CITY OF SANTA FE, NEW MEXICO

BILL NO. 2011-49

INTRODUCED BY:

Councilor Calvert

AN ORDINANCE

***AMENDING SECTION 7-4.2 SFCC 1987 REGARDING THE ADMINISTRATION OF THE RESIDENTIAL GREEN BUILDING CODE*; REPEALING EXHIBIT A TO CHAPTER VII SFCC 1987, SANTA FE RESIDENTIAL GREEN BUILDING CODE; AND ADOPTING A NEW EXHIBIT A TO CHAPTER VII SFCC 1987, SANTA FE RESIDENTIAL GREEN BUILDING CODE, TO BE CONSISTENT WITH THE NATIONAL GREEN BUILDING STANDARD.**

BE IT ORDAINED BY THE GOVERNING BODY OF THE CITY OF SANTA FE:

Section 1. ***Section 7-4.2 SFCC 1987 (being Ord. #2009-9, §3, as amended) is amended to read:***

7-4.2 Residential Green Building Code.

A. Purpose. The purpose of this section is to:

(1) Provide criteria for rating the environmental performance of single-family residential construction and site design practices and provide guidelines for documentation that demonstrates conformance with those criteria;

(2) Encourage cost-effective and sustainable building methods by encouraging conservation of fossil fuels, water and other natural resources, reduction of greenhouse gas emissions, recycling of construction materials, reducing solid waste and improving indoor air quality;

(3) Identify the specific requirements for complying with the requirements of the Residential Green Building Code; and

(4) Encourage more aggressive green building development through incentives and rewards to work toward the goals of the 2030 challenge as adopted by the governing body by Resolution No. 2006-55.

B. Residential Green Building Code; Applicability.

(1) Exhibit A attached to the end of this chapter is adopted. Exhibit A shall be referred to as the Santa Fe Residential Green Building Code.

(2) The provisions of [~~this section~~] the Santa Fe Residential Green Building Code shall apply to all new residential units as defined by the [~~2006~~] 2009 International Residential Code or its successor as adopted by the city.

(3) Upon request of an applicant, applications for permits submitted prior to July 1, 2012, may be issued in compliance with the prior version of Residential Green Building Code.

C. Relationship to Other Codes; Compliance; Exceptions.

(1) The requirements of this section are in addition to and do not replace the requirements of other sections of this chapter and other chapters of this Code, including without limitation, all of the life safety codes, historic preservation ordinance, land development code and adopted building codes and development standards.

(2) No person shall fail to comply with the requirements of this section. No person shall construct in violation of a Residential Green Building Code approval. All

approvals in inspections of Residential Green Code applications and requirements shall be done in conjunction with a residential building permit application and field inspections. An application shall be made on a form approved by the land use department director. The applicant shall demonstrate compliance with all of the provisions of this section prior to the issuance of a certificate of occupancy by the land use department.

(3) For a structure located in an historic overlay district where it can be demonstrated that strict application of the requirements of this section cannot be accomplished due to the requirements of the historic overlay district and that findings cannot be reasonably made for a variance or exception to the historic overlay district requirements, the requirements of this section may be reduced commensurate with the conflict between the two (2) sections of the Code.

D. Administration.

(1) The Residential Green Building Code shall be administered by the city as set forth in the administrative procedures adopted by resolution of the governing body. All changes to the administrative procedures shall be reviewed and approved by the governing body. The administrative procedures shall set forth responsibilities, procedures and standards for administrative actions necessary to implement the Residential Green Building Code, which include, without limitation, the following:

(a) Submitting and reviewing applicable residential building permit requests and determining conditions of approval related to the requirements of the Residential Green Building Code;

(b) Reviewing and certifying Residential Green Building Code checklists with property owners to ensure compliance with the Residential Green Building Code and the administrative procedures;

(c) Monitoring the performance of property owners subject to such

agreements or other requirements of the Residential Green Building Code and the administrative procedures; and taking appropriate action in the event of noncompliance; and

(d) Collecting and distributing any payments resulting from getting a worse index than the required home energy rating index.

(2) The [~~housing and community development~~] land use department or its agents shall:

(a) Be responsible for the administration of the Residential Green Building Code; and

[~~(b) Prepare a user's guide that provides detailed information regarding each checklist item in the Residential Green Building Code and when an applicant is eligible to take points and how many points may be taken.~~]

[~~(3) The land use department staff shall:~~]

([~~a~~]b) Administer and enforce all other building code and land use ordinances that apply to development requests that are subject to this section;

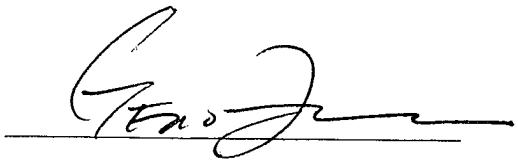
([~~b~~]c) Require, as part of the building permit submittals, the applicant to prepare and submit a Residential Green Building Code checklist to the green code administrator or designee to assure compliance with this section; and

([~~e~~]d) Where applicable, invoke sanctions for noncompliance with this section at the request of the city manager.

E. Effective Date. Section 7-4.1 SFCC 1987 shall be effective July 1, 2009.

Section 2. Exhibit A, Chapter VII SFCC 1987 (being Ord. #2009-9, as amended) is repealed and a new Exhibit A, Chapter VII SFCC 1987 is ordained to read as shown on the attached Exhibit A.

APPROVED AS TO FORM:



GENO ZAMORA, CITY ATTORNEY

M/Melissa/bills 2011/Green Code (Residential)2

EXHIBIT A [New Material] to CHAPTER VII

(Section 7-4.2)

SANTA FE RESIDENTIAL GREEN BUILDING CODE

Introduction to the Santa Fe Residential Green Building Code ("RGBC")

The RGBC addresses six categories relating to green building:

(1) Lot design, preparation and development;

(2) Resource efficiency;

(3) Energy efficiency;

(4) Water efficiency;

(5) Indoor environmental quality; and

(6) Operation, maintenance, and building owner education

Each category contains subsections and line items with associated points. The items not marked "mandatory" may be selected for points to obtain the number of points required by each section. An additional 20 points is required and may be selected from any category.

