>	<del>4</del>
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<b>901.12 Carbon monoxide (CO) alarms.</b> <u>Where not required by local codes,</u> Aa carbon monoxide (CO) alarm is installed in a central location outside of each separate sleeping area in the immediate vicinity of the bedrooms. The CO alarm(s) is located in accordance with NFPA 720 and is hard-wired with a battery back-up. The alarm device(s) is certified by a third-party for conformance to either CSA 6.19 or UL 2034.	<b>3</b>
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<b>901.13 Building entrance pollutants control.</b> Pollutants are controlled at all main building entrances by one of the following methods:	
(1) Exterior grilles or mats are installed in a fixed manner and may be removable for cleaning.	<b>1</b>
(2) Interior grilles or mats are installed in a fixed manner and may be removable for cleaning.	<b>1</b>

<b>901.14 Non-smoking areas.</b> <u>Environmental tobacco smoke is minimized by one or more of the following:</u> <del>All interior common areas of a multi-unit building are designated as non-smoking areas with posted signage.</del>	<b>4</b>
(1) <u>All interior common areas of a multi-unit building are designated as non-smoking areas with posted signage.</u>	<b>1</b>
(2) <u>Exterior smoking areas of a multi-unit building are designated with posted signage and located a minimum of 25 feet from entries, outdoor air intakes, and operable windows.</u>	<b>1</b>

<del><b>901.15 Renovation Note:</b> For buildings constructed prior to 1978, lead-safe work practices are used during renovation, remodeling, painting, and demolition.</del>	<b>Mandatory 0 Additional Points</b>
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**902  
POLLUTANT CONTROL**

**902.0 Intent.** Pollutants generated in the building are controlled.

<b>902.1 Spot ventilation.</b>	
<b>902.1.1</b> Spot ventilation is in accordance with the following:	
(1) Bathrooms are vented to the outdoors. The minimum ventilation rate is 50 cfm (23.6 L/s) for intermittent operation or 20 cfm (9.4 L/s) for continuous operation in bathrooms.	<b>Mandatory</b>
(2) Clothes dryers are vented to the outdoors.	<b>Mandatory</b>
(3) Kitchen exhaust units and/or range hoods are ducted to the outdoors and have a minimum ventilation rate of 100 cfm (47.2 L/s) for intermittent operation or 25 cfm (11.8 L/s) for continuous operation.	<b>8</b>
<del><b>Addition Note:</b> Section 902.1 applies only to additions that include a kitchen or bathroom.</del>	<del><b>Mandatory</b></del>

	<b>0 Additional Points</b>
<del><b>Renovation Note:</b> Section 902.1 applies to renovations that include a new or existing kitchen or bathroom.  (Points available for all of the following conditions.)</del>	<del><b>Mandatory 0 Additional Points</b></del>
<del>(1) Existing non-vented kitchen range or bathroom exhaust systems in an area that is undergoing renovation are replaced with equipment that is in accordance with Section 902.1.</del>	<del><b>2 Additional Points</b></del>
<del>(2) Existing non-vented kitchen range or bathroom exhaust systems in an area that is not undergoing renovation are replaced with equipment that is in accordance with Section 902.1.</del>	<del><b>3 Additional Points</b></del>
<del>(3) New kitchen range or bathroom exhaust systems in accordance with Section 902.1 are installed where no exhaust system existed before renovation.</del>	<del><b>1 Additional Point</b></del>
<b>902.1.2</b> Bathroom and/or laundry exhaust fan is provided with an automatic timer and/or humidistat:	<b>911 Points Max</b>
(1) for first device	<b>5</b>
(2) for each additional device	<b>2</b>
<b>902.1.3</b> Kitchen range, bathroom, and laundry exhaust are verified to specification. Ventilation airflow at the point of exhaust is tested to a minimum of 100 cfm (47.2 L/s) intermittent or 25 cfm (11.8 L/s) continuous for kitchens, and 50 cfm (23.6 L/s) intermittent or 20 cfm (9.4 L/s) continuous for bathrooms and/or laundry.	<b>8</b>
<b>902.1.4</b> Exhaust fans are ENERGY STAR, as applicable.	<b>612 Points Max</b>
(1) ENERGY STAR, or equivalent, fans <b>(Points awarded per fan.)</b>	<b>2</b>
(2) ENERGY STAR, or equivalent, fans operating at or below 1 sone <b>(Points awarded per fan.)</b>	<b>3</b>
<b>902.2 Building ventilation systems</b>	
<b>902.2.1</b> One of the following whole building ventilation systems is implemented and is in accordance with the specifications of Appendix B.	
(1) exhaust or supply fan(s) ready for continuous operation and with appropriately labeled controls	<b>8</b>
(2) balanced exhaust and supply fans with supply intakes located in accordance with the manufacturer's guidelines so as to not introduce polluted air back into the building	<b>10</b>
(3) heat-recovery ventilator	<b>15</b>
(4) energy-recovery ventilator	<b>17</b>
<del><b>Addition Note:</b> Section 902.2.1 is applied to an addition in accordance with one of the following:</del>	

<del>(1) The pressure and thermal boundaries of the addition are separated from the existing building.</del>	<del>0 Additional Points</del>
<del>(2) If the pressure and thermal boundaries of the addition are not separated from the existing building, Section 902.2.1 is applied to the whole building.</del>	<del>1 Additional Point</del>
<del><b>Renovation Note:</b> Section 902.2.1 applies to the whole building for connected thermal and pressure boundaries.</del>	<del>2 Additional Points</del>
<b>902.2.2</b> Ventilation airflow is tested to achieve the design fan airflow at point of exhaust in accordance with Section 902.2.1.	<b>8</b>
<b>902.2.3</b> MERV filters 8 or greater are installed on central <b>forced</b> air systems <b>and are accessible</b> .— Designer or installer is to verify that the HVAC equipment is able to accommodate the greater pressure drop of MERV 8 filters.	<b>3</b>
<del><b>Addition Note:</b> Section 902.2.3 applies only to additions that include a new HVAC system.</del>	<del>0 Additional Points</del>
<del><b>Renovation Note:</b> Section 902.2.3 applies only to renovations that replace an existing HVAC system.</del>	<del>1 Additional Point</del>

<b>902.3 Radon control.</b> Radon control measures are in accordance with ICC IRC Appendix F. Zones are defined in Figure 9(1).	
<b>(1)</b> Buildings located in Zone 1	<b>Mandatory</b>
<b>(a)</b> a passive radon system is installed	<b>10</b>
<b>(b)</b> an active radon system is installed	<b>4518</b>
<b>(2)</b> Buildings located in Zone 2 <b>or Zone 3</b>	
<b>(a)</b> a passive <b>or active</b> radon system is installed	<b>10</b>

<b>902.4 HVAC system protection.</b> One of the following HVAC system protection measures is performed.	<b>3</b>
<b>(1)</b> HVAC supply registers (boots), return grilles, and rough-ins are covered during construction activities to prevent dust and other pollutants from entering the system.	
<del><b>Addition and Renovation Note:</b> Section 902.4(1) does not apply to additions and renovations except as noted in Addition and Renovation Note (3) below.</del>	<del>0 Additional Points</del>
<b>(2)</b> Prior to owner occupancy, HVAC supply registers (boots), return grilles, and duct terminations are inspected and vacuumed. In addition, the coils are inspected and cleaned and the filter is replaced if necessary.	
<del><b>Addition and Renovation Note:</b> As an alternative to Section 902.4(2), one of the following options is implemented:</del>	<del>Mandatory</del>
<del><b>(1)</b> During construction, a construction indoor air quality (IAQ) schedule is developed that includes, at minimum, all of the following:</del>	<del>1 Additional Point</del>
<del><b>(a)</b> type of construction activity</del>	
<del><b>(b)</b> ability to occupy the building or dwelling unit</del>	
<del><b>(c)</b> IAQ protections for occupant(s) of the building or dwelling unit</del>	
<del><b>(d)</b> hazardous waste removal</del>	
<del><b>(e)</b> name and age of occupants of the building or dwelling unit at a specific time</del>	

<del>(2) The addition or renovation area is sealed off from the occupied portion of the building or dwelling unit. The same HVAC system for conditioning the air in renovated and occupied space is not used.</del>	<del>1 Additional Point</del>
<del>(3) The building or dwelling unit is not occupied during the entire construction period and Sections 902.4(1) and 902.4(2) are implemented.</del>	<del>1 Additional Point</del>

<b>902.5 Central vacuum systems.</b> Central vacuum system is installed and vented to the outside.	<b>5</b>
<b>902.6 Living space contaminants.</b> The living space is sealed to prevent unwanted contaminants.	
(1) Attic access, knee wall door, or drop down stair is caulked, gasketed, or otherwise sealed.	<b>2</b>
(2) All penetrations (e.g., top plates, HVAC register boots, recessed can lights) are sealed in the following areas:	
(a) attic/ceiling	<b>2</b>
(b) wall	<b>2</b>
(c) floors	<b>2</b>

### 903

#### MOISTURE MANAGEMENT: VAPOR, RAINWATER, PLUMBING, HVAC

**903.0 Intent.** Moisture and moisture effects are controlled.

~~**903.1 Tile backing materials.** Tile backing materials installed under tiled surfaces in wet areas are in accordance with ASTM C1178, C1278, C1288, or C1325.~~ **Mandatory**

#### ~~**903.2 Capillary breaks**~~

~~**903.2.1** A capillary break and vapor retarder are installed at all concrete slabs in accordance with Sections 903.2.1(1) or 903.2.1(2), as modified by Section 903.2.1(3):~~ **Mandatory**

~~(1) A minimum 4-inch-thick (102 mm) bed of ½-inch (13 mm) diameter or greater clean aggregate, covered with polyethylene or polystyrene sheeting in direct contact with the concrete slab, with the sheeting joints lapped in accordance with Section 903.3.~~

~~(2) A minimum 4-inch-thick (102 mm) uniform layer of sand, overlain with a layer or strips of geotextile drainage matting, covered with polyethylene sheeting, with the sheeting joints lapped in accordance with Section 903.3.~~

~~(3) Modification:~~

~~(a) In areas with free-draining soils, identified as Group 1 in the ICC IRC by a certified hydrologist, soil scientist, or engineer through a site visit, a gravel bed or geotextile matting is not required.~~

~~(b) In Dry climate locations, as defined by Figure 6(1), polyethylene sheeting is not required unless required for radon resistance (Section 902.3).~~

~~**903.2.2** Add a capillary break on footing to prevent moisture migration into foundation wall.~~ **3**

~~**Addition Note:** Section 903.2 applies only to the new construction portion of additions.~~ **Mandatory 0-Additional**

	<b>Points</b>
<del><b>Renovation Note:</b> Section 903.2 applies only to renovations that include slab removal and/or replacement.</del>	<del><b>0 Additional Points</b></del>
<del><b>903.3 Crawlspaces</b></del>	
<del><b>903.3.1</b> Crawlspace vapor retarder is in accordance with the following, as applicable. Joints of vapor retarder overlap a minimum of 6 inches (152 mm) and are taped.</del>	
<del>(1) Floors. Minimum 6 mil vapor retarder installed on the crawlspace floor and extended up the wall sufficient to allow the material to be affixed with glue and furring strips.</del>	<del><b>6</b></del>
<del>(2) Walls. Damp-proof walls are provided below finished grade.</del>	<del><b>Mandatory</b></del>
<del><b>Renovation Note:</b> Additional points:</del>	
<del>(1) Additional points available for damp proofing below grade walls.</del>	<del><b>1 Additional Point</b></del>
<del>(2) Additional points available for installing a footing drainage system.</del>	<del><b>2 Additional Points</b></del>
<del><b>903.3.2</b> Crawlspace that is built as a conditioned area is sealed to prevent outside air infiltration and provided with conditioned air at a rate not less than 0.02 cfm (.009 L/s) per square foot of horizontal area and one of the following is implemented:</del>	
<del>(1) a concrete slab over lapped 6 mil polyethylene or polystyrene.</del>	<del><b>10</b></del>
<del>(2) 6 mil polyethylene sheeting, lapped a minimum of 6 inches (152 mm), and taped at the seams.</del>	<del><b>8</b></del>
<del><b>Addition Note:</b> Section 903.3.2 applies only to the new construction portion of additions.</del>	<del><b>1 Additional Point</b></del>
<del><b>Renovation Note:</b> Section 903.3.2 applies only to renovations that include a focused effort to convert an existing vented crawl space into an unvented, conditioned crawl space.</del>	<del><b>2 Additional Points</b></del>

<del><b>903.4 Moisture control measures</b></del>	
<del><b>903.4.1</b> Moisture control measures are in accordance with the following:</del>	
<del>(1) Building materials with visible mold are not installed or are cleaned or encapsulated prior to concealment and closing.</del>	<del><b>2</b></del>
<del>(2) Walls are not enclosed (e.g., with drywall) if the insulation has a high moisture content. Wet insulation products are dry before enclosing.</del>	<del><b>Mandatory 2</b></del>
<del>(3) The moisture content of lumber is sampled to ensure it does not exceed 19 percent prior to the surface and/or wall cavity enclosure.</del>	<del><b>4</b></del>
<del><b>903.4.2</b> Moisture content of subfloor, substrate, or concrete slabs is in accordance with the appropriate industry standard for the finish flooring to be applied.</del>	<del><b>2</b></del>
<del><b>Addition and Renovation Note:</b> Section 903.4.1 (1) and (2) applies to new, reused, and salvaged materials only. It excludes undisturbed existing materials.</del>	

<del><i><b>Addition Note:</b> Section 903.4.2 applies only where new finish flooring is applied.</i></del>	<del><b>-Mandatory 0 Additional Points</b></del>
<del><i><b>Renovation Note:</b> Section 903.4.2 applies only where new finish flooring is applied. Additional points available only for correcting excess moisture levels in an existing subfloor and/or substrate.</i></del>	<del><b>2 Additional Points</b></del>
<b>903.5-1 Plumbing</b>	
<del><b>903.5.1 Plumbing distribution lines are not installed in exterior wall cavities.</b></del>	<del><b>2</b></del>
<del><i><b>Addition Note:</b> Section 903.5.1 applies only to the new construction portion of additions.</i></del>	<del><b>Mandatory 0 Additional Points</b></del>
<del><i><b>Renovation Note:</b> Section 903.5.1 applies only to renovations that include exterior walls and plumbing lines or plumbing lines in unconditioned spaces.</i></del>	<del><b>-Mandatory</b></del>
<del><i>(1) A minimum of 50 percent of exterior wall piping is removed.</i></del>	<del><b>3 Additional Points</b></del>
<del><i>(2) A minimum of 50 percent of exterior wall piping is insulated.</i></del>	<del><b>2 Additional Points</b></del>
<b>903.51.21</b> Cold water pipes in unconditioned spaces are insulated to a minimum of R-4 with pipe insulation or other covering that adequately prevents condensation.	<b>2</b>
<del><i><b>Renovation Note:</b> The entire plumbing system between the connections of the water distribution and/or waste lines and the equipment and fixtures is replaced. This item applies if one or more of the following is implemented:</i></del>	
<del><i>(1) Plumbing in unconditioned spaces is repaired or replaced.</i></del>	<del><b>1 Additional Point</b></del>
<del><i>(2) Plumbing in unconditioned spaces is improved.</i></del>	<del><b>2 Additional Points</b></del>
<b>903.51.32</b> Plumbing is not installed in unconditioned spaces.	<b>5</b>
<del><i><b>Renovation Note:</b> The entire plumbing system between the connections of the water distribution and/or waste lines and the equipment and fixtures is replaced. This item applies if one or more of the following conditions exist:</i></del>	<del><b>2 Additional Points</b></del>
<del><i>(1) poor joint connections (2) thin pipe walls (3) severely reduced water flow caused by debris buildup (4) lead or other toxic solders (5) drain, waste, and vent system is not in accordance with the ICC IPC.</i></del>	
<b>903.6-2 Duct insulation.</b> 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.	
<b>(1)</b> insulated to a minimum of R-6	<b>Mandatory</b>

(2) insulated to a minimum of R-8	2
<del>Addition Note: Section 903.6 applies only to the new construction portion of additions.</del>	<del>Mandatory 0 Additional Points</del>
<del>Renovation Note: Section 903.6 applies to renovations as follows:</del>	
<del>(1) areas that include replacement or disturbance of HVAC ducts, plenums and trunk</del>	<del>2 Additional Points</del>
<del>(2) in areas with specific condensation problems, remove any contaminated ductwork, remove or remediate mold-contaminated elements, and correct existing or add new insulation</del>	<del>2 Additional Points</del>
<del>(3) insulation on the existing HVAC ducts, plenums and trunks is upgraded</del>	<del>3 Additional Points</del>

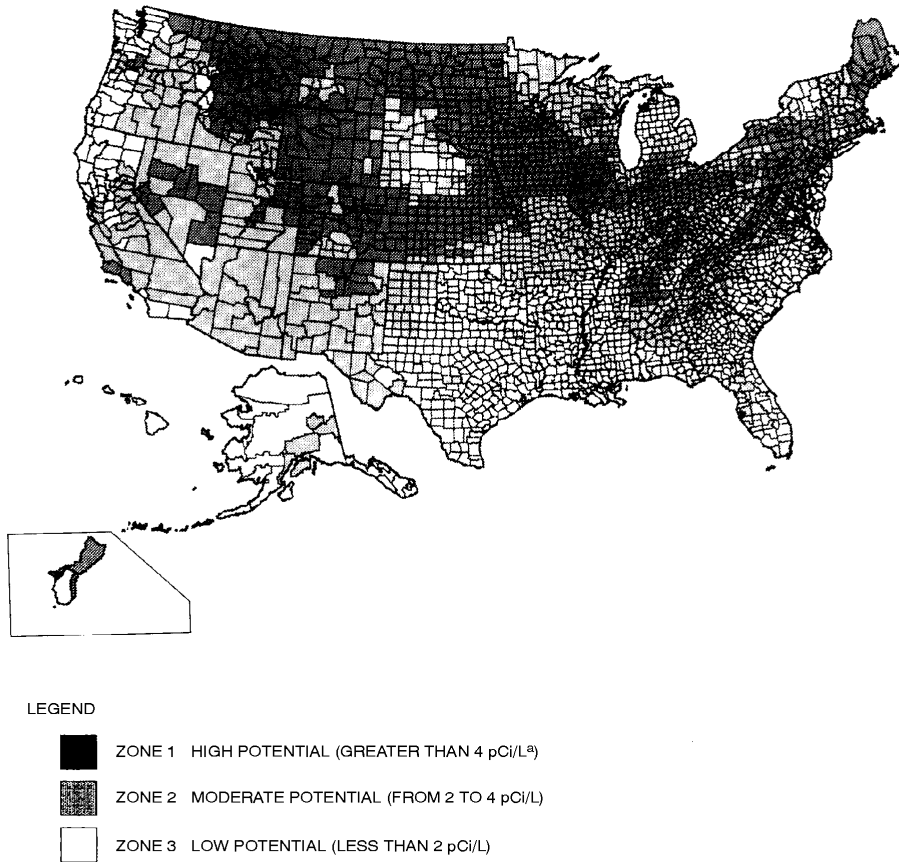
<b>903.7-3 Relative humidity.</b> In climate zones 1A, 2A, 3A, 4A, and 5A as defined by Figure 6(1), equipment is installed to maintain relative humidity (RH) at or below 60 percent using one of the following:  <b>(Points not awarded in remaining climate zones.)</b>	8
(1) additional dehumidification system(s)	
(2) central HVAC system equipped with additional controls to operate in dehumidification mode	

**904  
INNOVATIVE PRACTICES**

<b>904.1 Humidity monitoring system.</b> A humidity monitoring system is installed with a mobile base unit that displays a reading of temperature and relative humidity at the base unit with a minimum of two remote units. One remote unit is placed permanently inside the conditioned space in a central location, excluding attachment to exterior walls, and another remote unit is placed permanently outside of the conditioned space.	2
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<b>904.2 Kitchen exhaust.</b> A kitchen exhaust unit(s) that equals or exceeds 400 cfm (189 L/s) is installed, and makeup air is provided.	2
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<del>904.3 Renovation Note: Existing unsealed combustion gas dryer vents related to renovations:</del>	
<del>(1) Existing unsealed combustion gas dryer vent is replaced with a sealed exhaust vent.</del>	<del>Mandatory 1</del>
<del>(2) Existing unsealed combustion gas dryer vent is replaced with a sealed exhaust vent and ducted makeup air is provided.</del>	<del>2</del>



- a. pCi/L standard for picocuries per liter of radon gas. EPA recommends that all homes that measure 4 pCi/L and greater be mitigated.

The United States Environmental Protection Agency and the United States Geological Survey have evaluated the radon potential in the United States and have developed a map of radon zones designed to assist building officials in deciding whether radon-resistant features are applicable in new construction.

The map assigns each of the 3,141 counties in the United States to one of three zones based on radon potential. Each zone designation reflects the average short-term radon measurement that can be expected to be measured in a building without the implementation of radon control methods. The radon zone designation of highest priority is Zone 1. This Table lists the Zone 1 counties illustrated on the map. More detailed information can be obtained from state-specific booklets (EPA-402-R-93-021 through 070) available through State Radon Offices or from U.S. EPA Regional Offices.

**FIGURE 9(1)  
EPA MAP OF RADON ZONES**

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## CHAPTER 10

# OPERATION, MAINTENANCE, AND BUILDING OWNER EDUCATION

GREEN BUILDING PRACTICES	POINTS
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**1001  
BUILDING OWNERS' MANUAL FOR ONE- AND TWO-FAMILY DWELLINGS**

**1001.0 Intent.** Information on the building's use, maintenance, and green components is provided.

<p><b>1001.1</b> A building owner's manual is provided that includes the following, as available and applicable.</p> <p style="text-align: center;"><b>(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)</b></p>	<b>1</b>
<p><b>(1)</b> A green building program certificate or completion document.</p>	<b>Mandatory</b>
<p><b>(2)</b> List of green building features (can include the national green building checklist).</p>	<b>Mandatory</b>
<p><b>(3)</b> Product manufacturer's manuals or product data sheet for installed major equipment, fixtures, and appliances. If product data sheet is in the building owners' manual, manufacturer's manual may be attached to the appliance in lieu of inclusion in the building owners' manual.</p>	<b>Mandatory</b>
<p><b>(4)</b> Information on local recycling programs.</p>	
<p><b>(5)</b> Information on available local utility programs that purchase a portion of energy from renewable energy providers.</p>	
<p><b>(6)</b> Explanation of the benefits of using energy-efficient lighting systems [e.g., compact fluorescent light bulbs, light emitting diode (LED)] in high-usage areas.</p>	
<p><b>(7)</b> A list of practices to conserve water and energy.</p>	
<p><b>(8)</b> Local public transportation options.</p>	
<p><b>(9)</b> A diagram showing the location of safety valves and controls for major building systems.</p>	
<p><b>(10)</b> Where frost-protected shallow foundations are used, owner is informed of precautions including:</p> <ul style="list-style-type: none"> <li><b>(a)</b> instructions to not remove or damage insulation when modifying landscaping.</li> <li><b>(b)</b> providing heat to the building as required by the ICC IRC or IBC.</li> <li><b>(c)</b> keeping base materials beneath and around the building free from moisture caused by broken water pipes or other water sources.</li> </ul>	
<p><b>(11)</b> A list of local service providers that offer regularly scheduled service and maintenance contracts to ensure proper performance of equipment and the structure (e.g., HVAC, water-heating equipment, sealants, caulks, gutter and downspout system, shower and/or tub surrounds, irrigation system).</p>	

GREEN BUILDING PRACTICES	POINTS
<p>(12) A photo record of framing with utilities installed. Photos are taken prior to installing insulation, clearly labeled, and included as part of the building owners' manual.</p> <p>(13) Maintenance checklist.</p> <p>(14) List of common hazardous materials often used around the building and instructions for proper handling and disposal of these materials.</p> <p>(15) Information on organic pest control, fertilizers, deicers, and cleaning products.</p> <p>(16) Information on native landscape materials and/or those that have low-water requirements.</p> <p>(17) Information on methods of maintaining the building's relative humidity in the range of 30 percent to 60 percent.</p> <p>(18) Instructions for inspecting the building for termite infestation.</p> <p>(19) Instructions for maintaining gutters and downspouts and importance of diverting water a minimum of 5 feet away from foundation.</p> <p>(20) A narrative detailing the importance of maintenance and operation in retaining the attributes of a green-built building.</p> <p>(21) <u>Where storm water management measures are installed on the lot, information on the location, purpose, and upkeep of these measures.</u></p>	
<p><u>Renovations Note:</u> A building owners' manual that includes the following:</p>	<p><b>Mandatory 0-Additional Points</b></p>
<p>(1) <u>all mandatory items listed in Section 1001.1</u></p> <p>(2) <u>a minimum of six of the non-mandatory items listed in Section 1001.1</u></p> <p>(3) <u>the EPA publications "Reducing Lead Hazards When Remodeling Your Home" and "Asbestos in Your Home: A Homeowner's Guide"</u></p>	

**1002  
TRAINING OF BUILDING OWNERS ON OPERATION AND MAINTENANCE FOR ONE-  
AND TWO-FAMILY DWELLINGS AND MULTI-UNIT BUILDINGS**

<p><b>1002.1 Training of building owners.</b> Building owners/<del>occupants</del> are familiarized with the <del>green building goals and strategies implemented and the impacts of the role of occupants' practices on the costs of operating the building in achieving green goals.</del> <u>On-site training</u> is provided to the responsible party(ies) regarding <del>all</del> equipment operation and <u>maintenance, control systems, and occupant actions that will improve the environmental performance of the building.</u> <del>Systems-These</del> include, <del>but are not limited to, the following:</del></p>	<p><b>6</b></p>
<p>(1) HVAC filters</p> <p>(2) thermostat operation and programming</p> <p>(3) lighting controls</p> <p>(4) appliances <u>and settings operation</u></p> <p>(5) water heater settings <u>and hot water use</u></p> <p>(6) fan controls</p> <p>(7) <u>recycling practices</u></p>	

**1003****CONSTRUCTION, OPERATION, AND MAINTENANCE MANUALS AND TRAINING FOR MULTI-UNIT BUILDINGS**

**1003.0 Intent.** Manuals are provided to the responsible parties (owner, management, tenant, and/or maintenance team) regarding the construction, operation, and maintenance of the building. Paper or digital format manuals are to include information regarding those aspects of the building's construction, maintenance, and operation that are within the area of responsibilities of the respective recipient. One or more responsible parties are to receive a copy of all documentation for archival purposes.

<p><b>1003.1 Building construction manual.</b> A building construction manual, including five or more of the following, is compiled and distributed in accordance with Section 1003.0.</p> <p style="text-align: center;"><b>(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)</b></p>	<b>1</b>
(1) A narrative detailing the importance of constructing a green building, including a list of green building attributes included in the building. This narrative is included in all responsible parties' manuals.	<b>Mandatory</b>
(2) A local green building program certificate as well as a copy of the <i>National Green Building Standard™</i> , as adopted by the Adopting Entity, and the individual measures achieved by the building.	<b>Mandatory</b>
(3) Warranty, operation, and maintenance instructions for all equipment, fixtures, appliances, and finishes.	<b>Mandatory</b>
(4) Record drawings of the building.	
(5) A record drawing of the site including stormwater management plans, utility lines, landscaping with common name and genus/species of plantings.	
(6) A diagram showing the location of safety valves and controls for major building systems.	
(7) A list of the type and wattage of light bulbs installed in light fixtures.	
(8) A photo record of framing with utilities installed. Photos are taken prior to installing insulation and clearly labeled.	
<b><u>Addition and Renovation Note:</u></b> <i>A building construction manual that includes the following:</i>	<b>0 Additional Points</b>
<i>(1) all mandatory items listed in Section 1003.1</i>	
<i>(2) a minimum of two of the non-mandatory items listed in Section 1003.1</i>	
<p><b>1003.2 Operations manual.</b> Operations manuals are created and distributed to the responsible parties in accordance with Section 1003.0. Between all of the operation manuals, five or more of the following options are included.</p> <p style="text-align: center;"><b>(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)</b></p>	<b>1</b>
(1) A narrative detailing the importance of operating and living in a green building. This narrative is included in all responsible parties' manuals.	<b>Mandatory</b>
(2) A list of practices to conserve water and energy (e.g., turning off lights when not in	<b>Mandatory</b>

GREEN BUILDING PRACTICES	POINTS
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use, switching the rotation of ceiling fans in changing seasons, purchasing ENERGY STAR appliances and electronics).	
(3) Information on methods of maintaining the building's relative humidity in the range of 30 percent to 60 percent.	<b>Mandatory</b>
(4) Information on opportunities to purchase renewable energy from local utilities or national green power providers and information on utility and tax incentives for the installation of on-site renewable energy systems.	
(5) Information on local and on-site recycling and hazardous waste disposal programs and, if applicable, building recycling and hazardous waste handling and disposal procedures.	
(6) Local public transportation options.	
(7) Explanation of the benefits of using compact fluorescent light bulbs, LEDs, or other high-efficiency lighting.	
(8) Information on native landscape materials and/or those that have low water requirements.	
(9) Information on the radon mitigation system, where applicable.	
(1) A procedure for educating tenants in rental properties on the proper use, benefits, and	
(0) maintenance of green building systems including a maintenance staff notification process for improperly functioning equipment.	
<b><u>Addition and Renovation Note:</u></b> <i>An operations manual that includes the following:</i>	<b>0-Additional Points</b>
<del>(1) all mandatory items listed in Section 1003.2</del>	
<del>(2) a minimum of three of the non-mandatory items listed in Section 1003.2</del>	

<b>1003.3 Maintenance manual.</b> Maintenance manuals are created and distributed to the responsible parties in accordance with Section 1003.0. Between all of the maintenance manuals, five or more of the following options are included. <b><i>(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)</i></b>	<b>1</b>
(1) A narrative detailing the importance of maintaining a green building. This narrative is included in all responsible parties' manuals.	<b>Mandatory</b>
(2) A list of local service providers that offer regularly scheduled service and maintenance contracts to ensure proper performance of equipment and the structure (e.g., HVAC, water-heating equipment, sealants, caulks, gutter and downspout system, shower and/or tub surrounds, irrigation system).	
(3) User-friendly maintenance checklist that includes: <ul style="list-style-type: none"> <li>(a) HVAC filters</li> <li>(b) thermostat operation and programming</li> <li>(c) lighting controls</li> <li>(d) appliances and settings</li> <li>(e) water heater settings</li> <li>(f) fan controls</li> </ul>	

GREEN BUILDING PRACTICES	POINTS
(4) List of common hazardous materials often used around the building and instructions for proper handling and disposal of these materials.	
(5) Information on organic pest control, fertilizers, deicers, and cleaning products.	
(6) Instructions for maintaining gutters and downspouts and the importance of diverting water a minimum of 5 feet away from foundation.	
(7) Instructions for inspecting the building for termite infestation.	
(8) A procedure for rental tenant occupancy turnover that preserves the green features.	
(9) An outline of a formal green building training program for maintenance staff.	
<u><i>Addition and Renovation Note: A maintenance manual that includes the following:</i></u>	<b><i>0 Additional Points</i></b>
<i>(1) all mandatory items listed in Section 1003.3.</i>	
<i>(2) a minimum of three of the non-mandatory items listed in Section 1003.3.</i>	

**1004  
INNOVATIVE PRACTICES**

<b>1004.1</b> (Reserved)	
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## CHAPTER 11

# REMODELING

<p><b>11.1 Intent</b>  <u>This chapter sets the mandatory green practices for any remodeling project done pursuant to this standard. A remodeling project can consist of renovating an existing building, constructing an addition to an existing building, or both.</u></p>	
<p><b>11.2</b> <u>Some of the practices in sections 11.5, 11.6, 11.7, 11.8, 11.9, 11.10 are classified as applying to New Work or Re-Work. These practices have slightly different requirements depending on if the construction is new or if it is part of renovating existing structure. The practice applies to New Work when the practice is in relation to creating and finishing new structure. The practice applies to Re-Work when the practice is in relation to renovating existing structure and finishes. For example an addition would be all New Work. Installing new partition walls to divide an existing room into two rooms would be New Work. Repairing and painting existing drywall would be Re-Work as would replacing carpet and finish flooring. Practices that are not identified as New Work or Re-work apply equally to any work done on the project or to the entire building when applicable.</u></p>	
<p><b>11.3</b> Intentionally left blank</p>	
<p><b>11.4</b> Intentionally left blank</p>	
<p><b>11.502.1</b> <u>A knowledgeable team is established and team member roles are identified with respect to green lot design, preparation, and re-development. The project's green goals and objectives are written into a mission statement</u></p>	<b>4</b>
<p><b>1.503.0 Intent.</b> <u>The lot changes are designed to avoid detrimental environmental impacts first, minimize any unavoidable impacts, and mitigate for those impacts that do occur. The project is designed to minimize environmental impacts and to protect, restore, and enhance the natural features that may be disturbed during remodeling</u></p> <p style="text-align: right;"><b><u>(To be awarded points allocated for design the intent of the design is implemented.)</u></b></p>	
<p><b>11.503.1 Natural resources.</b> <u>Natural resources are conserved by one or more of the following:</u></p>	
<p><b>(1)</b> <u>A natural resources inventory is completed under the direction of a qualified professional.</u></p>	<b>5</b>
<p><b>(2)</b> <u>A plan is implemented to conserve the elements identified by the resource inventory as high priority resources.</u></p>	<b>6</b>
<p><b>(3)</b> <u>Items listed for protection in the resource inventory plan are protected under the direction of a qualified professional.</u></p>	<b>4</b>
<p><b>(4)</b> <u>Basic training in tree or other natural resource protection is provided for the on-site supervisor.</u></p>	<b>4</b>
<p><b>(5)</b> <u>All tree pruning on-site is conducted by a Certified Arborist.</u></p>	<b>2</b>
<p><b>(6)</b> <u>Ongoing maintenance of vegetation during construction is in accordance with TCIA A300.</u></p>	<b>3</b>
<p><b>11.503.2 Slope disturbance.</b> <u>Slope disturbance is minimized by one or more of the following.</u></p>	
<p style="text-align: center;"><b><u>(Points awarded only if there are developable steep slopes on the lot.)</u></b></p>	

