

Step 5 – Enter the Minimum Skylight Effective Aperture in row I and enter the proposed Primary Sidelit Effective Aperture by determining the Effective Aperture of the Primary Sidelit Area by filing out K through O. Enter the result in Cell J in Step 5. Check box if J is greater or equal to I. Then go to Step 6.

Step 6 – Check space passes box for each criterion is met.

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Use Standards Equation 146-C to calculate Skylight Effective Aperture by first determining the Well Cavity Ratio either by using the rectangular or the non-rectangular equations.

P-Q: CALCULATE THE WELL CAVITY RATIO (WCR) – Determine if the well is rectangular or non-rectangular, select one of the well types, fill in columns A, B, C and calculate the WCR with the appropriate equation. See §146 for additional details.

R-T: TUBULAR SPECULAR LIGHT WELL – Enter the Tube Height, Tube Diameter and Divide cells R/S to get the L/D ratio.

R-S: WELL EFFICIENCY – calculate the average well wall reflectance – This is used with the WCR to determine the well efficiency. This reflectance is determined as shown in the Illumination Engineering Society of North America, IESNA Lighting Handbook, Ninth Edition (2000).

FC-1/FC-2 – California Energy Commission Default U-Factor and SHGC Label Certificate

This form is used when no NFRC Label Certificate is available for the specified fenestration product. Two options are allowed when no NFRC certificate is available. Method 1: For sit-built fenestration of 10,000 square feet and greater use the Energy Commission's Default Table 116-A and Table 116-B in §116 of the Standards or Method 2: Use the Alternative Calculation found in the Reference Nonresidential Appendix NA6 for buildings with less than 10,000 ft² of glass, this includes skylights. Check off the appropriate Method box.

Note: FC-1/FC-2 is now simplified and combined together as one form.

U-FACTOR AND SHGC FENESTRATION CERTIFICATE LABEL		FC-1/FC-2	
PROJECT INFORMATION		Form 1 of <input type="text"/>	
PROJECT NAME:	Joe Energy	DATE:	January 4, 2010
PROJECT ADDRESS:	123 Main St	CLIMATE ZONE:	12
Option 1: For buildings with less than 10,000 ft ² of site-built fenestration may optionally use either CEC Default Tables 116-A and 116-B, Method 1, or the Alternative Calculation Nonresidential Reference Appendix NA6, Method 2.			
Option 2: For buildings with greater 10,000 ft ² of site-built fenestration only one option is available; use CEC Default Tables 116-A and 116-B. Use Method 1 only.			
A separate (FC-1/FC-2) Label Certificate Form is required for each different fenestration product line. Unlabeled manufactured fenestration products including skylights and exterior doors shall meet the air infiltration requirements of § 116(a)1 of the 2008 California Energy Efficiency Standards applicable to Residential and Nonresidential Buildings.			
Enter the U-factor _t and SHGC _t in the following boxes after completing Method 1 or 2 below.			
U-factor _t = <u>0.55</u>		SHGC _t = <u>0.55</u>	
PRODUCT LINE INFORMATION (Complete a separate Label Certificate for each fenestration product line is required)			
Total Number of units for the same product line:	<input type="text"/>	Total square footage of this product line:	<input type="text"/>
Schedule location on the building plans – Reference page:	<input type="text"/>	Total Fenestration Area (ft ²) on project:	<input type="text"/>
Location(s) on building S, N, E, W	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input checked="" type="checkbox"/> Method 1 (For fenestration either less than or greater than or equal to 10,000 ft ²)			
U-FACTOR INFORMATION FROM DEFAULT See TABLE 116-A:			
Frame Type	<input type="checkbox"/> Metal	<input type="checkbox"/> Metal With Thermal Break	<input checked="" type="checkbox"/> Nonmetal
Product Type	<input type="checkbox"/> Operable	<input checked="" type="checkbox"/> Fixed	<input type="checkbox"/> Greenhouse/ Garden Window
		<input type="checkbox"/> Doors	<input type="checkbox"/> Skylights
Glazing Type	<input type="checkbox"/> Single Pane	<input checked="" type="checkbox"/> Double Pane	<input type="checkbox"/> Glass Block
		<u>0.55</u>	Insert value in the default U-factor gray box above
SOLAR HEAT GAIN INFORMATION FROM DEFAULT See TABLE 116-B:			
Product Type	<input type="checkbox"/> Operable	<input checked="" type="checkbox"/> Fixed	
Glazing:	<input type="checkbox"/> Clear	<input checked="" type="checkbox"/> Tinted	
		<u>0.55</u>	Insert value in the default SHGC, gray box above
<input type="checkbox"/> Method 2 (For fenestration less than 10,000 ft ²) Reference Nonresidential Appendix NA6			
GLAZING INFORMATION: Alternative Calculation < less than 10,000 ft ²			
STEP 1: Determine U-Factor:	Enter U-factor from Equation NA6-1 above in the gray box next to U-factor		
STEP 2: Determine SHGC:	Use Center of Glass, SHGC _c , in the equation below to determine the solar heat gain coefficient with frame		
Enter Center of Glass, COG, from Manufacturer's Documentation, SHGC _c	<input type="text"/>	Insert Center of Glass value here	
Calculate the new SHGC _t of the frame.	SHGC _t = 0.08 + (0.86 x SHGC _c) =	<input type="text"/>	Insert calculated result value here and in above gray box next to SHGC _t
STEP 3: ATTACHED MANUFACTURER'S LITERATURE:			
Manufacturer's literature must be attached showing the Product Type, Frame Type, Glazing Center Of Glass (COG) U-factor, and SHGC, information needed to determine the Default U-factor _t and SHGC _t			
PARTY TAKING RESPONSIBILITY FOR FENESTRATION COMPLIANCE:			
CONTACT PERSON:			
COMPANY NAME and ADDRESS:			
PHONE:	FAX:		
SIGNATURE:	LICENSE # (if Applicable)		

FC-1/ FC-2 – SAMPLE - California Energy Commission Default U-Factor and SHGC Label Certificate
SHGC Label Certificate