| DOCKETED | |
|---|---|
| **Docket Number:** | 18-BSTD-02 |
| **Project Title:** | 2019 ENERGY CODE COMPLIANCE MANUALS |
| **TN #:** | 232774-10 |
| **Document Title:** | 2019-CF1R-ENV-06-E-InteriorExteriorInsulationWorksheetpdf |
| **Description:** | N/A |
| **Filer:** | Corrine Fishman |
| **Organization:** | California Energy Commission |
| **Submitter Role:** | Public Agency |
| **Submission Date:** | 4/17/2020 12:03:41 PM |
| **Docketed Date:** | 4/17/2020 |

STATE OF CALIFORNIA

# INTERIOR AND EXTERIOR INSULATION LAYERS WORKSHEET

CEC-CF1R-ENV-06-E (Revised 01/20) CALIFORNIA ENERGY COMMISSION

| CERTIFICATE OF COMPLIANCE | CF1R-ENV-06-E |
|---|---|
| Interior and Exterior Insulation Layers Worksheet | (Page 1 of 2) |
| Project Name: | Date Prepared: |

**A. Mass Wall Information**

| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 |
|---|---|---|---|---|---|---|---|
| | | | | | Appendix JA4 Reference | | |
| Tag/ID | Mass Type | Above or Below Grade? | Area ($ft^2$) | Thickness (inches) | Table | Cell | U-factor from JA4 |
| | | | | | | | |
| | | | | | | | |

**B. Interior and Exterior Insulation Layers**

| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 |
|---|---|---|---|---|---|---|---|
| | | | | Appendix JA4 Reference | | | |
| Tag/ID | Exterior/Frame Type | Furring Thickness (inches) | Installed R-value of Insulation | Table | Cell | Adjusted Exterior R-value | Adjusted Interior R-value |
| | | | | | | | |
| | | | | | | | |

**C. U-factor Calculation**

Equation 4-4: $U_{Total} = 1/(R_{Outside} + (1/U_{Mass}) + R_{Inside})$

| 01 | 02 | 03 | 04 | 05 |
|---|---|---|---|---|
| Tag/ID | Mass Wall U-factor ($U_{Mass}$) | Adjusted Exterior R-value ($R_{Outside}$) | Adjusted Interior R-value ($R_{Inside}$) | Total Performance U-factor ($U_{Total}$) |
| | | | | |
| | | | | |

# INTERIOR AND EXTERIOR INSULATION LAYERS WORKSHEET



| CERTIFICATE OF COMPLIANCE | CF1R-ENV-06-E |
|---|---|
| Interior and Exterior Insulation Layers Worksheet | (Page 2 of 2) |

| Project Name: | Date Prepared: |
|---|---|

| **DOCUMENTATION AUTHOR'S DECLARATION STATEMENT** | |
|---|---|
| 1. I certify that this Certificate of Compliance documentation is accurate and complete. | |
| Documentation Author Name: | Documentation Author Signature: |
| Company: | Signature Date: |
| Address: | CEA/HERS Certification Identification (if applicable): |
| City/State/Zip: | Phone: |

**RESPONSIBLE PERSON'S DECLARATION STATEMENT**

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
3. That the energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a registered copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a registered copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

| Responsible Designer Name: | Responsible Designer Signature: |
|---|---|
| Company: | Date Signed: |
| Address: | License: |
| City/State/Zip: | Phone: |

**CF1R-ENV-06-E Instructions**

This worksheet is used to calculate the total performance U-factor for mass walls with either interior, or exterior insulation layers based on Equation 4-4 in the Joint Appendices..

**A. Mass Wall Information**

1. Tag/Id: Auto-filled from CF1R.
2. Mass Type: Auto-filled from CF1R.
3. Above or Below Grade?: Auto-filled from CF1R.
4. Area ($ft^2$): Enter the area of the mass wall in square feet.
5. Thickness (inches): Auto-filled from CF1R.
6. Appendix JA4 Reference Table: Auto-filled from CF1R.
7. Appendix JA4 Reference Cell: Auto-filled from CF1R.
8. U-factor from JA4: Enter the U-factor of the mass wall from JA4.

**B. Interior and Exterior Insulation Layers**

1. Tag/Id: Auto-filled from Section A.
2. Exterior/Frame Type: Using the drop down menu, indicate the exterior or frame type (e.g., EIFS, Wood, or Metal).
3. Furring Thickness (inches): Enter the furring thickness in inches.
4. Installed R-value of Insulation: Enter the R-value of the insulation installed in the furring space.
5. Appendix JA4 Reference Table: Auto-filled from CF1R.
6. Appendix JA4 Reference Cell: Auto-filled from CF1R.
7. Adjusted Exterior R-value: Auto-filled from CF1R.
8. Adjusted Interior R-value: Auto-filled from CF1R.

**C. U-factor Calculation**

1. Tag/Id: Auto-filled from Section A.
2. Mass Wall U-factor: Auto-filled from Section A.
3. Adjusted Exterior R-value: Auto-filled from Section B.
4. Adjusted Interior R-value: Auto-filled from Section B.
5. Total Performance U-factor: This value is auto-filled based on Equation 4-4 [$U_{Total} = 1/(R_{Outside} + (1/U_{Mass}) + R_{Inside})$].