<u>(1) All or a percentage of building on steep slopes is avoided.</u>	<u>(1)</u>
<u>(a) less than 25 percent</u>	<u>2</u>
<u>(b) 25 percent to 75 percent</u>	<u>3</u>
<u>(c) greater than 75 percent</u>	<u>4</u>
<u>(3) All or a percentage of paved areas and parking are aligned with natural topography to reduce cut and fill.</u>	<u>(3)</u>
<u>(a) less than 25 percent</u>	<u>1</u>
<u>(b) 25 percent to 75 percent</u>	<u>3</u>
<u>(c) greater than 75 percent</u>	<u>5</u>
<u>(4) Long-term erosion effects are reduced through the design and implementation of terracing, retaining walls, landscaping, and restabilization techniques.</u>	<u>(4)</u>
<u>(5) Underground parking on the lot uses the natural slope for parking entrances.</u>	<u>4</u>
<b>11.503.3 Soil disturbance and erosion.</b> <u>Soil disturbance and erosion are minimized by one or more of the following: (also see Section 504.3)</u>	
<u>(1) Construction activities are scheduled to minimize length of time that soils are exposed.</u>	<u>5</u>
<u>(2) Newly installed Utilities are installed using one or more alternative means:</u>	<u>5</u>
<u>(a) tunneling instead of trenching</u>	
<u>(b) use of smaller (low ground pressure) equipment or geomats to spread the weight of construction equipment.</u>	
<u>(c) shared utility trenches or easements</u>	
<u>(d) placement of utilities under driveways, and hardscape surfaces instead of yards.</u>	
<u>(3) Limits of clearing and grading are demarcated on the lot plan.</u>	<u>5</u>
<b>11.503.4 Storm water management.</b> <u>Storm water is managed using one or more of the following low impact development techniques:</u>	
<u>(1) Natural water and drainage features are preserved and used.</u>	<u>6</u>
<u>(2) A storm water management plan is developed and implemented that minimizes concentrated flows and simulates flows found in natural hydrology (e.g., vegetative swales, french drains, wetlands, drywells, and rain gardens).</u>	<u>6</u>
<u>(3) All or a percentage of impervious surfaces are minimized and permeable materials are used for driveways, parking areas, walkways, and patios.</u>	
<u>(a) less than 25 percent</u>	<u>1</u>
<u>(b) 25 percent to 75 percent</u>	<u>3</u>
<u>(c) greater than 75 percent</u>	<u>5</u>
<b>11.503.5 Landscape plan.</b> <u>If the project includes landscaping to more than 50% of the available area then a landscape plan for the lot is developed to limit water and energy use while preserving or enhancing the natural environment. Otherwise this section is not applicable.</u>	
<u>(1) A plan is formulated to restore or enhance natural vegetation that is cleared during construction. Landscaping is phased to coincide with achievement of final grades to ensure denuded areas are quickly vegetated.</u>	<u>5</u>

<u>(2) Turf grass species, other vegetation, and trees are selected that are native or regionally appropriate for local growing conditions.</u>	<u>4</u>
<u>(3) A percentage or all turf areas are limited.</u>	
<u>(a) 0 percent</u>	<u>4</u>
<u>(b) greater than 0 percent to less than 25 percent</u>	<u>3</u>
<u>(c) 25 percent to less than 50 percent</u>	<u>2</u>
<u>(d) 50 percent to 75 percent</u>	<u>1</u>
<u>(4) Plants with similar watering needs are grouped (hydrozoning).</u>	<u>5</u>
<u>(5) Species and locations for tree planting are identified that will provide summer shading of streets, parking areas, and buildings to moderate temperatures.</u>	<u>5</u>
<b><u>Deleted wind break</u></b>	
<u>(7) On-site tree trimmings or stump grinding of regionally appropriate trees are used to provide protective mulch during construction, and cleared trees are recycled as sawn lumber or pulp wood.</u>	<u>3</u>
<u>(8) An integrated pest management plan is developed to minimize chemical use in pesticides and fertilizers.</u>	<u>4</u>
<b><u>Delete wildlife habitat</u></b>	<u>4</u>
<b><u>11.503.8 Environmentally sensitive areas. Environmentally sensitive areas.</u></b>	
<u>(1) Environmentally sensitive areas are avoided or restored if disturbed</u>	<u>3</u>

<b><u>11.504.0 Intent.</u></b> Environmental impact during remodeling is avoided to the extent possible; impacts that do occur are minimized, and any significant impacts are mitigated. If no lot or landscape work is in the scope of the project then this section is not applicable.	
<b><u>11.504.1 On-site supervision and coordination.</u></b> On-site supervision and coordination is provided during clearing, grading, trenching, paving, and installation of utilities on the lot to ensure that specified green development practices are implemented. (also see Section 503.3)	<u>4</u>
<b><u>11.504.2 Trees and vegetation.</u></b> Designated trees and vegetation are preserved by one or more of the following:	
<u>(1) Fencing or equivalent is installed to protect trees and other vegetation.</u>	<u>3</u>
<u>(2) Trenching, significant changes in grade, and compaction of soil and critical root zones in “tree save” areas are avoided.</u>	<u>4</u>
<u>(3) Damage to designated existing trees and vegetation is mitigated during construction through pruning, root pruning, fertilizing, and watering.</u>	<u>4</u>
<b><u>11.504.3 Soil disturbance and erosion.</u></b> On-site soil disturbance and erosion are minimized by one or more of the following: (also see Section 503.3)	
<u>(1) Limits of clearing and grading are staked out.</u>	<u>5</u>
<u>(2) “No disturbance” zones are created using fencing or flagging to protect vegetation and</u>	<u>5</u>



<u>sensitive areas from construction activity.</u>	
<u>(3) Sediment and erosion controls are installed and maintained in accordance with the storm water pollution prevention plan, where required.</u>	<u>5</u>
<u>(4) Topsoil is stockpiled and stabilized for later use to establish landscape plantings.</u>	<u>5</u>
<u>(5) Soil compaction from construction equipment is reduced by distributing the weight of the equipment over a larger area (laying lightweight geogrids, mulch, chipped wood, plywood, OSB, metal plates, or other materials capable of weight distribution in the pathway of the equipment).</u>	<u>3</u>
<u>(6) Disturbed areas that are complete or to be left unworked for 21 days or more are stabilized within 14 days using methods as recommended by the EPA, or in the approved storm water pollution prevention plan, where required.</u>	<u>3</u>
<u>(7) Soil is improved with organic amendments and mulch.</u>	<u>3</u>
<u>(8) Newly installed Utilities are installed using one or more alternative means (e.g., tunneling instead of trenching, use of smaller equipment, use of low ground pressure equipment, use of geomats, shared utility trenches or easements).</u>	<u>5</u>

11.505.0 Intent. Innovative lot design, preparation and development practices are used to enhance environmental performance. Waivers or variances from local zoning regulations are obtained, and innovative practices are used to achieve such performance. If the scope of the project does not affect 50% or more of the available lot then this practice does not apply.

4

11.505.2 Heat island mitigation. Heat island mitigation. Any combination of the following strategies are provided on the lot for a minimum of 50 percent of the horizontal surface area of the hardscape:

4

- (1) Shading of hardscaping: Shade is provided from existing or new vegetation (within five years) or from trellises. Shade of hardscaping is to be measured on the summer solstice at noon.
- (2) Light-colored hardscaping: Horizontal hardscaping materials are installed with a solar reflectance index of 29 or greater.

11.601.0 Intent. Design and construction practices that minimize the environmental impact of the building materials are incorporated, environmentally efficient building systems and materials are incorporated, and waste generated during construction is reduced.

11.601.1 Conditioned floor area. Conditioned floor area after the remodeling, as defined by ICC IRC and calculated in accordance with NAHBRC Z765, is limited. Dwelling unit size is to be calculated in accordance with NAHBRC Z765. Only the conditioned floor area for stories above grade plane is to be included in the calculation.

- (1) less than or equal to 1,000 square feet (93 m<sup>2</sup>)
- (2) less than or equal to 1,500 square feet (139 m<sup>2</sup>)
- (3) less than or equal to 2,000 square feet (186 m<sup>2</sup>)
- (4) less than or equal to 2,500 square feet (232 m<sup>2</sup>)

15

12

9

6

<u><b>Multi-Unit Building Note:</b> For a multi-unit building, use a weighted average of the individual unit sizes in qualifying for available points.</u>	
<u><b>11.601.2 New Work - Material usage.</b> Building-code-compliant structural systems or advanced framing techniques are implemented that optimize material usage.</u>	<u><b>3</b></u> <u><b>9 Points</b></u> <u><b>Max</b></u>
<u><b>(Points awarded for each system or framing technique implemented.)</b></u>	
<u><b>11.601.3 New Work - Building dimensions and layouts of additions are designed to reduce material cuts and waste.</b> This practice is used for a minimum of 80 percent of the following areas:</u>	
<u><b>(1) floor area</b></u>	<u><b>3</b></u>
<u><b>(2) wall area</b></u>	<u><b>3</b></u>
<u><b>(3) roof area</b></u>	<u><b>3</b></u>
<u><b>(4) cladding or siding area</b></u>	<u><b>3</b></u>
<u><b>(5) Window/door and trim areas</b></u>	<u><b>1</b></u>
<u><b>11.601.4 New Work - Framing and structural plans.</b> Detailed framing or structural plans, material quantity lists, and on-site cut lists for framing, structural materials, and sheathing materials are provided.</u>	<u><b>4</b></u>
<u><b>11.601.5 New Work - Prefabricated components.</b> Precut or preassembled components, or panelized or precast assemblies are utilized for a minimum of 90 percent for the following system or building:</u>	
<u><b>(1) floor system</b></u>	<u><b>4</b></u>
<u><b>(2) wall system</b></u>	<u><b>4</b></u>
<u><b>(3) roof system</b></u>	<u><b>4</b></u>
<u><b>(4) modular construction for the entire building located above grade</b></u>	<u><b>13</b></u>
<u><b>11.601.6 New Work - Stacked stories.</b> New Stories above grade are stacked, such as in 1½-story, 2-story, or greater structures. The area of the upper story is a minimum of 50 percent of the area of the story below, based on areas with a minimum ceiling height of 7 feet (2134 mm).</u>	<u><b>8 Points</b></u> <u><b>Max</b></u>
<u><b>(1) first new stacked story</b></u>	<u><b>4</b></u>
<u><b>(2) for each additional new stacked story</b></u>	<u><b>2</b></u>
<u><b>11.601.7 Site applied finishing materials.</b> Building materials or assemblies listed below and that do not require additional site applied material for finishing are incorporated in the building.</u>	<u><b>12 Points</b></u> <u><b>Max</b></u>
<u><b>(1) 90 percent or more of the newly installed building materials or assemblies listed below:</b></u>	<u><b>5</b></u>
<u><b>(Points awarded for each type (a-e) of material or assembly.)</b></u>	
<u><b>(2) 50 percent to less than 90 percent of the newly installed building material or assembly listed below:</b></u>	<u><b>2</b></u>
<u><b>(Points awarded for each type (a-e) of material or assembly.)</b></u>	
<u><b>(a) pigmented, stamped, decorative, or final finish concrete or masonry</b></u>	
<u><b>(b) trim not requiring paint or stain</b></u>	
<u><b>(c) window, skylight, and door assemblies not requiring paint or stain on exterior or interior surfaces</b></u>	
<u><b>(d) Wall coverings or systems not requiring paint or stain or other type of finishing application</b></u>	

<b>11.601.8 New Work - Foundations.</b> Foundations, such as frost-protected shallow foundations, pier and pad foundations, post foundations and other similar foundation types, are designed and constructed.	<b>3</b>
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**602**  
**ENHANCED DURABILITY AND REDUCED MAINTENANCE**

**11.602.0 Intent.** Design and construction practices are implemented that enhance the durability of materials and reduce in-service maintenance.

**11.602.1 New Work - Exterior doors.** Newly constructed entries into the conditioned space from the outdoors, inclusive of side lights, are covered by one of the following methods to protect the building from the effects of precipitation and solar radiation. A projection factor of 0.375 minimum is provided. Eastern and western facing entries in Climate Zones 1, 2, and 3, as determined in accordance with Figure 6(1), have a projection factor of 1.0 minimum, unless otherwise protected from direct solar radiation by other means (e.g., screen wall, vegetation).

**5 Points  
Max**

- (a) installing a porch roof or awning
- (b) extending the roof overhang
- (c) recessing the exterior door

(1) main entrance door **3**

(2) additional covered door assembly **1**

**11.602.2 New Work - Roof overhangs.** Roof overhangs, based on inches rainfall in Table 602.2, are provided over a minimum of 90 percent of exterior walls to protect the building envelope. **4**

**Table 602.2**  
**Minimum Roof Overhang for One- & Two-Story Buildings**

<u>Inches Rainfall</u> <sup>(1)</sup>	<u>Eave Overhang</u> <u>(Inches)</u>	<u>Rake Overhang</u> <u>(Inches)</u>
Less than 20	12	12
21 to 40	12	12
41 to 70	18	12
More than 70	24	12

(1) Average annual inches of rainfall are in accordance with Figure 6(2)  
For SI: 1 foot = 304.8 mm

**11.602.3 Foundation drainage.**

**11.602.3.1a New Work** - Where required by the ICC IRC or IBC for habitable and usable spaces below grade, exterior drainage system compliant with the IRC or IBC is installed. **Mandatory**

**11.602.3.1b Re-Work** - Habitable or usable existing space below grade has exterior drain tile installed where required by the ICC IRC or IBC if there is evidence of moisture issues in the space. **Mandatory**

**11.602.4 Drip edge.** Drip edge is installed at eaves and gable roof edges. **3**

**11.602.5 New Work - Roof water discharge.** A gutter and downspout system or splash blocks **4**

<u>and effective grading are provided to carry water a minimum of 5 feet (1524 mm) away from perimeter foundation walls.</u>	
<u><b>11.602.6 Finished grade.</b> Finish grade at all sides of building is sloped to provide a minimum of 6 inches (150 mm) of fall within 10 feet (3048 mm) of the edge of the building. Where lot lines, walls, slopes, or other physical barriers prohibit 6 inches (152 mm) of fall within 10 feet (3048 mm), the final grade is sloped away from the edge of the building at a minimum slope of 5 percent and the water is directed to drains or swales to ensure drainage away from the structure.</u>	<b>Mandatory</b>
<u><b>11.602.7 New Work -Termite barrier.</b> Continuous physical foundation termite barrier is installed in geographical areas that have subterranean termite infestation potential determined in accordance with Figure 6(3).</u>	<b>4</b>
<u><b>11.602.8 New Work - Termite-resistant materials.</b> Termite-resistant materials are used as follows:</u>	
<u>(1) In areas of slight to moderate termite infestation probability (as defined by Figure 6(3)) for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, windows, exterior decks, and exterior claddings within the first 2 feet (610 mm) above the top of the foundation.</u>	<b>2</b>
<u>(2) In areas of moderate to heavy termite infestation probability (as defined by Figure 6(3)) for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, windows, exterior decks, and exterior claddings within the first 3 feet (914 mm) above the top of the foundation.</u>	<b>4</b>
<u>(3) In areas of very heavy termite infestation probability (as defined by Figure 6(3)) for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, windows, exterior decks, and exterior claddings.</u>	<b>6</b>
<u><b>11.602.9 Water-resistive barrier.</b> Where required by the ICC IRC or IBC, a water-resistive barrier and/or drainage plane system is installed behind all newly installed exterior veneer and/or siding.</u>	<b>Mandatory</b>
<u><b>11.602.10a New Work - Ice barrier.</b> In areas where there has been a history of ice forming along the eaves causing a backup of water, an ice barrier is installed in accordance with the ICC IRC or IBC at roof eaves of pitched roofs and extends at a minimum of 24 inches (610 mm) inside the exterior wall line of the building.</u>	<b>Mandatory</b>
<u><b>11.602.10b Re- Work – Ice Barrier.</b> When the existing building has a history of ice forming along the eaves causing a backup of water, an ice barrier is installed in accordance with the ICC IRC or IBC at roof eaves and extends at a minimum of 24 inches (610 mm) inside the exterior wall line of the building.</u>	<b>Mandatory</b>
<u><b>11.602.11 New Work - Foundation waterproofing.</b> Enhanced foundation waterproofing is installed:</u>	<b>4</b>
<u>(1) rubberized coating, or</u> <u>(2) drainage mat</u>	
<u><b>11.602.12 New Work - Flashing.</b> Flashing details are shown on the plans and flashing is installed at all of the following locations, as applicable:</u>	<b>6</b>
<u>(1) around exterior fenestrations, skylights and doors</u> <u>(2) roof valleys</u> <u>(3) deck/balcony to building intersections</u> <u>(4) at roof-to-wall intersection and at roof-to-chimney intersections</u>	

<u>(5) a drip cap is provided above windows and doors that are not flashed or protected by covering in accordance with Section 602.1</u>	
<u>11.602.13 Roof surfaces.</u> A minimum of 90 percent of roof surfaces are constructed of one or both of the following:	<u>3</u>
<u>(1) products that are in accordance with the ENERGY STAR® cool roof certification or equivalent</u> <u>(2) a green (landscaped) roof system</u>	
<u>11.602.14 Recycling.</u> Recycling by the occupants is facilitated by one or more of the following methods:	<u>6 Points Max</u>
<u>(1) A built-in collection space in each kitchen and an aggregation/pick-up space in a garage, covered outdoor space, or other area for recycling containers</u>	<u>3</u>
<u>(2) Compost facility provided on-site</u>	<u>3</u>

**11.603  
REUSED OR SALVAGED MATERIALS**

<u>11.603.0 Intent.</u> Practices that reuse or modify existing structures, salvage materials for other uses, or use salvaged materials in the building's construction are implemented.	
<u>11.603.1 New Work - Reuse of existing building.</u> Major elements of existing buildings and structures are reused, modified, or deconstructed for later use in lieu of demolition. Possibly calculate by percentage of materials re-used  <b>(Points awarded for every 200 square feet (18.5 m<sup>2</sup>) of floor area.)</b>	<u>1 12 Points Max</u>
<u>11.603.2 Salvaged materials.</u> Reclaimed and/or salvaged materials and components are used. The total material value and labor cost of salvaged materials is equal to or exceeds 1 percent of the total construction cost.	<u>3</u>
<u>11.603.3 Scrap materials.</u> Facilitation for sorting and reuse of scrap building material (e.g., provide a central storage area or dedicated bins) are provided on site and used during construction.	<u>4</u>

**11.604  
RECYCLED-CONTENT BUILDING MATERIALS**

<u>11.604.1 Recycled content.</u> Newly installed building materials with recycled content are used for two minor and/or two major components of the building.	<u>Points per Table 604.1</u>												
<p><b>Table 604.1 Recycled Content</b></p> <table border="1"> <thead> <tr> <th><u>Material Percentage Recycled Content</u></th> <th><u>Points Per 2 Minor</u></th> <th><u>Points Per 2 Major</u></th> </tr> </thead> <tbody> <tr> <td><u>25% to less than 50%</u></td> <td><u>1</u></td> <td><u>2</u></td> </tr> <tr> <td><u>50% to less than 75%</u></td> <td><u>2</u></td> <td><u>4</u></td> </tr> <tr> <td><u>more than 75%</u></td> <td><u>3</u></td> <td><u>6</u></td> </tr> </tbody> </table>		<u>Material Percentage Recycled Content</u>	<u>Points Per 2 Minor</u>	<u>Points Per 2 Major</u>	<u>25% to less than 50%</u>	<u>1</u>	<u>2</u>	<u>50% to less than 75%</u>	<u>2</u>	<u>4</u>	<u>more than 75%</u>	<u>3</u>	<u>6</u>
<u>Material Percentage Recycled Content</u>	<u>Points Per 2 Minor</u>	<u>Points Per 2 Major</u>											
<u>25% to less than 50%</u>	<u>1</u>	<u>2</u>											
<u>50% to less than 75%</u>	<u>2</u>	<u>4</u>											
<u>more than 75%</u>	<u>3</u>	<u>6</u>											

**11.605  
RECYCLED CONSTRUCTION WASTE**

11.605.0

<u>All waste classified as hazardous shall be properly handled and disposed.</u>	<b>Mandatory</b>
<b>11.605.1 Construction waste management plan.</b> <u>A construction waste management plan is developed, posted at the jobsite, and implemented with a goal of recycling or salvaging a minimum of 50 percent (by weight) of construction and land-clearing waste.</u>	<b>6</b>
<b>11.605.3 Recycled construction materials.</b> <u>Construction materials (e.g., wood, cardboard, metals, drywall, plastic, asphalt roofing shingles, or concrete) are recycled offsite.</u>	<b>6 Points Max</b>
<b>(1)</b> <u>a minimum of two types of materials are recycled</u>	<b>3</b>
<b>(2)</b> <u>for each additional recycled material</u>	<b>1</b>
<b>11.605.4 Hazardous materials outside of the basic scope of the project are removed.</b>	<b>Points TBD</b>

**11.606  
RENEWABLE MATERIALS**

<b>11.606.0 Intent.</b> <u>Newly installed building materials derived from renewable resources are used.</u>	
<b>11.606.1 Biobased products.</b> <u>The following biobased products are used:</u>	<b>8 Points Max</b>
<ul style="list-style-type: none"> <li><b>(a)</b> <u>certified solid wood in accordance with Section 606.2</u></li> <li><b>(b)</b> <u>engineered wood</u></li> <li><b>(c)</b> <u>bamboo</u></li> <li><b>(d)</b> <u>cotton</u></li> <li><b>(e)</b> <u>cork</u></li> <li><b>(f)</b> <u>straw</u></li> <li><b>(g)</b> <u>natural fiber products made from crops (soy-based, corn-based)</u></li> <li><b>(h)</b> <u>products with the minimum biobased contents of the USDA 7 CFR Part 2902</u></li> <li><b>(i)</b> <u>other biobased materials with a minimum of 50 percent biobased content (by weight or volume)</u></li> </ul>	
<b>11.606.1(1)</b> <u>Two types of biobased materials are used, each for more than 0.5 percent of the project's projected building material cost.</u>	<b>3</b>
<b>11.606.1(2)</b> <u>Two types of biobased materials are used, each for more than 1 percent of the project's projected building material cost.</u>	<b>6</b>
<b>11.606.1(3)</b> <u>For each additional biobased material used for more than 0.5 percent of the project's projected building material cost.</u>	<b>1 2 Points Max</b>
<b>11.606.2 Wood-based products.</b> <u>Newly installed wood or wood-based products are certified to the requirements of one of the following recognized product programs:</u>	
<ul style="list-style-type: none"> <li><b>(a)</b> <u>AFF American Tree Farm System®</u></li> <li><b>(b)</b> <u>Canadian Standards Association's Sustainable Forest Management System Standards (CSA Z809)</u></li> <li><b>(c)</b> <u>Forest Stewardship Council (FSC)</u></li> </ul>	

<u>(d) Program for Endorsement of Forest Certification Systems (PEFC)</u>	
<u>(e) Sustainable Forestry Initiative® Program (SFI)</u>	
<u>(f) other product programs mutually recognized by PEFC</u>	
<u>11.606.2(1) Where a minimum of two certified wood-based products are used for minor elements of the building, such as all trim, cabinetry, or millwork.</u>	<u>3</u>
<u>11.606.2(2) Where a minimum of two certified wood-based products are used in major elements of the building, such as walls, floors, or roof.</u>	<u>4</u>
<u>11.606.3 Manufacturing energy. Newly installed materials are used for major components of the building that are manufactured using a minimum of 33 percent of the primary manufacturing process energy derived from renewable sources, combustible waste sources, or renewable energy credits (RECs).</u>	<u>6 Points Max</u>
<u>(2 points awarded per material.)</u>	

**11.607  
RESOURCE-EFFICIENT MATERIALS**

<u>11.607.1 Newly installed Products containing fewer raw materials but still meeting the same end-use requirements as conventional products are used for a major element of the building, including but not limited to:</u>	<u>9 Points Max</u>
<u>(3 points awarded for each material.)</u>	
<u>(1) lighter, thinner brick with bed depth less than 3 inches and/or brick with coring of more that 25 percent</u>	
<u>(2) engineered wood or engineered steel products</u>	
<u>(3) roof or floor trusses</u>	

**608  
INDIGENOUS MATERIALS**

<u>11.608.1 Indigenous materials are used for major elements of the building.</u>	<u>10 Points Max</u>
<u>(1) one type of material</u>	<u>2</u>
<u>(2) for each additional material</u>	<u>2</u>

<u>11.609.1 A more environmentally preferable product or assembly is selected for an application based upon the use of a Life Cycle Assessment (LCA) tool compliant with ISO 14044 or other recognized standards that compare the environmental impact of at least two approaches for building materials, assemblies, or the whole building.</u>	<u>15 Points Max</u>
<u>(1) per product/system analysis</u>	<u>3</u>
<u>(2) whole building LCA analysis</u>	<u>15</u>

**610  
INNOVATIVE PRACTICES**

<u>11.610.1 Manufacturer's environmental management system concepts. Product manufacturer's operations and business practices include environmental management system concepts, and the production facility is certified to ISO 14001 or equivalent. The aggregate value of building products from certified ISO 14001 or equivalent production facilities is 1 percent or more of the estimated total building materials cost.</u>	<u>10 points Max</u>
<u>(1 point awarded per percent.)</u>	

<p><b><u>11.701.4 .1 HVAC systems.</u></b></p>	
<p><b><u>11.701.4.1.1a New Work.</u></b> Space heating and cooling system/equipment is sized according to heating and cooling loads calculated using ACCA Manual J, or equivalent.</p>	<p><b><u>Mandatory</u></b></p>
<p><b><u>11.701.4.1.1b Re-Work.</u></b> When the HVAC system is modified, space heating and cooling system/equipment is sized according to heating and cooling loads calculated using ACCA Manual J, or equivalent.</p>	
<p><b><u>11.701.4.1.2 HVAC Systems</u></b> TG 7 will need to see what the task group on this section changes in order to complete this.</p>	
<p><b><u>New Work.</u></b> Where installed as a primary heat source in the building, radiant or hydronic space heating system is designed using industry-approved guidelines (e.g., ACCA Manual J, GAMA H-22, or an accredited design professional's and manufacturer's recommendations).</p>	<p><b><u>Mandatory</u></b></p>
<p><b><u>Re-Work.</u></b> Where an existing radiant or hydronic space heating system serves as the primary heat source in the existing portion of the building and it is modified, the modified system is designed using industry-approved guidelines (e.g., ACCA Manual J, GAMA H-22, or an accredited design professional's and manufacturer's recommendations).</p>	
<p><b><u>11.701.4.2.1 Duct systems.</u></b></p>	
<p><b><u>New Work.</u></b> Ducts are sealed with tape complying with UL 181, mastic, gaskets, or an approved system as required by the ICC IRC, Section M1601.3.1, or ICC IMC, Section 603.9, to reduce leakage.</p>	<p><b><u>Mandatory</u></b></p>
<p><b><u>Re-Work.</u></b> Ducts that are modified as part of the remodel are sealed with tape complying with UL 181, mastic, gaskets, or an approved system as required by the ICC IRC, Section M1601.3.1, or ICC IMC, Section 603.9, to reduce leakage.</p>	
<p><b><u>11.701.4.2.2 Supply Duct Systems.</u></b></p>	
<p><b><u>New Work.</u></b> Building cavities are not used as supply ducts.</p>	<p><b><u>Mandatory</u></b></p>
<p><b><u>Re-Work.</u></b> No additional building cavities are used as supply ducts.</p>	
<p><b><u>11. 701.4.3.1(1) Insulation and air sealing.</u></b></p>	
<p><b><u>New Work. General.</u></b> Insulation and air sealing is in accordance with the following:</p>	
<p><b><u>Insulation.</u></b> Insulation is installed in accordance with the manufacturer's instructions or local code, as applicable.</p>	<p><b><u>Mandatory</u></b></p>
<p><b><u>Re-Work. General.</u></b> Insulation and air sealing is in accordance with the following:</p>	
<p><b><u>Insulation.</u></b> Newly installed Insulation is installed in accordance with the manufacturer's instructions or local code, as applicable.</p>	
<p><b><u>11. 701.4.3.1(2) Shafts (duct shaft, piping shaft/penetrations, flue shaft).</u></b></p>	
<p><b><u>New Work.</u></b> Openings to unconditioned space are fully sealed with solid blocking or flashing and any remaining gaps are sealed with caulk or foam. Fire-rated collars and caulking are installed where required.</p>	<p><b><u>Mandatory</u></b></p>
<p><b><u>Re-Work.</u></b> Openings to unconditioned space that become accessible during the remodeling are fully sealed with solid blocking or flashing and any remaining gaps are sealed with caulk or foam. Fire-rated collars and caulking are installed where required.</p>	
<p><b><u>11.701.4.3.2 (1) Floors, foundations, and crawlspaces</u></b></p>	
<p><b><u>New Work.</u></b> (including insulated floors above garages and cantilevered floors)</p>	
<p><b><u>(a)</u></b> Insulation is installed to maintain permanent contact with the underside of the subfloor decking, enveloping any attached ductwork within the thermal envelope without compression or air gaps in the insulation. This practice does not apply to ducts or other mechanical equipment that is</p>	



<p>adjacent to the underside of the subfloor.</p> <p><b>(b)</b> <u>Batt and loose-fill insulation is held in place by permanent attachments or systems in accordance with the manufacturer's instructions.</u></p>	
<p><b>Re-Work.</b> <u>(including insulated floors above garages and cantilevered floors)</u></p>	
<p><b>(a)</b> <u>Newly installed Insulation is installed to maintain permanent contact with the underside of the subfloor decking, enveloping any attached ductwork within the thermal envelope without compression or air gaps in the insulation. This practice does not apply to ducts or other mechanical equipment that is adjacent to the underside of the subfloor.</u></p> <p><b>(b)</b> <u>Newly installed Batt and loose-fill insulation is held in place by permanent attachments or systems in accordance with the manufacturer's instructions.</u></p>	

<p><b>11.701.4.3.2 (2) Crawlspace.</b></p> <p><b>New and Re-Work.</b> <u>Where insulated, crawlspace wall insulation is permanently attached to the walls. Exposed earth in unvented crawlspaces is covered with continuous vapor retarder with overlapping joints that are taped or masticed.</u></p>	<b>Mandatory</b>
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<p><b>11.701.4.3.3(1) Windows and doors.</b></p> <p><b>New Work.</b> <u>Caulking, gasketing, adhesive flashing tape, foam sealant, or weatherstripping is installed forming a complete air barrier.</u></p> <p><b>Re-Work.</b> <u>Newly installed doors and windows have caulking, gasketing, adhesive flashing tape, foam sealant, or weather stripping installed forming a complete air barrier. Existing windows and doors are inspected and any air barrier weaknesses are corrected.</u></p>	<b>Mandatory</b>
<p><b>Re-Work.</b> <u>Newly installed doors and windows have caulking, gasketing, adhesive flashing tape, foam sealant, or weather stripping installed forming a complete air barrier. Existing windows and doors are inspected and any air barrier weaknesses are corrected.</u></p>	<b>Mandatory</b>

<p><b>11.701.4.3.3(2) Band joist and rim joists.</b></p> <p><b>New Work.</b> <u>Band and rim joists are insulated and air sealed.</u></p> <p><b>Re-Work.</b> <u>Band and rim joists which become accessible during the remodeling are insulated and air sealed.</u></p>	<b>Mandatory</b>
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<p><b>11.701.4.3.3(3) Between foundation and sill plate bottom plate.</b></p> <p><b>New Work.</b></p> <p><b>(a)</b> <u>Sill sealer or other material that will expand and contract is installed between foundation and sill plate and</u></p> <p><b>(b)</b> <u>Caulk or the equivalent is installed to seal the bottom plate of exterior walls.</u></p> <p><b>Re-Work.</b></p> <p><b>(a)</b> <u>When the bottom plate of exterior walls is exposed during the remodeling caulk or the equivalent is installed to seal the bottom plate of exterior walls.</u></p>	<b>Mandatory</b>
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<p><b>11.701.4.3.3(4) Skylights and knee walls.</b></p> <p><b>New Work.</b> <u>Skylight shafts and knee walls are insulated to the same level as the exterior walls.</u></p> <p><b>Re-Work.</b> <u>Newly installed skylight shafts and knee walls are insulated to the same level as the exterior walls.</u></p>	<b>Mandatory</b>
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<p><b>11.701.4.3.3(5) Exterior architectural features.</b></p> <p><b>New Work.</b> <u>Code required building envelope insulation and air sealing are not disrupted at exterior architectural features such as stairs and decks.</u></p>	<b>Mandatory</b>
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<p><b>11.701.4.3.4(1) Ceilings and attics. Attic access (except unvented attics).</b></p> <p><b>New and Re-Work.</b> <u>Attic access, knee wall door, or drop-down stair is covered with insulation and gasketed. Knee wall door is an insulated unit or is covered with</u></p>	<b>Mandatory</b>
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insulation.

