





ENERGY STAR Version 1.3 Comment Period

ASHRAE Performance Target Instructions

To assess the proposed ENERGY STAR MFNC v1.3 ASHRAE Path performance target, simulated building performance data needs to be collected using the DOE Compliance Form and the new “CompanionTool”

This document provides the specific steps to evaluate a building.

Step 1: Download and open the “90.1 Performance-based Compliance Form.” It should open with the “Instructions” tab visible. If you see a different tab, navigate to it by selecting the blue “Instructions” tab at the bottom of the spreadsheet.

E	F	G	H	I	J	K	L	M	N	O	P	Q	R
 													
<p>Instructions Return to Dashboard</p>													
<p>Version 4.10, Published 4/30/2024</p>													
<p>Table of Contents</p> <ul style="list-style-type: none"> General Information How to use the Compliance Form Using the Compliance Form on Projects that Perform 90.1 Modeling for Different Programs Productivity Tips Cell and Font Color Legend Tab Color Legend Acronyms and Abbreviations References Documents 													
<p>GENERAL INFORMATION</p> <ol style="list-style-type: none"> 1. This Compliance Form may be used to document compliance following ASHRAE 90.1 Energy Cost Budget and Performance Rating Method. 2. This Compliance Form has the following features to assist energy modelers in developing the ASHRAE Standard 90.1 Energy Cost Budget and Performance Rating Method budget/baseline and proposed design models: <ol style="list-style-type: none"> a. built-in calculators to convert project information into simulation inputs b. many cells are auto-populated based on the appropriate 90.1 requirements. 3. This Compliance Form provides the greatest value to the project team if it is completed prior to and concurrently with the energy modeling. If the energy modeler and project team waits to fill out the Form until near the completion of the building design, the team may discover that some ASHRAE 90.1 requirements have been overlooked, some modeling requirements have not been addressed, and additional time may be required to revise the model and/or design to show compliance. 4. If you have any questions or comments regarding the form, please contact https://www.energycodes.gov/technical-assistance/help-desk. 													
<p>HOW TO USE THE COMPLIANCE FORM</p> <p>Step 1: Enable macros</p> <p>In order for the form to function correctly, when prompted with a Security Warning, enable macros by clicking Enable Content. This tool is for use with Excel</p>													



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Step 2: Go to the “General Information” tab. Use the screenshot as a guide to complete the missing cells.

- Select Default – Selected Version of 90.1 from the dropdown menu.
- Select ASHRAE 90.1-2022: Appendix G.
- Finally, select the correct simulation program.

General Information
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[Adjust Column Widths and Row Heights](#)

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[Code/Beyond Code Program](#)

[Energy Model Information](#)

[Table 1: Building Areas](#)

[Table 2: Dwelling Units](#)

[Alterations and Yet to Be Designed Systems and Components](#)

Instructions

1. Complete the "General Information" tab before completing any other tabs because some of the inputs on this tab determine the selections available within other tabs.

2. If any yellow cell has become uneditable, press this button: [Restore Editability](#)

Code/Beyond Code Program

Default - Selected Version of 90.1

Energy Model Information

Compliance path: ASHRAE 90.1-2022: Appendix G Above Code Performance

Energy model based on: Document date

Simulation program: eQuest <Specify version number> ASHRAE Std 140 Tests https://www.doe2.com/Download/IRScore179D_eQUEST-DOE2/

Simulation weather station: []

Type of weather data: []

Name of simulation weather file: []

Climate zone: []

Were the exceptional calculation methods used? []

Describe areas excluded from the energy model, if any: []

Notes

Please include applicable notes as needed.

[]

Step 3: Next, navigate to the “Contact Information” tab and enter your Project Name. The Project Name will also be the name of the CSV file exported.

Contact Information
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[Project Information](#)

[Table 1: Project Contacts](#)

[Table 2: Energy Modeler Qualifications](#)

Project Information

Project # or ID: [] Submission date: []

Project name: Test Building Name

Project address: []

Project City: [] State: []

Zip code: []

Table 1: Project Contacts



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Step 4: For the purposes of this comment period, there is no need to complete the other tabs. Navigate to the green “Results from [software]” tab and follow the instructions provided there to upload your model data from the software (eQuest is shown as an example below.) For regularly submitting your projects to the MRO, you will need to complete the rest of the file.