The RGBC requires that all single-family residential units reach a minimum level based on the number of heated gross square feet of the home. The level of certification is the minimum level for homes up to 3,000 heated gross square feet. Over that size, there are additional requirements for energy and water efficiency.

New Mexico Green Building Code

The RGBC has been designed to be consistent with state of New Mexico Building Codes. The RGBC is not intended to supersede any state requirements.

The Administrative Procedures to the Santa Fe Residential Green Building Code

On _____, 2012, the governing body adopted Resolution No. 2012-____ setting forth the administrative procedures for the RGBC, which may be amended from time to time by the governing body. The administrative procedures detail each item of the RGBC checklist.

Santa Fe Residential Green Building Review and Inspection Process

The city of Santa Fe Green Building Code administrator will review building permit applications for compliance with the RGBC. The city of Santa Fe inspection division will inspect for most of the elements of the RGBC, however, a city-approved third party will conduct the Home Energy Rating System (HERS) analysis and perform inspections related to thermal bypass and insulation installation at the applicant's expense. To certify a home under the RGBC:

(1) When selecting a lot, set a goal for the level of certification, decide where points will be counted in each section, and write the implementation plan.

(2) Retain a HERS Rater to analyze the building plan to verify that it is projected to meet the required HERS index, perform the third-party testing that is required, and to submit all required documentation to the city's inspection division.

(3) When applying for a building permit, submit documentation including a completed certification checklist, implementation plan, and as much of the documentation as required by the verification column of the checklist as currently available.

(4) Keep track of documentation during construction. Be sure that there is documentation for the points that are being claimed. Submit results of third party inspections and other documentation to the city, as they become available.

(5) Notify the Green Building Code administrator at least two weeks prior to applying for a certificate of occupancy to allow for review of all submittals verifying compliance with the checklist items that are being claimed and have been received by the city and that all inspections have been made.

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Santa Fe Residential Green Building Checklists

Chapter 1. ***Reserved.***

Chapter 2. ***Reserved.***

Chapter 3. ***Reserved.***

Chapter 4. ***Reserved***

Chapter 5
Lot Design, Preparation, and Development

Item #	Green Building Practices	Points
501	**Lot Selection**	
501.1	Lot: The lot is selected to minimize environmental impact by one or more of the following:	
(1)	An infill site is selected.	4
(2)	A greyfield or an EPA-recognized brownfield lot is selected.	5
501.2	**Mass Transportation**: A range of mass 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.	3
(2)	Walkways, street crossings, and entrances designed to promote pedestrian activity are provided. New buildings are connected to existing sidewalks and areas of development.	3
(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, grocery store, post office, place of worship, community center, daycare center, bank, school, restaurant, medical/dental office, Laundromat/dry cleaner).	3
503	**Lot Design**	
503.0	**Intent**: The lot is designed to avoid detrimental environmental impacts first, minimize any unavoidable impacts next, and finally 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)	
503.1	**Natural Resources**: Natural resources are conserved by one or more of the following:	
(4)	Basic training in tree or other natural resource protection is provided for the on-site supervisor.	4

503.5	**Landscape Plan**: A landscape plan is developed to limit water and energy use while preserving or enhancing the natural environment.	
(2)	Vegetation and trees are selected that are native or regionally appropriate for local growing conditions.	4
(3)	A percentage of cool season turf areas are limited.	
(a)	0 percent	4
(4)	Plants with similar watering needs are grouped (hydrozoning).	5
(5)	Species and locations for tree planting are identified that will provide summer shading of streets, parking areas, and buildings to moderate temperatures, *when trees reach maturity.*	5

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.	

504.2	**Trees and Vegetation**: 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.	3
(2)	Trenching, significant changes in grade, and compaction of soil and critical root zones in "tree save" areas are avoided.	4

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 may be required, and innovative zoning practices may be 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.	4

505.4	Select a small lot to promote density and public transit and reduce sprawl	
(1)	Infill site of less than 6000 square feet OR	2
(2)	Infill site of less than 5000 square feet OR	3
(3)	Infill site of less than 4000 square feet OR	4
(4)	Infill site of less than 3000 square feet	5

[~~505.5~~	*~~Construction site supervisor has taken an approved tree protection class~~]*	*[4]*

TOTAL REQUIRED FOR NEW BUILDINGS (ALL BUILDING SIZES) 16

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Chapter 6
Resource Efficiency

Item #	Green Building Practices	Points
601	**Quality of Construction Materials and Waste**	
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.	

601.1	Conditioned Floor Area: Conditioned floor area, 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^2)	**15**
(2)	less than or equal to 1,500 square feet (139 m^2)	**12**
(3)	less than or equal to 2,000 square feet (186 m^2)	**9**
(4)	less than or equal to 2,500 square feet (232 m^2)	**6**

601.2	**Material Usage**: Building-code-compliant structural systems or advanced framing techniques are implemented that optimize material usage. **(Points awarded for each system or framing technique implemented).**	**3 9 Points max**
(1)	24" OC framing	
(2)	Single top-plate - exterior and bearing walls	
(3)	Single top-plate - interior non-bearing partitions	
(4)	Right-sized headers or insulated box headers	
(5)	No headers in non-bearing partitions	
(6)	Ladders at perpendicular wall intersections	
(7)	Two-stud exterior corner framing or equivalent	
(8)	Doubling the rim joist in lieu of header	
(9)	Other (specify and provide detail)	

601.5	**Prefabricated components.** 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**

601.6	**Stacked Stories**: Stories above grade are stacked, such as in 1 1/2-story, 2-story, or greater structures. The area of the upper floor 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).	
(1)	first stacked story	**4**
(2)	for each additional stacked story	**2**

601.7	**Site-applied Finishing Materials**: Building materials or assemblies are utilized that do not require additional site-applied material for finishing.	
(1)	90 percent or more of the installed building material or assembly listed below:	**5**
	(Points awarded for each material or assembly.)	
(2)	50 percent to less than 90 percent of the installed building material or assembly listed below:	**2**
	(Points awarded for each material or assembly.)	
(a)	pigmented, stamped, decorative, or final finish concrete or masonry	
(e)	Use no trim on doors and window counting both interior and exterior and both sides of internal doors.	