<b>11.701.4.3.4(2) Ceilings and attics. Recessed lighting.</b>	<b>Mandatory</b>
<b>New Work.</b> Recessed light fixtures that penetrate the thermal envelope are airtight, IC-rated, and sealed with gasket, caulk, or foam.	
<b>Re-Work.</b> Recessed light fixtures that penetrate the thermal envelope that can be accessed during the remodeling are airtight, IC-rated, and sealed with gasket, caulk, or foam.	

<b>11.701.4.3.4(3) Ceilings and attics. Eave vents.</b>	<b>Mandatory</b>
<b>New Work.</b> Where ceiling/attic assemblies or designs have eave vents, baffles or other means are implemented to minimize air movement into or under the insulation.	

<b>11.701.4.4.1 Fenestration</b>	<b>Mandatory</b>		
<b>New Work.</b> NFRC-certified U-factor and SHGC windows, exterior doors, skylights, and tubular daylighting devices (TDDs) are in accordance with ENERGY STAR, or equivalent, or Table 701.4.4.1. Decorative fenestration elements with a maximum area of 15 square feet (1.39 m <sup>2</sup> ) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.			
<b>Table 701.4.4.1 Fenestration Specifications</b>			
Climate Zones		U-Factor Windows and Exterior Doors (maximum certified ratings)	SHGC
1 and 2		0.65	0.40
3		0.40	0.40
4 to 8		0.35	Any
		Skylights and TDDs (maximum certified ratings)	
1 to 3		0.75	0.40
4 to 8		0.60	Any
<b>Re-Work.</b> Newly installed windows, doors and TDDs are NFRC-certified U-factor and SHGC are in accordance with ENERGY STAR, or equivalent, or Table 701.4.4.1. Decorative fenestration elements with a maximum area of 15 square feet (1.39 m <sup>2</sup> ) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.			
<b>Table 701.4.4.1 Fenestration Specifications</b>			
Climate Zones	U-Factor Windows and Exterior Doors (maximum certified ratings)	SHGC	
1 and 2	0.65	0.40	
3	0.40	0.40	
4 to 8	0.35	Any	
	Skylights and TDDs (maximum certified ratings)		
1 to 3	0.75	0.40	
4 to 8	0.60	Any	

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<b>11.704.4.1 Ducts</b>	
<b>New Work.</b> Duct system is sized, designed, and installed in accordance with ACCA Manual D or equivalent.	<b>Mandatory</b>
<b>Re-Work.</b> Modifications to the existing duct system are sized, designed, and installed in accordance with ACCA Manual D or equivalent.	

<b>11.901.1.1 Space and water heating options</b>	
<b>11.26.1 New Work.</b> Natural draft space heating or water heating equipment is not located in conditioned spaces, including conditioned crawlspaces. Natural draft equipment is permitted to be installed within the conditioned spaces if located in a mechanical room that has an outdoor air source, and is otherwise sealed and insulated to separate it from the conditioned space(s).	<b>Mandatory</b>

<b>11.901.1.2 Air handling equipment or return ducts are not located in the garage, unless placed in isolated, air-sealed mechanical rooms with an outside air source.</b>	<b>5</b>
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<b>11.901.1.3</b> The following combustion space heating and water heating equipment is installed within conditioned space:	
(1) direct vent furnace or boiler	<b>5</b>
(2) water heater	
(a) power vent water heater	<b>3</b>
(b) direct vent water heater	<b>5</b>

<b>11.901.1.4</b> The following electric equipment is installed:	
(1) heat pump air handler in unconditioned space	<b>2</b>
(2) heat pump air handler in conditioned space	<b>5</b>

<b>11.901.2 Fireplaces and fuel-burning appliances.</b> Fireplaces and fuel-burning appliances (except cooking appliances, clothes dryers, water heaters, and furnaces) located in conditioned space are in accordance with the following: <b>[Section 901.2.1(2)(a) is not mandatory.]</b>	<b>Mandatory</b>
<b>11.901.2.1 New Work.</b> Fireplaces and natural draft fuel-burning appliances are code compliant, vented to the outdoors, and have adequate combustion and ventilation air provided to minimize spillage or back-drafting, in accordance with the following, as applicable.	
(1) Natural gas and propane fireplaces that are power vented or direct vented, are equipped with permanently fixed glass fronts or gasketed doors, and comply with CSA Z21.88a/CSA 2.33a or CSA Z21.50/CSA 2.22.	<b>Mandatory</b>
(2) Solid fuel-burning appliances are in accordance with the following requirements:	
(a) Wood-burning fireplaces are equipped with gasketed doors designed to operate with	<b>4</b>

<u>the doors closed, outside combustion air, and a means is provided for sealing the flue to minimize interior air (heat) loss when not in operation.</u>	
<u>(b) Factory-built, wood-burning fireplaces are in accordance with the certification requirements of UL 127 and are EPA certified.</u>	<b>Mandatory</b>
<u>(c) 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).</u>	<b>Mandatory</b>
<u>(d) Pellet (biomass) stoves and furnaces are in accordance with the requirements of ASTM E1509 or are EPA certified.</u>	<b>Mandatory</b>
<u>(e) Masonry heaters are in accordance with the definitions in ASTM E1602 and ICC IBC, Section 2112.1.</u>	<b>Mandatory</b>
<u>Re-Work Removal of or rendering permanently unusable an existing fireplace and/or other fuel-burning appliances that are not in accordance with Section 901.2.1.</u>	<b>2</b>
<u>Re-Work Replacement of each existing fireplace that is not in accordance with Section 901.2.1 with a fireplace that is in accordance with Section 901.2.1.</u>	<b>2</b>
<b>11.901.2.2</b> <u>Fireplaces, woodstoves, pellet stoves, or masonry heaters are not in the dwelling unit.</u>	<b>7</b>

<b>11.901.3 Garages.</b>	
<b>11.28 .1</b> <u>Garages are in accordance with the following:</u>	
<b>(1)</b> <u>Attached garage</u>	
<u>(a) Where installed in the common wall between the attached garage and conditioned space, the door is tightly sealed and gasketed.</u>	<b>Mandatory</b>
<u>(b) A continuous air barrier is provided between walls and ceilings separating the garage space from the conditioned living spaces.</u>	<b>Mandatory</b>
<u>(c) For one and two-family dwelling units, a 100 cfm (47 L/s) or greater ducted, or 70 cfm (33 L/s) cfm or greater unducted wall exhaust fan is installed and vented to the outdoors, designed and installed for continuous operation, or has controls (e.g., motion detectors, pressure switches) that activate operation for a minimum of 1-hour when either human passage door or roll-up automatic doors are operated. For ducted exhaust fans, the fan airflow rating and duct sizing are in accordance with Appendix A.</u>	<b>4</b>
<b>(2)</b> <u>A carport is installed, the garage is detached from the building, or no garage is installed.</u>	<b>10</b>

<b>11.901.4 Wood materials.</b> <u>A minimum of 85 percent of newly installed material within a product group (i.e., wood structural panels, countertops, composite trim/doors, custom</u>	
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<u>woodwork, and/or component closet shelving) is manufactured in accordance with the following.</u>	
<u>(1) Structural plywood used for floor, wall, and/or roof sheathing is compliant with DOC PS 1 and/or DOC PS 2. OSB used for floor, wall, and/or roof sheathing is compliant with DOC PS 2. The panels are made with moisture-resistant adhesives. The trademark indicates these adhesives as follows: Exposure 1 or Exterior for plywood, and Exposure 1 for OSB.</u>	<b>Mandatory</b> <b>10 Points</b> <b>Max</b>
<u>(2) Particleboard and MDF (medium density fiberboard) is manufactured and labeled in accordance with CPA A208.1 and CPA A208.2, respectively.</u> <b>(Points awarded per product group.)</b>	<b>2</b>
<u>(3) Hardwood plywood in accordance with HPVA HP-1 and HUD Title 24, Part 3280.</u> <b>(Points awarded per product group.)</b>	<b>2</b>
<u>(4) Particleboard, MDF, or hardwood plywood is in accordance with CPA 2.</u> <b>(Points awarded per product group.)</b>	<b>3</b>
<u>(5) Composite wood or agrifiber panel products contain no added urea-formaldehyde or are in accordance with the CARB Composite Wood Air Toxic Contaminant Measure Standard.</u> <b>(Points awarded per product group.)</b>	<b>4</b>
<u>(6) Non-emitting products.</u> <b>(Points awarded per product group.)</b>	<b>4</b>
<b>11.901.5 Carpets.</b> <u>Carpets are in accordance with the following:</u>	
<u>(1) Wall-to-wall carpeting is not adjacent to water closets and bathing fixtures.</u>	<b>Mandatory</b>
<u>(2) A minimum of 85 percent of newly installed carpet area, carpet cushion (padding), and carpet adhesives are in accordance with the emission levels of CDPH 01350, as certified by a third-party program, such as the Carpet and Rug Institute's (CRI) Green Label Plus Indoor Air Quality Program.</u>	
<u>(a) Carpet</u>	<b>6</b>
<u>(b) carpet cushion</u>	<b>2</b>
<u>(c) carpet adhesives</u>	<b>2</b>
<b>11.901.6 Hard-surface flooring.</b> <u>At least 25% of the newly installed flooring is hardsurface flooring and a minimum of 85 percent of newly installed hard-surface flooring is in accordance with the emission concentration limits of CDPH 01350 (using the office scenario), as certified by a third-party program, such as the Resilient Floor Covering Institute's FloorScore Indoor Air Certification Program or the GREENGUARD Environmental Institute's Children and Schools Certification Program.</u>	<b>6</b>
<b>11.901.7 Wall coverings.</b> <u>At least one typical room has newly installed wall coverings and minimum of 85 percent of newly installed wall coverings are in accordance with the emission concentration limits of CDPH 01350, as certified by a third-party program, such as the Scientific Certification Systems (SCS) Indoor Advantage Gold Program or the GREENGUARD Environmental Institute's Children and Schools Certification Program.</u>	<b>4</b>
<b>11.901.8 Architectural coatings.</b> <u>A minimum of 85 percent of the newly applied architectural coatings are in accordance with either Section 901.8.1 or Section 901.8.2, not both:</u>	
<b>11.901.8.1</b> <u>Site-applied interior products are in accordance with one or more of the following standards:</u>	<b>5</b>
<u>(1) Zero VOC as determined by EPA Method 24 (VOC content below the detection limit for the method)</u>	

<p><u>(2) CARB Suggested Control Measure for Architectural Coatings</u></p> <p><u>(3) GS-11</u></p> <p><u>(4) VOC limits in accordance with:</u></p> <ul style="list-style-type: none"> <li><u>(a) 50 grams/liter flat</u></li> <li><u>(b) 100 grams/liter non flat</u></li> <li><u>(c) 350 grams/liter clear wood varnish</u></li> <li><u>(d) 550 grams/liter clear wood lacquer</u></li> </ul>	
<p><u>11.901.8.2 Site-applied interior products are in accordance with the emissions levels of CDPH 01350, as certified by a third party program such as the GREENGUARD Environmental Institute's Children and Schools Certification Program or the Scientific Certification Systems Indoor Advantage Gold Program.</u></p>	<u>8</u>
<p><u>When the building is occupied during the renovation a minimum of 85 percent of the newly applied architectural coatings are in accordance with either Section 901.8.1 or Section 901.8.2</u></p>	<b>Mandatory</b> <u>1</u>

<p><u>11.901.9 Adhesives and sealants. A minimum of 85 percent of newly applied site-applied adhesives and sealants are in accordance with Section 901.9.1 and/or Section 901.9.2.</u></p>	
<p><u>11.901.9.1 Exterior low-VOC adhesives and sealants: A minimum of 85 percent of site-applied products used for the installation of subfloors and on the exterior of the project are in accordance with one of the following:</u></p>	<u>5</u>
<p><u>(1) The California Air Resources Board consumer products regulation as follows:</u></p> <ul style="list-style-type: none"> <li><u>(a) Construction Adhesives: VOC content not to exceed 7 percent by weight or 75 grams/liter, whichever is greater.</u></li> <li><u>(b) The VOC content of reactive sealants (i.e., silicones, polyurethanes, and hybrids, such as MS Polymer and silylated polyurethane resin or SPUR) not to exceed 4 percent by weight or 50 grams/liter, whichever is greater.</u></li> <li><u>(c) The VOC content of all other caulks and sealants not to exceed 2 percent by weight or 30 grams/liter, whichever is greater.</u></li> <li><u>(d) The VOC content of contact adhesives not to exceed 55 percent by weight or 480 grams/liter, whichever is greater.</u></li> </ul> <p><u>(2) GS-36</u></p>	
<p><u>11.901.9.2 Interior low-VOC adhesives and sealants. A minimum of 85 percent of site-applied products used within the interior of the building are in accordance with one of the following, as applicable.</u></p>	<u>5</u>
<p><u>(1) CDPH 01350, as certified by a third party program, such as the GREENGUARD Environmental Institute's Children and Schools Certification Program or the Scientific Certifications Systems Indoor Advantage Gold Program.</u></p> <p><u>(2) GS-36</u></p>	

<p><u>11.901.10 Cabinets. All new kitchen and bath cabinets are in accordance with one of the following.</u></p> <p style="text-align: center;"><b><u>(Where more than one of the following practices is used, the practice with the fewer number of points is awarded.)</u></b></p>	
<p><u>(1) Kitchen and bath vanity cabinets in accordance with KCMA ESP 01, or equivalent, are</u></p>	<u>2</u>

<u>installed.</u>	
<b>(2)</b> <u>Kitchen and bath vanity cabinets in accordance with CARB Composite Wood Air Toxic Contaminant Measure Standard are installed.</u>	<b><u>3</u></b>
<b>(3)</b> <u>Kitchen and bath vanity cabinets are installed that contain no added urea formaldehyde or are in accordance with GGPS.EC.010.R0, ASTM D 6670, or equivalent.</u>	<b><u>5</u></b>

<b>11.901.11 Insulation.</b> <u>Newly installed Insulation is in accordance with the following.</u>	
<b>(1)</b> <u>Formaldehyde emissions of wall, ceiling, and floor insulation materials are in accordance with the emissions levels of CDPH 01350, as certified by a third-party program, such as the GREENGUARD Environmental Institute's Children and Schools Certification Program or the Scientific Certifications Systems Indoor Advantage Gold Program.</u>	<b><u>4</u></b>
<b>(2)</b> <u>Formaldehyde emissions of duct insulation materials are in accordance with the emissions levels of CDPH 01350, as certified by a third-party program, such as the GREENGUARD Environmental Institute's Children and Schools Certification Program or the Scientific Certifications Systems Indoor Advantage Gold Program.</u>	<b><u>1</u></b>

<b>11.901.12 Carbon monoxide (CO) alarms.</b> <u>A carbon monoxide (CO) alarm is installed in a central location outside of each separate sleeping area in the immediate vicinity of the bedrooms. The CO alarm(s) is located in accordance with NFPA 720 and is hard-wired with a battery back-up. The alarm device(s) is certified by a third-party for conformance with either CSA 6.19 or UL 2034.</u>	<b><u>3</u></b>
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<b>11.901.14 Non-smoking areas.</b> <u>All interior common areas of a multi-unit building are designated as non-smoking areas with posted signage.</u>	<b><u>1</u></b>
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<b>11.901.</b> <u>For building constructed prior to 1978, lead-safe work practices are used during renovation, remodeling, painting, and demolition.</u>	<b><u>Mandatory</u></b>
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<b>11.902.1 New Work.</b> <u>Spot ventilation is in accordance with the following:</u>	
<b>(1)</b> <u>Bathrooms are vented to the outdoors. The minimum ventilation rate is 50 cfm (23.6 L/s) for intermittent operation or 20 cfm (9.4 L/s) for continuous operation in bathrooms.</u>	<b><u>Mandatory</u></b>
<b>(2)</b> <u>Clothes dryers are vented to the outdoors.</u>	<b><u>Mandatory</u></b>
<b>Re-Work.</b> <u>Spot ventilation is in accordance with the following:</u>	
<b>(2)</b> <u>Clothes dryers are vented to the outdoors.</u>	<b><u>Mandatory</u></b>
<b>(3)</b> <u>Kitchen exhaust units and/or range hoods are ducted to the outdoors and have a minimum ventilation rate of 100 cfm (47.2 L/s) for intermittent operation or 25 cfm (11.8 L/s) for continuous operation.</u>	<b><u>8</u></b>

<b>11.902.1.2</b> Bathroom and/or laundry exhaust fan is provided with an automatic timer and/or humidistat:	<b>9 Points</b>
for first device	<b>5</b>
for each additional device	<b>2</b>
<b>11.902.1.3</b> Kitchen range, bathroom, and laundry exhaust are verified to specification. Ventilation airflow at the point of exhaust is tested to a minimum of 100 cfm (47.2 L/s) intermittent or 25 cfm (11.8 L/s) continuous for kitchens, and 50 cfm (23.6 L/s) intermittent or 20 cfm (9.4 L/s) continuous for bathrooms and/or laundry.	<b>8</b>
<b>11.902.1.4</b> Exhaust fans are ENERGY STAR, as applicable.	<b>6 Points</b>
ENERGY STAR, or equivalent, fans	<b>2</b>
(Points awarded per fan.)	
ENERGY STAR, or equivalent, fans operating at or below 1 sone	<b>3</b>
(Points awarded per fan.)	

<b>11.902.4 HVAC system protection.</b> One of the following HVAC system protection measures is performed.	<b>3</b>
(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.	
(2) Prior to owner occupancy, HVAC supply registers (boots), return grilles, and duct terminations are inspected and vacuumed. In addition, the coils are inspected and cleaned and the filter is replaced if necessary.	
(2) The addition or renovation area are sealed off from the occupied portion of the building or dwelling unit. The same HVAC system for conditioning the air in renovated and occupied space is not used.	
(3) The building or dwelling unit is not occupied during the entire construction period and Sections 902.4(1) and 902.4(2) are implemented.	

<b>11.902.5 Central vacuum systems.</b> Central vacuum system is installed and vented to the outside.	<b>5</b>
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<b>11.902.6 Living space contaminants.</b> The living space is sealed to prevent unwanted contaminants.	
(1) Attic access, knee wall door, or drop down stair is caulked, gasketed, or otherwise sealed.	<b>2</b>
(2) All penetrations, (e.g., top plates, HVAC register boots, recessed can lights), are sealed in the following areas:	
(a) attic/ceiling	<b>2</b>
(b) wall	<b>2</b>
(c) floors	<b>2</b>



<b>11.903.1 Tile backing materials.</b>	
<b>11.36.1 New Work.</b> <u>Tile backing materials installed under tiled surfaces in wet areas are in accordance with ASTM C1178, C1278, C1288, or C1325.</u>	<b>Mandatory</b>
<b>11.36.2 Re-Work.</b> <u>Existing tiled surfaces in wet areas are inspected and any areas with evidence of moisture damaged are repaired with tile backing materials installed under tiled surfaces are in accordance with ASTM C1178, C1278, C1288, or C1325.</u>	
<b>11.903.2.1 Capillary breaks</b>	
<b>11.37.1 New Work.</b> <u>A capillary break and vapor retarder are installed at all concrete slabs in accordance with Sections 903.2.1(1) or 903.2.1(2), as modified by Section 903.2.1(3):</u>	<b>Mandatory</b>
<b>(1)</b> <u>A minimum 4-inch-thick (102 mm) bed of ½-inch (13 mm) diameter or greater clean aggregate, covered with polyethylene or polystyrene sheeting in direct contact with the concrete slab, with the sheeting joints lapped in accordance with Section 903.3.</u>	
<b>(2)</b> <u>A minimum 4-inch-thick (102 mm) uniform layer of sand, overlain with a layer or strips of geotextile drainage matting, covered with polyethylene sheeting, with the sheeting joints lapped in accordance with Section 903.3.</u>	
<b>(3) Modification:</b> <b>(a)</b> <u>In areas with free-draining soils, identified as Group 1 in the ICC IRC by a certified hydrologist, soil scientist, or engineer through a site visit, a gravel bed or geotextile matting is not required.</u> <b>(b)</b> <u>In Dry climate locations, as defined by Figure 6(1), polyethylene sheeting is not required unless required for radon resistance (Section 902.3).</u>	
<b>11.37.2 Re-Work.</b> <u>A capillary break and vapor retarder are installed at newly installed concrete slabs in accordance with Sections 903.2.1(1) or 903.2.1(2), as modified by Section 903.2.1(3):</u>	<b>Mandatory</b>
<b>(1)</b> <u>A minimum 4-inch-thick (102 mm) bed of ½-inch (13 mm) diameter or greater clean aggregate, covered with polyethylene or polystyrene sheeting in direct contact with the concrete slab, with the sheeting joints lapped in accordance with Section 903.3.</u>	
<b>(2)</b> <u>A minimum 4-inch-thick (102 mm) uniform layer of sand, overlain with a layer or strips of geotextile drainage matting, covered with polyethylene sheeting, with the sheeting joints lapped in accordance with Section 903.3.</u>	
<b>(3) Modification:</b> <b>(a)</b> <u>In areas with free-draining soils, identified as Group 1 in the ICC IRC by a certified hydrologist, soil scientist, or engineer through a site visit, a gravel bed or geotextile matting is not required.</u> <b>(b)</b> <u>In Dry climate locations, as defined by Figure 6(1), polyethylene sheeting is not required unless required for radon resistance (Section 902.3).</u>	
<b>11.903.2.2</b> <u>a capillary break is installed on new footings to prevent moisture migration into foundation wall.</u>	<b>3</b>
<b>11.903.3.1 Crawlspace</b>	
<b>New Work.</b> <u>Crawlspace vapor retarder is in accordance with the following, as applicable. Joints of vapor retarder overlap a minimum of 6 inches (152 mm) and are taped. Walls. Damp-proof walls are provided below finished grade.</u>	<b>Mandatory</b>

<b>Re-Work.</b> Existing crawlspace is inspected and when there is evidence of a moisture problem a crawlspace vapor retarder is installed in accordance with the following, as applicable. Joints of vapor retarder overlap a minimum of 6 inches (152 mm) and are taped. Damp-proof walls are provided below finished grade.	
<b>11.903.3.2</b> Crawl space that is built as a conditioned area is sealed to prevent outside air infiltration and provided with conditioned air at a rate not less than 0.02 cfm (.009 L/s) per square foot of horizontal area and one of the following is implemented.	
(1) a concrete slab over lapped 6 mil polyethylene or polystyrene	<b>10</b>
(2) 6 mil polyethylene sheeting, lapped a minimum of 6 inches (152 mm), and taped at the seams	<b>8</b>

<b>11.903.4.1 Moisture control measures</b>	
<b>New and Re-Work.</b> Walls are not enclosed (e.g., with drywall) if the insulation has a high moisture content. Wet insulation products are dry before enclosing.	<b>Mandatory</b>

<b>11.903.4.2 Moisture control measures.</b>	
Moisture content of subfloor, substrate, or concrete slabs is in accordance with the appropriate industry standard for the new finish flooring to be applied.	<b>Mandatory</b>
(1) Building materials with visible mold are not installed or are cleaned or encapsulated prior to concealment and closing.	<b>2</b>
(3) The moisture content of lumber is sampled to ensure it does not exceed 19 percent prior to the surface and/or wall cavity enclosure.	<b>4</b>

<b>11.903.6 Duct insulation.</b>	
<b>New Work.</b> 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.	<b>Mandatory</b>
<b>Re-Work.</b> All HVAC ducts, plenums, and trunks in unconditioned attics, basements, and crawl spaces that become accessible during the remodeling are insulated to a minimum of R-6. Outdoor air supplies to ventilation systems are insulated to a minimum of R-6.	

<b>11.903.5 Plumbing</b>	
<b>11.903.5.1 Plumbing distribution lines are not installed in newly constructed exterior wall cavities.</b>	<b>2</b>
(1) A minimum of 50 percent of exterior wall piping is removed.	<b>3</b>
(2) A minimum of 50 percent of exterior wall piping is insulated.	<b>2</b>
<b>11.903.5.2</b> Cold water pipes in unconditioned spaces are insulated to a minimum of R-4 with pipe insulation or other covering that adequately prevents condensation.	<b>2</b>
<b>11.903.5.3</b> Plumbing is not installed in unconditioned spaces.	<b>5</b>

<b>11.903.7 Relative humidity.</b> In climate zones 1A, 2A, 3A, 4A, and 5A as defined by Figure 6(1), equipment is installed to maintain relative humidity (RH) at or below 60 percent using one of the	<b>8</b>
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<u>following:</u>	
<u>(Points not awarded in remaining climate zones.)</u>	
<u>(1) additional dehumidification system(s)</u>	
<u>(2) central HVAC system equipped with additional controls to operate in dehumidification mode</u>	
<u>11.904.1 Humidity monitoring system.</u> A humidity monitoring system is installed with a mobile base unit that displays a reading of temperature and relative humidity at the base unit with a minimum of two remote units. One remote unit that is placed permanently inside the conditioned space in a central location, excluding attachment to exterior walls, and another remote unit is placed permanently outside of the conditioned space.	<u>2</u>
<u>11.904.2 Kitchen exhaust.</u> Kitchen exhaust unit(s) that equal or exceeds 400 cfm (189 L/s), and make-up air is provided.	<u>2</u>
<u>11.904.3</u>	
<u>11.43.1 New and Re-Work. All gas dryer vents are sealed and vented outdoors.</u>	<u>Mandatory</u>
<u>11.1001.1</u> For Single Family homes An building owner's manual is provided that includes a minimum of at least 9 of the following, as available and applicable. <u>(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)</u>	<u>1</u>
<u>(1) A green building program certificate or completion document.</u>	<u>Mandatory</u>
<u>(2) List of green building features included in the scope of the remodeling project.</u>	<u>Mandatory</u>
<u>(3) Product manufacturer's manuals or product data sheet for newly installed major equipment, fixtures, and appliances. If product data sheet is in the building owners' manual, manufacturer's manual may be attached to the appliance in lieu of inclusion in the building owners' manual.</u>	<u>Mandatory</u>
<u>(4) Information on local recycling programs.</u>	
<u>(5) Information on available local utility programs that purchase a portion of energy from renewable energy providers.</u>	
<u>(6) Explanation of the benefits of using energy efficient lighting systems (e.g., compact fluorescent light bulbs, light emitting diode (LED)) in high usage areas</u>	
<u>(7) A list of practices to conserve water and energy.</u>	
<u>(8) Local public transportation options.</u>	
<u>(9) A diagram showing the location of safety valves and controls for major building systems.</u>	
<u>(10) Where frost-protected shallow foundations are used, owner is informed of precautions including:</u> <ul style="list-style-type: none"> <li><u>• instructions to not remove or damage insulation when modifying landscaping</u></li> <li><u>• providing heat to the building as required by the ICC IRC or IBC</u></li> <li><u>• keeping base materials beneath and around the building free from moisture due to</u></li> </ul>	

<u>broken water pipes or other water sources</u>	
<u>(11) A list of local service providers that offer regularly scheduled service and maintenance contracts to assure proper performance of equipment and the structure (e.g., HVAC, water heating equipment, sealants, caulks, gutter and downspout system, shower and/or tub surrounds, irrigation system).</u>	
<u>(12) A photo record of framing with utilities installed. Photos are taken prior to installing insulation, clearly labeled, and included as part of the building owners' manual.</u>	
<u>(13) Maintenance checklist.</u>	
<u>(14) List of common hazardous materials often used around the building and instructions for proper handling and disposal of these materials.</u>	
<u>(15) Information on organic pest control, fertilizers, deicers, and cleaning products.</u>	
<u>(16) Information on native landscape materials and/or those that have low-water requirements.</u>	
<u>(17) Information on methods of maintaining the building's relative humidity in the range of 30 percent to 60 percent.</u>	
<u>(18) Instructions for inspecting the building for termite infestation.</u>	
<u>(19) Instructions for maintaining gutters and downspouts and importance of diverting water a minimum of five feet away from foundation.</u>	
<u>(20) A narrative detailing the importance of maintenance and operation in retaining the attributes of a green-built building.</u>	
<i>(21) For buildings originally built before 1978, the EPA publications "Reducing Lead Hazards When Remodeling Your Home" and "Asbestos in Your Home: A Homeowner's Guide"</i>	

<b>11.1002.1 Training of Building Owners</b>	
<u>11.46.1 Building owners/occupants are familiarized with the green building goals and strategies implemented and the impacts of the occupants' practices on the costs of operating the building. Training is provided to the responsible party(ies) regarding all newly installed equipment operation and control systems. Systems include, but are not limited to, the following: HVAC filters, thermostat, appliances, water heater, and fan controls.</u>	<b>Mandatory</b>

<b>11.1003 Multi-unit Building Operations</b>	
<u><b>Maintenance and operations Manuals:</b> The operations and maintenance manuals for multi-family buildings are updated to reflect the remodeling changes and are provided to the responsible parties.</u>	<b>Mandatory</b>

<u>11.1003.1 A building construction manual, including five or more of the following, is compiled and distributed in accordance with Section 1003.0.</u>	<b>1</b>
<u>(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)</u>	
<u>(1) A narrative detailing the importance of constructing a green building, including a list of green building attributes included in the building. This narrative is included in all responsible parties' manuals.</u>	<b>Mandatory</b>

<u>(2) A local green building program certificate, and the individual measures achieved by the building.</u>	<b>Mandatory</b>
<u>(3) Warranty, operation, and maintenance instructions for all newly installed equipment, fixtures, appliances, and finishes.</u>	<b>Mandatory</b>
<u>(4) Record drawings of the building used in the remodeling.</u>	
<u>(5) A record drawing of the site including stormwater management plans, utility lines, landscaping with common name and genus/species of plantings.</u>	
<u>(6) A diagram showing the location of safety valves and controls for major building systems.</u>	
<u>(7) A list of the type and wattage of light bulbs installed in light fixtures.</u>	
<u>(8) A photo record of framing with utilities installed. Photos are taken prior to installing insulation and clearly labeled.</u>	

<b>11.1003.2</b> <u>Operations manuals are created and distributed to the responsible parties in accordance with Section 1003.0. Between all of the operation manuals, six or more of the following options are included.</u>  <b><i>(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)</i></b>	<b>1</b>
<u>(1) A narrative detailing the importance of operating and living in a green building. This narrative is included in all responsible parties' manuals.</u>	<b>Mandatory</b>
<u>(2) A list of practices to conserve water and energy (e.g., turning off lights when not in use, switching the rotation of ceiling fans in changing seasons, purchasing ENERGY STAR appliances and electronics).</u>	<b>Mandatory</b>
<u>(3) Information on methods of maintaining the building's relative humidity in the range of 30 percent to 60 percent.</u>	<b>Mandatory</b>
<u>(4) Information on opportunities to purchase renewable energy from local utilities or national green power providers and information on utility and tax incentives for the installation of on-site renewable energy systems.</u>	
<u>(5) Information on local and on-site recycling and hazardous waste disposal programs and, if applicable, building recycling and hazardous waste handling and disposal procedures.</u>	
<u>(6) Local public transportation options.</u>	
<u>(7) Explanation of the benefits of using compact fluorescent light bulbs, LEDs, or other high-efficiency lighting.</u>	
<u>(8) Information on native landscape materials and/or those that have low water requirements.</u>	
<u>(9) Information on the radon mitigation system, where applicable.</u>	
<u>(10) A procedure for educating tenants in rental properties on the proper use, benefits, and maintenance of green building systems including a maintenance staff notification process for improperly functioning equipment.</u>	

<b>11.1003.3</b> <u>Maintenance manuals are created and distributed to the responsible parties in</u>	<b>1</b>
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<p><u>accordance with Section 1003.0. Between all of the maintenance manuals, six or more of the following options are included.</u></p> <p style="text-align: center;"><b><u>(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)</u></b></p>	
<p><b><u>(1) A narrative detailing the importance of maintaining a green building. This narrative is included in all responsible parties' manuals.</u></b></p>	<b>Mandatory</b>
<p><b><u>(2) A list of local service providers that offer regularly scheduled service and maintenance contracts to assure proper performance of equipment and the structure (e.g., HVAC, water heating equipment, sealants, caulks, gutter and downspout system, shower and/or tub surrounds, irrigation system).</u></b></p> <p><b><u>(3) User-friendly maintenance checklist that includes:</u></b></p> <ul style="list-style-type: none"> <li><b><u>(a) HVAC filters</u></b></li> <li><b><u>(b) thermostat operation and programming</u></b></li> <li><b><u>(c) lighting controls</u></b></li> <li><b><u>(d) appliances and settings</u></b></li> <li><b><u>(e) water heater settings</u></b></li> <li><b><u>(f) fan controls</u></b></li> </ul> <p><b><u>(4) List of common hazardous materials often used around the building and instructions for proper handling and disposal of these materials.</u></b></p> <p><b><u>(5) Information on organic pest control, fertilizers, deicers, and cleaning products.</u></b></p> <p><b><u>(6) Instructions for maintaining gutters and downspouts and importance of diverting water a minimum of five feet away from foundation.</u></b></p> <p><b><u>(7) Instructions for inspecting the building for termite infestation.</u></b></p> <p><b><u>(8) A procedure for rental tenant occupancy turnover that preserves the green features.</u></b></p> <p><b><u>(9) An outline of a formal green building training program for maintenance staff.</u></b></p>	

## CHAPTER 12

# Small Renovations

Intent – This chapter defines the green practices that are appropriate for small renovations.

