

DCRA Guide to Completing Energy Verification Sheets

The Department of Consumer and Regulatory Affairs (DCRA) Energy Verification Sheets (EVS) provide a transparent and consistent method of communication between the designers, code reviewers, and inspectors. By adhering to this guideline project teams will reduce permit reviewer questions and speed up the review process.

This guide identifies:

- How to use the form,
- Which section each project team member should fill out,
- How to fill it out with standard language, and
What it means in the broader context of the code.

Project teams may not subtract, edit, or modify any font, coloring, highlights, text, or formatting in the file. The intent of providing the AutoCAD files is for sizing to the projects' paper output, adding information to the blank boxes within the sheets, and providing ease of use. If errors are found in the document, please notify the Green Building Program at green.building@dc.gov so that we may address the issue.

Non-low-rise residential projects (commercial) may not mix sections of code between ASHRAE 90.1-2010 and 2013 DC Energy Code.

Step-by-Step Guide

Step 1: Determine which energy verification sheet applies to the project (if any) per guidance on the DCRA website.

Step 2: Fill out the Energy Verification Sheet header as seen below.

Permit #:	Address:	
Compliance Path Used: <input type="checkbox"/> Prescriptive	<input type="checkbox"/> Trade Off	<input type="checkbox"/> Performance
Project Type: <input type="checkbox"/> New Non-Residential Project	<input type="checkbox"/> Non-Residential Addition	<input type="checkbox"/> Renovation

Figure 1: Header for an Example Energy Verification Sheet

Fill out all information including the permit B/TL-number¹, the building address provided to DCRA in the building permit application, and which energy code compliance path is being chosen. Depending on which energy code compliance path is selected, the compliance path will vary as described below:

¹ Provided by DCRA at permit intake.

- **Prescriptive Path** – The most common method for designers to comply with the energy code and provides a "recipe" for individual building components. Deviation from any prescriptive code item will require the project to use another pathway.
- **Performance Path** – This is less common as it requires a compliant energy model to be submitted as part of the supplemental documentation in addition to the appropriate Energy Verification Sheet. See the DC Energy Code, Green Building Submittal Forms, and the Green Building Program Manual for more information about creating a compliant energy model.
- **“Trade Off” Path** – This is essentially a method within the Prescriptive Path envelope section that allows for alternative calculations to be completed such as the UA Trade-Off Approach (2013 DC ECC low-rise residential) or ASHRAE 90.1 Normative Appendix C (as available in COMCheck envelope tab). This additional documentation must be included in the drawings as part of additional energy (EN) titled plan pages.

The project type is generally self-explanatory, but provides the plan reviewer and inspector information as to the scope of the project and may further explain Energy Verification Sheet Entries.

Step 3: Fill out all applicable sections of the Energy Verification Sheet (EVS) on a measure by measure level of detail. Every row will indicate the location of specification within projects’ drawing set, or the projects’ applicability (e.g. N/A). By filling out the EVS fully, the project team will have a general sense of how to comply with the energy code, inform the plan reviewer where to verify the data, and tell the inspectors what verification is necessary during inspections.

3a) Energy Verification Sheet Organization: The EVS’s are organized by inspection type (“Pre-inspection,” “Foundation Inspection,” “Framing/Rough-in,” “Insulation Inspections,” and “Final Inspections”) to help inspectors in the field review and understand what inspections have been completed. The headers for each section have the darkest gray highlights and in the commercial EVS are visually broken from previous rows.

	controls installed.					
2012 IECC Section #	Framing/ Rough-In Inspection	Prescriptive Code Value	Plan Value	Identified Dwg Page	Plan Review	Field Insp.
402.1.1.	Door U-factor	U=0.35				

3b) Project Team Participation Markers: Because the EVS’s are structured for the inspectors in the field, DCRA labeled each measure with the applicable plan reviewer discipline or inspectors, so that DCRA plan reviewers can easily scroll through the first column and identify which measures they need to review without reading each description. This may also assist the design team depending on the division of labor within the project team or the professional signatories involved.

- A prefix “S” or “SR” stands for structural reviewer which from a design perspective is indicative of the Architect’s responsibility.

- A prefix “M” or “MR” stands for mechanical reviewer which from a design perspective is indicative of the Mechanical Engineer’s responsibility.
- A prefix “E” or “ER” stands for Electrical reviewer which from a design perspective is indicative of the Electrical Engineer’s responsibility.
- A prefix “I” or “INSP” stands for inspector which is less likely to require designer attention. However, the builder should be paying attention to these construction issues, and occasionally the designer will have to indicate installation procedures.

To note, some architects design the entire project including mechanical and electrical (usually smaller in scope). If they are the signatory on the design pages involved with a measure, then they are taking the responsibility for filling out the form correctly.