Results from eQuest Parm.s.csv File(s) [Return to Dashboard](#) [Adjust Column Widths and Row Heights](#)

Instructions

- 1) Open Parm.s.csv file(s) that include results for baseline/budget and proposed models.
 - a. If the proposed design includes renewable energy systems, they must be excluded from the proposed design model reported in row 13 of this tab. Savings associated with renewable energy systems are not included in the Energy Sources tab as these are the result of the design.
 - b. If modeling fuels other than natural gas (fuel oil, coal, propane, etc.), be sure to choose therms as the associated energy units on the Energy Sources tab as these are the result of the design.
 - c. If modeling district HW, district steam, or district chilled water, manual entries will need to be made in Tables 2 and 3 on the Compliance Calculations tab to capture the use of these systems.
 - d. If modeling fuels other than natural gas (fuel oil, coal, propane, etc.), Table 3 on the Compliance Calculations tab will need to be filled out manually per the eQuest output.
- 2) Copy baseline/budget runs from the appropriate Parm.s.csv file and paste values into rows 8-11 below. For projects that were not rotated, paste the lone baseline run into row 8.
- 3) Copy the proposed run from the appropriate Parm.s.csv file and paste values into row 13 below.
- 4) For projects documenting compliance via 90.1 Appendix G, energy use must be separated into regulated and un-regulated components. Refer to instructions on the Compliance Calculations tab for more information. Regulated systems and components are assumed to be regulated except the Misc. Equipment. However, many systems that were traditionally included in the Misc. Equipment category must be reported as such.

Step 5: Proceed to the blue “Dashboard” tab.

Dashboard

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- [Compliance Summary](#)
- [Tabs Navigator](#)
- [Generate Summary Compliance Report](#)
- [Generate Inspection Reports](#)
- [Generate XML and CSV Export](#)

Compliance Summary

Compliance Path	ASHRAE Standard 90.1 2016 Appendix G, Above Code 90.1 2016
------------------------	---------------------------------------------------------------

Step 6: Scroll down the page until you locate the option labeled “Export Data.” Click on this button to generate a CSV file containing the necessary data.

Generate XML and CSV Export

Instructions

1. Click the "Export Data" button to generate an XML and CSV file that include a summary of information entered in the Compliance Form. If previous revisions of the exported CSV or XML files exist in the same folder as the Compliance Form, a number will be added to the exported file name sequentially depending on how many versions there are in the folder. Exported files will be saved in the same folder location as the Compliance Form.
2. Click the "Show Key" button to display the variable definitions in the exported XML and CSV files.

[Export Data](#) [Show Key](#)



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Step 7: Download and open the 90.1 Performance-Based Compliance Form Companion Tool. It will open onto the “Instructions” page.

Instructions

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VERSION COMPATIBILITY
DOE/PNNL Compliance Form Companion Tool Version 1.2, Published 5/31/2024; ESMFNC & DOE ZERH Version 1.0 DRAFT 4
This version of the Companion Tool is compatible with versions of the Compliance Form version 2.7 and beyond.

INSTRUCTIONS - GENERAL

- This Companion Tool is designed to be used in conjunction with the DOE/PNNL ASHRAE 90.1 Performance-based G Compliance Form (i.e., Compliance Form). This can be downloaded from the Department of Energy (DOE) Energy Codes website at the following link: <https://www.energycodes.gov/ashrae-standard-901-performance-based-compliance-form>. The Compliance Form should be filled out before filling out this workbook.
- Import data from the Compliance Form following the instructions on the "Instructions for CF Import" tab. This will bring in data from the Compliance Form so that project performance may be calculated in alignment with the AHJ/RA program automatically.
- Follow the instructions on visible tabs. Tabs may unhide and hide as needed based on selections.
- Use help buttons (?) to see the meaning or intent of something in the Companion Tool.
- (Optional) Click the button below to generate a summary compliance report based on the information shown in the Companion Tool. The report will appear as a pdf document in the folder where the Companion Tool is located.