### 12.1 Bathroom Renovations

#### 12.1.1 Mandatory Practices for Bathroom Renovations

##### 12.1.1.1 Resource Efficiency

12.1.1.1 (a) Recycled content. Building materials with recycled content are used for two minor or major components of the renovation.

12.1.1.1(b) Demolition Waste. All waste classified as hazardous generated during demolition shall be properly handled and disposed.

12.1.1.1(c) Demolition Waste. At least 50% of demolition waste not classified as hazardous is diverted from landfill.

12.1.1.1(d) Wood-based products. All newly installed rough framing materials are certified to the requirements of one of the following recognized product programs:

AFF American Tree Farm System®

Canadian Standards Association’s Sustainable Forest Management System Standards (CSA Z809)

Forest Stewardship Council (FSC)

Program for Endorsement of Forest Certification Systems (PEFC)

Sustainable Forestry Initiative® Program (SFI)

other product programs mutually recognized by PEFC

12.1.1.1(e) Recycled content. Building materials with at least 25% recycled content are used in the renovation. The cost of these materials exceeds 3% of the project contract price.

12.1.1.1(d) Newly installed finish flooring materials have manufacturer’s recommendation for use in bathrooms.

##### 12.1.1.2 Energy Efficiency

12.1.1.2(a) Fenestration. NFRC-certified U-factor and SHGC windows, exterior doors, skylights, and tubular daylighting devices (TDDs) are in accordance with ENERGY STAR, or equivalent, or Table 701.4.4.1. Decorative fenestration elements with a maximum area of 15 square feet (1.39 m<sup>2</sup>) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.

Table 701.4.4.1  
Fenestration Specifications

<u>Climate Zones</u>	<u>U-Factor</u>	<u>SHGC</u>
	<u>Windows and Exterior Doors (maximum certified ratings)</u>	
<u>1 and 2</u>	<u>0.65</u>	<u>0.40</u>
<u>3</u>	<u>0.40</u>	<u>0.40</u>
<u>4 to 8</u>	<u>0.35</u>	<u>Any</u>
	<u>Skylights and TDDs (maximum certified ratings)</u>	
<u>1 to 3</u>	<u>0.75</u>	<u>0.40</u>
<u>4 to 8</u>	<u>0.60</u>	<u>Any</u>

12.1.1.2(b) Building Envelope. When the renovation involves exposing the wall cavity such that insulation can be upgraded and the UA is less than required by ICC IECC, Section 402.1.4, the UA of the exposed envelope is increase by at least 50%.

12.1.1.2(c) Lighting. A minimum of 50 percent of the newly installed hard-wired lighting fixtures qualify as ENERGY STAR or equivalent and a minimum of 50 percent of the bulbs in existing hard-wired lighting fixtures qualify as ENERGY STAR or equivalent.

12.1.1.2(d) All washing machines, if installed, are ENERGY STAR or equivalent.

### 12.1.1.3 Water Efficiency

12.1.1.3(a) The water consumption of bathroom fixtures complies with:

Showerheads. The total showerhead flow rate at any point in time in each shower compartment is in accordance is less than 2.5 gpm. The total flow rate is tested at 80 psi (552 kPa) in accordance with ASME A112.18.1. Showers are equipped with 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.  
Faucets. Water-efficient lavatory faucets with 1.5 gpm (5.68 L/m) or less maximum flow rate when tested at 60 psi (414 kPa) in accordance with ASME A112.18.1 are installed.  
Water Closets. A water closet is installed with an effective flush volume of 1.28 gallons (4.85 L) or less when tested in accordance with ASME A112.19.2 (all water closets) and ASME A112.19.14 (all dual flush water closets), and is in accordance with EPA WaterSense *Tank-Type High-Efficiency Toilet*.

### 12.1.1.4 Indoor Environmental Quality

12.1.1.4(a) Wall-to-wall carpeting is not installed adjacent to water closets and bathing fixtures.

12.1.1.4(b) Newly applied interior products are in accordance with one or more of the following standards:

Zero VOC as determined by EPA Method 24 (VOC content below the detection limit for the method)  
CARB *Suggested Control Measure for Architectural Coatings*  
GS-11

VOC limits in accordance with:

- (a) 50 grams/liter flat
- (b) 100 grams/liter non flat
- (c) 350 grams/liter clear wood varnish
- (d) 550 grams/liter clear wood lacquer

CDPH 01350, as certified by a third party program such as the GREENGUARD Environmental Institute's *Children and Schools Certification Program* or the Scientific Certification Systems *Indoor Advantage Gold Program*

12.1.1.4(c) Interior low-VOC adhesives and sealants. A minimum of 85 percent of newly applied products used within the interior of the building are in accordance with one of the following, as applicable.

CDPH 01350, as certified by a third party program, such as the GREENGUARD Environmental Institute's *Children and Schools Certification Program* or the Scientific Certifications Systems *Indoor Advantage Gold Program*.  
GS-36

12.1.1.4(d) Bathrooms are vented to the outdoors. The minimum ventilation rate is 50 cfm (23.6 L/s) for intermittent operation or 20 cfm (9.4 L/s) for continuous operation in bathrooms.

12.1.1.4(e) HVAC System Protection. *The renovation area is sealed off from the occupied portion of the building or dwelling unit. The same HVAC system for conditioning the air in renovated and occupied space is not used.* HVAC supply registers (boots), return grilles, and rough-ins in the renovation area are covered during construction activities to prevent dust and other pollutants from entering the system.

12.1.1.5(f) Tile backing materials. Newly installed tile backing materials installed under tiled surfaces in wet areas are in accordance with ASTM C1178, C1278, C1288, or C1325.

12.1.1.5(g) Moisture Control. Building materials with visible mold are not installed or utilized or are cleaned or encapsulated prior to concealment and closing. Any water damaged materials replaced or repaired prior to enclosing.

### 12.1.1.6 Home Owner Education

12.1.1.6 (a) Building owners/occupants are familiarized with the green building goals and strategies implemented during the renovation and the impacts of the occupants' practices on the costs of operating the building. Training is provided to the responsible party(ies) regarding all equipment operation and control systems in the bathroom.

## 12.1.2 Optional Practices for Bathroom Renovations



12.1.2.1 Resource Efficiency

12.1.2.1(a) Wood-based products. Wood based materials that are certified to the requirements of one of the following recognized product programs are used for:

12.1.2.1(a)(i) Newly installed cabinets

(a) (ii) Newly installed trim

AFF American Tree Farm System®

Canadian Standards Association's Sustainable Forest Management System Standards (CSA Z809)

Forest Stewardship Council (FSC)

Program for Endorsement of Forest Certification Systems (PEFC)

Sustainable Forestry Initiative® Program (SFI)

other product programs mutually recognized by PEFC

12.1.2.1(b) Recycled content. Building materials with recycled content are used in the renovation meeting one of the criteria in Table 12.1.2.1(a). These materials are in excess of those required to meet 12.1.1.1(e).

Table 12.1.2.1(a)

<u>Recycled Content</u>	<u>Cost of Materials</u>
<u>25% or more</u>	<u>5% of project contract price</u>
<u>50% or more</u>	<u>4% of project contract price</u>
<u>75% or more</u>	<u>3% of project contract price</u>

12.1.2.1(c) Salvaged materials. Reclaimed and/or salvaged materials and components are used. The value of the material and labor cost of salvaged materials is equal to or exceeds 1 percent of the project contract price.

12.1.2.2 Indoor Environmental Quality

12.1.2.2(a) Cabinets. Bath vanity cabinets in accordance with one of the following are installed:

KCMA ESP 01, or equivalent

CARB Composite Wood Air Toxic Contaminant Measure Standard

Containing no added urea formaldehyde or are in accordance with GGPS.EC.010.R0, ASTM D 6670, or equivalent

12.1.2.2(b) Drywall materials. All newly installed drywall materials are moisture and mildew resistant.

**12.2 Green Kitchen Remodel**

All applicable requirements must be met.

12.2.1 At least 75% of all major kitchen appliances must be energy star.

12.2.2 Newly applied interior paint products are in accordance with one or more of the following standards:

Zero VOC as determined by EPA Method 24 (VOC content below the detection limit for the method)

CARB Suggested Control Measure for Architectural Coatings

GS-11

VOC limits in accordance with:

(a) 50 grams/liter flat

(b) 100 grams/liter non flat

(c) 350 grams/liter clear wood varnish

(d) 550 grams/liter clear wood lacquer

CDPH 01350, as certified by a third party program such as the GREENGUARD Environmental Institute's Children and Schools Certification Program or the Scientific Certification Systems Indoor Advantage Gold Program

12.2.3 Fenestration. Newly installed windows, exterior doors, skylights, and tubular daylighting devices (TDDs) are in accordance with ENERGY STAR, or equivalent, or Table 701.4.4.1. Decorative fenestration elements with a maximum area of 15 square feet (1.39 m<sup>2</sup>) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.

Table 701.4.4.1  
Fenestration Specifications

<u>Climate Zones</u>	<u>U-Factor</u>	<u>SHGC</u>
	<u>Windows and Exterior Doors (maximum certified ratings)</u>	
<u>1 and 2</u>	<u>0.65</u>	<u>0.40</u>
<u>3</u>	<u>0.40</u>	<u>0.40</u>
<u>4 to 8</u>	<u>0.35</u>	<u>Any</u>
	<u>Skylights and TDDs (maximum certified ratings)</u>	
<u>1 to 3</u>	<u>0.75</u>	<u>0.40</u>
<u>4 to 8</u>	<u>0.60</u>	<u>Any</u>

12.2.3 Newly installed doors and windows have caulking, gasketing, adhesive flashing tape, foam sealant, or weather stripping installed forming a complete air barrier. Existing windows and doors are inspected and any air barrier weaknesses are corrected.

12.2.4 All gutted or newly constructed exterior walls and exterior ceilings must be insulated to a minimum R-value for the climate zone per table: “Can we insert values based on current code?”

Minimum R-value

<u>Climate Zone</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7+</u>
<u>Walls</u>							
<u>Ceiling/attic</u>							

12.2.5 Insulation and wall framing must be dry with no evidence of mold prior to enclosing the wall with new drywall.

12.2.6 At least 50% finished materials installed must be pre-finished.

12.2.7 Cabinets must be KCMA ESP01 or equivalent.

12.2.8 A place for recycling of household items (glass, paper, plastic, etc) must be provided or 50% of newly installed building materials must contain at least 35% recycled content.

12.2.9 Interior low-VOC adhesives and sealants. All newly applied products used within the interior of the building are in accordance with one of the following, as applicable.

CDPH 01350, as certified by a third party program, such as the GREENGUARD Environmental Institute’s Children and Schools Certification Program or the Scientific Certifications Systems Indoor Advantage Gold Program.  
GS-36

12.2.10 Kitchen exhaust fan must be vented outside.

12.2.11 A garbage disposal must be installed in the kitchen sink unless local regulations prohibit installation.

12.2.12 All hazardous material that is removed or disturbed must be properly handled and disposed.

12.2.13 Lighting – practice details TBD

12.2.13 Disposal of Existing Kitchen – practice details TBD

12.2.14 Water Usage – practice details TBD

**12.3 Basement Remodeling**

**12.3.1 Design and Planning**

12.3.1.1 Concrete moisture test – practice details TBD

12.3.1.2 Moisture intrusion assessment

Space below grade has exterior drain tile installed or other moisture mitigation system installed where required by the ICC IRC or IBC if there is evidence of moisture issues in the space.

12.3.1.3 Radon test – if above 4.0ppl add mitigation and verify it is functioning.

**12.3.2 Framing**

12.3.2.1 Maintain 1” gap between exterior block or poured concrete wall and new interior framing.

12.3.2.2 Framing lumber is from one of the following certified programs or framing lumber is reused or reclaimed materials:

AFF American Tree Farm System®

Canadian Standards Association’s Sustainable Forest Management System Standards (CSA Z809)

Forest Stewardship Council (FSC)

Program for Endorsement of Forest Certification Systems (PEFC)

Sustainable Forestry Initiative® Program (SFI)

other product programs mutually recognized by PEFC

### **12.3.2 HVAC**

12.3.2.1 No transite heat.

12.3.2.2 Exposed or newly installed Ducts are sealed with tape complying with UL 181, mastic, gaskets, or an approved system as required by the ICC IRC, Section M1601.3.1, or ICC IMC, Section 603.9, to reduce leakage.

### **12.3.4 Plumbing**

12.3.4.1 Bathroom – Bathroom installation or remodeling that is part of a basement remodel must comply with the section 12.1

12.3.4.2 Accessible hot water lines are insulated to a minimum of R-4.

### **12.3.5 Electrical**

12.3.5.1 CFL, LED, or dimmers. – practice details TBD

### **12.3.6 Insulation**

12.3.6.1 Exterior walls are insulated to a minimum of R-13.

12.3.6.2 Rim joists are insulated to a minimum of R – TBD.

12.3.6.2 Air Sealing – practice details TBD

12.3.6.3 Vapor barrier – practice details TBD

### **12.3.7 Sheetrock**

12.3.7.1 Walls are enclosed with mold resistant sheetrock or other mold resistant material.

### **12.3.8 Trim and Cabinets**

Cabinet and trim materials are from one of the following certified sources or are reclaimed or reused materials:

AFF American Tree Farm System®

Canadian Standards Association’s Sustainable Forest Management System Standards (CSA Z809)

Forest Stewardship Council (FSC)

Program for Endorsement of Forest Certification Systems (PEFC)

Sustainable Forestry Initiative® Program (SFI)

other product programs mutually recognized by PEFC

12.3.8 Cabinet and trim materials contain no added urea formaldehyde.

### **12.3.9 Countertops**

Recycled content, reused, reclaimed, or locally sourced. – practice details TBD.

### **12.3.10 Tile**

Recycled content, reused, reclaimed, or locally sourced. – practice details TBD.

### **12.3.11 Appliances**

When there is an Energy Star appliance available, Energy Star appliances are installed.

### **12.3.12 Floorcovering**

Floors are not covered with carpet.

### **12.3.13 Paint and Stain**

Newly applied interior paint or stain products are in accordance with one or more of the following standards:

Zero VOC as determined by EPA Method 24 (VOC content below the detection limit for the method)

CARB *Suggested Control Measure for Architectural Coatings*

GS-11

VOC limits in accordance with:

(a) 50 grams/liter flat

(b) 100 grams/liter non flat

(c) 350 grams/liter clear wood varnish

(d) 550 grams/liter clear wood lacquer

CDPH 01350, as certified by a third party program such as the GREENGUARD Environmental Institute's *Children and Schools Certification Program* or the Scientific Certification Systems *Indoor Advantage Gold Program*

### **12.4 Small Addition**

12.4.0.1 A small addition that includes a kitchen shall also comply with section 12.2

12.4.0.2 A small addition that also includes a bathroom shall also comply with section 12.1

#### **12.4.1 LOT DESIGN, PREPARATION, AND DEVELOPMENT**

12.4.1.1 A tree preservation plan is provided and implemented for any tree larger than 8" diameter breast high, whose dripline extends over the area of disturbance.

12.4.1.2 Sediment control measures which prevent the flow of silt from the work area and stockpiles are established prior to land disturbing activities.

12.4.1.3 Low impact development measures are provided, to prevent an increased flow of stormwater runoff<sup>1</sup> into public rights-of-way, or adjacent properties or natural watersheds.

#### **12.4.2 RESOURCE EFFICIENCY**

12.4.2.1 Finished grade: Finish grade at all sides of the addition is sloped to provide a minimum of 6 inches (150 mm) of fall within 10 feet (3048 mm) of the edge of the addition. Where lot lines, walls, slopes, or other physical barriers prohibit 6 inches (152 mm) of fall within 10 feet (3048 mm), the final grade is sloped away from the edge of the addition at a minimum slope of 5 percent and the water is directed to drains or swales to ensure drainage away from the structure.

12.4.2.2 Water-resistive barrier: Where required by the ICC IRC or IBC, a water-resistive barrier and/or drainage plane system is installed behind exterior veneer and/or siding of the addition.

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

12.4.2.5 Construction waste management plan: A construction waste management plan is developed, posted at the jobsite, and implemented with a goal of recycling or salvaging a minimum of 50 percent (by weight) of construction and land-clearing waste. The construction waste management plan includes information on the proper handling and disposal of hazardous wastes

12.4.2.6 Hazardous waste: All waste classified as hazardous waste is properly handled and disposed of.

#### **12.4.3 ENERGY EFFICIENCY**

12.4.3.1 Space heating and cooling:

(1) Where new space heating and cooling system/equipment is installed to serve existing space and the addition, or to serve the addition independently, the system/equipment is sized according to heating and cooling loads calculated using ACCA Manual J, or equivalent. Where installed as a primary heat source in the building, radiant or hydronic space heating system is designed using industry-approved guidelines (e.g., ACCA Manual J, GAMA H-22, or an accredited design professional's and manufacturer's recommendations).

(2) Where existing space heating and cooling system/equipment is extended to serve the addition, the capacity of the existing system is adequate for the additional loads, as determined by using ACCA Manual J, or equivalent.

12.4.3.2 Duct system in new space: Newly installed ducts are sealed with tape complying with UL 181, mastic,

1 Relative to flow rates prior to construction

gaskets, or an approved system as required by the ICC IRC, Section M1601.3.1, or ICC IMC, Section 603.9 to reduce leakage. Building cavities in the addition are not used as supply ducts.

12.4.3.3 Insulation and air sealing :

- (1) Insulation for the addition is installed in accordance with the manufacturer's instructions or local code, as applicable.
- (2) Openings from the addition into unconditioned space are fully sealed with solid blocking or flashing and any remaining gaps are sealed with caulk or foam. Fire-rated collars and caulking are installed where required.
- (3) Where insulated, wall insulation in the new crawlspace is permanently attached to the walls. Exposed earth in new unvented crawlspaces is covered with continuous vapor retarder with overlapping joints that are taped or masticed.
- (4) Caulking, gasketing, adhesive flashing tape, foam sealant, or weatherstripping is installed forming a complete air barrier for newly installed windows and doors.
- (5) Newly installed band and rim joists are insulated and air sealed.
- (6) Sill sealer or other material that will expand and contract is installed between new foundation and sill plate. Caulk or the equivalent is installed to seal the bottom plate of new exterior walls.
- (7) New skylight shafts and knee walls are insulated to the same level as the exterior walls.
- (8) Code required building envelope insulation and air sealing for the addition are not disrupted at exterior architectural features such as stairs and decks.
- (9) Attic access, knee wall door, or drop-down stair in the addition is covered with insulation and gasketed. Knee wall door is insulated unit or is covered with insulation.
- (10) Recessed light fixtures that penetrate the thermal envelope of the addition are airtight, IC-rated, and sealed with gasket, caulk, or foam
- (11) Where ceiling/attic assemblies or designs for the addition have eave vents, baffles or other means are implemented to minimize air movement into or under the insulation.

12.4.3.4 Fenestration (per 701.4.4.1)

NFRC-certified U-factor and SHGC windows, exterior doors, skylights, and tubular daylighting devices (TDDs) are in accordance with ENERGY STAR, or equivalent, or Table 701.4.4.1. Decorative fenestration elements with a maximum area of 15 square feet (1.39 m<sup>2</sup>) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.

**Table 701.4.4.1  
Fenestration Specifications**

Climate Zones	U-Factor	SHGC
	Windows and Exterior Doors (maximum certified ratings)	
1 and 2	0.65	0.40
3	0.40	0.40
4 to 8	0.35	Any
	Skylights and TDDs (maximum certified ratings)	
1 to 3	0.75	0.40
4 to 8	0.60	Any

12.4.3.5 U/A is 15% less than the minimum required by the current IECC or prevailing code for the jurisdiction, whichever is less restrictive.

12.4.3.6 Duct system sizing (per 704.4.1) Duct system in the addition is sized, designed, and installed in accordance with ACCA Manual D or equivalent.

12.4.4 INDOOR ENVIRONMENTAL QUALITY

12.4.4.1 Natural draft equipment (per 901.1.1) Natural draft space heating or water heating equipment is not located in conditioned spaces of the addition, including conditioned crawlspaces. Natural draft equipment is

permitted to be installed within the conditioned spaces if located in a mechanical room that has an outdoor air source, and is otherwise sealed and insulated to separate it from the conditioned space(s).

#### 12.4.4.2 Fireplaces, etc (per 901.2.1)

Fireplaces and natural draft fuel-burning appliances are code compliant, vented to the outdoors, and have adequate combustion and ventilation air provided to minimize spillage or back-drafting, in accordance with the following, as applicable.

- (1) Natural gas and propane fireplaces that are power vented or direct vented, are equipped with permanently fixed glass fronts or gasketed doors, and comply with CSA Z21.88a/CSA 2.33a or CSA Z21.50/CSA 2.22.
- (2) Solid fuel burning appliances are in accordance with the following requirements:
  - (b) Factory-built, wood-burning fireplaces are in accordance with the certification requirements of UL 127 and are EPA certified.
  - (c) 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).
  - (d) Pellet (biomass) stoves and furnaces are in accordance with the requirements of ASTM E1509 or are EPA certified.
  - (e) Masonry heaters are in accordance with the definitions in ASTM E1602 and ICC IBC, Section 2112.1.

12.4.4.3 Garages (per 901.3.1 (a) and (b) ) Where installed in the common wall between the attached garage and conditioned space in the addition, the door is tightly-sealed and gasketed. A continuous air barrier is provided between walls and ceilings of the addition separating the garage space from the conditioned living spaces.

12.4.4.4 Plywood and sheathing (per 901.4 (1) ) A minimum of 85% of the structural plywood used for floor, wall, and/or roof sheathing of the addition is compliant with DOC PS 1 and/or DOC PS 2. OSB used for floor, wall, and/or roof sheathing is compliant with DOC PS 2. The panels are made with moisture-resistant adhesives. The trademark indicates these adhesives as follows: Exposure 1 or Exterior for plywood, and Exposure 1 for OSB.

12.4.4.5 Carpet (per 901.5 (1) ) Wall-to-wall carpeting is not installed adjacent to water closets and bathing fixtures.

#### 12.4.4.6 Arch Coatings when building is occupied (per 901.8)

**Architectural coatings.** When the building is occupied during the construction of the addition a minimum of 85 percent of the architectural coatings are in accordance with either Section 901.8.1 or Section 901.8.2, not both:

**901.8.1** Site-applied interior products are in accordance with one or more of the following standards:

- (1) Zero VOC as determined by EPA Method 24 (VOC content below the detection limit for the method)
- (2) CARB *Suggested Control Measure for Architectural Coatings*
- (3) GS-11
- (4) VOC limits in accordance with:
  - (a) 50 grams/liter flat
  - (b) 100 grams/liter non flat
  - (c) 350 grams/liter clear wood varnish
  - (d) 550 grams/liter clear wood lacquer

**901.8.2** Site-applied interior products are in accordance with the emissions levels of CDPH 01350, as certified by a third party program such as the GREENGUARD Environmental Institute's *Children and Schools Certification Program* or the Scientific Certification Systems *Indoor Advantage Gold Program*.

12.4.4.6 Adhesives and sealant when building is occupied (per 901.9)

**Adhesives and sealants.** When the building is occupied during the construction of the addition, a minimum of 85 percent of site-applied adhesives and sealants are in accordance with Section 901.9.1 and/or Section 901.9.2.

**901.9.1 Exterior low-VOC adhesives and sealants:** A minimum of 85 percent of site-applied products used for the installation of subfloors and on the exterior of the project are in accordance with one of the following:

- (1) The California Air Resources Board consumer products regulation as follows:
  - (a) Construction Adhesives: VOC content not to exceed 7 percent by weight or 75 grams/liter, whichever is greater.
  - (b) The VOC content of reactive sealants (i.e., silicones, polyurethanes, and hybrids, such as MS Polymer and silylated polyurethane resin or SPUR) not to exceed 4 percent by weight or 50 grams/liter, whichever is greater.
  - (c) The VOC content of all other caulks and sealants not to exceed 2 percent by weight or 30 grams/liter, whichever is greater.
  - (d) The VOC content of contact adhesives not to exceed 55 percent by weight or 480 grams/liter, whichever is greater.
- (2) GS-36

12.4.4.8 Lead safe (per 901.15) For building constructed prior to 1978, lead-safe work practices are used during renovation, remodeling, painting, and demolition.

12.4.4.9 Spot ventilation (per 902.1.1 (1) and (2))

Spot ventilation for the addition is in accordance with the following:

- (1) Bathrooms are vented to the outdoors. The minimum ventilation rate is 50 cfm (23.6 L/s) for intermittent operation or 20 cfm (9.4 L/s) for continuous operation in bathrooms.
- (2) Clothes dryers are vented to the outdoors.

12.4.4.10 Radon control measures are in accordance with ICC IRC Appendix F

12.4.4.11 HVAC system protection (per 902.4 – select one measure)

**HVAC system protection.** One of the following HVAC 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.

**Addition and Renovation Note:** Section 902.4(1) does not apply to additions and renovations except as noted in Addition and Renovation Note (3) below.

- (2) Prior to owner occupancy, HVAC supply registers (boots), return grilles, and duct terminations are inspected and vacuumed. In addition, the coils are inspected and cleaned and the filter is replaced if necessary.

**Addition and Renovation Note:** As an alternative to Section 902.4(2), one of the following options is implemented:

- (1) During construction, a construction indoor air quality (IAQ) schedule is developed that includes, at minimum, all of the following:
  - (a) type of construction activity
  - (b) ability to occupy the building or dwelling unit
  - (c) IAQ protections for occupant(s) of the building or dwelling unit
  - (d) hazardous waste removal
  - (e) name and age of occupants of the building or dwelling unit at a specific time
- (2) The addition or renovation area are sealed off from the occupied portion of the building or dwelling unit. The same HVAC system for conditioning the air in renovated and occupied space is not used.
- (3) The building or dwelling unit is not occupied during the entire construction period and Sections 902.4(1) and 902.4(2) are implemented.

12.4.4.12 Tile backing (per 903.1) Tile backing materials installed under tiled surfaces in wet areas are in

accordance with ASTM C1178, C1278, C1288, or C1325

#### 12.4.4.13 Capillary breaks (per 903.2.1)

A capillary break and vapor retarder are installed at all concrete slabs in the addition in accordance with Sections 903.2.1(1) or 903.2.1(2), as modified by Section 903.2.1(3):

- (1) A minimum 4-inch (102 mm) thick bed of ½-inch (13 mm) diameter or greater clean aggregate, covered with polyethylene or polystyrene sheeting in direct contact with the concrete slab, with the sheeting joints lapped in accordance with Section 903.3.
- (2) A minimum 4-inch (102 mm) thick uniform layer of sand, overlain with a layer or strips of geotextile drainage matting, covered with polyethylene sheeting, with the sheeting joints lapped in accordance with Section 903.3.
- (3) Modification:
  - (a) In areas with free-draining soils, identified as Group 1 in the ICC IRC by a certified hydrologist, soil scientist, or engineer through a site visit, a gravel bed or geotextile matting is not required.
  - (b) In Dry climate locations, as defined by Figure 6(1), polyethylene sheeting is not required unless required for radon resistance (Section 902.3).

#### 12.4.4.14 Crawlspace vapor retarder and damp proof (per 903.3.1)

Addition crawlspace vapor retarder is in accordance with the following, as applicable. Joints of vapor retarder overlap a minimum of 6 inches (152 mm) and are taped.

- (1) Floors. Minimum 6 mil vapor retarder installed on the crawlspace floor and extended up the wall sufficient to allow the material to be affixed with glue and furring strips.
- (2) Walls. Damp-proof walls are provided below finished grade.

#### 12.4.4.15 Moisture in walls not yet enclosed (per 903.4.1 (2) ) Walls of the addition are not enclosed (e.g. with drywall) if the insulation has a high moisture content. Wet insulation products are dry before enclosing.

#### 12.4.4.16 Moisture content of substrates (per 903.4.2) Moisture content of subfloor, substrate, or concrete slabs in the addition is in accordance with the appropriate industry standard for the finish flooring to be applied.

#### 12.4.4.17 Duct insulation in unconditioned space (per 903.6 (1) ) All HVAC ducts, plenums, and trunks in unconditioned attics, basements, and crawl spaces of the addition are insulated to a minimum of R-6. Outdoor air supplies to ventilation systems are insulated to a minimum of R-6.

### 12.4.5 OPERATION, MAINTENANCE, AND BUILDING OWNER EDUCATION

A building owner's manual is provided that includes the following, as available and applicable.

- (1) A green building program certificate or completion document.
- (2) List of green building features in the addition (can include the national green building checklist).
- (3) Product manufacturer's manuals or product data sheet for installed major equipment, fixtures, and appliances in the addition. If product data sheet is in the building owners' manual, manufacturer's manual may be attached to the appliance in lieu of inclusion in the building owners' manual.



## CHAPTER **4413**

# REFERENCED DOCUMENTS

### SECTION **4404-1301** - GENERAL

**4404-1301.1** This chapter lists the codes, standards, and other documents that are referenced in various sections of this Standard. The codes, standards, and other documents are listed herein indicating the promulgating agency of the document, the document identification, the effective date and title, and the section or sections of this Standard that reference the document. Unless indicated otherwise, the first printing of the document is referenced.

