



How-to Guide: *Supporting Documentation*

In Compliance with 2016 New York City Energy Conservation Code

- **GENERAL**
- BUILDING ENVELOPE
- MECHANICAL SYSTEMS
- LIGHTING & ELECTRICAL POWER
- OTHER REQUIREMENTS

NOTE: In this *How-To Guide: Supporting Documentation*, selected Energy Code provisions have been generalized, summarized, rephrased, and/or highlighted. This guide is intended: 1) To provide general guidance for the job applications seeking compliance with the 2016 NYCECC; 2) Not to replace or represent the entire 2016 NYCECC and related regulations of the City of New York and the Department of Buildings; and 3) Not to provide complete compliance solutions for any particular type of job or work. Comprehensive mandates, applicability, exemptions, exceptions and options will be found in the 2016 NYCECC and related regulations of the City of New York and the Department of Buildings.

OVERVIEW

What is *Supporting Documentation*?

1 RCNY §5000-01(g)
ECC 101.5.2.3
ECC 103

■ A Requirement to Demonstrate Compliance with NYCECC

- Supporting Documentation is required for all job applications that are *not* exempt from the NYCECC in accordance with 1 RCNY §5000-01 (e)(2); in other words, supporting documentation is required for all job applications submitted with PW1-Section 10 indicating that all work under the application is in compliance with the NYCECC.
- See [Quick Reference Guide: How to Demonstrate Energy Code Compliance](#) for the full list of requirements.
- Job applications that claim to be exempt from the NYCECC must clearly state the basis for exemption in accordance with 1 RCNY §5000-01 (e)(2) in the construction drawings, and the work scope/types on the submitted drawings and forms must validate the claim.

■ Essentially, Construction Documents

- To be submitted to the Department of Buildings for approval.
- To inform means and methods of construction for all energy design elements in the form of technical drawings, schedules, specification notes, etc.
- To prove that all proposed energy design elements will match or exceed the requirements of the NYCECC in their quality, quantity, size, capacity, efficiency, performance, location, configuration, composition, etc.

■ Must Match the Proposed Work Scope

- **PW1**-Section 6- *Work Types*: Construction data (technical drawings, schedules, specification notes, etc.) must provide complete information for all *Work Types* marked as proposed in PW1-Section 6.
- **TR8**-Section 3- *Energy Code Progress Inspections*: Construction data (technical drawings, schedules, specification notes, etc.) must provide complete information for all work areas requiring *Energy Code Progress Inspections* marked in TR8-Section 3.

■ Must Support Energy Analysis

- Construction documents must support the [Energy Analysis](#) reports, hence the name ‘Supporting Documentation.’ Specifically, the values and attributes of any energy design element proposed in the construction documents *must match or exceed* those of the same energy design element listed in the energy analysis (e.g., [Tabular analysis](#), [REScheck/COMcheck](#) analysis).
- See page [GE-5] for the energy analysis methods.

KEY PRINCIPLES

How Should Supporting Documentation be Prepared?

1 RCNY §5000-01(g)
ECC 101.5.2.3
ECC 103

Identify a Correct Code Version to Follow

- Job applications filed on and after October 3, 2016 must comply with the [2016 NYCECC](#).
- Job applications filed between January 1, 2015 and October 2, 2016 must comply with the [2014 NYCECC](#).
- See [Energy Code Version Table](#) to identify which ECC Code version is applicable for a particular job application.

Identify Correct Code Sections to Follow

- *Mandatory* provisions must be satisfied by *all* applications, whereas *Prescriptive* provisions must be satisfied by applications that seek to prove compliance *prescriptively*.
- Applicable Code sections must be carefully identified and selected according to the job application/project type.
- For a Commercial building application, the **Single** chosen Code (NYCECC or ASHRAE; indicated as the Code compliance path on PW1–Section 10) must be referenced throughout the entire set of construction documents.

Figure GE-2.
2016 NYCECC and Applicable Job Types

2016 NYCECC		Residential Buildings		Commercial Buildings w. NYCECC as Code Compliance Path		Commercial Buildings w. ASHRAE as Code Compliance Path	
		New Buildings	Existing Buildings	New Buildings	Existing Buildings	New Buildings	Existing Buildings
Chapter 1	Administration	v	v	v	v	v	v
Chapter R2	Definitions	v	v				
Chapter R3	General Requirements	v	v				
Chapter R4	Residential Energy Efficiency	v					
Chapter R5	Existing Buildings		v				
Chapter R6	Referenced Standards	v	v				
Appendix RA	Recommended Procedure ¹	v					
Appendix RB	Solar Ready Provisions ²	v					
Chapter C2	Definitions			v	v		
Chapter C3	General Requirements			v	v		
Chapter C4	Commercial Energy Efficiency			v			
Chapter C5	Existing Buildings				v		
Chapter C6	Referenced Standards			v	v		
Appendix CA	ASHRAE 90.1-2013 with NYC Modifications ³					v	v

Complete Code Section Title

1. Recommended Procedure For Worst-Case Testing of Atmospheric Venting Systems Under R402.4 Or R405 Conditions < 5 ACH₅₀
2. Solar-Ready Provisions – Detached One- and Two-Family Dwellings, Multiple Single-Family Dwellings (Townhouses)
3. Modified National Standard for Buildings, Except For Low-Rise Residential Buildings

KEY PRINCIPLES

How Should Supporting Documentation be Prepared?