Generate Summary Report

INSTRUCTIONS - AHJ/RA SPECIFIC

- Follow the instructions on the ESMFNC Info or ZERH Info tabs, as applicable.
- Follow the instructions above in the INSTRUCTIONS-GENERAL section on this tab.
 - Select "Other" as the Code/Beyond Code Program on the General Information tab of the Compliance Form. If that option is unavailable, select "Default - Selected Version of 90.1"

TAB COLOR LEGEND

	Informative Tabs
	Submitter Entry Tabs
	Helper Tabs

CELL AND FONT COLOR LEGEND

	Tab headings
	Table headings
	Auto populated cell, not editable.
	Editable cell requiring an input (unless otherwise noted).
	Auto populated editable cell in which text has not been overridden.
	Auto populated editable cell in which overridden text is shown as bold orange.
	Cells with hatching do not require an input
	Critical input. Filled with red to ensure that it does not get skipped over.

Step 9: Navigate to the “Instructions for CF Import” tab. Click on “Import from the Compliance Form” and select the CSV file generated by the Compliance Form.

Instructions for CF Import

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[HOW TO IMPORT DATA FROM THE COMPLIANCE FORM](#)

HOW TO IMPORT DATA FROM THE COMPLIANCE FORM

- Complete all tabs in the Compliance Form workbook which can be downloaded from the USA Department of Energy website at <https://www.energycodes.gov/ashrae-standard-901-performance-based-compliance-form>.
- Press the "Export Data" button on the Dashboard tab of the Compliance Form. XML and CSV files will generate in the same folder in which the Compliance Form is located.
- Press the "Import from Compliance Form" button shown below and navigate to and select the CSV file you generated from the Compliance Form. If the import does not work please contact <https://www.energycodes.gov/technical-assistance/help-desk>.

Import from the Compliance Form



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Step 10: Go to “Project Performance” tab. This sheet is where the energy calculations will be found. Select the ENERGY STAR MFNC Version 1.3 from the dropdown menu.

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- [1: Building Performance Factor Summary](#)
- [2: Site Energy End Use Performance Factor Summary](#)
- [3: Renewable Energy and Exceptional Calculation Caps](#)
- [4: Conversion Factors](#)
- [4: Compliance Calculations](#)
- [5: Fuel Neutral Compliance Calculations](#)

Instructions:
 Visit the tables and sections on this tab to determine project performance.

Project Name

Program Selection

Instructions:
 Select the applicable program in the dropdown.

Program	ENERGY STAR MFNC Version 1.3
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Step 11: Scroll down to Table 4 (Compliance Calculations) and Table 5 (Fuel Neutral Compliance Calculations).

Table 4 shows the energy cost and source energy savings.