601.9	Above Grade Wall Systems: One or more of the following above grade wall systems that provide sufficient structural characteristics are used for a minimum of 75 percent of the gross exterior wall area of the building or 30 percent of interior and exterior wall areas combined.	**4**
(1) **(2)** **(4)**	adobe or compressed earth block concrete and/or masonry rammed earth	
601.9.1	Use earth from site (80% of the soil used) to make adobes, compressed earth block or rammed earth material used in building.	**8 Additional Points**

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.	

602.1	Exterior Doors: 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), 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 assemblies	**1**

602.2	**Roof Overhangs**: Fixed permanent roof overhangs, including portals, based on inches of rainfall in Table 602.2, are provided over a minimum of 90 percent of exterior walls for sloped roofs or portals that cover 50% or more of the wall area for flat roofed buildings to protect the building envelope.	**4**

	Table 602.2	
	Minimum Roof Overhang for One- & Two-Story Buildings	
	Inches Rainfall[(1)] Eave Overhang (inches) Rake Overhang (inches)	
	Less than 20 12 12	
	~~[(1) Average annual inches of rainfall are in accordance with Figure 6(20~~	
	~~For SI: 1 foot = 304.8 mm]~~	-

602.4	**Drip Edge**: Drip edge is installed at eaves and gable roof edges.	**3**

602.7	**Termite Barrier**: 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)~~*].	**4**
602.7.1	Additional points for continuous physical foundation termite barrier using no toxic treatment installed [*~~in geographical areas that have subterranean termite infestation potential determined in accordance with Figure 6(3)~~*].	**2**

602.11	**Foundation Waterproofing:** Enhanced foundation waterproofing is installed where waterproofing is required by code: (Note: Some coatings are not compatible with exterior foam insulation.)	**4**
(1)	rubberized coating, or	
(2)	drainage mat	

602.12	**Flashing**: Flashing details are shown on plans and flashing is installed at all of the following locations, *as applicable:*	**6**
(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	

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.	

603.1	**Reuse of Existing Building**: Existing buildings and structures are reused, modified, or deconstructed in lieu of demolition. **(Points awarded for every 200 square feet (18.5 m^2) of floor area.)**	*1* *12 Points Max*

603.3	**Scrap Materials**: Facilitation for sorting and reuse of scrap building material (e.g., provide a central storage area or dedicated bins).	**4**

605	**Recycled Construction Waste**	
605.0	**Intent**: Waste generated during construction is recycled. All waste classified as hazardous shall be property handled and disposed. **(Points not awarded for hazardous waste removal.)**	

605.1	**Construction Waste and 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**

607	**Resource-Efficient Materials**	
607.1	**Resource-Efficient Materials**: Products containing fewer materials are used to achieve the same end-use requirements as conventional products, including but not limited to: **(3 points awarded for each *[~~materials~~] material*)**	**9 Points Max**
(2)	engineered wood or engineered steel products	
(3)	roof or floor trusses	

610	**Innovative Practices**	
610.2	**Universal Design:** For future resource efficiency. One point per universal design element (see User's Guide), Max of 6 points.	**6**

610.3	**Modular Building Dimensions.** Frame structures or structures made with modular units are designed on 16- or 24-inch dimensions.	**2**

610.4	Use structural vigas, beams, or posts (from less than 300 miles away) (does not apply to decorative vigas) (1 point per installed 10 linear feet)	**10 max**

610.5	Structural insulated panels (SIPS) used for the exterior:	
(1)	Walls	5
(2)	Roof	5

610.6	Drainage from canales is done in accordance with all of the following	***5***
(1)	Waterproof the foundation behind the splash area and extending 3 feet in both directions.	
(2)	Install an impermeable liner in splash area under canale.	
(3)	Liner or other collector guides water away from structure sloping a minimum of 6 inches over 6 feet for a minimum of 6 feet away from structure.	

TOTAL REQUIRED FOR NEW BUILDINGS (ALL BUILDING SIZES) 50

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Chapter 7
Energy Efficiency

Item #	Green Building Practices	Points
701	**Minimum Energy Efficiency Requirements**	
701.1	**Mandatory Requirements**: New Buildings must comply with Section 702 (Performance Path).	

701.4.3 **701.4.3.1**	**Insulation and Air Sealing:** **General.** Insulation and air sealing is inspected by an approved third party and a report verifying compliance is provided to the City's Inspection Division and is in accordance with the following:	
(1)	**Insulation.** Insulation is installed in accordance with the manufacturer's instructions or local code, as applicable.	**Mandatory**
(2)	**Shafts (duct shaft, piping shaft/penetrations, flue shaft).** 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.	**Mandatory**