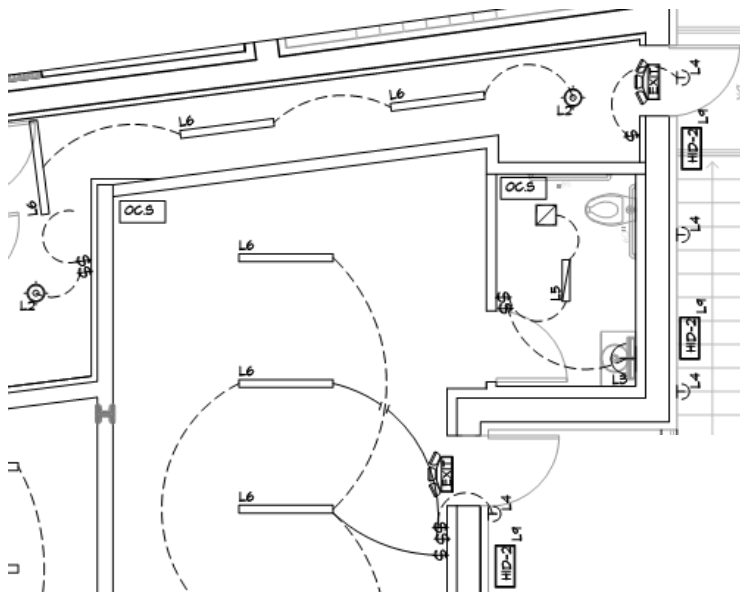
1 RCNY §5000-01(g)
ECC 101.5.2.3
ECC 103

Label Energy Design Elements Consistently Among Drawings

- Identification keys for all proposed energy design elements, such as wall types, window/door types, light fixture types, mechanical equipment systems, etc., must be consistent between Supporting Documentation and Energy Analysis.

Values and Descriptions Must Match

- Specifications (in values and descriptions) of energy design elements reported in Energy Analysis must be validated through Supporting Documentation. For example, Energy-Code-relevant specifications (e.g., insulation type, R-value, U-factor, luminaire type, luminaire wattage, equipment size, equipment efficiency, etc.) declared in the COMcheck energy analysis, but not identified in the construction documents will *not* be accepted for Energy Code compliance.
- Total numbers reported in Energy Analysis must be validated through Supporting Documentation. For example, the gross values such as exterior wall/fenestration areas, roof/floor areas, luminaire/equipment counts, area-weighted average values, etc. listed in the Tabular energy analysis must be easily identified in the drawings, schedules, and/or diagrams provided in the construction documents.



LEGEND FOR ALL LIGHT FIXTURES USED ENTIRELY FOR THE BUILDING			QUANTITY RESIDENTIAL	QUANTITY RETAIL
TAG	DESCRIPTION	FIXTURE WATT.		
L1	HIGH HAT 4" SQUARE TRIM LED	13 W	44	
L2	CEILING LIGHT ROUND LIGHT FIX COMPACT FLORESCENT	40W	21	7
L3	BATHROOM SCONCE LED	11W	18	4
L4	EXTERIOR SCONCE COMPACT FLORESCENT BALCONIES/ EXTERIOR DOORS	28 W	2/ EXT DOORS 29/ BALC.	7/ EXT DOORS
L5	CLOSET FIXTURE FLUORESCENT T8 24"	17W	30	4
L6	TEMP. FLUORESCENT T8 32W, 2 LAMPS PER FIXTURE, 48" CEILING MOUNTED 14" ROUND FIX 3	64W	20	79

Proposed Interior Lighting Power					
Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	A	B	C	D	E
		Lamps/ Fixture	# of Fixtures	Fixture Watt.	(C X D)
1-Multifamily					
LED 1- L1 HIGH-HAT 4" FIX: LED PAR 13W:		1	44	13	572
2-Retail					
Linear Fluorescent L6: 48" T8 32W: Electronic:		2	79	64	5056
Compact Fluorescent -L2: Twin Tube 40W: Electronic:		1	7	40	280
Linear Fluorescent L5: 24" T8 17W (Super T8): Electronic:		1	4	17	68
L3-BATHROOM SCONCE: LED A Lamp 11W:		1	4	11	44
Total Proposed Watts =					11538

