FENESTRATION WORKSHEET

CEC-NRCC-ENV-02-E (Revised 06/14)

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-ENV-02-E
Fenestration Worksheet	(Page 1 of 3)

Project Name:	Date Prepared:

A. WINDOWS DETAILS Worksheet *§140.3(a)5B and C*

NOTE: Newly installed fenestration shall have a certified NFRC Label Certificate or use the CEC default tables found in Table 116-A and Table 116B. Site-built fenestration less than 1,000 ft², or more than or equal to1,000 ft² see Reference Nonresidential Appendix NA6.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
			Fenestration						**Overhang**				
			U-Factor		SHGC		VT		Dimensions			Calculated	
Tag/ID	Window Type (e.g., Window-1)	Area	Proposed	Allowed	Proposed	Allowed	Proposed	Allowed	H	V	H/V	(R)SHGC Proposed	Max (R)SHGC Allowed

B. WEST WINDOW AREA CALCULATION See §140.3(a)5A in the Energy Standards

A. **Gross West** Exterior Wall Area		**ft² × 0.40 =**	**ft²**	40% of **Gross West Facing** Exterior Wall Area; or
B. **West** Display Linear Perimeter		**FT × 6 ft =**	**ft²**	**West** Display Perimeter Area
C. Enter Larger of A or B			**ft²**	Maximum Standard **West** Area
D. Enter Proposed **West** Window Area			**ft²**	Proposed **West** Window Area

*Note: If the PROPOSED **WEST** WINDOW AREA is greater than the MAXIMUM STANDARD **WEST** AREA then the envelope component approach may not be used.*

C. WINDOW AREA CALCULATION for all other orientations other than West - See §140.3(a)5A in the Energy Standards

E. Gross Exterior Wall Area		**ft² × 0.40 =**	**ft²**	40% of Gross Exterior Wall Area or
F. Linear Display Perimeter		**FT × 6 ft =**	**ft²**	Display Perimeter Area
G. Enter The Larger of E or F			**ft²**	Maximum Standard Area
H. Enter Proposed Window Area			**ft²**	Proposed Window Area

Note: If the PROPOSED WINDOW AREA is greater than the MAXIMUM STANDARD AREA then the envelope component approach may not be used.

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D. SKYLIGHT AREA CALCULATION See §143(a)6A in the Energy Standards

	ACTUAL GROSS ROOF AREA		STANDARD ALLOWED SKYLIGHT AREA	
A IF Atrium/Skylight Height is $\leq$ 55 ft; **or**		$ft^2 \times 0.05 =$	ft^2	
B. IF Atrium/Skylight Height is > 55 ft		$ft^2 \times 0.10 =$	ft^2	
C. Proposed Skylight Area (from plans)		ft^2		
D. Skylight SSR %[1, 2] = Proposed Skylight Area Divided by Actual Gross Roof Area =		%		

1. If the SKYLIGHT SSR % is less than or equal to 5% then choose the appropriate column in Table 140.3-B and C and row in Table 140.3-D.

2. If the SKYLIGHT SSR % is greater than 5% then the Envelope Component Approach may not be used.

E. RELOCATABLE PUBLIC SCHOOL BUILDINGS - See Section140.3(a)8 in the Energy Standards

Option 1	
☐ For Specific Climate Zone, use Table 140.3-B - Prescriptive Envelope Criteria.	☐ Specific Climate Zone Metal Identification Label – Place two labels on each relocatable school building and indicate on the building plans.
	Indicate location from the building plans:
Option 2	
☐ For Any (All) Climate Zone, use Table 140.3-D - Prescriptive Envelope Criteria.	☐ Any (All) Climate Zone Metal Identification Label - Place two labels on each relocatable school building and indicate on the building plans.
	Indicate location from the building plans:

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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. 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 completed signed 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 completed signed 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:

WINDOW DETAILS WORKSHEET

1. **Tag/Id** – Provide a name or designator for each unique type of fenestration surface. This designator should be used consistently throughout the plan set (elevations, finish schedules, etc.) such as, Window-1, Skylight-1 and etc…to identify each surface. It should also be consistently used on the other forms in the same compliance documentation.

2. **Window Tpe** – *Fixed Window, Operable Window, Curtainwall or Storefront, or Glazed Doors. For Skylights use either Glass Curb Mounted, Glass Deck Mounted or Plastic curb Mounted.*

3. **Surface Area** – Indicate the total ft² of all of the fenestration with the same like characteristics.

4. **Fenestration/U-factor/Proposed** – Indicate the proposed U-factor for windows from **NRCC-ENV-01-E,** Area weighted average or from Table 140.3-B, C or D, NFRC Label Certificate or the Energy Commission's Default Table U-factors Table 110.6-A.
5. **Fenestration/U-factor/Allowed** – Indicate the Maximum Allowed U-factor for windows from Table 140.3-B, C or D.