701.4.3.2	**Floors, foundations, and crawlspaces:** These items are inspected by an approved third party and a report verifying compliance is provided to the City's Inspection Division.	
(1)	**Floors.** (including insulated floors above garages and cantilevered floors)	**Mandatory**
(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.	
(2)	**Crawlspace.** 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.	**Mandatory**
701.4.3.3	**Walls:** These items are inspected by an approved third party and a report verifying compliance is provided to the City's Inspection Division.	
(1)	**Windows and Doors.** Caulking, gasketing, adhesive flashing tape, foam sealant, or weatherstripping is installed forming a complete air barrier	**Mandatory**
(2)	Band joists and rim joists. Band and rim joists are insulated and air sealed.	**Mandatory**
(3)	**Between foundation and sill plate bottom plate**	**[*~~Mandatory~~*]**
(a)	Sill sealer or other material that will expand and contract is installed between foundation and sill plate.	***Mandatory***
(b)	Caulk or the equivalent is installed to seal the bottom plate of exterior walls	***Mandatory***
(4)	**Skylights and knee walls.** Skylight shafts and knee walls are insulated to the same level as the exterior walls.	**Mandatory**
(5)	**Exterior architectural features**. Code required building envelope insulation and air sealing are not disrupted at exterior architectural features such as stairs and decks.	**Mandatory**

701.4.3.4	**Ceilings and attics.** These items are inspected by an approved third party and a report verifying compliance is provided to the City's Inspection Division.	
(1)	**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.	**Mandatory**
(2)	**Recessed lighting.** Recessed light fixtures that penetrate the thermal envelope are airtight, IC-rated, and sealed with gasket, caulk or foam.	**Mandatory**
(3)	**Eave vents.** Where ceiling/attic assemblies or designs have eave vents, baffles or other means are implemented to minimize air movement into or under the insulation.	**Mandatory**

702	**Performance Path**	
~~*[702.1*~~	~~*Point allocation. Points from Section 702 (Performance Path) shall not be combined with points from Section703 (Prescriptive Path).]*~~	~~***[Mandatory]***~~

702.2	**Energy cost performance levels.** 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. A projected Home Energy Rating System, or equivalent, rating in the form of an ES 2.5 report, or equivalent, shall be provided to submit for permit and a report of the confirmed rating also in the form of an ES 2.5 report, or equivalent shall be provided to the City of Santa Fe's Inspection Division.	**Mandatory**
	Minimum HERS index is required as follows:	

Heated Square Footage	Required HERS Index
0-3000	70
3001-3500	65
3501-4000	60
4001-4500	55
4501-5000	50
5001-5600	45
5601-6200	40
6201-6800	35
6801-7400	30
7401-8000	25
8001-8500	20
8501-9000	15
9001-9500	10
9501-10,000	5
10,001 +	0

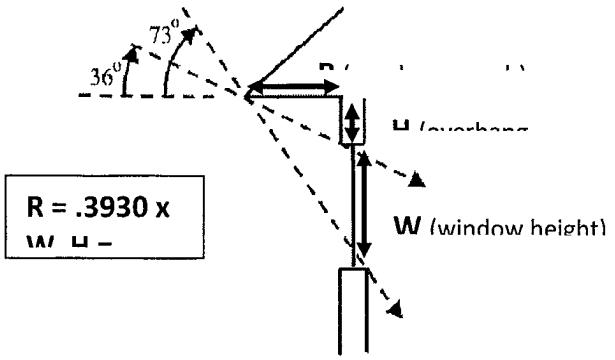
702.3	**Better HERS Index than Required:** For each two (2) whole HERS index points below the required HERS index. *Note: When applying for building permit points are not given for the first 6 HERS index points. All points will be given once the confirmed HERS index is completed.*	**1**

704 Additional Practices

704.1	**Application of additional practice points.**	

704.2	**Lighting and appliances**	
704.2.1	Hard-wired lighting is in accordance with one of the following:	
(1)	A minimum of 50 percent of the bulbs in the hard-wired light fixtures, qualify as ENERGY STAR or equivalent.	**4**
(2)	A minimum of 50 percent of the total hard-wired lighting fixtures qualify as ENERGY STAR or equivalent.	**8**
704.2.2	The number of recessed lighting fixtures that *[~~penetrates~~] penetrate* the thermal envelope are less than 1 per 400 square feet (37.16 m^2) of total conditioned floor area and are in accordance with Section 701.4.3.4(2).	**2**
704.2.4	Tubular daylighting device (TDD) or a skylight with sealed, insulated, low-E glass is installed in rooms without windows. **(Points awarded per building)**	**2**
704.2.5	ENERGY STAR or equivalent appliance(s) are installed	
(1)	refrigerator	**5**
(2)	dishwasher	**2**
(3)	washing machine	**4**
704.2.6	Induction cooktop is installed	**1**

704.3	**Renewable energy and solar heating and cooling**	
704.3.1	Solar Space heating and cooling	
704.3.1.1	**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 on the south face is between 5 and 7 percent of the gross conditioned floor area [also see Section 704.3.1.1(8)] if no mass is present or up to 12% if mass is present.	
(3)	Vertical glazing area on the west face is less than 2 percent of the gross conditioned floor area, and glazing is ENERGY STAR compliant or equivalent.	
(4)	Vertical glazing area on the east face is less than 4 percent of the gross conditioned floor area, and glazing is ENERGY STAR compliant or equivalent.	
(5)	Vertical glazing area on the north face is less than 4 percent of the gross conditioned floor area, 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 or less than 1.5% of finished ceiling area if thermal performance is enhanced by means such as reflectors or translucent insulation.	
(c)	sloped skylights located on slopes facing within 20 degrees of true south are less than 0.5 percent of the finished ceiling area or less than 1.5% of finished ceiling area if thermal performance is enhanced by means such as reflectors or translucent insulation.	