**4404-1301.2** The application of the referenced documents shall be as specified in Section 102.2.

### SECTION **4402-1302** --- REFERENCED DOCUMENTS

<b><u>ACCA</u></b>		<i>Air Conditioning Contractors of America</i> (703) 575-4477 2800 Shirlington Road, Suite 300 Arlington, VA 22206 <a href="http://www.acca.org">www.acca.org</a>	
Manual D	2006	Residential Duct Systems	704.4.1
Manual J	2006	Residential Load Calculation, Eighth Edition, Version 2	701.4.1.1, 701.4.1.2
Manual S	2004	Residential Equipment Selection	704.5.1
Manual T	1983	Air Distribution Basics for Residential and Small Commercial Buildings	704.4.1
<b><u>AFF</u></b>		<i>American Forest Foundation, Inc.</i> (202) 463-2462 1111 Nineteenth Street, NW Suite 780 Washington, DC 20036 <a href="http://www.forestfoundation.org">www.forestfoundation.org</a>	
2004-2008 AFF Standards	2004	American Tree Farm System Standards for Sustainability for Forest Certification, including Performance Measures and Field Indicators	606.2(a)
<b><u>ASHRAE</u></b>		<i>American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc.</i> (404) 636-8400 1791 Tullie Circle, N.E. Atlanta, GA 30329 <a href="http://www.ashrae.org">www.ashrae.org</a>	
52.2	1999	Method of Testing General Ventilation Air Cleaning Devices for Removal Efficiency by Particle Size	202

REFERENCED DOCUMENTS

<b><u>ASCE</u></b>		<i>American Society of Civil Engineers</i> 1801 Alexander Bell Drive Reston, VA 20191 <a href="http://www.asce.org">www.asce.org</a>	(800) 548-2723
32-01	2001	Design and Construction of Frost-Protected Shallow Foundations	202

<b><u>ASME</u></b>		<i>American Society of Mechanical Engineers</i> Three Park Avenue New York, NY 10016 <a href="http://www.asme.org">www.asme.org</a>	(800) 843-2763
A112.18.1	2005	Plumbing Supply Fittings	801.4, 801.5.1
A112.19.2	2003	Vitreous China Plumbing Fixtures and Hydraulic Requirements for Water Closets and Urinals	801.6(2), 801.6(3)
A112.19.14	2006	Six-Liter Water Closets Equipped with a Dual Flushing Device	801.6(2)

<b><u>ASSE</u></b>		<i>American Society of Sanitary Engineering</i> 901 Canterbury, Suite A Westlake, OH 44145 <a href="http://www.asse-plumbing.org">www.asse-plumbing.org</a>	(440) 835-3040
1016	2005	Performance Requirements for Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations	801.4

<b><u>ASTM</u></b>		<i>ASTM International, Inc.</i> 100 Barr Harbor Drive, PO Box C700 West Conshohocken, PA 19428 <a href="http://www.astm.org">www.astm.org</a>	(610) 832-9500
C1178	2006	Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel	903.1
C1278	2006	Standard Specification for Fiber-Reinforced Gypsum Panel	903.1
C1288	2004	Standard Specification for Discrete Non-Asbestos Fiber-Cement Interior Substrate Sheets	903.1
C1325	2004	Standard Specification for Non-Asbestos Fiber-Mat Reinforced Cement Substrate Sheets	903.1
D6670	2007	Standard Practice for Full-Scale Chamber Determination of Volatile Organic Emissions from Indoor Materials/Products	901.10(3)
E1509	2005	Standard Specification for Room Heaters, Pellet Fuel-Burning Type	901.2.1(2)(d)
E1602	2003	Standard Guide for Construction of Solid Fuel Burning Masonry Heaters	901.2.1(2)(e)

<b><u>CARB</u></b>		<i>California Air Resources Board</i> 1001 "I" Street P.O. Box 2815 Sacramento, CA 95812 <a href="http://www.arb.ca.gov">www.arb.ca.gov</a>	(916) 322-2990
	2007	Composite Wood Air Toxic Contaminant Measure Standard	901.4(5), 901.10(2)
	2000	Suggested Control Measure for Architectural Coatings	901.8.1(2)

<b><u>CDPH</u></b>		<i>California Department of Public Health</i> 850 Marina Bay Parkway Richmond, CA 94804 <a href="http://www.cdph.ca.gov">www.cdph.ca.gov</a>	(510) 620-2864
01350	<del>2002</del> 2010	<del>Portion of California Specification 01350: Standard Practice for the Testing of Volatile Organic Emissions from Various Sources using Small Scale Environmental Chambers</del> Standard Method For The Testing And Evaluation Of Volatile Organic Chemical Emissions From Indoor Sources Using Environmental Chambers Version 1.1.	901.5(2), 901.6, 901.7, 901.8.2, 901.9.2(1), 901.11(1), 901.11(2)

<b><u>CPA</u></b>		<i>Composite Panel Association</i> 18922 Premiere Court Gaithersburg, MD 20879-1574 <a href="http://www.pbmdf.com">www.pbmdf.com</a>	(301) 670-0604
A208.1	1999	Particleboard	901.4(2)
A208.2	2002	Medium Density Fiberboard (MDF) for Interior Application	901.4(2)
CPA <del>23</del>	200 <del>6</del> 8	Environmentally Preferable Product Specification	901.4(4)

<b><u>CSA</u></b>		<i>CSA International</i> 8501 East Pleasant Valley Road Cleveland, OH 44131-5575 <a href="http://www.csa-international.org">www.csa-international.org</a>	(216) 524-4990
6.19	2001	Residential Carbon Monoxide Alarming Devices	901.12
Z21.50/CSA 2.22	2007	Vented Gas Fireplaces	901.2.1(1)
Z21.88a-2007/CSA 2.33a	2007	Vented Gas Fireplace Heaters w/ Addenda 1	901.2.1(1)
Z809	2002	Sustainable Forest Management Requirements and Guidance (SFM)	606.2(b)

<b><u>DOC</u></b>		<i>United States Department of Commerce</i> <i>National Institute of Standards and Technology</i> 100 Bureau Drive Stop 3460 Gaithersburg, MD 20899-3460 <a href="http://www.nist.gov">www.nist.gov</a>	(301) 975-2000
PS-1	2007	Construction and Industrial Plywood	901.4(1)
PS-2	2004	Performance Standard for Wood-based	901.4(1)

**REFERENCED DOCUMENTS**

		Structural-use Panels	
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<a href="#"><b>DOE</b></a>		U.S. Department of Energy 1000 Independence Ave., SW Washington, DC 20585 <a href="http://www.energy.gov">www.energy.gov</a>	800-345-3363
v. 4.0.1	2007	RESCheck	703.1.1
<a href="#"><b>EPA</b></a>		Environmental Protection Agency 1200 Pennsylvania Avenue, NW Washington, DC 20460 <a href="http://www.epa.gov">www.epa.gov</a>	(202) 564-4700
EPA 747-K-97-001	1997	Reducing Lead Hazards When Remodeling Your Home	1001.1
Method 24	2000	Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings	901.8.1(1)
	1990	Asbestos in the Home: A Homeowner's Guide	1001.1
<b>ENERGY STAR® Documents</b>			
	September 7, 2005	ENERGY STAR Homes Guidelines	701.1.3
	January 1, 2007	ENERGY STAR Program Requirements for Clothes Washers	704.2.5, 801.2
	January 1, 2007	ENERGY STAR Program Requirements for Dishwashers	704.2.5, 801.2
	April 1, 2001	ENERGY STAR Program Requirements for Geothermal Heat Pumps – Eligibility Criteria Version 2.0	703.4.6
	1995	ENERGY STAR Program Requirements for Programmable Thermostats – Eligibility Criteria Version 1.	703.4.10
	August 1, 2008	ENERGY STAR Program Requirements for Residential Light Fixtures	704.2.1
	August 3, 2007	ENERGY STAR Program Eligibility Criteria for Residential Refrigerators and/or Freezers	704.2.5
	September 1, 2006	ENERGY STAR Program Requirements for Residential Ceiling Fans – Eligibility Criteria Version 2.1	703.4.7
	October 1, 2003	ENERGY STAR Program Requirements for Residential Ventilating Fans – Eligibility Criteria Version 2.0	902.1.4(1) & (2)
	June 6, 2005	ENERGY STAR Program Requirements for Residential Windows, Doors, and Skylights – Eligibility Criteria Version 3.0	701.4.4.1, 704.3.1.1
	1999	ENERGY STAR Program Requirements for Roof Products – Eligibility Criteria Version 1.2	602.13
<b>WaterSense Documents</b>			
	January 24, 2007	WaterSense: Tank-Type High-Efficiency Toilet Specification	801.6(2)
	October 27, 2006	WaterSense: Professionals in System Design, Installation & Maintenance, and System Auditing	801.7.2

<b><u>FSC</u></b>		<i>Forest Stewardship Council FSC International Center Charles-de-Gaulle 5 53113 Bonn, Germany <a href="http://www.fsc.org">www.fsc.org</a></i>	49 228 367 66 0
FSC-STD-01-001 (Version 4-0) EN	2002	FSC Principles and Criteria for Forest Stewardship	606.2(c)
<b><u>GAMA</u></b>		<i>GAMA-An Association of Appliance &amp; Equipment Manufacturers Hydronics Institute Division 2107 Wilson Boulevard, Suite 600 Arlington, VA 22201 <a href="http://www.gamanet.org">www.gamanet.org</a></i>	(703) 525-7060
H-22	2001	Heat Loss Calculation Guide	701.4.2.1
<b><u>GREENGUARD</u></b>		<i>GREENGUARD Environmental Institute 1341 Capital Circle, Suite A Atlanta, Georgia 30067 <a href="http://www.greenguard.org">www.greenguard.org</a></i>	(800) 427-9681
GGPS.EC.010.R0	2001	GREENGUARD Emission Criteria – Systems Furniture	901.10(3)
<b><u>GS</u></b>		<i>Green Seal 1001 Connecticut Avenue, NW Suite 827 Washington, DC 20036 <a href="http://www.greenseal.org">www.greenseal.org</a></i>	(202) 872-6400
GS-11	1993	Green Seal Environmental Standards: Paints	901.8.1(3)
GS-36	2000	Green Seal Environmental Standards: Commercial Adhesives	901.9.1(2), 901.9.2(2)
<b><u>HPVA</u></b>		<i>Hardwood Plywood Veneer Association 1825 Michael Faraday Drive Reston, VA 20190 <a href="http://www.hpva.org">www.hpva.org</a></i>	(703) 435-2900
HP-1	2004	National Standard for Hardwood and Decorative Plywood	901.4(3)

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<b><u>HUD</u></b>		U.S. Department of Housing and Urban Development 451 7th Street SW Washington, DC 20410 <a href="http://www.hud.gov">www.hud.gov</a>		(202) 708-1112
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24 CFR, Part 3280	2005	Manufactured Home Construction and Safety Standards	202,-901.4(3)
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<b><u>ICC</u></b>		International Code Council 500 New Jersey Ave, NW, 6 <sup>th</sup> Floor Washington, DC 20001 <a href="http://www.iccsafe.org">www.iccsafe.org</a>		(888) 422-7233
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IBC	<del>2006</del> 2009	International Building Code	202, 602.3.1, 602.9, 602.10, 703.1.1, 901.2.1(2)(e), 1001.1(10)
IECC	2004	International Energy Conservation Code	B201.1
IECC	<del>2006</del> 2009	International Energy Conservation Code	701.1.1, 702.2, 703.1.1
IMC	<del>2006</del> 2009	International Mechanical Code	701.4.2.1, 704.6.1(1)
IPC	<del>2006</del> 2009	International Plumbing Code	903.5.3
IRC	<del>2006</del> 2009	International Residential Code	202, 305.1, 601.1, 602.3.1, 602.9, 602.10, 701.4.2.1, 703.1.1, 704.6.1(1), 802.1, 902.3, 903.2.1(3), 1001.1(10)

<b><u>ISO</u></b>		International Organization for Standardization 1, ch. de la Voie-Creuse, Case postale 56 CH-1211 Geneva 20, Switzerland <a href="http://www.iso.org">www.iso.org</a>		41 22 749 01 11
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14044	2006	Environmental management -- Life cycle assessment -- Requirements and guidelines	609.1
14001	2004	Environmental management systems -- Requirements with guidance for use	610.1

<b><u>KCMA</u></b>		Kitchen Cabinet Manufacturers Association 1899 Preston White Drive Reston, VA 20191 <a href="http://www.kcma.org">www.kcma.org</a>		(703) 264-1690
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ESP 01	2006	Environmental Stewardship Certification Program	901.10(1)
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<b><u>NAHBRC</u></b>		<i>NAHB Research Center 400 Prince George's Boulevard Upper Marlboro, MD 20774 <a href="http://www.nahbrc.org">www.nahbrc.org</a></i>	(800) 638-8556
Z765	2003	Single-Family Residential Buildings - Square Footage - Method for Calculating	305.1, 601.1
<b><u>NFPA</u></b>		<i>National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169 <a href="http://www.nfpa.org">www.nfpa.org</a></i>	(617) 770-3000
720	2005	Standard for the Installation of Carbon Monoxide (CO) Warning Equipment in Dwelling Units	901.12
<b><u>PEFC</u></b>		<i>Pan European Forest Council 2ème Etage 17 Rue des Girondins Merl-Hollerich L - 1626 Luxembourg <a href="http://www.pefc.org">www.pefc.org</a></i>	352 26 25 90 59
GL 2	2007	PEFC Council Minimum Requirements Checklist	606.2(d) & (f)
<b><u>RFCI</u></b>		<i>Resilient Floor Covering Institute 401 East Jefferson Street, Suite 102 Rockville, Maryland 20850 <a href="http://www.rfci.com">www.rfci.com</a></i>	(301) 340-8580
SCS-EC-10	2004	Environmental Certification Program - Indoor Air Quality Performance	901.6
<b><u>SRCC</u></b>		<i>Solar Rating and Certification Corporation c/o FSEC 1679 Clearlake Road Cocoa, FL 32922-5703 <a href="http://www.solar-rating.org">www.solar-rating.org</a></i>	(321) 638-1537
OG 300	2002	Operating Guidelines and Minimum Standards for Certifying Solar Water Heating Systems	704.3.2.1
<b><u>SFI</u></b>		<i>Sustainable Forestry Initiative, Inc. 1600 Wilson Boulevard Suite 810 Arlington, VA 22209 <a href="http://www.sfiprogram.org">www.sfiprogram.org</a></i>	(703) 875-9500
2005-2009 Standard	2004	Sustainable Forestry Initiative Standard (SFIS)	606.2(e)



REFERENCED DOCUMENTS

<b><u>TCIA</u></b>		<i>Tree Care Industry Association</i> 3 Perimeter Road, Unit 1 Manchester, NH 03103 <a href="http://www.tcia.org">www.tcia.org</a>	(603) 314-5380
<u>A300</u>	2001	Standards for Tree Care Operations - Tree, Shrub and Other Woody Plant Maintenance - Standard Practices	503.1
<b><u>UL</u></b>		<i>Underwriters Laboratories Inc.</i> 333 Pfingsten Road Northbrook, IL 60062-2096 <a href="http://www.ul.com">www.ul.com</a>	(877) 854-3577
127	1996	Standard for Factory Built Fireplaces	901.2.1(2)(b)
181	2005	The Standard for Safety for Factory-Made Air Ducts and Air Connectors	701.4.2.1
1482	1996	Standard for Solid-Fuel Type Room Heaters	901.2.1(2)(c)
2034	1996	Single and Multiple Station Carbon Monoxide Alarms	901.12
<b><u>USDA</u></b>		<i>U.S. Department of Agriculture</i> 1400 Independence Ave., SW Washington, DC 20250 <a href="http://www.usda.gov">www.usda.gov</a>	(202) 720-2791
7 CFR Part 2902	2006	Designation of Biobased Items for Federal Procurement; Final Rule	606.1
<b><u>WSL</u></b>		<i>Washington State Legislature</i> 106 Legislative Building Olympia, WA 98504-0600 <a href="http://www.leg.wa.gov">www.leg.wa.gov</a>	(360) 786-7573
WAC 173-433-100(3)	2007	Solid Fuel Burning Devices - Emission Performance Standards	901.2.1(2)(c)

## APPENDIX A

# DUCTED GARAGE EXHAUST FAN SIZING CRITERIA

### A100 SCOPE AND APPLICABILITY

**A101.1 Applicability of Appendix A.** Appendix A is part of this Standard.

**A101.2 Scope.** The provisions contained in Appendix A provide the criteria necessary for complying with Section 901.3(1)(c) for the installation of ducted exhaust fans in garages. To receive points for implementing Practice 901.3(1)(c), the fan airflow rating and duct sizing for ducted exhaust fans are to be in accordance with the applicable criteria of Appendix A.

**A101.3 Acknowledgement.** The text of Appendix A, Section A200 and related Table are extracted from ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.) Standard 62.2-2007 *Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings*, Section 7.3 and Table 7.1, respectively, and is used with the permission of ASHRAE. The referenced Section and Table numbers within the extracted text are modified to be applicable to Appendix A of this Standard.

### A200 AIR FLOW RATING

**A201.1 Airflow rating.** The airflows required by this standard refer to the delivered airflow of the system as installed and tested using a flow hood, flow grid, or other airflow measuring device. Alternatively, the airflow rating at a pressure of 0.25 in. w.c. (62.5 Pa) may be used, provided the duct sizing meets the prescriptive requirements of Table A201 or manufacturers' design criteria.

**TABLE A201**  
**Prescriptive Duct Sizing**

Fan Rating	Duct Type							
	Flex Duct				Smooth Duct			
cfm @ 0.25 in. w.g. (L/s @ 62.5 Pa)	50 (25)	80 (40)	100 (50)	125 (65)	50 (25)	80 (40)	100 (50)	125 (65)
Diameter, in. (mm)	Maximum Length, ft (m)							
3 (75)	X	X	X	X	5 (2)	X	X	X
4 (100)	70 (27)	3 (1)	X	X	105 (35)	35 (12)	5 (2)	X
5 (125)	NL	70 (27)	35 (12)	20 (7)	NL	135 (45)	85 (28)	55 (18)
6 (150)	NL	NL	125 (42)	95 (32)	NL	NL	NL	145 (48)
7 (175) and above	NL	NL	NL	NL	NL	NL	NL	NL

This table assumes no elbows. Deduct 15 ft (5 m) of allowable duct length for each elbow.

NL = no limit on duct length of this size.

X = not allowed, any length of duct of this size with assumed turns and fitting will exceed the rated pressure drop.



## APPENDIX B

# WHOLE BUILDING VENTILATION SYSTEM SPECIFICATIONS

### B100 SCOPE AND APPLICABILITY

**B101.1 Applicability of Appendix B.** Appendix B is part of this Standard.

**B101.2 Scope.** The provisions contained in Appendix B provide the specifications necessary for complying with Section 902.2.1 for the installation of whole building ventilation systems. To receive points for implementing Practice 902.2.1, the chosen whole building ventilation system is to be in accordance with the applicable specifications of Appendix B.

**B101.3 Acknowledgement.** The text of Appendix B, Section B200 and related Tables are extracted from ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.) Standard 62.2-2007 *Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings*, Section 4, and is used with the permission of ASHRAE. The referenced Section and Table numbers within the extracted text are modified to be applicable to Appendix B of this Standard. “\*” indicates added reference to ICC or ASHRAE 62.2 to provide clarity.

### B200 WHOLE-BUILDING VENTILATION

**B201.1 Ventilation Rate.** A mechanical exhaust system, supply system, or combination thereof shall be installed for each dwelling unit to provide whole-building ventilation with outdoor air each hour at no less than the rate specified in Tables B201.1a and B201.1b or, equivalently, Equations B201.1a and B201.1b, based on the floor area of the conditioned space and number of bedrooms.

**Exceptions:** Whole-building mechanical systems are not required provided that at least one of the following conditions is met:

- (a) the building is in zone 3B or 3C of the ICC\* IECC 2004 Climate Zone Map (see ASHRAE 62.2\*, Figure 8.2),
- (b) the building has no mechanical cooling and is in zone 1 or 2 of the ICC\* IECC Climate Zone Map (see ASHRAE 62.2\*, Figure 8.2), or
- (c) the building is thermally conditioned for human occupancy for less than 876 hours per year,

and if the authority having jurisdiction determines that window operation is a locally permissible method of providing ventilation.

**B201.1.1 Different Occupant Density.** Tables B201.1a and B201.1b and Equations B201.1a and B201.1b assume two persons in a studio or one-bedroom dwelling unit and an additional person for each additional bedroom. Where higher occupant densities are known, the rate shall be increased by 7.5 cfm (3.5 L/s) for each additional person. When approved by the authority having jurisdiction, lower occupant densities may be used.

**B201.1.2 Alternative Ventilation.** Other methods may be used to provide the required ventilation rates (of Tables B201.1a and B201.1b) when approved by a licensed design professional.

**WHOLE BUILDING VENTILATION SYSTEM SPECIFICATIONS**

**B201.1.3 Infiltration Credit.** Section B201.1 includes a default credit for ventilation provided by infiltration of 2 cfm/100 ft<sup>2</sup> (10 L/s per 100 m<sup>2</sup>) of occupiable floor space. For buildings built prior to the application of this standard, when excess infiltration has been measured using *ANSI/ASHRAE Standard 136, A Method of Determining Air Change Rates in Detached Dwellings*,<sup>1</sup> the rates in Section B201.1 may be decreased by half of the excess of the rate calculated from Standard 136 that is above the default rate.

<b>Equation B201.1a</b>	
$Q_{fan} = 0.01A_{floor} + 7.5(N_{br} + 1)$	
where	
$Q_{fan}$	= fan flow rate, cfm
$A_{floor}$	= floor area, ft <sup>2</sup>
$N_{br}$	= number of bedrooms; not to be less than one

<b>Equation B201.1b</b>	
$Q_{fan} = 0.05A_{floor} + 3.5(N_{br} + 1)$	
where	
$Q_{fan}$	= fan flow rate, L/s
$A_{floor}$	= floor area, m <sup>2</sup>
$N_{br}$	= number of bedrooms; not to be less than one

**TABLE B201.1a (I-P)**  
**Ventilation Air Requirements, cfm**

Floor Area (ft <sup>2</sup> )	Bedrooms				
	0–1	2–3	4–5	6–7	>7
<1500	30	45	60	75	90
1501–3000	45	60	75	90	105
3001–4500	60	75	90	105	120
4501–6000	75	90	105	120	135
6001–7500	90	105	120	135	150
>7500	105	120	135	150	165

**TABLE B201.1b (SI)**  
**Ventilation Air Requirements, L/s**

Floor Area (m <sup>2</sup> )	Bedrooms				
	0–1	2–3	4–5	6–7	>7
<139	14	21	28	35	42
139.1–279	21	28	35	42	50
279.1–418	28	35	42	50	57
418.1–557	35	42	50	57	64
557.1–697	42	50	57	64	71
>697	50	57	64	71	78

<sup>1</sup> *ANSI/ASHRAE Standard 136-1993 (RA 2006), A Method of Determining Air Change Rates in Detached Dwellings.* American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., Atlanta, GA.

**B201.2 System Type.** The whole-house ventilation system shall consist of one or more supply or exhaust fans and associated ducts and controls. Local exhaust fans shall be permitted to be part of a mechanical exhaust system. Outdoor air ducts connected to the return side of an air handler shall be permitted as supply ventilation if manufacturers’ requirements for return air temperature are met. See ASHRAE 62.2\*, Appendix B for guidance on selection of methods.

**B201.3 Control and Operation.** The “fan on” switch on a heating or air-conditioning system shall be permitted as an operational control for systems introducing ventilation air through a duct to the return side of an HVAC system. Readily accessible override control must be provided to the occupant. Local exhaust fan switches and “fan on” switches shall be permitted as override controls. Controls, including the “fan-on” switch of a conditioning system, must be appropriately labeled.

**Exception:** An intermittently operating, whole-house mechanical ventilation system may be used if the ventilation rate is adjusted according to the exception to Section B201.4. The system must be designed so that it can operate automatically based on a timer. The intermittent mechanical ventilation system must operate at least one hour out of every twelve.

**B201.4 Delivered Ventilation.** The delivered ventilation rate shall be calculated as the larger of the total supply or total exhaust and shall be no less than specified in Section B201.1 during each hour of operation.

**Exception:** The effective ventilation rate of an intermittent system is the combination of its delivered capacity, its daily fractional on-time, and the ventilation effectiveness from Table B201.2.

<b>Equation B201.2</b>	
$Qf = Qr / (\epsilon f)$	
where	
$Qf$	= fan flow rate
$Qr$	= ventilation air requirement (from Table B201.1a or B201.1b)
$\epsilon$	= ventilation effectiveness (from Table B201.2)
$f$	= fractional on time
If the system runs at least once every three hours, 1.0 can be used as the ventilation effectiveness. (See ASHRAE 62.2*, Appendix B for an example of this calculation.)	

**TABLE B201.2**  
**Ventilation Effectiveness for Intermittent Fans**

Daily Fractional On-Time, $f$	Ventilation Effectiveness, $\epsilon$
$f \leq 35\%$	0.33
$35\% \leq f < 60\%$	0.50
$60\% \leq f < 80\%$	0.75
$80\% \leq f$	1.0

**B201.5 Restrictions on System Type.** Use of certain ventilation strategies is restricted in specific climates as follows.

**B201.5.1 Hot, Humid Climates.** In hot, humid climates, whole-house mechanical net exhaust flow shall not exceed 7.5 cfm per 100 ft<sup>2</sup> (35 L/s per 100 m<sup>2</sup>). (See ASHRAE 62.2\*, Section 8 for a listing of hot, humid US climates.)

**B201.5.2 Very Cold Climates.** Mechanical supply systems exceeding 7.5 cfm per 100 ft<sup>2</sup> (35 L/s per 100 m<sup>2</sup>) shall not be used in very cold climates. (See ASHRAE 62.2\*, Section 8 for a listing of very cold US climates.)

## WHOLE BUILDING VENTILATION SYSTEM SPECIFICATIONS

**Exception:** These ventilation strategies are not restricted if the authority having jurisdiction approves the envelope design as being moisture resistant.

## APPENDIX C

### CLIMATE ZONES

#### **C100 CLIMATE ZONES**

**TABLE C100 CLIMATE ZONES, MOISTURE REGIMES, AND WARM-HUMID DESIGNATIONS BY STATE, COUNTY AND TERRITORY**

**Key: A – Moist, B – Dry, C – Marine. Absence of moisture designation indicates moisture regime is irrelevant.**

**Asterisk (\*) indicates a warm-humid location.**

#### **ALABAMA**

<u>3A Autauga*</u>	<u>3A Cleburne</u>	<u>3A Fayette</u>	<u>3A Lowndes*</u>	<u>3A Russell*</u>
<u>2A Baldwin*</u>	<u>3A Coffee*</u>	<u>3A Franklin</u>	<u>3A Macon*</u>	<u>3A Shelby</u>
<u>3A Barbour*</u>	<u>3A Colbert</u>	<u>3A Geneva*</u>	<u>3A Madison</u>	<u>3A St. Clair</u>
<u>3A Bibb</u>	<u>3A Conecuh*</u>	<u>3A Greene</u>	<u>3A Marengo*</u>	<u>3A Sumter</u>
<u>3A Blount</u>	<u>3A Coosa</u>	<u>3A Hale</u>	<u>3A Marion</u>	<u>3A Talladega</u>
<u>3A Bullock*</u>	<u>3A Covington*</u>	<u>3A Henry*</u>	<u>3A Marshall</u>	<u>3A Tallapoosa</u>
<u>3A Butler*</u>	<u>3A Crenshaw*</u>	<u>3A Houston*</u>	<u>2A Mobile*</u>	<u>3A Tuscaloosa</u>
<u>3A Calhoun</u>	<u>3A Cullman</u>	<u>3A Jackson</u>	<u>3A Monroe*</u>	<u>3A Walker</u>
<u>3A Chambers</u>	<u>3A Dale*</u>	<u>3A Jefferson</u>	<u>3A Montgomery*</u>	<u>3A Washington*</u>
<u>3A Cherokee</u>	<u>3A Dallas*</u>	<u>3A Lamar</u>	<u>3A Morgan</u>	<u>3A Wilcox*</u>
<u>3A Chilton</u>	<u>3A DeKalb</u>	<u>3A Lauderdale</u>	<u>3A Perry*</u>	<u>3A Winston</u>
<u>3A Choctaw*</u>	<u>3A Elmore*</u>	<u>3A Lawrence</u>	<u>3A Pickens</u>	
<u>3A Clarke*</u>	<u>3A Escambia*</u>	<u>3A Lee</u>	<u>3A Pike*</u>	
<u>3A Clay</u>	<u>3A Etowah</u>	<u>3A Limestone</u>	<u>3A Randolph</u>	

#### **ALASKA**

<u>7 Aleutians East</u>	<u>8 Fairbanks North Star</u>	<u>7 Matanuska-Susitna</u>	<u>8 Southeast Fairbanks</u>
<u>7 Aleutians West</u>	<u>7 Haines</u>	<u>8 Nome</u>	<u>7 Valdez-Cordova</u>
<u>7 Anchorage</u>	<u>7 Juneau</u>	<u>8 North Slope</u>	<u>8 Wade Hampton</u>
<u>8 Bethel</u>	<u>7 Kenai Peninsula</u>	<u>8 Northwest Arctic</u>	<u>7 Wrangell-Petersburg</u>
<u>7 Bristol Bay</u>	<u>7 Ketchikan Gateway</u>	<u>7 Prince of Wales-Outer Ketchikan</u>	<u>7 Yakutat</u>
<u>7 Denali</u>	<u>7 Kodiak Island</u>	<u>7 Sitka</u>	<u>8 Yukon-Koyukuk</u>
<u>8 Dillingham</u>	<u>7 Lake and Peninsula</u>	<u>7 Skagway-Hoonah Angoon</u>	

#### **ARIZONA**

<u>5B Apache</u>	<u>4B Gila</u>	<u>2B La Paz</u>	<u>5B Navajo</u>	<u>3B Santa Cruz</u>
<u>3B Cochise</u>	<u>3B Graham</u>	<u>2B Maricopa</u>	<u>2B Pima</u>	<u>4B Yavapai</u>
<u>5B Coconino</u>	<u>3B Greenlee</u>	<u>3B Mohave</u>	<u>2B Pinal</u>	<u>2B Yuma</u>



**ARKANSAS**

<a href="#">3A Arkansas</a>	<a href="#">3A Craighead</a>	<a href="#">3A Howard</a>	<a href="#">3A Miller*</a>	<a href="#">3A Randolph</a>
<a href="#">3A Ashley</a>	<a href="#">3A Crawford</a>	<a href="#">3A Independence</a>	<a href="#">3A Mississippi</a>	<a href="#">3A Saline</a>
<a href="#">4A Baxter</a>	<a href="#">3A Crittenden</a>	<a href="#">4A Izard</a>	<a href="#">3A Monroe</a>	<a href="#">3A Scott</a>
<a href="#">4A Benton</a>	<a href="#">3A Cross</a>	<a href="#">3A Jackson</a>	<a href="#">3A Montgomery</a>	<a href="#">4A Searcy</a>
<a href="#">4A Boone</a>	<a href="#">3A Dallas</a>	<a href="#">3A Jefferson</a>	<a href="#">3A Nevada</a>	<a href="#">3A Sebastian</a>
<a href="#">3A Bradley</a>	<a href="#">3A Desha</a>	<a href="#">3A Johnson</a>	<a href="#">4A Newton</a>	<a href="#">3A Sevier*</a>
<a href="#">3A Calhoun</a>	<a href="#">3A Drew</a>	<a href="#">3A Lafayette*</a>	<a href="#">3A Ouachita</a>	<a href="#">3A Sharp</a>
<a href="#">4A Carroll</a>	<a href="#">3A Faulkner</a>	<a href="#">3A Lawrence</a>	<a href="#">3A Perry</a>	<a href="#">3A St. Francis</a>
<a href="#">3A Chicot</a>	<a href="#">3A Franklin</a>	<a href="#">3A Lee</a>	<a href="#">3A Phillips</a>	<a href="#">4A Stone</a>
<a href="#">3A Clark</a>	<a href="#">4A Fulton</a>	<a href="#">3A Lincoln</a>	<a href="#">3A Pike</a>	<a href="#">3A Union*</a>
<a href="#">3A Clay</a>	<a href="#">3A Garland</a>	<a href="#">3A Little River*</a>	<a href="#">3A Poinsett</a>	<a href="#">3A Van Buren</a>
<a href="#">3A Cleburne</a>	<a href="#">3A Grant</a>	<a href="#">3A Logan</a>	<a href="#">3A Polk</a>	<a href="#">4A Washington</a>
<a href="#">3A Cleveland</a>	<a href="#">3A Greene</a>	<a href="#">3A Lonoke</a>	<a href="#">3A Pope</a>	<a href="#">3A White</a>
<a href="#">3A Columbia*</a>	<a href="#">3A Hempstead*</a>	<a href="#">4A Madison</a>	<a href="#">3A Prairie</a>	<a href="#">3A Woodruff</a>
<a href="#">3A Conway</a>	<a href="#">3A Hot Spring</a>	<a href="#">4A Marion</a>	<a href="#">3A Pulaski</a>	<a href="#">3A Yell</a>

**CALIFORNIA**

<a href="#">3C Alameda</a>	<a href="#">2B Imperial</a>	<a href="#">5B Modoc</a>	<a href="#">3B San Diego</a>	<a href="#">3C Sonoma</a>
<a href="#">6B Alpine</a>	<a href="#">4B Inyo</a>	<a href="#">6B Mono</a>	<a href="#">3C San Francisco</a>	<a href="#">3B Stanislaus</a>
<a href="#">4B Amador</a>	<a href="#">3B Kern</a>	<a href="#">3C Monterey</a>	<a href="#">3B San Joaquin</a>	<a href="#">3B Sutter</a>
<a href="#">3B Butte</a>	<a href="#">3B Kings</a>	<a href="#">3C Napa</a>	<a href="#">3C San Luis Obispo</a>	<a href="#">3B Tehama</a>
<a href="#">4B Calaveras</a>	<a href="#">4B Lake</a>	<a href="#">5B Nevada</a>	<a href="#">3C San Mateo</a>	<a href="#">4B Trinity</a>
<a href="#">3B Colusa</a>	<a href="#">5B Lassen</a>	<a href="#">3B Orange</a>	<a href="#">3C Santa Barbara</a>	<a href="#">3B Tulare</a>
<a href="#">3B Contra Costa</a>	<a href="#">3B Los Angeles</a>	<a href="#">3B Placer</a>	<a href="#">3C Santa Clara</a>	<a href="#">4B Tuolumne</a>
<a href="#">4C Del Norte</a>	<a href="#">3B Madera</a>	<a href="#">5B Plumas</a>	<a href="#">3C Santa Cruz</a>	<a href="#">3C Ventura</a>
<a href="#">4B El Dorado</a>	<a href="#">3C Marin</a>	<a href="#">3B Riverside</a>	<a href="#">3B Shasta</a>	<a href="#">3B Yolo</a>
<a href="#">3B Fresno</a>	<a href="#">4B Mariposa</a>	<a href="#">3B Sacramento</a>	<a href="#">5B Sierra</a>	<a href="#">3B Yuba</a>
<a href="#">3B Glenn</a>	<a href="#">3C Mendocino</a>	<a href="#">3C San Benito</a>	<a href="#">5B Siskiyou</a>	
<a href="#">4C Humboldt</a>	<a href="#">3B Merced</a>	<a href="#">3B San Bernardino</a>	<a href="#">3B Solano</a>	