6. **Fenestration/SHGC/Proposed** – Indicate the proposed SHGC for windows from **NRCC-ENV-01-E,** Area weighted average or from Table 140.3-B, C or D, NFRC Label Certificate or the Energy Commission's Default Table U-factors Table 110.6-A.

7. **Fenestration/SHGC/Allowed** – Indicate the Maximum Allowed SHGC for windows from Table 140.3-B, C or D.

8. **VT/Proposed** – Indicate the proposed VT for windows from NRCC-ENV-01-E, Area weighted average or from Table 140.3-A, B or C, NFRC Label Certificate or the Energy Commission's Default Table U-factors Table 110.6-A.

9. **VT/Allowed** – Indicate the Maximum Allowed Prescriptive VT for windows from Table 140.3-B, C or D. Note the VT requirement is dependent of window Type in Column 2.

If overhangs are going to be used in the project then the overhangs dimensions and location should be indicated on the building plans for verification by the enforcement agency

10. **Overhang/Dimensions/H** – Horizontal distance from window out to the bottom of overhang. If an overhang does not exist, then the H is 1.0.

11. **Overhang/Dimensions/V** – Vertical distance from bottom of window to a plane at the same height as the bottom of lower edge of overhang. If an overhang does not exist, then the V is 1.0.

12. **Overhang/Dimensions/H/V** – Use OVERHANG FACTOR to determine the factor for each orientation. Measure the horizontal projection of the overhang (H) and the vertical height from the bottom of the glazing to the shading cut-off point of the overhang (V). If an overhang does not exist, then the overhang factor is 1.0.

13. **Calculated/(R)SHGC** – Proposed is calculated by multiplying the Overhang Factor by the proposed SHGC of the window.

14. **Calculated/Max(R)SHGC** – Allowed is the maximum relative solar heat gain allowed, taken from Standards Tables 140.3-B, C or D for the appropriate window orientation (north or non-north).

WEST WINDOW AREA CALCULATIONS

This calculation determines whether the window area for the building exceeds the allowable maximum for the Envelope Component Approach.

A. **Gross West Exterior Wall Area** – It's the Gross Exterior Wall Area multiplied by 0.40 to determine the maximum allowed 40 percent of fenestration in the West Exterior Wall Area.

B. **West Display Perimeter** – It's the West linear perimeter multiplied by 6 ft to determine the maximum DISPLAY AREA for glazing limits.

C. Enter the Larger of A or B for the **Maximum Standard Area**.

D. **Proposed West Window Area** – Enter the proposed total area of windows as indicated on the building plans.

Note: If the Proposed West Window area is greater than the Maximum Standard West Area of 40% then the Envelope Component Approach may not be used.

WINDOW AREA CALCULATION (for all other than the West orientation)

A. **Gross Exterior Wall Area** – It's the Gross Exterior Wall Area multiplied by 0.40 to determine the maximum allowed 40 % of fenestration in the Exterior Wall Area.

B. **Display Perimeter** – It's the linear perimeter multiplied by 6 ft to determine the maximum DISPLAY AREA for glazing limits.

C. Enter the Larger of E or F for the **Maximum Standard Area**.

D. **Proposed Window Area** – Enter the proposed total area of windows as indicated on the building plans.

Note: If the Proposed Window area is greater than the Maximum Standard Area of 40% then the Envelope Component Approach may not be used.

SKYLIGHT AREA CALCULATION

This calculation determines whether the skylight area for the building exceeds the allowable maximum for the standard envelope.

A. If the height distance from the floor to the above is less than or equal to 55 ft then multiply the Actual Gross Roof Area by 5 percent (0.05) for the **Standard Allowed Skylight Area.**

B. If the height distance is greater than 55 ft then multiply Actual Gross Roof Area by 10 percent (0.10) for the **Standard Allowed Skylight Area.**

C. **Proposed Skylight Areas** – The total area of proposed skylights shown on the plans is entered here.

D. **SKYLIGHT %** - If the Proposed Skylight Area is greater than the Standard Allowed Skylight Area then the Envelope Component approach may not be used.

If the **Proposed Skylight Area** is greater than the **Standard Allowed Skylight Area** then the Envelope Component Approach may not be used. The skylight percentage determines the appropriate row for the maximum U-factor allowed TO BE USED IN THE Skylight Details. See Table 140.3 B, C or D.

RELOCATABLE PUBLIC SCHOOL BUILDINGS

Option 1

Check box if manufactured for specific climate zone.

Check box if metal identification label is provided.

Option 2

Check box if manufactured for all climate zones.

Check box if metal identification label is provided.