(7)	Overhangs or adjustable canopies or awnings or trellises provide shading on south-facing glass [~~*for the appropriate climate zone*~~] in accordance with the diagram below:	
		
(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 704.4.5.	
[~~(10)~~	~~Install devices to optimize the performance of skylights, such as sunbenders.~~]	*[1 ~~Additional Point~~]*
704.3.1.2	Automated solar protection with sensor or timer is installed to provide shading for all windows in the sun path.	**1**
704.3.1.3	Passive cooling design features are in accordance with three or more of the following:	
	Points for three items:	**3**
	Points for one additional item:	**1**
(1)	Exterior shading is provided on east and west windows using one or a combination of the following:	**2**
(a)	Vine-covered trellises with the vegetation separated a minimum of 1 foot (305 mm) from face of building	
(b)	awnings or louvers designed to shade the windows	
(c)	covered porches or portals	
(d)	attached or detached conditioned/unconditioned enclosed space that provides full shade of east and west windows (e.g., detached garage, shed, or building).	
(2)	Overhangs are installed to provide shading on south-facing glazing in accordance with Section 704.3.1.1(7).	
	(Points not awarded if points are take under Section 704.3.1.1.)	
(3)	Windows and/or venting skylights are located to facilitate cross ventilation.	
(5)	Internal exposed thermal mass is a minimum of three inches (76 mm) in thickness or 30 pounds of water per square foot of glazing. 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:	
(a)	A minimum of 1 square foot (0.09 m^2) of exposed thermal mass of floor per 3 square feet (2.8 m^2) of gross finished floor area.	
(b)	A minimum of 3 square feet (2.8 m^2) of exposed thermal mass in interior walls or elements per square foot (0.09 m^2) of gross finished floor area.	

704.3.1.4	**Passive solar heating design.** In addition to the sun-tempered design features in Section 704.3.1.1, all of the following are implemented:	**4**
(1)	Additional glazing, *[~~or~~]* *no* greater then 12 percent, is permitted on the south wall. This additional glazing is in accordance with the requirements of Section 704.3.1.1.	**2**
(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:	
(a)	Thermal mass is solid and a minimum of 3 inches (76 mm) in thickness. Where two thermal mass material are layered together (e.g., ceramic tile on concrete base) to achieve the appropriate thickness, they are fully adhered to (touching) each other.	
(b)	Thermal mass directly exposed to sunlight is provided in accordance with the following minimum ratios:	
	(i) Above latitude 35 degrees: 5 square feet (0.465 m^2) of thermal mass for every 1 square foot (0.0929 m^2) of south-facing glazing or 30 pounds of water.	
(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^2) of thermal mass for every 1 square foot (0.0929 m^2) of south-facing glazing.	
(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.	
704.3.2	**Solar Thermal Systems:** A solar thermal system is installed in accordance with one of the following: (points can be taken for either 704.3.2.1 or 704.3.2.2 but not both)	
704.3.2.1	**Solar Domestic Water Heating:** 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 704.3.2.1 (Note: A custom-designed system qualifies for points if a mechanical engineer certified the SEF) **Table 704.3.2.1** **Solar Hot Water Systems** **SEF - Electric Tank** / **SEF - Gas Tank** / **POINTS** 1.30 - 1.50 / 0.85 - 1.00 / **8** 1.51 - 1.80 / 1.01 - 1.20 / **11** 1.81 - 2.30 / 1.21 - 1.50 / **14** 2.32 - 3.00 / 1.51 - 2.00 / **17** ≥ 3.01 / ≥ 2.01 / **20**	**Points per Table 704.3.2.1**
704.3.2.2	**Solar Domestic Water and Space Heater:** SRCC (Solar Rating and Certification Corporation) OG 300 rated, or equivalent, solar collector thermal performance rating water and space heating system is installed. Manufacturer's specifications, SRCC OG 300 rating, and SEF for either gas or electric (or equivalent ratings) for solar water heating system and space heating system installed in building **Point calculation:** Use the SRCC OG 100 rating for category C, Clear Day (note that the number provided in the tables at http://www.solar-rating.org is given in 1000 BTUs) and round down to the nearest whole number.	**1 point per 7000 BTUs, 45 points maximum**
704.3.3	**Additional Renewable Energy Options**	
704.3.3.1	Photovoltaic panels are installed on the property **(Points awarded per 1/10 kW (or per 100 Watts))**	**1**

704.3.3.2	Other on-site renewable energy source is installed (e.g., wind energy, on-site micro-hydro power. **(Points awarded per 1/10 kW (or per 100 Watts))**	**One-half**

704.4	**Ducts**	
704.4.2	Space heating is provided by a system that does not include air ducts	**15**
704.4.3	Space cooling is provided by a system that does not include air ducts or there is no cooling system	**15**
704.4.4	Ductwork is in accordance with all of the following:	**12**
(2)	Heating and cooling ducts and mechanical equipment are installed within the conditioned building space.	
(3)	Ductwork is not installed in exterior walls.	
704.4.5	Return ducts or transfer grilles are installed in every room with an interior door. This practice does not apply to kitchens, closets, and pantries.	**5**

704.5	**HVAC Design and Installation**	
704.5.3	Performance of the heating and/or cooling system is verified by the HVAC contractor in accordance with all of the following that apply and provide a signed checklist to the City of Santa Fe Inspection Division:	**3**
(1)	All start-up procedures are performed in accordance with the manufacturer's instructions.	
(2)	Refrigerant charge is verified by super-heat and/or sub-cooling method.	
(3)	Burner is set to fire at input level listed on nameplate.	
(4)	Air handler setting/fan speed is set in accordance with manufacturer's instructions.	
(5)	Total airflow is within 10 percent of design flow.	
(6)	Total external system static does not exceed equipment capability at rated airflow.	