**COLORADO**

<a href="#">5B Adams</a>	<a href="#">6B Custer</a>	<a href="#">7 Hinsdale</a>	<a href="#">7 Mineral</a>	<a href="#">7 Rio Grande</a>
<a href="#">6B Alamosa</a>	<a href="#">5B Delta</a>	<a href="#">5B Huerfano</a>	<a href="#">6B Moffat</a>	<a href="#">7 Routt</a>
<a href="#">5B Arapahoe</a>	<a href="#">5B Denver</a>	<a href="#">7 Jackson</a>	<a href="#">5B Montezuma</a>	<a href="#">6B Saguache</a>
<a href="#">6B Archuleta</a>	<a href="#">6B Dolores</a>	<a href="#">5B Jefferson</a>	<a href="#">5B Montrose</a>	<a href="#">7 San Juan</a>
<a href="#">4B Baca</a>	<a href="#">5B Douglas</a>	<a href="#">5B Kiowa</a>	<a href="#">5B Morgan</a>	<a href="#">6B San Miguel</a>
<a href="#">5B Bent</a>	<a href="#">6B Eagle</a>	<a href="#">5B Kit Carson</a>	<a href="#">4B Otero</a>	<a href="#">5B Sedgwick</a>
<a href="#">5B Boulder</a>	<a href="#">5B Elbert</a>	<a href="#">7 Lake</a>	<a href="#">6B Ouray</a>	<a href="#">7 Summit</a>
<a href="#">6B Chaffee</a>	<a href="#">5B El Paso</a>	<a href="#">5B La Plata</a>	<a href="#">7 Park</a>	<a href="#">5B Teller</a>
<a href="#">5B Cheyenne</a>	<a href="#">5B Fremont</a>	<a href="#">5B Larimer</a>	<a href="#">5B Phillips</a>	<a href="#">5B Washington</a>
<a href="#">7 Clear Creek</a>	<a href="#">5B Garfield</a>	<a href="#">4B Las Animas</a>	<a href="#">7 Pitkin</a>	<a href="#">5B Weld</a>
<a href="#">6B Conejos</a>	<a href="#">5B Gilpin</a>	<a href="#">5B Lincoln</a>	<a href="#">5B Prowers</a>	<a href="#">5B Yuma</a>
<a href="#">6B Costilla</a>	<a href="#">7 Grand</a>	<a href="#">5B Logan</a>	<a href="#">5B Pueblo</a>	
<a href="#">5B Crowley</a>	<a href="#">7 Gunnison</a>	<a href="#">5B Mesa</a>	<a href="#">6B Rio Blanco</a>	

**CONNECTICUT**[5A \(all\)](#)**DELAWARE**[4A \(all\)](#)

**DISTRICT OF  
COLUMBIA**

4A (all)

**FLORIDA**

<a href="#">2A Alachua*</a>	<a href="#">2A Duval*</a>	<a href="#">2A Holmes*</a>	<a href="#">1A Miami-Dade*</a>	<a href="#">2A Seminole*</a>
<a href="#">2A Baker*</a>	<a href="#">2A Escambia*</a>	<a href="#">2A Indian River*</a>	<a href="#">1A Monroe*</a>	<a href="#">2A St. Johns*</a>
<a href="#">2A Bay*</a>	<a href="#">2A Flagler*</a>	<a href="#">2A Jackson*</a>	<a href="#">2A Nassau*</a>	<a href="#">2A St. Lucie*</a>
<a href="#">2A Bradford*</a>	<a href="#">2A Franklin*</a>	<a href="#">2A Jefferson*</a>	<a href="#">2A Okaloosa*</a>	<a href="#">2A Sumter*</a>
<a href="#">2A Brevard*</a>	<a href="#">2A Gadsden*</a>	<a href="#">2A Lafayette*</a>	<a href="#">2A Okeechobee*</a>	<a href="#">2A Suwannee*</a>
<a href="#">1A Broward*</a>	<a href="#">2A Gilchrist*</a>	<a href="#">2A Lake*</a>	<a href="#">2A Orange*</a>	<a href="#">2A Taylor*</a>
<a href="#">2A Calhoun*</a>	<a href="#">2A Glades*</a>	<a href="#">2A Lee*</a>	<a href="#">2A Osceola*</a>	<a href="#">2A Union*</a>
<a href="#">2A Charlotte*</a>	<a href="#">2A Gulf*</a>	<a href="#">2A Leon*</a>	<a href="#">2A Palm Beach*</a>	<a href="#">2A Volusia*</a>
<a href="#">2A Citrus*</a>	<a href="#">2A Hamilton*</a>	<a href="#">2A Levy*</a>	<a href="#">2A Pasco*</a>	<a href="#">2A Wakulla*</a>
<a href="#">2A Clay*</a>	<a href="#">2A Hardee*</a>	<a href="#">2A Liberty*</a>	<a href="#">2A Pinellas*</a>	<a href="#">2A Walton*</a>
<a href="#">2A Collier*</a>	<a href="#">2A Hendry*</a>	<a href="#">2A Madison*</a>	<a href="#">2A Polk*</a>	<a href="#">2A Washington*</a>
<a href="#">2A Columbia*</a>	<a href="#">2A Hernando*</a>	<a href="#">2A Manatee*</a>	<a href="#">2A Putnam*</a>	
<a href="#">2A DeSoto*</a>	<a href="#">2A Highlands*</a>	<a href="#">2A Marion*</a>	<a href="#">2A Santa Rosa*</a>	
<a href="#">2A Dixie*</a>	<a href="#">2A Hillsborough*</a>	<a href="#">2A Martin*</a>	<a href="#">2A Sarasota*</a>	

**GEORGIA**

<a href="#">2A Appling*</a>	<a href="#">3A Cobb</a>	<a href="#">2A Grady*</a>	<a href="#">3A McDuffie</a>	<a href="#">3A Sumter*</a>
<a href="#">2A Atkinson*</a>	<a href="#">3A Coffee*</a>	<a href="#">3A Greene</a>	<a href="#">2A McIntosh*</a>	<a href="#">3A Talbot</a>
<a href="#">2A Bacon*</a>	<a href="#">2A Colquitt*</a>	<a href="#">3A Gwinnett</a>	<a href="#">3A Meriwether</a>	<a href="#">3A Taliaferro</a>
<a href="#">2A Baker*</a>	<a href="#">3A Columbia</a>	<a href="#">4A Habersham</a>	<a href="#">2A Miller*</a>	<a href="#">2A Tattnall*</a>
<a href="#">3A Baldwin</a>	<a href="#">2A Cook*</a>	<a href="#">4A Hall</a>	<a href="#">2A Mitchell*</a>	<a href="#">3A Taylor*</a>
<a href="#">4A Banks</a>	<a href="#">3A Coweta</a>	<a href="#">3A Hancock</a>	<a href="#">3A Monroe</a>	<a href="#">3A Telfair*</a>
<a href="#">3A Barrow</a>	<a href="#">3A Crawford</a>	<a href="#">3A Haralson</a>	<a href="#">3A Montgomery*</a>	<a href="#">3A Terrell*</a>
<a href="#">3A Bartow</a>	<a href="#">3A Crisp*</a>	<a href="#">3A Harris</a>	<a href="#">3A Morgan</a>	<a href="#">2A Thomas*</a>
<a href="#">3A Ben Hill*</a>	<a href="#">4A Dade</a>	<a href="#">3A Hart</a>	<a href="#">4A Murray</a>	<a href="#">3A Tift*</a>
<a href="#">2A Berrien*</a>	<a href="#">4A Dawson</a>	<a href="#">3A Heard</a>	<a href="#">3A Muscogee</a>	<a href="#">2A Toombs*</a>
<a href="#">3A Bibb</a>	<a href="#">2A Decatur*</a>	<a href="#">3A Henry</a>	<a href="#">3A Newton</a>	<a href="#">4A Towns</a>
<a href="#">3A Bleckley*</a>	<a href="#">3A DeKalb</a>	<a href="#">3A Houston*</a>	<a href="#">3A Oconee</a>	<a href="#">3A Treutlen*</a>
<a href="#">2A Brantley*</a>	<a href="#">3A Dodge*</a>	<a href="#">3A Irwin*</a>	<a href="#">3A Oglethorpe</a>	<a href="#">3A Troup</a>
<a href="#">2A Brooks*</a>	<a href="#">3A Dooly*</a>	<a href="#">3A Jackson</a>	<a href="#">3A Paulding</a>	<a href="#">3A Turner*</a>
<a href="#">2A Bryan*</a>	<a href="#">3A Dougherty*</a>	<a href="#">3A Jasper</a>	<a href="#">3A Peach*</a>	<a href="#">3A Twiggs*</a>
<a href="#">3A Bulloch*</a>	<a href="#">3A Douglas</a>	<a href="#">2A Jeff Davis*</a>	<a href="#">4A Pickens</a>	<a href="#">4A Union</a>
<a href="#">3A Burke</a>	<a href="#">3A Early*</a>	<a href="#">3A Jefferson</a>	<a href="#">2A Pierce*</a>	<a href="#">3A Upson</a>
<a href="#">3A Butts</a>	<a href="#">2A Echols*</a>	<a href="#">3A Jenkins*</a>	<a href="#">3A Pike</a>	<a href="#">4A Walker</a>
<a href="#">3A Calhoun*</a>	<a href="#">2A Effingham*</a>	<a href="#">3A Johnson*</a>	<a href="#">3A Polk</a>	<a href="#">3A Walton</a>
<a href="#">2A Camden*</a>	<a href="#">3A Elbert</a>	<a href="#">3A Jones</a>	<a href="#">3A Pulaski*</a>	<a href="#">2A Ware*</a>
<a href="#">3A Candler*</a>	<a href="#">3A Emanuel*</a>	<a href="#">3A Lamar</a>	<a href="#">3A Putnam</a>	<a href="#">3A Warren</a>
<a href="#">3A Carroll</a>	<a href="#">2A Evans*</a>	<a href="#">2A Lanier*</a>	<a href="#">3A Quitman*</a>	<a href="#">3A Washington</a>
<a href="#">4A Catoosa</a>	<a href="#">4A Fannin</a>	<a href="#">3A Laurens*</a>	<a href="#">4A Rabun</a>	<a href="#">2A Wayne*</a>
<a href="#">2A Charlton*</a>	<a href="#">3A Fayette</a>	<a href="#">3A Lee*</a>	<a href="#">3A Randolph*</a>	<a href="#">3A Webster*</a>
<a href="#">2A Chatham*</a>	<a href="#">4A Floyd</a>	<a href="#">2A Liberty*</a>	<a href="#">3A Richmond</a>	<a href="#">3A Wheeler*</a>
<a href="#">3A Chattahoochee*</a>	<a href="#">3A Forsyth</a>	<a href="#">3A Lincoln</a>	<a href="#">3A Rockdale</a>	<a href="#">4A White</a>
<a href="#">4A Chattooga</a>	<a href="#">4A Franklin</a>	<a href="#">2A Long*</a>	<a href="#">3A Schley*</a>	<a href="#">4A Whitfield</a>
<a href="#">3A Cherokee</a>	<a href="#">3A Fulton</a>	<a href="#">2A Lowndes*</a>	<a href="#">3A Screven*</a>	<a href="#">3A Wilcox*</a>
<a href="#">3A Clarke</a>	<a href="#">4A Gilmer</a>	<a href="#">4A Lumpkin</a>	<a href="#">2A Seminole*</a>	<a href="#">3A Wilkes</a>
<a href="#">3A Clay*</a>	<a href="#">3A Glascock</a>	<a href="#">3A Macon*</a>	<a href="#">3A Spalding</a>	<a href="#">3A Wilkinson</a>
<a href="#">3A Clayton</a>	<a href="#">2A Glynn*</a>	<a href="#">3A Madison</a>	<a href="#">4A Stephens</a>	<a href="#">3A Worth*</a>
<a href="#">2A Clinch*</a>	<a href="#">4A Gordon</a>	<a href="#">3A Marion*</a>	<a href="#">3A Stewart*</a>	

**HAWAII**

1A (all)\*

**IDAHO**

<a href="#">5B Ada</a>	<a href="#">6B Bonneville</a>	<a href="#">6B Custer</a>	<a href="#">5B Kootenai</a>	<a href="#">5B Owyhee</a>
<a href="#">6B Adams</a>	<a href="#">6B Boundary</a>	<a href="#">5B Elmore</a>	<a href="#">5B Latah</a>	<a href="#">5B Payette</a>
<a href="#">6B Bannock</a>	<a href="#">6B Butte</a>	<a href="#">6B Franklin</a>	<a href="#">6B Lemhi</a>	<a href="#">5B Power</a>
<a href="#">6B Bear Lake</a>	<a href="#">6B Camas</a>	<a href="#">6B Fremont</a>	<a href="#">5B Lewis</a>	<a href="#">5B Shoshone</a>
<a href="#">5B Benewah</a>	<a href="#">5B Canyon</a>	<a href="#">5B Gem</a>	<a href="#">5B Lincoln</a>	<a href="#">6B Teton</a>
<a href="#">6B Bingham</a>	<a href="#">6B Caribou</a>	<a href="#">5B Gooding</a>	<a href="#">6B Madison</a>	<a href="#">5B Twin Falls</a>
<a href="#">6B Blaine</a>	<a href="#">5B Cassia</a>	<a href="#">5B Idaho</a>	<a href="#">5B Minidoka</a>	<a href="#">6B Valley</a>
<a href="#">6B Boise</a>	<a href="#">6B Clark</a>	<a href="#">6B Jefferson</a>	<a href="#">5B Nez Perce</a>	<a href="#">5B Washington</a>
<a href="#">6B Bonner</a>	<a href="#">5B Clearwater</a>	<a href="#">5B Jerome</a>	<a href="#">6B Oneida</a>	

**ILLINOIS**

<a href="#">5A Adams</a>	<a href="#">5A DuPage</a>	<a href="#">5A Jo Daviess</a>	<a href="#">5A McLean</a>	<a href="#">5A Scott</a>
<a href="#">4A Alexander</a>	<a href="#">5A Edgar</a>	<a href="#">4A Johnson</a>	<a href="#">5A Menard</a>	<a href="#">4A Shelby</a>
<a href="#">4A Bond</a>	<a href="#">4A Edwards</a>	<a href="#">5A Kane</a>	<a href="#">5A Mercer</a>	<a href="#">5A Stark</a>
<a href="#">5A Boone</a>	<a href="#">4A Effingham</a>	<a href="#">5A Kankakee</a>	<a href="#">4A Monroe</a>	<a href="#">4A St. Clair</a>
<a href="#">5A Brown</a>	<a href="#">4A Fayette</a>	<a href="#">5A Kendall</a>	<a href="#">4A Montgomery</a>	<a href="#">5A Stephenson</a>
<a href="#">5A Bureau</a>	<a href="#">5A Ford</a>	<a href="#">5A Knox</a>	<a href="#">5A Morgan</a>	<a href="#">5A Tazewell</a>
<a href="#">5A Calhoun</a>	<a href="#">4A Franklin</a>	<a href="#">5A Lake</a>	<a href="#">5A Moultrie</a>	<a href="#">4A Union</a>
<a href="#">5A Carroll</a>	<a href="#">5A Fulton</a>	<a href="#">5A La Salle</a>	<a href="#">5A Ogle</a>	<a href="#">5A Vermilion</a>
<a href="#">5A Cass</a>	<a href="#">4A Gallatin</a>	<a href="#">4A Lawrence</a>	<a href="#">5A Peoria</a>	<a href="#">4A Wabash</a>
<a href="#">5A Champaign</a>	<a href="#">5A Greene</a>	<a href="#">5A Lee</a>	<a href="#">4A Perry</a>	<a href="#">5A Warren</a>
<a href="#">4A Christian</a>	<a href="#">5A Grundy</a>	<a href="#">5A Livingston</a>	<a href="#">5A Piatt</a>	<a href="#">4A Washington</a>
<a href="#">5A Clark</a>	<a href="#">4A Hamilton</a>	<a href="#">5A Logan</a>	<a href="#">5A Pike</a>	<a href="#">4A Wayne</a>
<a href="#">4A Clay</a>	<a href="#">5A Hancock</a>	<a href="#">5A Macon</a>	<a href="#">4A Pope</a>	<a href="#">4A White</a>
<a href="#">4A Clinton</a>	<a href="#">4A Hardin</a>	<a href="#">4A Macoupin</a>	<a href="#">4A Pulaski</a>	<a href="#">5A Whiteside</a>
<a href="#">5A Coles</a>	<a href="#">5A Henderson</a>	<a href="#">4A Madison</a>	<a href="#">5A Putnam</a>	<a href="#">5A Will</a>
<a href="#">5A Cook</a>	<a href="#">5A Henry</a>	<a href="#">4A Marion</a>	<a href="#">4A Randolph</a>	<a href="#">4A Williamson</a>
<a href="#">4A Crawford</a>	<a href="#">5A Iroquois</a>	<a href="#">5A Marshall</a>	<a href="#">4A Richland</a>	<a href="#">5A Winnebago</a>
<a href="#">5A Cumberland</a>	<a href="#">4A Jackson</a>	<a href="#">5A Mason</a>	<a href="#">5A Rock Island</a>	<a href="#">5A Woodford</a>
<a href="#">5A DeKalb</a>	<a href="#">4A Jasper</a>	<a href="#">4A Massac</a>	<a href="#">4A Saline</a>	
<a href="#">5A De Witt</a>	<a href="#">4A Jefferson</a>	<a href="#">5A McDonough</a>	<a href="#">5A Sangamon</a>	
<a href="#">5A Douglas</a>	<a href="#">5A Jersey</a>	<a href="#">5A McHenry</a>	<a href="#">5A Schuyler</a>	

**INDIANA**

<a href="#">5A Adams</a>	<a href="#">5A Elkhart</a>	<a href="#">4A Jefferson</a>	<a href="#">4A Ohio</a>	<a href="#">4A Sullivan</a>
<a href="#">5A Allen</a>	<a href="#">5A Fayette</a>	<a href="#">4A Jennings</a>	<a href="#">4A Orange</a>	<a href="#">4A Switzerland</a>
<a href="#">5A Bartholomew</a>	<a href="#">4A Floyd</a>	<a href="#">5A Johnson</a>	<a href="#">5A Owen</a>	<a href="#">5A Tippecanoe</a>
<a href="#">5A Benton</a>	<a href="#">5A Fountain</a>	<a href="#">4A Knox</a>	<a href="#">5A Parke</a>	<a href="#">5A Tipton</a>
<a href="#">5A Blackford</a>	<a href="#">5A Franklin</a>	<a href="#">5A Kosciusko</a>	<a href="#">4A Perry</a>	<a href="#">5A Union</a>
<a href="#">5A Boone</a>	<a href="#">5A Fulton</a>	<a href="#">5A Lagrange</a>	<a href="#">4A Pike</a>	<a href="#">4A Vanderburgh</a>
<a href="#">4A Brown</a>	<a href="#">4A Gibson</a>	<a href="#">5A Lake</a>	<a href="#">5A Porter</a>	<a href="#">5A Vermillion</a>
<a href="#">5A Carroll</a>	<a href="#">5A Grant</a>	<a href="#">5A La Porte</a>	<a href="#">4A Posey</a>	<a href="#">5A Vigo</a>
<a href="#">5A Cass</a>	<a href="#">4A Greene</a>	<a href="#">4A Lawrence</a>	<a href="#">5A Pulaski</a>	<a href="#">5A Wabash</a>
<a href="#">4A Clark</a>	<a href="#">5A Hamilton</a>	<a href="#">5A Madison</a>	<a href="#">5A Putnam</a>	<a href="#">5A Warren</a>
<a href="#">5A Clay</a>	<a href="#">5A Hancock</a>	<a href="#">5A Marion</a>	<a href="#">5A Randolph</a>	<a href="#">4A Warrick</a>
<a href="#">5A Clinton</a>	<a href="#">4A Harrison</a>	<a href="#">5A Marshall</a>	<a href="#">4A Ripley</a>	<a href="#">4A Washington</a>
<a href="#">4A Crawford</a>	<a href="#">5A Hendricks</a>	<a href="#">4A Martin</a>	<a href="#">5A Rush</a>	<a href="#">5A Wayne</a>
<a href="#">4A Daviess</a>	<a href="#">5A Henry</a>	<a href="#">5A Miami</a>	<a href="#">4A Scott</a>	<a href="#">5A Wells</a>
<a href="#">4A Dearborn</a>	<a href="#">5A Howard</a>	<a href="#">4A Monroe</a>	<a href="#">5A Shelby</a>	<a href="#">5A White</a>
<a href="#">5A Decatur</a>	<a href="#">5A Huntington</a>	<a href="#">5A Montgomery</a>	<a href="#">4A Spencer</a>	<a href="#">5A Whitley</a>
<a href="#">5A De Kalb</a>	<a href="#">4A Jackson</a>	<a href="#">5A Morgan</a>	<a href="#">5A Starke</a>	
<a href="#">5A Delaware</a>	<a href="#">5A Jasper</a>	<a href="#">5A Newton</a>	<a href="#">5A Steuben</a>	
<a href="#">4A Dubois</a>	<a href="#">5A Jay</a>	<a href="#">5A Noble</a>	<a href="#">5A St. Joseph</a>	

**IOWA**

<a href="#">5A Adair</a>	<a href="#">6A Clay</a>	<a href="#">6A Hancock</a>	<a href="#">5A Madison</a>	<a href="#">6A Sac</a>
<a href="#">5A Adams</a>	<a href="#">6A Clayton</a>	<a href="#">6A Hardin</a>	<a href="#">5A Mahaska</a>	<a href="#">5A Scott</a>
<a href="#">6A Allamakee</a>	<a href="#">5A Clinton</a>	<a href="#">5A Harrison</a>	<a href="#">5A Marion</a>	<a href="#">5A Shelby</a>
<a href="#">5A Appanoose</a>	<a href="#">5A Crawford</a>	<a href="#">5A Henry</a>	<a href="#">5A Marshall</a>	<a href="#">6A Sioux</a>
<a href="#">5A Audubon</a>	<a href="#">5A Dallas</a>	<a href="#">6A Howard</a>	<a href="#">5A Mills</a>	<a href="#">5A Story</a>
<a href="#">5A Benton</a>	<a href="#">5A Davis</a>	<a href="#">6A Humboldt</a>	<a href="#">6A Mitchell</a>	<a href="#">5A Tama</a>
<a href="#">6A Black Hawk</a>	<a href="#">5A Decatur</a>	<a href="#">6A Ida</a>	<a href="#">5A Monona</a>	<a href="#">5A Taylor</a>
<a href="#">5A Boone</a>	<a href="#">6A Delaware</a>	<a href="#">5A Iowa</a>	<a href="#">5A Monroe</a>	<a href="#">5A Union</a>
<a href="#">6A Bremer</a>	<a href="#">5A Des Moines</a>	<a href="#">5A Jackson</a>	<a href="#">5A Montgomery</a>	<a href="#">5A Van Buren</a>
<a href="#">6A Buchanan</a>	<a href="#">6A Dickinson</a>	<a href="#">5A Jasper</a>	<a href="#">5A Muscatine</a>	<a href="#">5A Wapello</a>
<a href="#">6A Buena Vista</a>	<a href="#">5A Dubuque</a>	<a href="#">5A Jefferson</a>	<a href="#">6A O'Brien</a>	<a href="#">5A Warren</a>
<a href="#">6A Butler</a>	<a href="#">6A Emmet</a>	<a href="#">5A Johnson</a>	<a href="#">6A Osceola</a>	<a href="#">5A Washington</a>
<a href="#">6A Calhoun</a>	<a href="#">6A Fayette</a>	<a href="#">5A Jones</a>	<a href="#">5A Page</a>	<a href="#">5A Wayne</a>
<a href="#">5A Carroll</a>	<a href="#">6A Floyd</a>	<a href="#">5A Keokuk</a>	<a href="#">6A Palo Alto</a>	<a href="#">6A Webster</a>
<a href="#">5A Cass</a>	<a href="#">6A Franklin</a>	<a href="#">6A Kossuth</a>	<a href="#">6A Plymouth</a>	<a href="#">6A Winnebago</a>
<a href="#">5A Cedar</a>	<a href="#">5A Fremont</a>	<a href="#">5A Lee</a>	<a href="#">6A Pocahontas</a>	<a href="#">6A Winneshiek</a>
<a href="#">6A Cerro Gordo</a>	<a href="#">5A Greene</a>	<a href="#">5A Linn</a>	<a href="#">5A Polk</a>	<a href="#">5A Woodbury</a>
<a href="#">6A Cherokee</a>	<a href="#">6A Grundy</a>	<a href="#">5A Louisa</a>	<a href="#">5A Pottawattamie</a>	<a href="#">6A Worth</a>
<a href="#">6A Chickasaw</a>	<a href="#">5A Guthrie</a>	<a href="#">5A Lucas</a>	<a href="#">5A Poweshiek</a>	<a href="#">6A Wright</a>
<a href="#">5A Clarke</a>	<a href="#">6A Hamilton</a>	<a href="#">6A Lyon</a>	<a href="#">5A Ringgold</a>	

**KANSAS**

<a href="#">4A Allen</a>	<a href="#">4A Doniphan</a>	<a href="#">4A Jackson</a>	<a href="#">4A Morris</a>	<a href="#">4A Saline</a>
<a href="#">4A Anderson</a>	<a href="#">4A Douglas</a>	<a href="#">4A Jefferson</a>	<a href="#">4A Morton</a>	<a href="#">5A Scott</a>
<a href="#">4A Atchison</a>	<a href="#">4A Edwards</a>	<a href="#">5A Jewell</a>	<a href="#">4A Nemaha</a>	<a href="#">4A Sedgwick</a>
<a href="#">4A Barber</a>	<a href="#">4A Elk</a>	<a href="#">4A Johnson</a>	<a href="#">4A Neosho</a>	<a href="#">4A Seward</a>
<a href="#">4A Barton</a>	<a href="#">5A Ellis</a>	<a href="#">4A Kearny</a>	<a href="#">5A Ness</a>	<a href="#">4A Shawnee</a>
<a href="#">4A Bourbon</a>	<a href="#">4A Ellsworth</a>	<a href="#">4A Kingman</a>	<a href="#">5A Norton</a>	<a href="#">5A Sheridan</a>
<a href="#">4A Brown</a>	<a href="#">4A Finney</a>	<a href="#">4A Kiowa</a>	<a href="#">4A Osage</a>	<a href="#">5A Sherman</a>
<a href="#">4A Butler</a>	<a href="#">4A Ford</a>	<a href="#">4A Labette</a>	<a href="#">5A Osborne</a>	<a href="#">5A Smith</a>
<a href="#">4A Chase</a>	<a href="#">4A Franklin</a>	<a href="#">5A Lane</a>	<a href="#">4A Ottawa</a>	<a href="#">4A Stafford</a>
<a href="#">4A Chautauqua</a>	<a href="#">4A Geary</a>	<a href="#">4A Leavenworth</a>	<a href="#">4A Pawnee</a>	<a href="#">4A Stanton</a>
<a href="#">4A Cherokee</a>	<a href="#">5A Gove</a>	<a href="#">4A Lincoln</a>	<a href="#">5A Phillips</a>	<a href="#">4A Stevens</a>
<a href="#">5A Cheyenne</a>	<a href="#">5A Graham</a>	<a href="#">4A Linn</a>	<a href="#">4A Pottawatomie</a>	<a href="#">4A Sumner</a>
<a href="#">4A Clark</a>	<a href="#">4A Grant</a>	<a href="#">5A Logan</a>	<a href="#">4A Pratt</a>	<a href="#">5A Thomas</a>
<a href="#">4A Clay</a>	<a href="#">4A Gray</a>	<a href="#">4A Lyon</a>	<a href="#">5A Rawlins</a>	<a href="#">5A Trego</a>
<a href="#">5A Cloud</a>	<a href="#">5A Greeley</a>	<a href="#">4A Marion</a>	<a href="#">4A Reno</a>	<a href="#">4A Wabaunsee</a>
<a href="#">4A Coffey</a>	<a href="#">4A Greenwood</a>	<a href="#">4A Marshall</a>	<a href="#">5A Republic</a>	<a href="#">5A Wallace</a>
<a href="#">4A Comanche</a>	<a href="#">5A Hamilton</a>	<a href="#">4A McPherson</a>	<a href="#">4A Rice</a>	<a href="#">4A Washington</a>
<a href="#">4A Cowley</a>	<a href="#">4A Harper</a>	<a href="#">4A Meade</a>	<a href="#">4A Riley</a>	<a href="#">5A Wichita</a>
<a href="#">4A Crawford</a>	<a href="#">4A Harvey</a>	<a href="#">4A Miami</a>	<a href="#">5A Rooks</a>	<a href="#">4A Wilson</a>
<a href="#">5A Decatur</a>	<a href="#">4A Haskell</a>	<a href="#">5A Mitchell</a>	<a href="#">4A Rush</a>	<a href="#">4A Woodson</a>
<a href="#">4A Dickinson</a>	<a href="#">4A Hodgeman</a>	<a href="#">4A Montgomery</a>	<a href="#">4A Russell</a>	<a href="#">4A Wyandotte</a>

**KENTUCKY**

4A (all)

**LOUISIANA**

<a href="#">2A Acadia*</a>	<a href="#">2A East Baton Rouge*</a>	<a href="#">3A Madison*</a>	<a href="#">2A St. Landry*</a>
<a href="#">2A Allen*</a>	<a href="#">3A East Carroll</a>	<a href="#">3A Morehouse</a>	<a href="#">2A St. Martin*</a>
<a href="#">2A Ascension*</a>	<a href="#">2A East Feliciana*</a>	<a href="#">3A Natchitoches*</a>	<a href="#">2A St. Mary*</a>
<a href="#">2A Assumption*</a>	<a href="#">2A Evangeline*</a>	<a href="#">2A Orleans*</a>	<a href="#">2A St. Tammany*</a>
<a href="#">2A Avoyelles*</a>	<a href="#">3A Franklin*</a>	<a href="#">3A Ouachita*</a>	<a href="#">2A Tangipahoa*</a>
<a href="#">2A Beauregard*</a>	<a href="#">3A Grant*</a>	<a href="#">2A Plaquemines*</a>	<a href="#">3A Tensas*</a>
<a href="#">3A Bienville*</a>	<a href="#">2A Iberia*</a>	<a href="#">2A Pointe Coupee*</a>	<a href="#">2A Terrebonne*</a>
<a href="#">3A Bossier*</a>	<a href="#">2A Iberville*</a>	<a href="#">2A Rapides*</a>	<a href="#">3A Union*</a>
<a href="#">3A Caddo*</a>	<a href="#">3A Jackson*</a>	<a href="#">3A Red River*</a>	<a href="#">2A Vermilion*</a>
<a href="#">2A Calcasieu*</a>	<a href="#">2A Jefferson*</a>	<a href="#">3A Richland*</a>	<a href="#">3A Vernon*</a>
<a href="#">3A Caldwell*</a>	<a href="#">2A Jefferson Davis*</a>	<a href="#">3A Sabine*</a>	<a href="#">2A Washington*</a>
<a href="#">2A Cameron*</a>	<a href="#">2A Lafayette*</a>	<a href="#">2A St. Bernard*</a>	<a href="#">3A Webster*</a>
<a href="#">3A Catahoula*</a>	<a href="#">2A Lafourche*</a>	<a href="#">2A St. Charles*</a>	<a href="#">2A West Baton Rouge*</a>
<a href="#">3A Claiborne*</a>	<a href="#">3A La Salle*</a>	<a href="#">2A St. Helena*</a>	<a href="#">3A West Carroll</a>
<a href="#">3A Concordia*</a>	<a href="#">3A Lincoln*</a>	<a href="#">2A St. James*</a>	<a href="#">2A West Feliciana*</a>
<a href="#">3A De Soto*</a>	<a href="#">2A Livingston*</a>	<a href="#">2A St. John the Baptist*</a>	<a href="#">3A Winn*</a>

**MAINE**

<a href="#">6A Androscoggin</a>	<a href="#">6A Hancock</a>	<a href="#">6A Oxford</a>	<a href="#">6A Somerset</a>
<a href="#">7 Aroostook</a>	<a href="#">6A Kennebec</a>	<a href="#">6A Penobscot</a>	<a href="#">6A Waldo</a>
<a href="#">6A Cumberland</a>	<a href="#">6A Knox</a>	<a href="#">6A Piscataquis</a>	<a href="#">6A Washington</a>
<a href="#">6A Franklin</a>	<a href="#">6A Lincoln</a>	<a href="#">6A Sagadahoc</a>	<a href="#">6A York</a>

<b>MARYLAND</b>				
4A Allegany	4A Caroline	4A Frederick	4A Montgomery	4A Talbot
4A Anne Arundel	4A Carroll	5A Garrett	4A Prince George's	4A Washington
4A Baltimore	4A Cecil	4A Harford	4A Queen Anne's	4A Wicomico
4A Baltimore (city)	4A Charles	4A Howard	4A Somerset	4A Worcester
4A Calvert	4A Dorchester	4A Kent	4A St. Mary's	

**MASSACHUSETTS**

5A (all)