Figure GE-3.
Sample Lighting Fixture Layout Plan (top left),
Matching Fixture Schedule (top right), and
Matching Interior Lighting COMcheck Report (bottom right)

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1 RCNY §5000-01(g)
ECC 101.5.2.3
ECC 103

Specific Design Data in Proper Locations

- **Specific design values and characteristics** proposed for the work scope in the application must be provided in the construction documents in sufficient detail and clarity. For example, window schedules on drawings must list each proposed window assembly’s U-factor, SHGC, air leakage rating, and Visible Transmittance (as required) values furnished/published by the respective window manufacturer.
- **Notes directly relevant to achieve the proposed design** must be provided in the construction documents in sufficient detail and clarity. In other words, mere duplicates of general Energy Code sections placed on the drawings will *not* be construed as Energy Code compliance.
- **In proper locations within construction documents**, construction data must be presented. For example, 1) HVAC mechanical equipment schedules and a sequence-of-operations narrative must be found on Mechanical drawings; 2) Lighting control notes must be placed in conjunction with lighting fixture plans and schedules on drawings (typically on RCP drawings).

List of Progress Inspections on EN-Sheet

- All *applicable* progress inspections required for Energy Code compliance must be listed on an EN- labeled sheet in tabular format as shown in 1 RCNY §5000-01(h), and must match those identified on the TR8.

AIR HANDLING UNIT SCHEDULE																											
TAG	LOCATION	AREA SERVED	AIR FLOW	AIR FLOW			SUPPLY FAN				CHILLED WATER						HOT WATER						RECOVERY WHEEL				
				SUPPLY	MIN OA	RETURN	TSP	BHP	HP	PH/V/RPM	EAT Db	EAT Wb	LAT Db	LAT Wb	TOT. CAP.	SENS. CAP.	FLOW	EWT	LWT	EAT	LAT	TOT. CAP.	SENS. CAP.	FLOW	EWT	LWT	ENTHALPY
				CFM	CFM	CFM	IN			CFM	°F	°F	°F	°F	MBH	MBH	GPM	°F	°F	°F	°F	MBH	MBH	GPM	°F	°F	%
AHU-1	ROOF	3 NORTH	VAV	26000	5500	20500	4.7	23.5	25	3/460/175 0	80	67	55	54	380	270	47	42	58	45	90	480	270	49	160	140	NOTE 3

NOTES:

- PROVIDE MOTORIZED SHUT-OFF DAMPER AT THE OA INTAKE WITH MAXIMUM LEAKAGE RATE OF 4 CFM/SF AT 1 IN. WG. DAMPER SHALL CLOSE WHEN THE UNIT IS OFF.
- IN ECONOMIZER MODE, MINIMUM OCCUPIED AIRFLOW SETPOINT ON VAV TERMINALS SHALL BE AUTOMATICALLY RESET BASED ON PERCENTAGE OF OUTSIDE AIR ABOVE DESIGN MINIMUM.
 - AS PERCENTAGE OF OA DAMPER AT 100% AND AS ECONOMIZER OUTPUT INCREASES FROM 0-100%, MINIMUM AIRFLOW SETPOINT AT TERMINAL UNITS SHALL PROPORTIONATELY RESET LOWER TO MAINTAIN REQUIRED MINIMUM FRESH AIR VENTILATION.
 - RESETTING SHALL OCCUR BASED ON INCREMENTS OF 10% CHANGE OF VALUE OF ECONOMIZER OUTPUT.
- PROVIDE HEAT WHEEL THAT SHALL RECOVER MINIMUM 50% OF THE ENTHALPY. HEATWHEEL SHALL CONTAIN A BYPASS FOR ECONOMIZER MODE.
- AT A MINIMUM, ALL VAV TERMINAL UNITS SERVED BY AN AHU SHALL BE LINKED WITH ASSOCIATED VAV AHU CONTROLLER TO PERFORM THE FOLLOWING FUNCTIONS.
 - ZONE OCCUPANCY SCHEDULE (USER DEFINED FROM GRAPHIC INTERFACE) SHALL NORMALLY AUTOMATICALLY SELECT THE OCCUPIED OR UNOCCUPIED OPERATING MODE OF AIR HANDLING UNIT.
 - ACTIVATION OF TIMED OVERRIDE SWITCH ON ZONE THERMOSTATS SHALL ONLY RESET ZONE HEATING AND COOLING SETPOINTS TO “OCCUPIED” VALUES, BUT SHALL NOT AFFECT OTHERWISE SCHEDULED UNOCCUPIED OPERATING MODE OF AIR HANDLING UNIT.
 - DUCT STATIC PRESSURE RESET AS DESCRIBED IN FAN CONTROL SECTION.
 - DISCHARGE AIR TEMPERATURE SETPOINT –OPTIMIZED AS DESCRIBED IN THE DISCHARGE TEMPERATURE CONTROL SECTION.
- FAN POWER LIMITATION CHECK – PER Table C403.2.12.1(1)