Table 4: Compliance Calculations

Parameter	Symbol	Performance Metric			
		Cost \$	Site Energy MMBtu	Source Energy MMBtu	GHG Emissions Mt CO ₂ e
Proposed building performance before site-generated renewable energy and exceptional calculations	PBP _{pre_nec}	\$55,898	1,194	3,342	-
2 On-site renewable savings	-	-	-	-	-
2 Prescriptive renewable energy savings	PRE	-	-	-	-
2 Exceptional calculations savings excluding on-site renewable energy	-	-	-	-	-
Proposed building performance including on-site renewable energy and exceptional calculations	PBP	\$55,898	1,194	3,342	0
Proposed building performance including exceptional calculations and excluding on-site renewables	PBP _{pre}	\$55,898	1,194	3,342	0
2 Proposed building performance including exceptional calculations and prescriptive on-site renewables	PBP _{pre}	\$55,898	1,194	3,342	0
Baseline building unregulated energy, GHG emissions, and/or energy cost	BBUEC	\$23,113	494	1,382	-
Baseline building regulated energy, GHG emissions, and/or energy cost	BBREC	\$44,560	1,357	2,884	28
Baseline building performance	BBP	\$67,673	1,850	4,266	28
Building Performance Factor	BPF	0.60	n/a	0.73	n/a
Performance Index Target	PCI _t	0.74	n/a	0.82	n/a
Performance index without on-site renewable energy and exceptional calculations	PCI _{pre_nec}	0.83	n/a	0.78	n/a
Performance index including exceptional calculations	PCI _{ec}	0.83	n/a	0.78	n/a
Performance index including exceptional calculations and on-site renewable energy	PCI	0.83	n/a	0.78	n/a
2 Performance index adjusted based upon ASHRAE 90.1-2019 Section 4.2.1.1	PCI _{adjusted}	0.83	n/a	0.78	n/a
<i>% improvement target beyond ASHRAE 90.1-2022</i>	-	15%	-	15%	-
% improvement beyond ASHRAE 90.1-2022, excluding on-site renewable energy and exceptional calculations	-	-12.1%	n/a	4.2%	n/a
% improvement beyond ASHRAE 90.1-2022, inclusive of on-site renewable energy and exceptional calculations	-	-12.1%	n/a	4.2%	n/a

PROJECT DOES NOT COMPLY. The Performance Index (PCI_{adjusted}) exceeds the Performance Index Target (PCI_t) for all allowed metrics. The project does not comply with the performance requirement of the ENERGY STAR MFNC Version 1.3 via the Appendix G Performance Rating Method. Allowed metrics: Cost, Source Energy. Performance target: 15%



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Table 5 shows the new fuel neutral calculation (under the “Cost \$” column). These are the savings calculated when using the proposed fuel neutral approach.

Table 5: Fuel Neutral Compliance Calculations

Parameter	Symbol	Performance Metric			
		Cost \$	Site Energy MMBtu	Source Energy MMBtu	GHG Emissions Mt CO ₂ e
Proposed building performance before site-generated renewable energy and exceptional calculations	PBP _{pre-rec}	\$55,898	1,194	3,342	-
On-site renewable savings	-	-	-	-	-
Prescriptive renewable energy savings	PRE	-	-	-	-
Exceptional calculations savings excluding on-site renewable energy	-	-	-	-	-
Proposed building performance including on-site renewable energy and exceptional calculations	PBP	\$55,898	1,194	3,342	-
Baseline building performance	BBP	\$67,673	1,850	4,266	28
Fuel neutral baseline building performance based on proposed fuel allocation without including savings from exceptions	BBP _{fn}	\$86,657	1,850	5,181	-
Adjusted baseline building performance using the fuel neutral SEEUPF method to ASHRAE 90.1-2022	BBP _{adj}	\$58,149	1,242	3,476	-
% improvement target beyond ASHRAE 90.1-2019	-	15%	-	15%	-
% improvement beyond ASHRAE 90.1-2022, excluding on-site renewable energy and exceptional calculations	-	3.9%	n/a	3.9%	n/a
% improvement beyond ASHRAE 90.1-2022, inclusive of on-site renewable energy and exceptional calculations	-	3.9%	n/a	3.9%	n/a

PROJECT DOES NOT COMPLY WITH PERFORMANCE REQUIREMENT. The design energy cost, site energy, source energy, and/or carbon emissions exceeds the energy cost, site energy, source energy, and/or carbon emission of the adjusted baseline. The project does not comply with the performance requirement of ENERGY STAR MFNC Version 1.3 via the Appendix G Performance Rating Method. Allowed metrics: Cost, Source Energy. Performance target: 15%

Step 12: Please use these results to assess the proposed MFNC v1.3 ASHRAE Performance Targets including the new fuel neutral approach. Please provide any feedback in the Stakeholder Comment Form. Along with the comment form, if appropriate please also submit the CompanionTool, Compliance Form, and either the Building Efficiency Characteristics form or the MFNC Workbook.

Thank you for your support of the ENERGY STAR MFNC Program. If you have any questions about this guide or the proposed MFNC v1.3 ASHRAE performance target, please contact EnergyStarHomes@epa.gov and we will be happy to assist you.