704.6	**Insulation and Performance Verification**	
704.6.1	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.	**5 Mandatory**
(1)	Ducts are installed in accordance with the ICC, IRC, or IMC and ducts are sealed.	
(2)	Building envelope air sealing is installed.	
(3)	Insulation is installed in accordance with Section 703.1.2.	
(4)	Windows, skylights, and doors are flashed, caulked, and sealed in accordance with manufacturer's recommendations and in accordance with Section 703.2.1.	
704.6.2	Third-party testing is conducted to verify performance.	
704.6.2.1	The blower door test results meet the air changes at 50 pascals in #4 below and the following practices are required:	
(2)	Fossil fuel furnace and water heater is sealed combustion or power vented in accordance with Section 901.1.	
(4)	The maximum leakage rate is in accordance with:	
(a)	5 ACH50	**3**
(b)	4 ACH50	**6**

(c)	3 ACH50	9
(d)	2 ACH50	12
(e)	1 ACH50	15

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 (Not applicable to radiant systems that don't use a solar hydronic system)	**2**
(2)	Energy-monitoring device	**4**
(3)	Energy management control system.	**7**

705.3	**Use a more energy efficient system for cooling the house than refrigerated air conditioning.**	
(1)	Use whole house fan with insulation on flaps and the side walls have the same r-value as the exterior walls.	**4**

705.4	**Lighting**	
	Install all interior lighting fixtures within the conditioned envelope of the building, e.g., housing does not penetrate insulated ceiling.	4

705.5	Skylights are less than 0.8% of the square footage of the conditioned area of the house. Final calculations based on installed skylights shall be provided at time of Final Green Building Inspection.	**5**
705.6	Install device(s) on all skylights to improve their efficiency such as aerogel panels. ***(2 points per skylight)***	**8 Points Max**
705.7	Reduce phantom loads with outlets tied to switches at room entries or comparable method ***(2 points per room where phantom loads are tied to switches)***	**8 Points Max**
705.8	Construction site personnel has taken an approved thermal bypass inspection (TBI) class. ***(3 points for framer and 1 point for additional other trades)***	**6 Points Max**

TOTAL REQUIRED **0 - 3000 HSF** **26**
3001 + HSF **35**

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Chapter 8
Water Efficiency

Item #	Green Building Practices	Points
801	**Indoor and Outdoor Water Use**	
801.0	**Intent.** Measures that reduce indoor and outdoor water usage are implemented.	

801.1	**Indoor hot water usage**	
801.1.1	Indoor hot water usage is reduced by one of the following practices:	
(1)	All hot water plumbing fixtures in both the kitchen and bathrooms are 32 feet (9,754 mm) or less in length from the water heater and is sized in accordance with the code for the specified application OR	**2**
(2)	All hot water plumbing fixtures in both the kitchen and bathrooms is 24 feet (7,315 mm) or less from the water heater and is sized in accordance with the code for the specified application OR	**3**
(4)	Pipe runs exceeding 32 feet (9,754 mm) from the Water heater to fixture locations are aided by:	
(a)	tankless water heater is installed at point of use and is served only by cold water or a solar assisted system OR	**1**
(b)	on-demand hot water recirculation system is installed with a water temperature sensor turn-off located at the fixture furthest from the water heater.	**6**

801.2	**Water-Conserving Appliances.** ENERGY STAR or equivalent water-conserving appliances are installed.	
(1)	dishwasher	**2**
(2)	washing machine OR	**8**
(3)	washing machine with a water factor of 6.0 or less	**12**

801.4	**Showerheads. Showerheads are in accordance with the following:**	
(1)	The total showerhead flow rate at any point in time in each shower compartment is 1.6 to 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. Documentation of fixture flow rate must be provided at final plumbing inspection. **(Points awarded per showerhead.)**	**1 3 points max**
(2)	All showerheads meet the requirements of 801.4(1). In addition, all showerheads are in compliance with either 801.4(2)(a) or 801.4(2)(b). Documentation of fixture flow rate must be provided at final plumbing inspection.	
(a)	2.0 to less than 2.5 gpm	**1 Additional Point**
(b)	1.6 to less than 2.0 gpm	**2 Additional Points**
	For SI: 1 gallon per minute = 3.785 L/m	

(3)	Manual shower shutoff	***2 per shutoff***

801.5	**Faucets**	
801.5.1	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 and documentation of flow rate must be provided at plumbing final inspection:	
(1)	a bathroom **(Points awarded for each bathroom)**	**1 3 Points Max**
(2)	all lavatory faucets	**2 Additional Points**
801.5.2	pedal-activated faucet is installed to enable intermittent on/off operation. **(Points awarded per fixture.)**	**1 3 Points Max**

801.6	**Water Closets and Urinals.** Water closets and urinals are in accordance with the following and if the gallons per flush rate is not printed on the fixture then documentation of the flush rate must be provided at the plumbing final inspection: **(For water closets, points awarded for either Section 801.6 or 802.2, not both.)**	
(2)	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.* **(Points awarded per fixture.)**	**6 18 Points Max**
(3)	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. **(Points are awarded per fixture.)**	**4 4 Points Max**
(4)	All water closets and all urinals are in accordance with Section 801.6(2) or Section 801.6(3), as applicable.	**6 Additional Points**

801.7	**Irrigation Systems**	
801.7.1	A low-volume irrigation system is installed:	-
(2)	drip irrigation OR	**4**
(3)	bubblers OR	**4**
(4)	drip emitters OR	**4**
(5)	soaker hose	**4**
(6)	subsurface irrigation	**6**
801.7.2	Irrigation system is in accordance with both of the following:	**3**
(1)	designed by a professional in accordance with EPA WaterSense requirements or equivalent	
(2)	Installed in accordance with EPA WaterSense program, or equivalent.	
801.7.3	Irrigation system is zoned separately for areas with different watering needs (hydrozoning).	***2***
801.7.4	The irrigation system(s) is controlled by a smart controller	

(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

801.8	**Rainwater Collection and Distribution.** Rainwater collection and distribution is provided in an active system.	
(1)	Rainwater is collected and used	-
(a)	1 gallon per square foot for 100% of roofed area is collected and at least 60% of the roof area is collected.	10
(b)	1 gallon per square foot for 75% of roofed area is collected and at least 50% of the roof area is collected.	8
(c)	1 gallon per square foot for 50% of roofed area is collected and at least 40% of the roof area is collected.	6
(2)	Rainwater is distributed using a renewable energy source or gravity.	2
(3)	Rainwater that is collected in (1) above is used in an irrigation system as described in 801.7.1	10