**MICHIGAN**

6A Alcona	6A Clare	6A Iosco	6A Marquette	6A Otsego
6A Alger	5A Clinton	7 Iron	6A Mason	5A Ottawa
5A Allegan	6A Crawford	6A Isabella	6A Mecosta	6A Presque Isle
6A Alpena	6A Delta	5A Jackson	6A Menominee	6A Roscommon
6A Antrim	6A Dickinson	5A Kalamazoo	5A Midland	5A Saginaw
6A Arenac	5A Eaton	6A Kalkaska	6A Missaukee	6A Sanilac
7 Baraga	6A Emmet	5A Kent	5A Monroe	7 Schoolcraft
5A Barry	5A Genesee	7 Keweenaw	5A Montcalm	5A Shiawassee
5A Bay	6A Gladwin	6A Lake	6A Montmorency	5A St. Clair
6A Benzie	7 Gogebic	5A Lapeer	5A Muskegon	5A St. Joseph
5A Berrien	6A Grand Traverse	6A Leelanau	6A Newaygo	5A Tuscola
5A Branch	5A Gratiot	5A Lenawee	5A Oakland	5A Van Buren
5A Calhoun	5A Hillsdale	5A Livingston	6A Oceana	5A Washtenaw
5A Cass	7 Houghton	7 Luce	6A Ogemaw	5A Wayne
6A Charlevoix	6A Huron	7 Mackinac	7 Ontonagon	6A Wexford
6A Cheboygan	5A Ingham	5A Macomb	6A Osceola	
7 Chippewa	5A Ionia	6A Manistee	6A Oscoda	

**MINNESOTA**

7 Aitkin	6A Dakota	6A Lac qui Parle	6A Olmsted	6A Steele
6A Anoka	6A Dodge	7 Lake	7 Otter Tail	6A Stevens
7 Becker	6A Douglas	7 Lake of the Woods	7 Pennington	7 St. Louis
7 Beltrami	6A Faribault	6A Le Sueur	7 Pine	6A Swift
6A Benton	6A Fillmore	6A Lincoln	6A Pipestone	6A Todd
6A Big Stone	6A Freeborn	6A Lyon	7 Polk	6A Traverse
6A Blue Earth	6A Goodhue	7 Mahnomon	6A Pope	6A Wabasha
6A Brown	7 Grant	7 Marshall	6A Ramsey	7 Wadena
7 Carlton	6A Hennepin	6A Martin	7 Red Lake	6A Waseca
6A Carver	6A Houston	6A McLeod	6A Redwood	6A Washington
7 Cass	7 Hubbard	6A Meeker	6A Renville	6A Watonwan
6A Chippewa	6A Isanti	7 Mille Lacs	6A Rice	7 Wilkin
6A Chisago	7 Itasca	6A Morrison	6A Rock	6A Winona
7 Clay	6A Jackson	6A Mower	7 Roseau	6A Wright
7 Clearwater	7 Kanabec	6A Murray	6A Scott	6A Yellow Medicine
7 Cook	6A Kandiyohi	6A Nicollet	6A Sherburne	
6A Cottonwood	7 Kittson	6A Nobles	6A Sibley	
7 Crow Wing	7 Koochiching	7 Norman	6A Stearns	

**MISSISSIPPI**

<a href="#">3A Adams*</a>	<a href="#">3A Forrest*</a>	<a href="#">3A Kemper</a>	<a href="#">3A Noxubee</a>	<a href="#">3A Tate</a>
<a href="#">3A Alcorn</a>	<a href="#">3A Franklin*</a>	<a href="#">3A Lafayette</a>	<a href="#">3A Oktibbeha</a>	<a href="#">3A Tippah</a>
<a href="#">3A Amite*</a>	<a href="#">3A George*</a>	<a href="#">3A Lamar*</a>	<a href="#">3A Panola</a>	<a href="#">3A Tishomingo</a>
<a href="#">3A Attala</a>	<a href="#">3A Greene*</a>	<a href="#">3A Lauderdale</a>	<a href="#">2A Pearl River*</a>	<a href="#">3A Tunica</a>
<a href="#">3A Benton</a>	<a href="#">3A Grenada</a>	<a href="#">3A Lawrence*</a>	<a href="#">3A Perry*</a>	<a href="#">3A Union</a>
<a href="#">3A Bolivar</a>	<a href="#">2A Hancock*</a>	<a href="#">3A Leake</a>	<a href="#">3A Pike*</a>	<a href="#">3A Walthall*</a>
<a href="#">3A Calhoun</a>	<a href="#">2A Harrison*</a>	<a href="#">3A Lee</a>	<a href="#">3A Pontotoc</a>	<a href="#">3A Warren*</a>
<a href="#">3A Carroll</a>	<a href="#">3A Hinds*</a>	<a href="#">3A Leflore</a>	<a href="#">3A Prentiss</a>	<a href="#">3A Washington</a>
<a href="#">3A Chickasaw</a>	<a href="#">3A Holmes</a>	<a href="#">3A Lincoln*</a>	<a href="#">3A Quitman</a>	<a href="#">3A Wayne*</a>
<a href="#">3A Choctaw</a>	<a href="#">3A Humphreys</a>	<a href="#">3A Lowndes</a>	<a href="#">3A Rankin*</a>	<a href="#">3A Webster</a>
<a href="#">3A Claiborne*</a>	<a href="#">3A Issaquena</a>	<a href="#">3A Madison</a>	<a href="#">3A Scott</a>	<a href="#">3A Wilkinson*</a>
<a href="#">3A Clarke</a>	<a href="#">3A Itawamba</a>	<a href="#">3A Marion*</a>	<a href="#">3A Sharkey</a>	<a href="#">3A Winston</a>
<a href="#">3A Clay</a>	<a href="#">2A Jackson*</a>	<a href="#">3A Marshall</a>	<a href="#">3A Simpson*</a>	<a href="#">3A Yalobusha</a>
<a href="#">3A Coahoma</a>	<a href="#">3A Jasper</a>	<a href="#">3A Monroe</a>	<a href="#">3A Smith*</a>	<a href="#">3A Yazoo</a>
<a href="#">3A Copiah*</a>	<a href="#">3A Jefferson*</a>	<a href="#">3A Montgomery</a>	<a href="#">2A Stone*</a>	
<a href="#">3A Covington*</a>	<a href="#">3A Jefferson Davis*</a>	<a href="#">3A Neshoba</a>	<a href="#">3A Sunflower</a>	
<a href="#">3A DeSoto</a>	<a href="#">3A Jones*</a>	<a href="#">3A Newton</a>	<a href="#">3A Tallahatchie</a>	

**MISSOURI**

<a href="#">5A Adair</a>	<a href="#">4A Clay</a>	<a href="#">4A Iron</a>	<a href="#">4A Montgomery</a>	<a href="#">5A Schuyler</a>
<a href="#">5A Andrew</a>	<a href="#">5A Clinton</a>	<a href="#">4A Jackson</a>	<a href="#">4A Morgan</a>	<a href="#">5A Scotland</a>
<a href="#">5A Atchison</a>	<a href="#">4A Cole</a>	<a href="#">4A Jasper</a>	<a href="#">4A New Madrid</a>	<a href="#">4A Scott</a>
<a href="#">4A Audrain</a>	<a href="#">4A Cooper</a>	<a href="#">4A Jefferson</a>	<a href="#">4A Newton</a>	<a href="#">4A Shannon</a>
<a href="#">4A Barry</a>	<a href="#">4A Crawford</a>	<a href="#">4A Johnson</a>	<a href="#">5A Nodaway</a>	<a href="#">5A Shelby</a>
<a href="#">4A Barton</a>	<a href="#">4A Dade</a>	<a href="#">5A Knox</a>	<a href="#">4A Oregon</a>	<a href="#">4A St. Charles</a>
<a href="#">4A Bates</a>	<a href="#">4A Dallas</a>	<a href="#">4A Laclede</a>	<a href="#">4A Osage</a>	<a href="#">4A St. Clair</a>
<a href="#">4A Benton</a>	<a href="#">5A Daviess</a>	<a href="#">4A Lafayette</a>	<a href="#">4A Ozark</a>	<a href="#">4A Ste. Genevieve</a>
<a href="#">4A Bollinger</a>	<a href="#">5A DeKalb</a>	<a href="#">4A Lawrence</a>	<a href="#">4A Pemiscot</a>	<a href="#">4A St. Francois</a>
<a href="#">4A Boone</a>	<a href="#">4A Dent</a>	<a href="#">5A Lewis</a>	<a href="#">4A Perry</a>	<a href="#">4A St. Louis</a>
<a href="#">5A Buchanan</a>	<a href="#">4A Douglas</a>	<a href="#">4A Lincoln</a>	<a href="#">4A Pettis</a>	<a href="#">4A St. Louis (city)</a>
<a href="#">4A Butler</a>	<a href="#">4A Dunklin</a>	<a href="#">5A Linn</a>	<a href="#">4A Phelps</a>	<a href="#">4A Stoddard</a>
<a href="#">5A Caldwell</a>	<a href="#">4A Franklin</a>	<a href="#">5A Livingston</a>	<a href="#">5A Pike</a>	<a href="#">4A Stone</a>
<a href="#">4A Callaway</a>	<a href="#">4A Gasconade</a>	<a href="#">5A Macon</a>	<a href="#">4A Platte</a>	<a href="#">5A Sullivan</a>
<a href="#">4A Camden</a>	<a href="#">5A Gentry</a>	<a href="#">4A Madison</a>	<a href="#">4A Polk</a>	<a href="#">4A Taney</a>
<a href="#">4A Cape Girardeau</a>	<a href="#">4A Greene</a>	<a href="#">4A Maries</a>	<a href="#">4A Pulaski</a>	<a href="#">4A Texas</a>
<a href="#">4A Carroll</a>	<a href="#">5A Grundy</a>	<a href="#">5A Marion</a>	<a href="#">5A Putnam</a>	<a href="#">4A Vernon</a>
<a href="#">4A Carter</a>	<a href="#">5A Harrison</a>	<a href="#">4A McDonald</a>	<a href="#">5A Ralls</a>	<a href="#">4A Warren</a>
<a href="#">4A Cass</a>	<a href="#">4A Henry</a>	<a href="#">5A Mercer</a>	<a href="#">4A Randolph</a>	<a href="#">4A Washington</a>
<a href="#">4A Cedar</a>	<a href="#">4A Hickory</a>	<a href="#">4A Miller</a>	<a href="#">4A Ray</a>	<a href="#">4A Wayne</a>
<a href="#">5A Chariton</a>	<a href="#">5A Holt</a>	<a href="#">4A Mississippi</a>	<a href="#">4A Reynolds</a>	<a href="#">4A Webster</a>
<a href="#">4A Christian</a>	<a href="#">4A Howard</a>	<a href="#">4A Moniteau</a>	<a href="#">4A Ripley</a>	<a href="#">5A Worth</a>
<a href="#">5A Clark</a>	<a href="#">4A Howell</a>	<a href="#">4A Monroe</a>	<a href="#">4A Saline</a>	<a href="#">4A Wright</a>

**MONTANA**

6B (all)

**NEBRASKA**

5A (all)

**NEVADA**

<a href="#">5B Carson City (city)</a>	<a href="#">5B Elko</a>	<a href="#">5B Lander</a>	<a href="#">5B Nye</a>	<a href="#">5B White Pine</a>
<a href="#">5B Churchill</a>	<a href="#">5B Esmeralda</a>	<a href="#">5B Lincoln</a>	<a href="#">5B Pershing</a>	
<a href="#">3B Clark</a>	<a href="#">5B Eureka</a>	<a href="#">5B Lyon</a>	<a href="#">5B Storey</a>	
<a href="#">5B Douglas</a>	<a href="#">5B Humboldt</a>	<a href="#">5B Mineral</a>	<a href="#">5B Washoe</a>	

**NEW HAMPSHIRE**

<a href="#">6A Belknap</a>	<a href="#">5A Cheshire</a>	<a href="#">6A Grafton</a>	<a href="#">6A Merrimack</a>	<a href="#">5A Strafford</a>
<a href="#">6A Carroll</a>	<a href="#">6A Coos</a>	<a href="#">5A Hillsborough</a>	<a href="#">5A Rockingham</a>	<a href="#">6A Sullivan</a>

**NEW JERSEY**

<a href="#">4A Atlantic</a>	<a href="#">4A Cumberland</a>	<a href="#">5A Mercer</a>	<a href="#">5A Passaic</a>	<a href="#">5A Warren</a>
<a href="#">5A Bergen</a>	<a href="#">4A Essex</a>	<a href="#">4A Middlesex</a>	<a href="#">4A Salem</a>	
<a href="#">4A Burlington</a>	<a href="#">4A Gloucester</a>	<a href="#">4A Monmouth</a>	<a href="#">5A Somerset</a>	
<a href="#">4A Camden</a>	<a href="#">4A Hudson</a>	<a href="#">5A Morris</a>	<a href="#">5A Sussex</a>	
<a href="#">4A Cape May</a>	<a href="#">5A Hunterdon</a>	<a href="#">4A Ocean</a>	<a href="#">4A Union</a>	

**NEW MEXICO**

<a href="#">4B Bernalillo</a>	<a href="#">3B Dona Ana</a>	<a href="#">4B Lincoln</a>	<a href="#">5B Rio Arriba</a>	<a href="#">4B Socorro</a>
<a href="#">5B Catron</a>	<a href="#">3B Eddy</a>	<a href="#">5B Los Alamos</a>	<a href="#">4B Roosevelt</a>	<a href="#">5B Taos</a>
<a href="#">3B Chaves</a>	<a href="#">4B Grant</a>	<a href="#">3B Luna</a>	<a href="#">5B Sandoval</a>	<a href="#">5B Torrance</a>
<a href="#">4B Cibola</a>	<a href="#">4B Guadalupe</a>	<a href="#">5B McKinley</a>	<a href="#">5B San Juan</a>	<a href="#">4B Union</a>
<a href="#">5B Colfax</a>	<a href="#">5B Harding</a>	<a href="#">5B Mora</a>	<a href="#">5B San Miguel</a>	<a href="#">4B Valencia</a>
<a href="#">4B Curry</a>	<a href="#">3B Hidalgo</a>	<a href="#">3B Otero</a>	<a href="#">5B Santa Fe</a>	
<a href="#">4B DeBaca</a>	<a href="#">3B Lea</a>	<a href="#">4B Quay</a>	<a href="#">4B Sierra</a>	

**NEW YORK**

<a href="#">5A Albany</a>	<a href="#">5A Dutchess</a>	<a href="#">6A Madison</a>	<a href="#">5A Putnam</a>	<a href="#">6A Sullivan</a>
<a href="#">6A Allegany</a>	<a href="#">5A Erie</a>	<a href="#">5A Monroe</a>	<a href="#">4A Queens</a>	<a href="#">5A Tioga</a>
<a href="#">4A Bronx</a>	<a href="#">6A Essex</a>	<a href="#">6A Montgomery</a>	<a href="#">5A Rensselaer</a>	<a href="#">6A Tompkins</a>
<a href="#">6A Broome</a>	<a href="#">6A Franklin</a>	<a href="#">4A Nassau</a>	<a href="#">4A Richmond</a>	<a href="#">6A Ulster</a>
<a href="#">6A Cattaraugus</a>	<a href="#">6A Fulton</a>	<a href="#">4A New York</a>	<a href="#">5A Rockland</a>	<a href="#">6A Warren</a>
<a href="#">5A Cayuga</a>	<a href="#">5A Genesee</a>	<a href="#">5A Niagara</a>	<a href="#">5A Saratoga</a>	<a href="#">5A Washington</a>
<a href="#">5A Chautauqua</a>	<a href="#">5A Greene</a>	<a href="#">6A Oneida</a>	<a href="#">5A Schenectady</a>	<a href="#">5A Wayne</a>
<a href="#">5A Chemung</a>	<a href="#">6A Hamilton</a>	<a href="#">5A Onondaga</a>	<a href="#">6A Schoharie</a>	<a href="#">4A Westchester</a>
<a href="#">6A Chenango</a>	<a href="#">6A Herkimer</a>	<a href="#">5A Ontario</a>	<a href="#">6A Schuyler</a>	<a href="#">6A Wyoming</a>
<a href="#">6A Clinton</a>	<a href="#">6A Jefferson</a>	<a href="#">5A Orange</a>	<a href="#">5A Seneca</a>	<a href="#">5A Yates</a>
<a href="#">5A Columbia</a>	<a href="#">4A Kings</a>	<a href="#">5A Orleans</a>	<a href="#">6A Steuben</a>	
<a href="#">5A Cortland</a>	<a href="#">6A Lewis</a>	<a href="#">5A Oswego</a>	<a href="#">6A St. Lawrence</a>	
<a href="#">6A Delaware</a>	<a href="#">5A Livingston</a>	<a href="#">6A Otsego</a>	<a href="#">4A Suffolk</a>	



**NORTH CAROLINA**

<a href="#">4A Alamance</a>	<a href="#">3A Chowan</a>	<a href="#">4A Guilford</a>	<a href="#">5A Mitchell</a>	<a href="#">4A Rutherford</a>
<a href="#">4A Alexander</a>	<a href="#">4A Clay</a>	<a href="#">4A Halifax</a>	<a href="#">3A Montgomery</a>	<a href="#">3A Sampson</a>
<a href="#">5A Alleghany</a>	<a href="#">4A Cleveland</a>	<a href="#">4A Harnett</a>	<a href="#">3A Moore</a>	<a href="#">3A Scotland</a>
<a href="#">3A Anson</a>	<a href="#">3A Columbus*</a>	<a href="#">4A Haywood</a>	<a href="#">4A Nash</a>	<a href="#">3A Stanly</a>
<a href="#">5A Ashe</a>	<a href="#">3A Craven</a>	<a href="#">4A Henderson</a>	<a href="#">3A New Hanover*</a>	<a href="#">4A Stokes</a>
<a href="#">5A Avery</a>	<a href="#">3A Cumberland</a>	<a href="#">4A Hertford</a>	<a href="#">4A Northampton</a>	<a href="#">4A Surry</a>
<a href="#">3A Beaufort</a>	<a href="#">3A Currituck</a>	<a href="#">3A Hoke</a>	<a href="#">3A Onslow*</a>	<a href="#">4A Swain</a>
<a href="#">4A Bertie</a>	<a href="#">3A Dare</a>	<a href="#">3A Hyde</a>	<a href="#">4A Orange</a>	<a href="#">4A Transylvania</a>
<a href="#">3A Bladen</a>	<a href="#">3A Davidson</a>	<a href="#">4A Iredell</a>	<a href="#">3A Pamlico</a>	<a href="#">3A Tyrrell</a>
<a href="#">3A Brunswick*</a>	<a href="#">4A Davie</a>	<a href="#">4A Jackson</a>	<a href="#">3A Pasquotank</a>	<a href="#">3A Union</a>
<a href="#">4A Buncombe</a>	<a href="#">3A Duplin</a>	<a href="#">3A Johnston</a>	<a href="#">3A Pender*</a>	<a href="#">4A Vance</a>
<a href="#">4A Burke</a>	<a href="#">4A Durham</a>	<a href="#">3A Jones</a>	<a href="#">3A Perquimans</a>	<a href="#">4A Wake</a>
<a href="#">3A Cabarrus</a>	<a href="#">3A Edgecombe</a>	<a href="#">4A Lee</a>	<a href="#">4A Person</a>	<a href="#">4A Warren</a>
<a href="#">4A Caldwell</a>	<a href="#">4A Forsyth</a>	<a href="#">3A Lenoir</a>	<a href="#">3A Pitt</a>	<a href="#">3A Washington</a>
<a href="#">3A Camden</a>	<a href="#">4A Franklin</a>	<a href="#">4A Lincoln</a>	<a href="#">4A Polk</a>	<a href="#">5A Watauga</a>
<a href="#">3A Carteret*</a>	<a href="#">3A Gaston</a>	<a href="#">4A Macon</a>	<a href="#">3A Randolph</a>	<a href="#">3A Wayne</a>
<a href="#">4A Caswell</a>	<a href="#">4A Gates</a>	<a href="#">4A Madison</a>	<a href="#">3A Richmond</a>	<a href="#">4A Wilkes</a>
<a href="#">4A Catawba</a>	<a href="#">4A Graham</a>	<a href="#">3A Martin</a>	<a href="#">3A Robeson</a>	<a href="#">3A Wilson</a>
<a href="#">4A Chatham</a>	<a href="#">4A Granville</a>	<a href="#">4A McDowell</a>	<a href="#">4A Rockingham</a>	<a href="#">4A Yadkin</a>
<a href="#">4A Cherokee</a>	<a href="#">3A Greene</a>	<a href="#">3A Mecklenburg</a>	<a href="#">3A Rowan</a>	<a href="#">5A Yancey</a>

**NORTH DAKOTA**

<a href="#">6A Adams</a>	<a href="#">7 Divide</a>	<a href="#">6A LaMoure</a>	<a href="#">7 Pembina</a>	<a href="#">6A Stark</a>
<a href="#">7 Barnes</a>	<a href="#">6A Dunn</a>	<a href="#">6A Logan</a>	<a href="#">7 Pierce</a>	<a href="#">7 Steele</a>
<a href="#">7 Benson</a>	<a href="#">7 Eddy</a>	<a href="#">7 McHenry</a>	<a href="#">7 Ramsey</a>	<a href="#">7 Stutsman</a>
<a href="#">6A Billings</a>	<a href="#">6A Emmons</a>	<a href="#">6A McIntosh</a>	<a href="#">6A Ransom</a>	<a href="#">7 Towner</a>
<a href="#">7 Bottineau</a>	<a href="#">7 Foster</a>	<a href="#">6A McKenzie</a>	<a href="#">7 Renville</a>	<a href="#">7 Traill</a>
<a href="#">6A Bowman</a>	<a href="#">6A Golden Valley</a>	<a href="#">7 McLean</a>	<a href="#">6A Richland</a>	<a href="#">7 Walsh</a>
<a href="#">7 Burke</a>	<a href="#">7 Grand Forks</a>	<a href="#">6A Mercer</a>	<a href="#">7 Rolette</a>	<a href="#">7 Ward</a>
<a href="#">6A Burleigh</a>	<a href="#">6A Grant</a>	<a href="#">6A Morton</a>	<a href="#">6A Sargent</a>	<a href="#">7 Wells</a>
<a href="#">7 Cass</a>	<a href="#">7 Griggs</a>	<a href="#">7 Mountrail</a>	<a href="#">7 Sheridan</a>	<a href="#">7 Williams</a>
<a href="#">7 Cavalier</a>	<a href="#">6A Hettinger</a>	<a href="#">7 Nelson</a>	<a href="#">6A Sioux</a>	
<a href="#">6A Dickey</a>	<a href="#">7 Kidder</a>	<a href="#">6A Oliver</a>	<a href="#">6A Slope</a>	

**OHIO**

<a href="#">4A Adams</a>	<a href="#">5A Darke</a>	<a href="#">5A Hocking</a>	<a href="#">5A Miami</a>	<a href="#">4A Scioto</a>
<a href="#">5A Allen</a>	<a href="#">5A Defiance</a>	<a href="#">5A Holmes</a>	<a href="#">5A Monroe</a>	<a href="#">5A Seneca</a>
<a href="#">5A Ashland</a>	<a href="#">5A Delaware</a>	<a href="#">5A Huron</a>	<a href="#">5A Montgomery</a>	<a href="#">5A Shelby</a>
<a href="#">5A Ashtabula</a>	<a href="#">5A Erie</a>	<a href="#">5A Jackson</a>	<a href="#">5A Morgan</a>	<a href="#">5A Stark</a>
<a href="#">5A Athens</a>	<a href="#">5A Fairfield</a>	<a href="#">5A Jefferson</a>	<a href="#">5A Morrow</a>	<a href="#">5A Summit</a>
<a href="#">5A Auglaize</a>	<a href="#">5A Fayette</a>	<a href="#">5A Knox</a>	<a href="#">5A Muskingum</a>	<a href="#">5A Trumbull</a>
<a href="#">5A Belmont</a>	<a href="#">5A Franklin</a>	<a href="#">5A Lake</a>	<a href="#">5A Noble</a>	<a href="#">5A Tuscarawas</a>
<a href="#">4A Brown</a>	<a href="#">5A Fulton</a>	<a href="#">4A Lawrence</a>	<a href="#">5A Ottawa</a>	<a href="#">5A Union</a>
<a href="#">5A Butler</a>	<a href="#">4A Gallia</a>	<a href="#">5A Licking</a>	<a href="#">5A Paulding</a>	<a href="#">5A Van Wert</a>
<a href="#">5A Carroll</a>	<a href="#">5A Geauga</a>	<a href="#">5A Logan</a>	<a href="#">5A Perry</a>	<a href="#">5A Vinton</a>
<a href="#">5A Champaign</a>	<a href="#">5A Greene</a>	<a href="#">5A Lorain</a>	<a href="#">5A Pickaway</a>	<a href="#">5A Warren</a>
<a href="#">5A Clark</a>	<a href="#">5A Guernsey</a>	<a href="#">5A Lucas</a>	<a href="#">4A Pike</a>	<a href="#">4A Washington</a>
<a href="#">4A Clermont</a>	<a href="#">4A Hamilton</a>	<a href="#">5A Madison</a>	<a href="#">5A Portage</a>	<a href="#">5A Wayne</a>
<a href="#">5A Clinton</a>	<a href="#">5A Hancock</a>	<a href="#">5A Mahoning</a>	<a href="#">5A Preble</a>	<a href="#">5A Williams</a>
<a href="#">5A Columbiana</a>	<a href="#">5A Hardin</a>	<a href="#">5A Marion</a>	<a href="#">5A Putnam</a>	<a href="#">5A Wood</a>
<a href="#">5A Coshocton</a>	<a href="#">5A Harrison</a>	<a href="#">5A Medina</a>	<a href="#">5A Richland</a>	<a href="#">5A Wyandot</a>
<a href="#">5A Crawford</a>	<a href="#">5A Henry</a>	<a href="#">5A Meigs</a>	<a href="#">5A Ross</a>	
<a href="#">5A Cuyahoga</a>	<a href="#">5A Highland</a>	<a href="#">5A Mercer</a>	<a href="#">5A Sandusky</a>	

**OKLAHOMA**

<a href="#">3A Adair</a>	<a href="#">3A Cotton</a>	<a href="#">3A Jackson</a>	<a href="#">3A McIntosh</a>	<a href="#">3A Roger Mills</a>
<a href="#">3A Alfalfa</a>	<a href="#">3A Craig</a>	<a href="#">3A Jefferson</a>	<a href="#">3A Murray</a>	<a href="#">3A Rogers</a>
<a href="#">3A Atoka</a>	<a href="#">3A Creek</a>	<a href="#">3A Johnston</a>	<a href="#">3A Muskogee</a>	<a href="#">3A Seminole</a>
<a href="#">4B Beaver</a>	<a href="#">3A Custer</a>	<a href="#">3A Kay</a>	<a href="#">3A Noble</a>	<a href="#">3A Sequoyah</a>
<a href="#">3A Beckham</a>	<a href="#">3A Delaware</a>	<a href="#">3A Kingfisher</a>	<a href="#">3A Nowata</a>	<a href="#">3A Stephens</a>
<a href="#">3A Blaine</a>	<a href="#">3A Dewey</a>	<a href="#">3A Kiowa</a>	<a href="#">3A Okfuskee</a>	<a href="#">4B Texas</a>
<a href="#">3A Bryan</a>	<a href="#">3A Ellis</a>	<a href="#">3A Latimer</a>	<a href="#">3A Oklahoma</a>	<a href="#">3A Tillman</a>
<a href="#">3A Caddo</a>	<a href="#">3A Garfield</a>	<a href="#">3A Le Flore</a>	<a href="#">3A Okmulgee</a>	<a href="#">3A Tulsa</a>
<a href="#">3A Canadian</a>	<a href="#">3A Garvin</a>	<a href="#">3A Lincoln</a>	<a href="#">3A Osage</a>	<a href="#">3A Wagoner</a>
<a href="#">3A Carter</a>	<a href="#">3A Grady</a>	<a href="#">3A Logan</a>	<a href="#">3A Ottawa</a>	<a href="#">3A Washington</a>
<a href="#">3A Cherokee</a>	<a href="#">3A Grant</a>	<a href="#">3A Love</a>	<a href="#">3A Pawnee</a>	<a href="#">3A Washita</a>
<a href="#">3A Choctaw</a>	<a href="#">3A Greer</a>	<a href="#">3A Major</a>	<a href="#">3A Payne</a>	<a href="#">3A Woods</a>
<a href="#">4B Cimarron</a>	<a href="#">3A Harmon</a>	<a href="#">3A Marshall</a>	<a href="#">3A Pittsburg</a>	<a href="#">3A Woodward</a>
<a href="#">3A Cleveland</a>	<a href="#">3A Harper</a>	<a href="#">3A Mayes</a>	<a href="#">3A Pontotoc</a>	
<a href="#">3A Coal</a>	<a href="#">3A Haskell</a>	<a href="#">3A McClain</a>	<a href="#">3A Pottawatomie</a>	
<a href="#">3A Comanche</a>	<a href="#">3A Hughes</a>	<a href="#">3A McCurtain</a>	<a href="#">3A Pushmataha</a>	

**OREGON**

<a href="#">5B Baker</a>	<a href="#">5B Deschutes</a>	<a href="#">4C Josephine</a>	<a href="#">5B Morrow</a>	<a href="#">5B Wasco</a>
<a href="#">4C Benton</a>	<a href="#">4C Douglas</a>	<a href="#">5B Klamath</a>	<a href="#">4C Multnomah</a>	<a href="#">4C Washington</a>
<a href="#">4C Clackamas</a>	<a href="#">5B Gilliam</a>	<a href="#">5B Lake</a>	<a href="#">4C Polk</a>	<a href="#">5B Wheeler</a>
<a href="#">4C Clatsop</a>	<a href="#">5B Grant</a>	<a href="#">4C Lane</a>	<a href="#">5B Sherman</a>	<a href="#">4C Yamhill</a>
<a href="#">4C Columbia</a>	<a href="#">5B Harney</a>	<a href="#">4C Lincoln</a>	<a href="#">4C Tillamook</a>	
<a href="#">4C Coos</a>	<a href="#">5B Hood River</a>	<a href="#">4C Linn</a>	<a href="#">5B Umatilla</a>	
<a href="#">5B Crook</a>	<a href="#">4C Jackson</a>	<a href="#">5B Malheur</a>	<a href="#">5B Union</a>	
<a href="#">4C Curry</a>	<a href="#">5B Jefferson</a>	<a href="#">4C Marion</a>	<a href="#">5B Wallowa</a>	

**PENNSYLVANIA**

<a href="#">5A Adams</a>	<a href="#">4A Chester</a>	<a href="#">5A Fulton</a>	<a href="#">5A Mercer</a>	<a href="#">5A Sullivan</a>
<a href="#">5A Allegheny</a>	<a href="#">5A Clarion</a>	<a href="#">5A Greene</a>	<a href="#">5A Mifflin</a>	<a href="#">6A Susquehanna</a>
<a href="#">5A Armstrong</a>	<a href="#">6A Clearfield</a>	<a href="#">5A Huntingdon</a>	<a href="#">5A Monroe</a>	<a href="#">6A Tioga</a>
<a href="#">5A Beaver</a>	<a href="#">5A Clinton</a>	<a href="#">5A Indiana</a>	<a href="#">4A Montgomery</a>	<a href="#">5A Union</a>
<a href="#">5A Bedford</a>	<a href="#">5A Columbia</a>	<a href="#">5A Jefferson</a>	<a href="#">5A Montour</a>	<a href="#">5A Venango</a>
<a href="#">5A Berks</a>	<a href="#">5A Crawford</a>	<a href="#">5A Juniata</a>	<a href="#">5A Northampton</a>	<a href="#">5A Warren</a>
<a href="#">5A Blair</a>	<a href="#">5A Cumberland</a>	<a href="#">5A Lackawanna</a>	<a href="#">5A Northumberland</a>	<a href="#">5A Washington</a>
<a href="#">5A Bradford</a>	<a href="#">5A Dauphin</a>	<a href="#">5A Lancaster</a>	<a href="#">5A Perry</a>	<a href="#">6A Wayne</a>
<a href="#">4A Bucks</a>	<a href="#">4A Delaware</a>	<a href="#">5A Lawrence</a>	<a href="#">4A Philadelphia</a>	<a href="#">5A Westmoreland</a>
<a href="#">5A Butler</a>	<a href="#">6A Elk</a>	<a href="#">5A Lebanon</a>	<a href="#">5A Pike</a>	<a href="#">5A Wyoming</a>
<a href="#">5A Cambria</a>	<a href="#">5A Erie</a>	<a href="#">5A Lehigh</a>	<a href="#">6A Potter</a>	<a href="#">4A York</a>
<a href="#">6A Cameron</a>	<a href="#">5A Fayette</a>	<a href="#">5A Luzerne</a>	<a href="#">5A Schuylkill</a>	
<a href="#">5A Carbon</a>	<a href="#">5A Forest</a>	<a href="#">5A Lycoming</a>	<a href="#">5A Snyder</a>	
<a href="#">5A Centre</a>	<a href="#">5A Franklin</a>	<a href="#">6A McKean</a>	<a href="#">5A Somerset</a>	

**RHODE ISLAND**

<a href="#">5A (all)</a>
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**SOUTH CAROLINA**

