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CLIMATE ZONE 5 Commercial Plan Review Checklist (Non-residential) 2015 IECC Commercial Provisions as amended by the 2016 Energy Code Supplement

Project #: _____ Date: _____ Name of Evaluator(s): _____

Building Contact: Name: _____ Phone: _____ Email: _____

Building Name & Address: _____

Jurisdiction: _____ Lot #: _____ Conditioned Floor Area: _____ ft²

Climate Zone: 5 County: _____ Jurisdiction Contact: _____

Jurisdiction Contact Phone: _____ Jurisdiction Contact E-mail: _____

Compliance Approach: Not Indicated Prescriptive Trade-Off Performance Compliance Software ASHRAE 90.1

Compliance Software Used: _____ Green Building/Above-Code Program? Yes No

Building Use Type: _____ Building Construction Type: _____

Project Type: New Building Existing Building Addition Existing Building Renovation

Special Considerations: Residential Use Historic Building

Provisions Highlighted in Green are Mandatory, Regardless of Compliance Path

IECC Section #	Pre-Inspection/Plan Review	Code Value	Verified Value	Complies			Comments/ Assumptions
				Y	N	N/A	
C402 Building Envelope	Construction drawings and documentation available. Documentation sufficiently demonstrates energy code compliance of the Building Thermal Envelope.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C402.1.3	Compliance with Table C402.1.3 for appropriate Climate Zone	Climate Zone: 5	Climate Zone: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.1.3	Below grade wall exterior insulation R-value.	R-7.5ci (C-0.119)	R-_____ U-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.1.3	Unheated Slab	R-10 for 24"	R-_____ _____ ft.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.1.3	Heated Slab	R-15 for 36"	R-_____ _____ ft.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C303.2.1	Exposed Foundation Insulation Protection	≥ 6" below grade		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.1.3	Floor (Joist/framing)	R-30	R-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.1.3	Mass Floor	R-10 ci	R-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.1.3	Wood Framed Wall and Other	R-13 +R-3.8ci or R-20	R-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.1.3	Metal Framed Wall	R-13+ R-7.5ci	R-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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Table C402.1.3	Metal Building Wall	R-13+ R13ci	R-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.1.3	Mass Wall Assembly	R-11.4 ci	R-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.1.3	Roof, Insulation above Deck	R-30ci	R-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.1.3	Metal Building Roof (with thermal spacer blocks)	R-19 + R-11LS	R-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.1.3	Attic and Other	R-38	R-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.1.3	Opaque Door (Nonswinging)	R-4.75 U-0.21	R-_____ U-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.1.4	Opaque Door (Swinging)	U- 0.61	U-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C402.2.6	Fireplace Doors and Combustion Air	Tight fitting combustion air damper	<input type="checkbox"/> Flue Damper or <input type="checkbox"/> Door	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.4	Vertical Fenestration U-Factors	Fixed U-0.38	U-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.4	Vertical Fenestration U-Factors	Operable U-0.45	U-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.4	Vertical Fenestration U-Factors	Entrance Door U-0.77	U-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.4	Vertical Fenestration SHGC	PF < 0.2 (0.40)	SHGC-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.4	Vertical Fenestration SHGC	0.2 ≤ PF < 0.5 (0.48)	SHGC-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.4	Vertical Fenestration SHGC	PF ≥ 0.5 (0.64)	SHGC-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.4	Skylight Fenestration U-Factor	Skylight U-0.50	U-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.4	Skylight Fenestration SHGC	Skylight SHGC: 0.40	SHGC-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C402.2.2	Skylight Curbs	R-5 or NFRC 100	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C402.4.1	Vertical Fenestration Area	Glazing < 30% of gross above-grade wall area	_____%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C402.4.1	Skylight Area	< 3% of gross roof area	_____%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C402.4.1.1	Increased Vertical Fenestration	< 40 % With daylight responsive controls	<input type="checkbox"/> Meets requirements <input type="checkbox"/> Exception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C402.4.1.2	Increased Skylight Area	<5% With daylight responsive controls	Complying with Section C405.2.3.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C402.4.2	Minimum Skylight Fenestration Requirement	< 2,500 s.f. floor area. < 15' ceiling height	<input type="checkbox"/> Exception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.5.2	Air leakage. SELECT ASSEMBLY	Max. CFM/FT ² SELECT	_____cfm/ ft ²	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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Table C402.5.2	Air leakage. SELECT ASSEMBLY	Max. CFM/FT ² SELECT	____ cfm/ ft ²	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Table C402.5.2	Air leakage. SELECT ASSEMBLY	Max. CFM/FT ² SELECT	____ cfm/ ft ²	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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Table C402.5.2	Air leakage. SELECT ASSEMBLY	Max. CFM/FT ² SELECT	____ cfm/ ft ²	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C402.5.3	Rooms Containing Fuel-burning Appliances	Outside the Building thermal Envelope. <u>Or</u> Enclosed in an Isolated Room	Exceptions: <input type="checkbox"/> Direct intake/Exhaust <input type="checkbox"/> Fireplaces and stoves complying with IMC and IBC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C402.5	Continuous Air Barrier	ASTM E-779 ASTM E-2178	<input type="checkbox"/> Assembly <input type="checkbox"/> Material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C402.5.5	Outdoor Air Intake/exhaust leakage. Ref. C403.2.4.3	Motorized, w/ gravity exceptions 3 story or 300 cfm	<input type="checkbox"/> Motorized <input type="checkbox"/> Gravity <input type="checkbox"/> Exemption ____ cfm/ ft ²	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C402.5.6	Loading Docks Weather sealed	Sealed with doors open	Seals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C402.5.7	Vestibules (equipped with self-closing devices)	Required Mechanical space Sleeping unit or dwelling unit < 3,000 sq. ft. Revolving doors Vehicular door	<input type="checkbox"/> Exempt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C402.5.8	Recessed Lighting (within building thermal envelope)	IC-rated, Sealed	ASTM E-283	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403 Mechanical Systems	Construction drawings and documentation available. Documentation sufficiently demonstrates energy code compliance of the Mechanical Systems and Equipment.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403.2.1	Mechanical System, HVAC sizing	Shall not exceed calculated loads	Heating kBtu: ____ Cooling kBtu: ____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403.2.1	HVAC Calculations	ANSI/ASHRAE/ACCA Standard 183 or Approved equivalent		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403.2.3	HVAC Performance Requirements	Tables C403.2.3 (1) – (9)	Verified in Specification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403.2.4.1	HVAC Controls, Thermostatic	Each Zone	Verified in Specification or on drawings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403.2.4.1.3	Set Point Overlap	5 degree dead band	Dead band ____ degrees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403.2.4.2.2	Off Hour Controls	Automatic Setback (each zone)	55 degrees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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C403.2.4.2.2	Off Hour Controls	Time Clock	7 day control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403.2.4.2.2	Off Hour Controls	Optimum Start Controls	>10,000 cfm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403.2.4.3	Damper Controls	Motorized (Automatic) < 4 cfm/ ft ²	_____ cfm/ ft ²	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403.2.4.5	Snow Melt Systems	Automatic	Cut off @ 50°F	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403.2.4.7	Energy Recovery Ventilation Systems	Exceeds values in Table C403.2.7(1) and C403.2.7(2) (≥ 50% Change in Enthalpy)	<input type="checkbox"/> Meets exception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403.2.6	Ventilation	Per MCNY		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403.2.6.1	Demand Control Ventilation	>500 Sq. Ft. & 25 people/1K sq. ft.	Economizer Automatic Modulating Control Outdoor air > 3K cfm	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
C403.2.6.2	Enclosed Parking Garage Ventilation Controls	Fan reduction	Exceptions: <input type="checkbox"/> Exhaust capacity < 22,500cfm <input type="checkbox"/> Ratio exceeds 1125 cfm/hp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403.2.7	Energy Recovery Ventilation System	When supply airflow rate of fan exceeds values in Tables C403.2.7(1) and (2)	>50% change in enthalpy of difference between outdoor & return air <input type="checkbox"/> Meets exception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403.2.8	Kitchen Exhaust Systems	< 10% of exhaust rate > 5,000 cfm		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403.2.9	Duct insulation (supply, return, plenums)	Unconditioned Space, R-6	R-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403.2.9	Duct insulation (supply, return, plenums)	Outside of Building, R-8	R-_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403.2.9	Duct sealing complies with listed sealing methods.	MCNY 603.9		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C403.2.10	HVAC piping insulation.	Per Table C403.2.10	Below: Circle all that apply	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