802	**Innovative Practices**	
802.1	**Gray Water.** Gray water, as specified in ICC IRC, Appendix O, is separated and reused, as permitted by local building code. **[Points awarded for either Section 802.1(1) or 802.1(2), not both.]**	
(2)	irrigation from reclaimed or recycled water on-site	10
802.2	**Composting or Waterless Toilets and/or Urinals.** Composting or waterless toilets and/or urinals are in accordance with the following: **(For water closets, points awarded for either Section, 802.2 or 801.6, not both)**	**24 Points Max**
(2)	Composting or waterless toilet and/or urinal is installed	8
	(Points awarded per fixture)	
(3)	All toilets and urinals are in accordance with Section 802.2(2).	8 **Additional Points**

802.3	**Automatic Shutoff Water Devices.** One of the following automatic shutoff water supply devices is installed. Where a fire sprinkler system is present, installer is to ensure that device will not interfere with the operation of the fire sprinkler system.	2
(1)	excess water flow shutoff	
(2)	leak detection system	

802.4	A real-time water use meter device is installed where the home occupant can easily see and monitor the home's water use like a KopyKap	4

802.5	Recirculating water pump is triggered by either a motion sensor or is switch activated	4
	TOTAL REQUIRED: **0 - 3000 HSF**	18
	300 1- 5000 HSF	28
	5001 - 8000 HSF	50
	8000+ HSF	61

Chapter 9
Indoor Environmental Quality

Item #	Green Building Practices	Points
901	**Pollutant Source Control**	
901.0	**Intent.** Pollutant sources are controlled.	

901.1	**Space and Water Heating Options**	
901.1.1	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).	**5**
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.	*5*
901.1.3	The following combustion space heating and water heating equipment is installed within conditioned space:	
(1)	Direct vent (sealed combustion) furnace or boiler	**5**
(2)	Water heater	
(a)	power vent water heater	**3**
(b)	direct vent (sealed combustion) water heater	**5**
901.1.4	The following electric equipment is installed:	
(1)	Heat pump air handler in unconditioned space	**2**
(2)	Heat pump air handler in conditioned space	**5**

901.2	**Fireplaces and Fuel-Burning Appliances:** Fireplaces and fuel-burning appliances (except cooking appliances, clothes dryers, water heaters, and furnaces) located in conditioned spaces are in accordance with the following: **[Section 901.2.1(2)(a) is not mandatory.]**	**Mandatory**
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.	
(2)	Solid fuel-burning appliances are in accordance with the following requirements:	
(a)	All wood-burning fireplaces are equipped with gasketed doors designed to operate with 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.	**4**
(b)	Factory-built, wood-burning fireplaces are in accordance with the certification requirements of UL 127 and are EPA certified.	**6**
(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).	**6**
(d)	Pellet (biomass) stoves and furnaces are in accordance with the requirements of ASTM E 1509 or are EPA certified.	**6**
(e)	Masonry heaters are in accordance with the definitions in ASTM E1602 and ICC IBC, Section 2112.1.	**6**
901.2.2	Fireplaces, woodstoves, pellet stoves, or masonry heaters are not installed.	**7**

901.3	**Garages.** Garages are in accordance with the following:	
(1)	Attached garage	
(b)	A continuous air barrier is provided between walls and ceilings separating the garage space from the conditioned living spaces.	**Mandatory 2**
(c)	For one- and two-family dwelling units, a 100 cfm (47 L/s) or greater ducted, or 70 cfm (33 L/s) 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.	**4**
(2)	A carport is installed, the garage is detached from the building, or no garage is installed.	**10**

902	**Pollutant Control**	
902.0	**Intent.** Pollutants generated in the building are controlled.	

902.1	**Spot ventilation**	
902.1.1	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.	**Mandatory**
(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.	**8**
902.1.2	Bathroom and/or laundry exhaust fan is provided with an automatic timer, motion sensor, and/or humidistat:	**9 Points Max**
(1)	for first device	**5**
(2)	for each additional device	**2**
902.1.4	Exhaust fans are ENERGY STAR, as applicable.	**6 Points Max**
(1)	ENERGY STAR, or equivalent, fans **(Points awarded per fan.)**	**2**
(2)	ENERGY STAR, or equivalent, fans operating at or below 1 sone **(Points awarded per fan.)**	**3**

902.2	**Building ventilation systems**	
902.2.1	One of the following whole building ventilation systems is implemented and is in accordance with the following formula: CFM fan flow continuous = (heated square footage X .01) + (7.5 X (number of bedrooms +1)). Note: Continuous flow rate can also be achieved, for example, by two fans continuous at half the rate or by doubling the fan flow over half the time, with a timer.	***~~[Required]~~ Mandatory***
(1)	exhaust or supply fan(s) ready for continuous operation and with appropriately labeled controls	**8**
(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.	**10**

(3)	heat-recovery ventilator installed with 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	**15**
(4)	energy-recovery ventilator installed with 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	**17**
902.2.2	Ventilation airflow is tested to achieve the design fan airflow at point of exhaust in accordance with Section 902.2.1by a qualified third party and a report provided to the City of Santa Fe Inspection Division.	**8**

902.3	**Radon control.** Radon control measures are in accordance with ICC IRC Appendix F.	
(1)	Buildings located in Zone 1 (Santa Fe)	**Mandatory**
(a)	a passive radon system is installed with an electric supply to be able to add a fan in the future if needed.	**10**
(b)	an active system is installed	**15**

902.4	**HVAC system protection.** HVAC system protection measure is performed.	***[3]***
(1)	HVAC supply registers (boots), return grilles, and duct terminations are covered during construction activities to prevent dust and other pollutant from entering the system. *HVAC may be run once the thermal envelope is completed during cold weather if run with filters and if cleaned after construction is complete.*	**3 (Mandatory)**

902.5	**Central vacuum system.** Central vacuum system is installed and vented to the outside.	**5**

902.6	**Living space contaminants.** The living space is sealed to prevent unwanted contaminants and third-party verified.	
(1)	Attic access, knee wall door, or drop down stair is caulked, gasketed, or otherwise sealed.	**2 *[(~~Required~~)] Mandatory***
(2)	All penetrations (e.g., top plates, HVAC register boots, recessed can lights) are sealed in the following areas:	
(a)	attic /ceiling	**2 *[(~~Required~~)] Mandatory***
(b)	wall	**2 *[(~~Required~~)] Mandatory***
(c)	floors	**2 *[(~~Required~~)] Mandatory***

903	**Moisture Management: Vapor, Rainwater, Plumbing, HVAC**	
903.0	**Intent.** Moisture and moisture effects are controlled.	