5.8.1.2 INSP	Slab edge Insulation Installed per manufacturer instructions	N/A	N/A	
5.8.1.7 SR	Ext. Insulation protected against damage, sunlight, moisture, wind, landscaping maintenance activities.	N/A		
5.8.1.7.3 SR	Insulation in contact with the ground has ≤0.3% water absorption rate per ASTM C272	0.3% Water Absorption Rate		
6.3.2, 6.4.4.1 6.4.4.2 MR	Piping, ducts and plenum are insulated and sealed when installed in or under a slab	N/A		
6.4.3.8 E	Freeze protection & snow/ice melting sys. sensors for future connection to controls.	N/A	N/A	
6.4.4.1.5 M	Bottom surface of floor structures using radiant heating insulated to R-3.5	N/A	N/A	

3c) Energy Verification Sheet Columns: Each column provides the project team with important information. The first column contains code section reference numbers, so that the full code provision can be read by the project team and DCRA.

The second column contains an abbreviated description of the code requirements. Please note, in all cases, the DC Energy Conservation Code or ASHRAE 90.1 is the official code reference for enforcement and must be fully be adhered to by the project. The EVS’s are just a tool to ensure projects will comply with the DC Energy Code in its entirety.

The “prescriptive code value” is used to evaluate each measure. U-values, R-values, or specific wattages for individual components are often referenced in this column. However, not all measures have a prescriptive code value and have an “N/A” or reference a table in the code which could not fit on the EVS.

The “Plan Value” and the “Identified Dwg Page” are the columns the project team is responsible for completing (unless the measure is outside of the scope of work as described

in subsequent section). The plan value should contain a u-value, r-value, wattage, or brief description of compliance. In the event that the description text is too long for the space and cannot fit within the span of two boxes (Plan Value and Identified Dwg Page), then the project team should write “Complies” in the Plan Value box and be sure to indicate which Drawing Page number, note, and/or detail etc. the value is included. Only the drawing page number is required, though additional specificity is greatly appreciated. All scope appropriate measures should indicate a page number as the minimum.

The “Plan Review” and “Field Insp.” Columns are reserved for DCRA with the exception of measures outside the scope of work.

3d) General Information – Highlights: There are three levels of highlights within the project which indicate different things:

- Dark Gray – For reference only. Inspection header and column header.
- Medium Gray – This indicates the energy code has identified the specific measure as necessary for compliance irrespective of which energy compliance option (Prescriptive, Performance, or Trade-off) is chosen.
- No Highlights (White background) – For projects that use the prescriptive pathway for compliance, these rows should be filled out. Most project teams elect to use the prescriptive pathway and thus most EVS should have these rows filled out.

90.1–2010 Section #	Foundation Inspections	Prescriptive Code Value	Plan Value	← Header
5.5.3.3 SR	Below Grade Insulation Wall Value.	None Required		← Prescriptive Measure
5.8.1.2 INSP	Below Grade Insulation Wall Installed per manufacturer's instructions	N/A	N/A	← Mandatory, All projects.
5.5.3.5	Slab edge insulation value	Heated:		

EVS Marker for “Outside the Scope of Work:” Because the Energy Verification Sheet (EVS) includes the entire code for many applicable wall types, foundation types, ceiling types, HVAC systems, hot water heating configurations etc., it is likely that some items on the EVS will not be applicable to the scope of work. For example, a project may have a basement instead of a crawlspace. In such cases, the project team may mark in each box an “X”, “/”, or “N/A” for every box in that measure row. See the example below.

5.8.1.2 INSP	Below Grade Insulation Wall Installed per manufacturer's instructions	N/A	N/A				
5.5.3.5 SR	Slab edge insulation value	Heated: R-15,24" Unheated: None Req.					
5.8.1.2 INSP	Slab edge Insulation Installed per manufacturer instructions	N/A	N/A				
5.8.1.7 SR	Ext. Insulation protected	N/A					

Figure 2: EVS Marker for example for “Outside the Scope of Work”

For renovations of commercial buildings and residential Level 3 alterations, there may be many instances where the existing systems or components are not being touched. Project teams should always reference Chapter 1 of the DC Building Code, Energy sections for applicability and potential project or scope exemptions not identified in ASHRAE or Chapter 3 & 4 of the DC Energy Code.

3b) EVS Notations for “Applicable but Exempt”: In order to fit the majority of the code on the EVS exemptions are not listed. Thus, there may be situations where a project does not need to comply with a specification even though a system is within the scope of work. Take for example 2013 DC Energy Code, Low-rise Residential Section R402.3.3 Glazed fenestration. In a situation where new glazing added to the project, 15 square feet is exempt from the u-value requirement. Additional new glazing beyond 15 square feet needs to comply. The project team should indicate the exemption number from the code with a cursory description of the conditions which allow the exemption.

402.1.1, 402.3.1, 402.3.3 SR	Glazing U-factor (Area weighted average, show proof of average if any u-value is less than 0.35)	U-0.35	402.3.3, 15 sqft exempt. U-0.30 other win. Pg A-301			
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Note that in this example, additional glazing still needed to comply, so the project team added the maximum whole window u-value and the page number which that maximum is identified in the larger set of drawings. Project teams should not add text or markings in the “Plan Review” or “Field Insp.” columns where exemptions are being taken.

Step 4: For the project-specific drawings, include the corresponding details about the energy compliance in a section that the contractor can easily find. For example: the window U-values and Solar Heat Gain Coefficients should be restated in the drawings’ window schedule page(s). This way the contractor or manufacturer does not have hunt for specifications in the drawings.