TABLE C403.2.8
MINIMUM PIPE INSULATION THICKNESS (thickness in inches)^a

FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (inches)				
	Conductivity Btu-in./h-ft ² -°F ^b	Mean Rating Temperature °F	< 1	1 1/2 < 1 1/2	1 1/2, 3/4 < 4	4 to < 8	8 & 8
> 350	0.32 - 0.34	250	4.5	5.0	5.0	5.0	5.0
251 - 350	0.29 - 0.32	200	3.0	4.0	4.5	4.5	4.5
201 - 250	0.27 - 0.30	150	2.5	2.5	2.5	3.0	3.0
141 - 200	0.25 - 0.29	125	1.5	1.5	2.0	2.0	2.0
101 - 140	0.23 - 0.28	100	1.0	1.0	1.5	1.5	1.5
40 - 99	0.21 - 0.23	75	0.5	0.5	1.0	1.0	1.0
< 40	0.20 - 0.25	75	0.5	1.0	1.0	1.0	1.5

a. For piping smaller than 1", inch (38 mm) and located in partitions within conditioned spaces, reduction of these thicknesses by 1 inch (25 mm) shall be permitted before thickness adjustment required in footnote b) but not to a thickness less than 1 inch (25 mm).

b. For insulation outside the stated conductivities range, the minimum thickness (F) shall be determined as follows:

$$F = r[(1 + 20)^{0.25} - 1]$$

where:

F = minimum insulation thickness

r = actual outside radius of pipe

F = insulation thickness listed in the table for applicable fluid temperature and pipe size.

K = conductivity of alternate material at mean rating temperature indicated for the applicable fluid temperature (ft-in.-h-ft²-°F)⁻¹

L = the upper value of the conductivity range listed in the table for the applicable fluid temperature

c. For direct buried heating and hot water system piping, reduction of these thicknesses by 1", (inch) (25 mm) shall be permitted before thickness adjustment required in footnote b) but not to thickness less than 1 inch (25 mm).