HP	≤	CFM x 0.0015	
25	≤	26000 x 0.0015 = 39	>> OK

Figure GE-4. Sample Mechanical Equipment Schedule and Notes

ENERGY ANALYSIS

(to demonstrate ECC Compliance in conjunction with Supporting Documentation)

Refer to Quick Reference Guide: How to Demonstrate Energy Code Compliance

1 RCNY §5000-01(f)
ECC 101.5.2.2

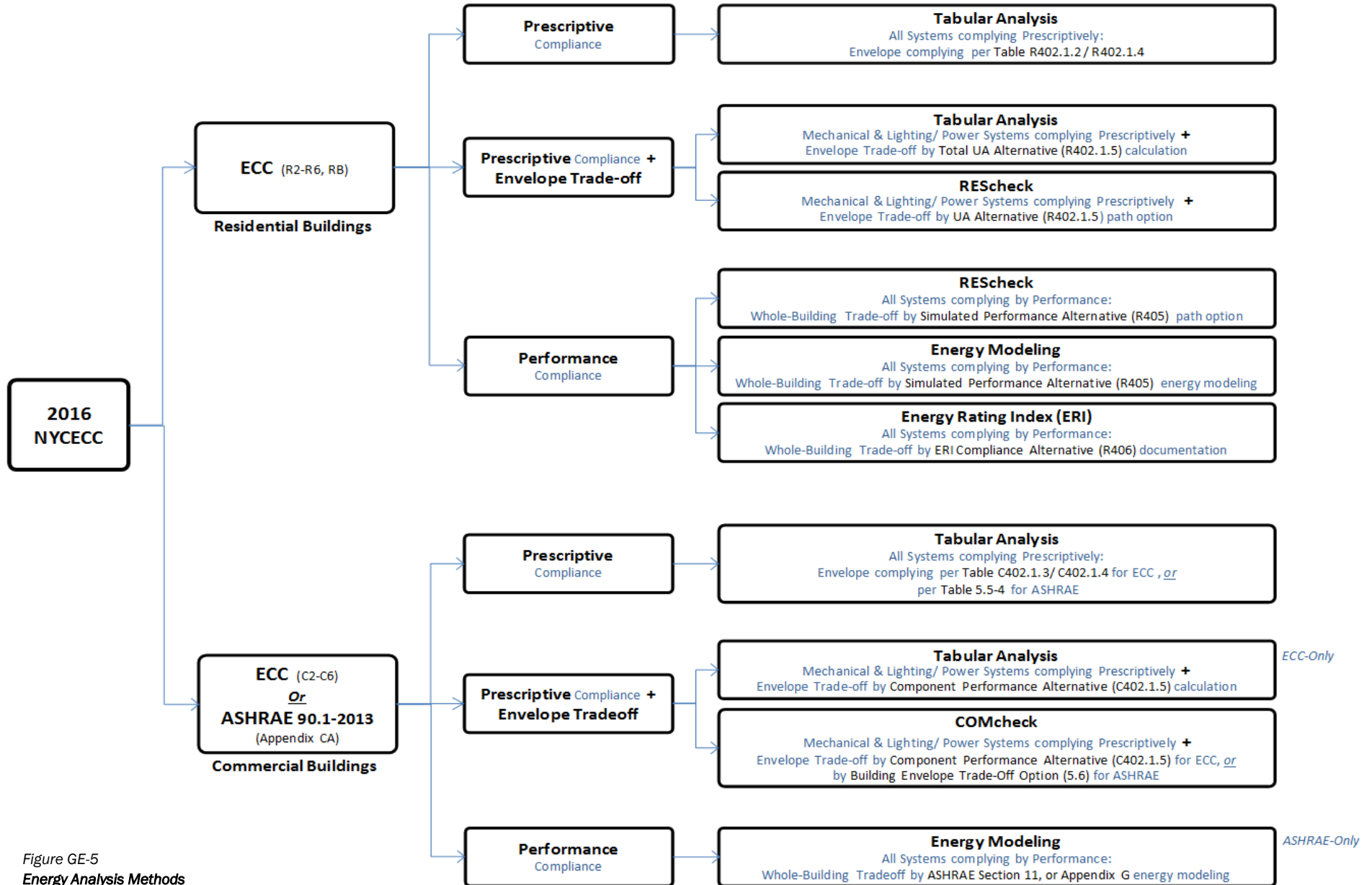


Figure GE-5
Energy Analysis Methods