<a href="#">3A Abbeville</a>	<a href="#">3A Cherokee</a>	<a href="#">3A Florence</a>	<a href="#">3A Lee</a>	<a href="#">3A Saluda</a>
<a href="#">3A Aiken</a>	<a href="#">3A Chester</a>	<a href="#">3A Georgetown*</a>	<a href="#">3A Lexington</a>	<a href="#">3A Spartanburg</a>
<a href="#">3A Allendale*</a>	<a href="#">3A Chesterfield</a>	<a href="#">3A Greenville</a>	<a href="#">3A Marion</a>	<a href="#">3A Sumter</a>
<a href="#">3A Anderson</a>	<a href="#">3A Clarendon</a>	<a href="#">3A Greenwood</a>	<a href="#">3A Marlboro</a>	<a href="#">3A Union</a>
<a href="#">3A Bamberg*</a>	<a href="#">3A Colleton*</a>	<a href="#">3A Hampton*</a>	<a href="#">3A McCormick</a>	<a href="#">3A Williamsburg</a>
<a href="#">3A Barnwell*</a>	<a href="#">3A Darlington</a>	<a href="#">3A Horry*</a>	<a href="#">3A Newberry</a>	<a href="#">3A York</a>
<a href="#">3A Beaufort*</a>	<a href="#">3A Dillon</a>	<a href="#">3A Jasper*</a>	<a href="#">3A Oconee</a>	
<a href="#">3A Berkeley*</a>	<a href="#">3A Dorchester*</a>	<a href="#">3A Kershaw</a>	<a href="#">3A Orangeburg</a>	
<a href="#">3A Calhoun</a>	<a href="#">3A Edgefield</a>	<a href="#">3A Lancaster</a>	<a href="#">3A Pickens</a>	
<a href="#">3A Charleston*</a>	<a href="#">3A Fairfield</a>	<a href="#">3A Laurens</a>	<a href="#">3A Richland</a>	

**SOUTH DAKOTA**

<a href="#">6A Aurora</a>	<a href="#">6A Corson</a>	<a href="#">6A Hand</a>	<a href="#">6A Marshall</a>	<a href="#">6A Spink</a>
<a href="#">6A Beadle</a>	<a href="#">6A Custer</a>	<a href="#">6A Hanson</a>	<a href="#">6A McCook</a>	<a href="#">6A Stanley</a>
<a href="#">5A Bennett</a>	<a href="#">6A Davison</a>	<a href="#">6A Harding</a>	<a href="#">6A McPherson</a>	<a href="#">6A Sully</a>
<a href="#">5A Bon Homme</a>	<a href="#">6A Day</a>	<a href="#">6A Hughes</a>	<a href="#">6A Meade</a>	<a href="#">5A Todd</a>
<a href="#">6A Brookings</a>	<a href="#">6A Deuel</a>	<a href="#">5A Hutchinson</a>	<a href="#">5A Mellette</a>	<a href="#">5A Tripp</a>
<a href="#">6A Brown</a>	<a href="#">6A Dewey</a>	<a href="#">6A Hyde</a>	<a href="#">6A Miner</a>	<a href="#">6A Turner</a>
<a href="#">6A Brule</a>	<a href="#">5A Douglas</a>	<a href="#">5A Jackson</a>	<a href="#">6A Buffalo</a>	<a href="#">5A Union</a>
<a href="#">6A Buffalo</a>	<a href="#">6A Edmunds</a>	<a href="#">6A Jerauld</a>	<a href="#">6A Butte</a>	<a href="#">6A Walworth</a>
<a href="#">6A Butte</a>	<a href="#">6A Fall River</a>	<a href="#">6A Jones</a>	<a href="#">6A Campbell</a>	<a href="#">5A Yankton</a>
<a href="#">6A Campbell</a>	<a href="#">6A Faulk</a>	<a href="#">6A Kingsbury</a>	<a href="#">6A Perkins</a>	<a href="#">6A Ziebach</a>
<a href="#">5A Charles Mix</a>	<a href="#">6A Grant</a>	<a href="#">6A Lake</a>	<a href="#">6A Potter</a>	
<a href="#">6A Clark</a>	<a href="#">5A Gregory</a>	<a href="#">6A Lawrence</a>	<a href="#">6A Roberts</a>	
<a href="#">5A Clay</a>	<a href="#">6A Haakon</a>	<a href="#">6A Lincoln</a>	<a href="#">6A Sanborn</a>	
<a href="#">6A Codington</a>	<a href="#">6A Hamlin</a>	<a href="#">6A Lyman</a>	<a href="#">6A Shannon</a>	

**TENNESSEE**

<a href="#">4A Anderson</a>	<a href="#">4A Decatur</a>	<a href="#">3A Henderson</a>	<a href="#">4A Maury</a>	<a href="#">4A Sequatchie</a>
<a href="#">4A Bedford</a>	<a href="#">4A DeKalb</a>	<a href="#">4A Henry</a>	<a href="#">4A McMinn</a>	<a href="#">4A Sevier</a>
<a href="#">4A Benton</a>	<a href="#">4A Dickson</a>	<a href="#">4A Hickman</a>	<a href="#">3A McNairy</a>	<a href="#">3A Shelby</a>
<a href="#">4A Bledsoe</a>	<a href="#">3A Dyer</a>	<a href="#">4A Houston</a>	<a href="#">4A Meigs</a>	<a href="#">4A Smith</a>
<a href="#">4A Blount</a>	<a href="#">3A Fayette</a>	<a href="#">4A Humphreys</a>	<a href="#">4A Monroe</a>	<a href="#">4A Stewart</a>
<a href="#">4A Bradley</a>	<a href="#">4A Fentress</a>	<a href="#">4A Jackson</a>	<a href="#">4A Montgomery</a>	<a href="#">4A Sullivan</a>
<a href="#">4A Campbell</a>	<a href="#">4A Franklin</a>	<a href="#">4A Jefferson</a>	<a href="#">4A Moore</a>	<a href="#">4A Sumner</a>
<a href="#">4A Cannon</a>	<a href="#">4A Gibson</a>	<a href="#">4A Johnson</a>	<a href="#">4A Morgan</a>	<a href="#">3A Tipton</a>
<a href="#">4A Carroll</a>	<a href="#">4A Giles</a>	<a href="#">4A Knox</a>	<a href="#">4A Obion</a>	<a href="#">4A Trousdale</a>
<a href="#">4A Carter</a>	<a href="#">4A Grainger</a>	<a href="#">3A Lake</a>	<a href="#">4A Overton</a>	<a href="#">4A Unicoi</a>
<a href="#">4A Cheatham</a>	<a href="#">4A Greene</a>	<a href="#">3A Lauderdale</a>	<a href="#">4A Perry</a>	<a href="#">4A Union</a>
<a href="#">3A Chester</a>	<a href="#">4A Grundy</a>	<a href="#">4A Lawrence</a>	<a href="#">4A Pickett</a>	<a href="#">4A Van Buren</a>
<a href="#">4A Claiborne</a>	<a href="#">4A Hamblen</a>	<a href="#">4A Lewis</a>	<a href="#">4A Polk</a>	<a href="#">4A Warren</a>
<a href="#">4A Clay</a>	<a href="#">4A Hamilton</a>	<a href="#">4A Lincoln</a>	<a href="#">4A Putnam</a>	<a href="#">4A Washington</a>
<a href="#">4A Cocke</a>	<a href="#">4A Hancock</a>	<a href="#">4A Loudon</a>	<a href="#">4A Rhea</a>	<a href="#">4A Wayne</a>
<a href="#">4A Coffee</a>	<a href="#">3A Hardeman</a>	<a href="#">4A Macon</a>	<a href="#">4A Roane</a>	<a href="#">4A Weakley</a>
<a href="#">3A Crockett</a>	<a href="#">3A Hardin</a>	<a href="#">3A Madison</a>	<a href="#">4A Robertson</a>	<a href="#">4A White</a>
<a href="#">4A Cumberland</a>	<a href="#">4A Hawkins</a>	<a href="#">4A Marion</a>	<a href="#">4A Rutherford</a>	<a href="#">4A Williamson</a>
<a href="#">4A Davidson</a>	<a href="#">3A Haywood</a>	<a href="#">4A Marshall</a>	<a href="#">4A Scott</a>	<a href="#">4A Wilson</a>

## TEXAS

<a href="#">2A Anderson*</a>	<a href="#">3B Crane</a>	<a href="#">4B Hartley</a>	<a href="#">2A Madison*</a>	<a href="#">2A San Patricio*</a>
<a href="#">3B Andrews</a>	<a href="#">3B Crockett</a>	<a href="#">3B Haskell</a>	<a href="#">3A Marion*</a>	<a href="#">3A San Saba*</a>
<a href="#">2A Angelina*</a>	<a href="#">3B Crosby</a>	<a href="#">2A Hays*</a>	<a href="#">3B Martin</a>	<a href="#">3B Schleicher</a>
<a href="#">2A Aransas*</a>	<a href="#">3B Culberson</a>	<a href="#">3B Hemphill</a>	<a href="#">3B Mason</a>	<a href="#">3B Scurry</a>
<a href="#">3A Archer</a>	<a href="#">4B Dallam</a>	<a href="#">3A Henderson*</a>	<a href="#">2A Matagorda*</a>	<a href="#">3B Shackelford</a>
<a href="#">4B Armstrong</a>	<a href="#">3A Dallas*</a>	<a href="#">2A Hidalgo*</a>	<a href="#">2B Maverick*</a>	<a href="#">3A Shelby*</a>
<a href="#">2A Atascosa*</a>	<a href="#">3B Dawson</a>	<a href="#">2A Hill*</a>	<a href="#">3B McCulloch</a>	<a href="#">4B Sherman</a>
<a href="#">2A Austin*</a>	<a href="#">4B Deaf Smith</a>	<a href="#">4B Hockley</a>	<a href="#">2A McLennan*</a>	<a href="#">3A Smith*</a>
<a href="#">4B Bailey</a>	<a href="#">3A Delta</a>	<a href="#">3A Hood*</a>	<a href="#">2A McMullen*</a>	<a href="#">3A Somervell*</a>
<a href="#">2B Bandera*</a>	<a href="#">3A Denton*</a>	<a href="#">3A Hopkins*</a>	<a href="#">2B Medina*</a>	<a href="#">2A Starr*</a>
<a href="#">2A Bastrop*</a>	<a href="#">2A DeWitt*</a>	<a href="#">2A Houston*</a>	<a href="#">3B Menard</a>	<a href="#">3A Stephens</a>
<a href="#">3B Baylor</a>	<a href="#">3B Dickens</a>	<a href="#">3B Howard</a>	<a href="#">3B Midland</a>	<a href="#">3B Sterling</a>
<a href="#">2A Bee*</a>	<a href="#">2B Dimmit*</a>	<a href="#">3B Hudspeth</a>	<a href="#">2A Milam*</a>	<a href="#">3B Stonewall</a>
<a href="#">2A Bell*</a>	<a href="#">4B Donley</a>	<a href="#">3A Hunt*</a>	<a href="#">3A Mills*</a>	<a href="#">3B Sutton</a>
<a href="#">2A Bexar*</a>	<a href="#">2A Duval*</a>	<a href="#">4B Hutchinson</a>	<a href="#">3B Mitchell</a>	<a href="#">4B Swisher</a>
<a href="#">3A Blanco*</a>	<a href="#">3A Eastland</a>	<a href="#">3B Irion</a>	<a href="#">3A Montague</a>	<a href="#">3A Tarrant*</a>
<a href="#">3B Borden</a>	<a href="#">3B Ector</a>	<a href="#">3A Jack</a>	<a href="#">2A Montgomery*</a>	<a href="#">3B Taylor</a>
<a href="#">2A Bosque*</a>	<a href="#">2B Edwards*</a>	<a href="#">2A Jackson*</a>	<a href="#">4B Moore</a>	<a href="#">3B Terrell</a>
<a href="#">3A Bowie*</a>	<a href="#">3A Ellis*</a>	<a href="#">2A Jasper*</a>	<a href="#">3A Morris*</a>	<a href="#">3B Terry</a>
<a href="#">2A Brazoria*</a>	<a href="#">3B El Paso</a>	<a href="#">3B Jeff Davis</a>	<a href="#">3B Motley</a>	<a href="#">3B Throckmorton</a>
<a href="#">2A Brazos*</a>	<a href="#">3A Erath*</a>	<a href="#">2A Jefferson*</a>	<a href="#">3A Nacogdoches *</a>	<a href="#">3A Titus*</a>
<a href="#">3B Brewster</a>	<a href="#">2A Falls*</a>	<a href="#">2A Jim Hogg*</a>	<a href="#">3A Navarro*</a>	<a href="#">3B Tom Green</a>
<a href="#">4B Briscoe</a>	<a href="#">3A Fannin</a>	<a href="#">2A Jim Wells*</a>	<a href="#">2A Newton*</a>	<a href="#">2A Travis*</a>
<a href="#">2A Brooks*</a>	<a href="#">2A Fayette*</a>	<a href="#">3A Johnson*</a>	<a href="#">3B Nolan</a>	<a href="#">2A Trinity*</a>
<a href="#">3A Brown*</a>	<a href="#">3B Fisher</a>	<a href="#">3B Jones</a>	<a href="#">2A Nueces*</a>	<a href="#">2A Tyler*</a>
<a href="#">2A Burleson*</a>	<a href="#">4B Floyd</a>	<a href="#">2A Karnes*</a>	<a href="#">4B Ochiltree</a>	<a href="#">3A Upshur*</a>
<a href="#">3A Burnet*</a>	<a href="#">3B Foard</a>	<a href="#">3A Kaufman*</a>	<a href="#">4B Oldham</a>	<a href="#">3B Upton</a>
<a href="#">2A Caldwell*</a>	<a href="#">2A Fort Bend*</a>	<a href="#">3A Kendall*</a>	<a href="#">2A Orange*</a>	<a href="#">2B Uvalde*</a>
<a href="#">2A Calhoun*</a>	<a href="#">3A Franklin*</a>	<a href="#">2A Kenedy*</a>	<a href="#">3A Palo Pinto*</a>	<a href="#">2B Val Verde*</a>
<a href="#">3B Callahan</a>	<a href="#">2A Freestone*</a>	<a href="#">3B Kent</a>	<a href="#">3A Panola*</a>	<a href="#">3A Van Zandt*</a>
<a href="#">2A Cameron*</a>	<a href="#">2B Frio*</a>	<a href="#">3B Kerr</a>	<a href="#">3A Parker*</a>	<a href="#">2A Victoria*</a>
<a href="#">3A Camp*</a>	<a href="#">3B Gaines</a>	<a href="#">3B Kimble</a>	<a href="#">4B Parmer</a>	<a href="#">2A Walker*</a>
<a href="#">4B Carson</a>	<a href="#">2A Galveston*</a>	<a href="#">3B King</a>	<a href="#">3B Pecos</a>	<a href="#">2A Waller*</a>
<a href="#">3A Cass*</a>	<a href="#">3B Garza</a>	<a href="#">2B Kinney*</a>	<a href="#">2A Polk*</a>	<a href="#">3B Ward</a>
<a href="#">4B Castro</a>	<a href="#">3A Gillespie*</a>	<a href="#">2A Kleberg*</a>	<a href="#">4B Potter</a>	<a href="#">2A Washington*</a>
<a href="#">2A Chambers*</a>	<a href="#">3B Glasscock</a>	<a href="#">3B Knox</a>	<a href="#">3B Presidio</a>	<a href="#">2B Webb*</a>
<a href="#">2A Cherokee*</a>	<a href="#">2A Goliad*</a>	<a href="#">3A Lamar*</a>	<a href="#">3A Rains*</a>	<a href="#">2A Wharton*</a>
<a href="#">3B Childress</a>	<a href="#">2A Gonzales*</a>	<a href="#">4B Lamb</a>	<a href="#">4B Randall</a>	<a href="#">3B Wheeler</a>
<a href="#">3A Clay</a>	<a href="#">4B Gray</a>	<a href="#">3A Lampasas*</a>	<a href="#">3B Reagan</a>	<a href="#">3A Wichita</a>
<a href="#">4B Cochran</a>	<a href="#">3A Grayson</a>	<a href="#">2B La Salle*</a>	<a href="#">2B Real*</a>	<a href="#">3B Wilbarger</a>
<a href="#">3B Coke</a>	<a href="#">3A Gregg*</a>	<a href="#">2A Lavaca*</a>	<a href="#">3A Red River*</a>	<a href="#">2A Willacy*</a>
<a href="#">3B Coleman</a>	<a href="#">2A Grimes*</a>	<a href="#">2A Lee*</a>	<a href="#">3B Reeves</a>	<a href="#">2A Williamson*</a>
<a href="#">3A Collin*</a>	<a href="#">2A Guadalupe*</a>	<a href="#">2A Leon*</a>	<a href="#">2A Refugio*</a>	<a href="#">2A Wilson*</a>
<a href="#">3B Collingsworth</a>	<a href="#">4B Hale</a>	<a href="#">2A Liberty*</a>	<a href="#">4B Roberts</a>	<a href="#">3B Winkler</a>
<a href="#">2A Colorado*</a>	<a href="#">3B Hall</a>	<a href="#">2A Limestone*</a>	<a href="#">2A Robertson*</a>	<a href="#">3A Wise</a>
<a href="#">2A Comal*</a>	<a href="#">3A Hamilton*</a>	<a href="#">4B Lipscomb</a>	<a href="#">3A Rockwall*</a>	<a href="#">3A Wood*</a>
<a href="#">3A Comanche*</a>	<a href="#">4B Hansford</a>	<a href="#">2A Live Oak*</a>	<a href="#">3B Runnels</a>	<a href="#">4B Yoakum</a>
<a href="#">3B Concho</a>	<a href="#">3B Hardeman</a>	<a href="#">3A Llano*</a>	<a href="#">3A Rusk*</a>	<a href="#">3A Young</a>
<a href="#">3A Cooke</a>	<a href="#">2A Hardin*</a>	<a href="#">3B Loving</a>	<a href="#">3A Sabine*</a>	<a href="#">2B Zapata*</a>
<a href="#">2A Coryell*</a>	<a href="#">2A Harris*</a>	<a href="#">3B Lubbock</a>	<a href="#">3A San Augustine*</a>	<a href="#">2B Zavala*</a>
<a href="#">3B Cottle</a>	<a href="#">3A Harrison*</a>	<a href="#">3B Lynn</a>	<a href="#">2A San Jacinto*</a>	

**UTAH**

<a href="#">5B Beaver</a>	<a href="#">6B Duchesne</a>	<a href="#">5B Kane</a>	<a href="#">5B San Juan</a>	<a href="#">5B Utah</a>
<a href="#">6B Box Elder</a>	<a href="#">5B Emery</a>	<a href="#">5B Millard</a>	<a href="#">5B Sanpete</a>	<a href="#">6B Wasatch</a>
<a href="#">6B Cache</a>	<a href="#">5B Garfield</a>	<a href="#">6B Morgan</a>	<a href="#">5B Sevier</a>	<a href="#">3B Washington</a>
<a href="#">6B Carbon</a>	<a href="#">5B Grand</a>	<a href="#">5B Piute</a>	<a href="#">6B Summit</a>	<a href="#">5B Wayne</a>
<a href="#">6B Daggett</a>	<a href="#">5B Iron</a>	<a href="#">6B Rich</a>	<a href="#">5B Tooele</a>	<a href="#">5B Weber</a>
<a href="#">5B Davis</a>	<a href="#">5B Juab</a>	<a href="#">5B Salt Lake</a>	<a href="#">6B Uintah</a>	

**VERMONT**[6A \(all\)](#)**VIRGINIA**[4A \(all\)](#)**WASHINGTON**

<a href="#">5B Adams</a>	<a href="#">5B Douglas</a>	<a href="#">4C King</a>	<a href="#">4C Pacific</a>	<a href="#">6B Stevens</a>
<a href="#">5B Asotin</a>	<a href="#">6B Ferry</a>	<a href="#">4C Kitsap</a>	<a href="#">6B Pend Oreille</a>	<a href="#">4C Thurston</a>
<a href="#">5B Benton</a>	<a href="#">5B Franklin</a>	<a href="#">5B Kittitas</a>	<a href="#">4C Pierce</a>	<a href="#">4C Wahkiakum</a>
<a href="#">5B Chelan</a>	<a href="#">5B Garfield</a>	<a href="#">5B Klickitat</a>	<a href="#">4C San Juan</a>	<a href="#">5B Walla Walla</a>
<a href="#">4C Clallam</a>	<a href="#">5B Grant</a>	<a href="#">4C Lewis</a>	<a href="#">4C Skagit</a>	<a href="#">4C Whatcom</a>
<a href="#">4C Clark</a>	<a href="#">4C Grays Harbor</a>	<a href="#">5B Lincoln</a>	<a href="#">5B Skamania</a>	<a href="#">5B Whitman</a>
<a href="#">5B Columbia</a>	<a href="#">4C Island</a>	<a href="#">4C Mason</a>	<a href="#">4C Snohomish</a>	<a href="#">5B Yakima</a>
<a href="#">4C Cowlitz</a>	<a href="#">4C Jefferson</a>	<a href="#">6B Okanogan</a>	<a href="#">5B Spokane</a>	

**WEST VIRGINIA**

<a href="#">5A Barbour</a>	<a href="#">5A Grant</a>	<a href="#">4A Logan</a>	<a href="#">5A Nicholas</a>	<a href="#">5A Summers</a>
<a href="#">4A Berkeley</a>	<a href="#">5A Greenbrier</a>	<a href="#">5A Marion</a>	<a href="#">5A Ohio</a>	<a href="#">5A Taylor</a>
<a href="#">4A Boone</a>	<a href="#">5A Hampshire</a>	<a href="#">5A Marshall</a>	<a href="#">5A Pendleton</a>	<a href="#">5A Tucker</a>
<a href="#">4A Braxton</a>	<a href="#">5A Hancock</a>	<a href="#">4A Mason</a>	<a href="#">4A Pleasants</a>	<a href="#">4A Tyler</a>
<a href="#">5A Brooke</a>	<a href="#">5A Hardy</a>	<a href="#">4A McDowell</a>	<a href="#">5A Pocahontas</a>	<a href="#">5A Upshur</a>
<a href="#">4A Cabell</a>	<a href="#">5A Harrison</a>	<a href="#">4A Mercer</a>	<a href="#">5A Preston</a>	<a href="#">4A Wayne</a>
<a href="#">4A Calhoun</a>	<a href="#">4A Jackson</a>	<a href="#">5A Mineral</a>	<a href="#">4A Putnam</a>	<a href="#">5A Webster</a>
<a href="#">4A Clay</a>	<a href="#">4A Jefferson</a>	<a href="#">4A Mingo</a>	<a href="#">5A Raleigh</a>	<a href="#">5A Wetzel</a>
<a href="#">5A Doddridge</a>	<a href="#">4A Kanawha</a>	<a href="#">5A Monongalia</a>	<a href="#">5A Randolph</a>	<a href="#">4A Wirt</a>
<a href="#">5A Fayette</a>	<a href="#">5A Lewis</a>	<a href="#">4A Monroe</a>	<a href="#">4A Ritchie</a>	<a href="#">4A Wood</a>
<a href="#">4A Gilmer</a>	<a href="#">4A Lincoln</a>	<a href="#">4A Morgan</a>	<a href="#">4A Roane</a>	<a href="#">4A Wyoming</a>

**WISCONSIN**

<a href="#">6A Adams</a>	<a href="#">7 Douglas</a>	<a href="#">6A Kewaunee</a>	<a href="#">6A Ozaukee</a>	<a href="#">7 Taylor</a>
<a href="#">7 Ashland</a>	<a href="#">6A Dunn</a>	<a href="#">6A La Crosse</a>	<a href="#">6A Pepin</a>	<a href="#">6A Trempealeau</a>
<a href="#">6A Barron</a>	<a href="#">6A Eau Claire</a>	<a href="#">6A Lafayette</a>	<a href="#">6A Pierce</a>	<a href="#">6A Vernon</a>
<a href="#">7 Bayfield</a>	<a href="#">7 Florence</a>	<a href="#">7 Langlade</a>	<a href="#">6A Polk</a>	<a href="#">7 Vilas</a>
<a href="#">6A Brown</a>	<a href="#">6A Fond du Lac</a>	<a href="#">7 Lincoln</a>	<a href="#">6A Portage</a>	<a href="#">6A Walworth</a>
<a href="#">6A Buffalo</a>	<a href="#">7 Forest</a>	<a href="#">6A Manitowoc</a>	<a href="#">7 Price</a>	<a href="#">7 Washburn</a>
<a href="#">7 Burnett</a>	<a href="#">6A Grant</a>	<a href="#">6A Marathon</a>	<a href="#">6A Racine</a>	<a href="#">6A Washington</a>
<a href="#">6A Calumet</a>	<a href="#">6A Green</a>	<a href="#">6A Marinette</a>	<a href="#">6A Richland</a>	<a href="#">6A Waukesha</a>
<a href="#">6A Chippewa</a>	<a href="#">6A Green Lake</a>	<a href="#">6A Marquette</a>	<a href="#">6A Rock</a>	<a href="#">6A Waupaca</a>
<a href="#">6A Clark</a>	<a href="#">6A Iowa</a>	<a href="#">6A Menominee</a>	<a href="#">6A Rusk</a>	<a href="#">6A Waushara</a>
<a href="#">6A Columbia</a>	<a href="#">7 Iron</a>	<a href="#">6A Milwaukee</a>	<a href="#">6A Sauk</a>	<a href="#">6A Winnebago</a>
<a href="#">6A Crawford</a>	<a href="#">6A Jackson</a>	<a href="#">6A Monroe</a>	<a href="#">7 Sawyer</a>	<a href="#">6A Wood</a>
<a href="#">6A Dane</a>	<a href="#">6A Jefferson</a>	<a href="#">6A Oconto</a>	<a href="#">6A Shawano</a>	
<a href="#">6A Dodge</a>	<a href="#">6A Juneau</a>	<a href="#">7 Oneida</a>	<a href="#">6A Sheboygan</a>	
<a href="#">6A Door</a>	<a href="#">6A Kenosha</a>	<a href="#">6A Outagamie</a>	<a href="#">6A St. Croix</a>	

## WYOMING

<a href="#">6B Albany</a>	<a href="#">6B Crook</a>	<a href="#">6B Laramie</a>	<a href="#">5B Platte</a>	<a href="#">6B Uinta</a>
<a href="#">6B Big Horn</a>	<a href="#">6B Fremont</a>	<a href="#">7 Lincoln</a>	<a href="#">6B Sheridan</a>	<a href="#">6B Washakie</a>
<a href="#">6B Campbell</a>	<a href="#">5B Goshen</a>	<a href="#">6B Natrona</a>	<a href="#">7 Sublette</a>	<a href="#">6B Weston</a>
<a href="#">6B Carbon</a>	<a href="#">6B Hot Springs</a>	<a href="#">6B Niobrara</a>	<a href="#">6B Sweetwater</a>	
<a href="#">6B Converse</a>	<a href="#">6B Johnson</a>	<a href="#">6B Park</a>	<a href="#">7 Teton</a>	

## US TERRITORIES

### AMERICAN SAMOA

[1A \(all\)\\*](#)

### GUAM

[1A \(all\)\\*](#)

### NORTHERN MARIANA ISLANDS

[1A \(all\)\\*](#)

### PUERTO RICO

[1A \(all\)\\*](#)

### VIRGIN ISLANDS

[1A \(all\)\\*](#)

## C200 INTERNATIONAL CLIMATE ZONES

**C201 International climate zones.** The climate zone for any location outside the United States shall be determined by applying Table C201(1) and then Table C201(2).

### TABLE C201(1) INTERNATIONAL CLIMATE ZONE DEFINITIONS

MAJOR CLIMATE TYPE DEFINITIONS
<p>Marine (C) Definition—Locations meeting all four criteria:</p> <ol style="list-style-type: none"><li>1. Mean temperature of coldest month between -3°C (27°F) and 18°C (65°F)</li><li>2. Warmest month mean &lt; 22°C (72°F)</li><li>3. At least four months with mean temperatures over 10°C (50°F)</li><li>4. Dry season in summer. The month with the heaviest precipitation in the cold season has at least three times as much precipitation as the month with the least precipitation in the rest of the year. The cold season is October through March in the Northern Hemisphere and April through September in the Southern Hemisphere.</li></ol>
<p>Dry (B) Definition—Locations meeting the following criteria: Not marine and</p> $P_{in} < 0.44 \times (TF - 19.5) \quad [P_{cm} < 2.0 \times (TC + 7) \text{ in SI units}]$ <p>where:</p> <p><math>P_{in}</math> = Annual precipitation in inches (cm)</p> <p><math>T</math> = Annual mean temperature in °F (°C)</p>

Moist (A) Definition—Locations that are not marine and not dry.

Warm-humid Definition—Moist (A) locations where either of the following wet-bulb temperature conditions shall occur during the warmest six consecutive months of the year:

1. 67°F (19.4°C) or higher for 3,000 or more hours; or
2. 73°F (22.8°C) or higher for 1,500 or more hours

For SI: °C = [(°F)-32]/1.8; 1 inch = 2.54 cm.

**TABLE C201(2) INTERNATIONAL CLIMATE ZONE DEFINITIONS**

<b><u>ZONE NUMBER</u></b>	<b><u>THERMAL CRITERIA</u></b>	
	<b><u>IP Units</u></b>	<b><u>SI Units</u></b>
<u>1</u>	<u>9000 &lt; CDD50°F</u>	<u>5000 &lt; CDD10°C</u>
<u>2</u>	<u>6300 &lt; CDD50°F ≤ 9000</u>	<u>3500 &lt; CDD10°C ≤ 5000</u>
<u>3A and 3B</u>	<u>4500 &lt; CDD50°F ≤ 6300 AND HDD65°F ≤ 5400</u>	<u>2500 &lt; CDD10°C ≤ 3500 AND HDD18°C ≤ 3000</u>
<u>4A and 4B</u>	<u>CDD50°F ≤ 4500 AND HDD65°F ≤ 5400</u>	<u>CDD10°C ≤ 2500 AND HDD18°C ≤ 3000</u>
<u>3C</u>	<u>HDD65°F ≤ 3600</u>	<u>HDD18°C ≤ 2000</u>
<u>4C</u>	<u>3600 &lt; HDD65°F ≤ 5400</u>	<u>2000 &lt; HDD18°C ≤ 3000</u>
<u>5</u>	<u>5400 &lt; HDD65°F ≤ 7200</u>	<u>3000 &lt; HDD18°C ≤ 4000</u>
<u>6</u>	<u>7200 &lt; HDD65°F ≤ 9000</u>	<u>4000 &lt; HDD18°C ≤ 5000</u>
<u>7</u>	<u>9000 &lt; HDD65°F ≤ 12600</u>	<u>5000 &lt; HDD18°C ≤ 7000</u>
<u>8</u>	<u>12600 &lt; HDD65°F</u>	<u>7000 &lt; HDD18°C</u>

For SI: °C = [(°F)-32]/1.8

**APPENDIX D**

**EXAMPLES OF THIRD-PARTY PROGRAMS FOR CHAPTER 9  
INDOOR ENVIRONMENTAL QUALITY**

<b><u>NGBS Section</u></b>	<b><u>Example third-party certification programs compliant with the corresponding section</u></b>
<a href="#"><u>901.5 Carpets</u></a>	<a href="#"><u>Carpet and Rug Institute’s (CRI) Green Label Plus Indoor Air Quality Program</u></a>
<a href="#"><u>901.6 Hard-surface flooring</u></a>	<a href="#"><u>GREENGUARD Environmental Institute Children &amp; Schools Certification Program</u></a>  <a href="#"><u>Resilient Floor Covering Institute’s FloorScore Indoor Air Certification Program</u></a>
<a href="#"><u>901.7 Wall coverings</u></a>	<a href="#"><u>GREENGUARD Environmental Institute Children &amp; Schools Certification Program</u></a>  <a href="#"><u>Scientific Certification Systems (SCS) Indoor Advantage Gold Program</u></a>
<a href="#"><u>901.8 Architectural coatings</u></a>	<a href="#"><u>GREENGUARD Environmental Institute Children &amp; Schools Certification Program</u></a>  <a href="#"><u>Scientific Certification Systems (SCS) Indoor Advantage Gold Program</u></a>  <a href="#"><u>Green Seal</u></a>
<a href="#"><u>901.9 Adhesives and sealants</u></a>	<a href="#"><u>GREENGUARD Environmental Institute Children and Schools Certification Program</u></a>  <a href="#"><u>Scientific Certifications Systems (SCS) Indoor Advantage Gold Program</u></a>  <a href="#"><u>CRI Green Label Plus</u></a>  <a href="#"><u>Resilient Floor Covering Institute’s FloorScore Indoor Air Certification Program</u></a>  <a href="#"><u>Green Seal</u></a>
<a href="#"><u>901.11 Insulation</u></a>	<a href="#"><u>GREENGUARD Environmental Institute Children and Schools Certification Program</u></a>  <a href="#"><u>Scientific Certifications Systems (SCS) Indoor Advantage Gold Program</u></a>