~~[903.2~~	***~~Capillary break~~***	

~~*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 1/2-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 OR*~~	-
~~*(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 require. OR*~~	-
~~*(b)*~~	~~*In dry climate locations, including all of New Mexico, polyethylene sheeting is not required unless required for radon resistance (Section 902.3).*~~	-

~~**903.3**~~	~~**Crawlspaces**~~	
~~*903.3.1*~~	~~*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 materials to be affixed with glue and furring strips.]*~~	~~*6*~~

903.5	**Plumbing**	
903.5.1	Plumbing supply distribution lines are not installed horizontally in exterior wall cavities.	**2**
903.5.2	Cold water pipes in unconditioned spaces are insulated to a minimum of R-4 with pipe insulation or other covering that adequately prevents condensation.	*2*
903.5.3	Plumbing is not installed in unconditioned spaces.	**5**

903.6	**Duct insulation.** All HVAC ducts, plenums, and trunks in unconditioned attics, basements, and crawlspaces are sealed with UL181 tape or mastic and insulated to a minimum of R-6. Outdoor air supplies to ventilation systems are sealed with UL181 tape or mastic and insulated to a minimum of R-6.	
(1)	insulated to a minimum of R-6	**Mandatory**
(2)	insulated to a minimum of R-8.	**2**

904	**Innovative Practices**

904.4	Use non PVC materials for water supply lines including the service to the house.	**4**

904.5	Use no carpet or vinyl flooring	**4**

TOTAL REQUIRED **14**

Chapter 10
Operation, Maintenance, and Building Owner Education

Item #	Green Building Practices	Points
1001	**Building Owner's Manual for One- and Two-Family Dwellings**	
1001.0	**Intent. Information on the building's use, maintenance, and green components is provided.**	

1001.1	A building owner's manual is provided that includes the following, as available and applicable. **(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)**	1
(1)	A green building program certificate or completion document	**Mandatory**
(2)	List of green building features (can include the national green building checklist).	**Mandatory**
(3)	Product manufacturer's manuals or product data sheet for installed major equipment, fixtures, and appliances, including any alternative energy systems. If product data sheet is in the building owner's manual, manufacturer's manual may be attached to the appliance in lieu of inclusion in the building owner's manual.	**Mandatory**
(4)	Information on local recycling programs.	
(5)	Information on available local utility or other energy provider programs that purchase a portion of energy from renewable energy providers.	
(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.	
(7)	A list of practices to conserve water and energy.	
(8)	Local public transportation options.	
(9)	A diagram showing the location of safety valves and controls for major building systems.	**Mandatory**
(10)	Where frost-protected shallow foundations are used, owner is informed of precautions including:	
(a)	instructions to not remove or damage insulation when modifying landscaping.	
(b)	providing heat to the building as required by the ICC IRC or UMC	
(c)	keeping base materials beneath and around the building free from moisture caused by broken water pipes or other water sources.	
(11)	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).	
(12)	A photo record of framing with the utilities installed. Photos are taken prior to installing insulation, clearly labeled, and included as part of the building owner's manual.	
(13)	Maintenance checklist.	
(14)	List of common hazardous materials often used around the building and instructions for proper handling and disposal of these materials.	
(15)	Information on organic pest control, fertilizers, deicers, and cleaning products.	
(16)	Information on native landscape materials and/or those that have low-water requirements.	

(17)	Information on methods of maintaining the building's relative humidity in the range of 30 percent to 60 percent.	
(18)	*[~~Instruction~~] Instructions* for inspecting the building for termite infestation.	
(19)	Instructions for maintaining gutters and downspouts and importance of diverting water a minimum of 5 feet away from foundation.	
(20)	A narrative detailing the importance of maintenance and operation in retaining the attributes of a green-built building.	
(21)	Information regarding cost effective window treatments	
(22)	Information about protecting the home from fire danger	
(23)	Instructions for maintaining solar systems employed in the home (only available if solar systems are employed in the home)	**Mandatory**
(24)	Provide homeowner with information about mulching and composting	

1002 Training of Building Owners on Operation and Maintenance for One- and Two-Family Dwellings and Multi-Unit Buildings

1002.1	**Training of building owners.** 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 equipment operation and control systems. Systems include, but are not limited to, the following:	**6**
(1)	HVAC filters or boiler maintenance	
(2)	thermostat operation and programming	
(3)	lighting controls	
(4)	appliances and settings	
(5)	water heating settings	
(6)	fan controls	
(7)	the irrigation system	
(8)	catchment system maintenance	
(9)	all other equipment	

1004 Innovative Practices

1004.1	(Reserved)	

1004.2	Translate homeowner documents into Spanish and make both available to homeowner	**6**

TOTAL REQUIRED **8**

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Appendix A

Ducted Garage Exhaust Fan Sizing Criteria

A100

Scope and Applicability

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

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.*

A200

Air Flow Rating

A201.1 Airflow rating. *The airflows required by this code 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.*

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Table A201

Prescriptive Duct Sizing

Fan Rating cfm@0.25 in w.g. (L/s @62.5 Pa)	*Duct Type*							
	Flex Duct				*Smooth Duct*			
	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 = now allowed, any length of duct of this size with assume turns and fitting will exceed the rated pressure drop.