

Building Envelope Technologies

Pacific Power provides incentives for many types of energy efficient technologies. Please read the following sections carefully to ensure that you follow the appropriate steps for securing your incentive.

Incentives for additional measures may be available. For more information about the FinAnswer Express program, eligibility requirements, incentive levels or other general inquiries, contact your local equipment dealer or Pacific Power. You can visit the program website at pacificpower.net/wattsmart and submit your inquiry online, or you can call our **energy services hotline** at 1-800-222-4335.

ROOF INSULATION

Measure Description: Roof insulation reduces the rate of solar heat gain through the ceiling/roof assembly of the building. Increasing the amount of roof insulation reduces building heat gain and subsequently reduces the cooling load for the enclosed building space. Insulation is rated according to an R-value, with higher values providing a higher resistance to heat gain.

Applicability: New construction and retrofit installations are eligible via a post-purchase application process.

Equipment Eligibility: Insulation must be installed in facilities that are cooled with mechanical systems, and must meet all other program terms and conditions.

- *Retrofit Applications:* Roof insulation installed must provide an additional R-10 equivalent over the R-value of previously installed insulation.
- *New Construction/Major Renovation:* To qualify for incentives in new construction/major renovation projects, an additional minimum increment of roof insulation above that required by the California energy code must be installed, as described in Table 1.

Items to submit with application:

1. Dated sales receipt/invoice with install date and retailer/contractor name, address and phone number.
2. Itemized listing of insulation type, square footage, and R-Value installed.
3. Certificates of Compliance, Insulation Certificates, and plans and specifications submitted for the building permit (new construction/major renovation only).
4. If retrofit, include pre-existing R-Value and total R-Value (post-installation).
5. A completed copy of Table 3, the Envelope Application Supplement.
6. A current copy of the Pacific Power utility bill for the address where the item(s) are installed.

Prequalification Required? No.

<u>Equipment Code</u>	<u>Measure Description</u>	<u>Incentive</u>
ROOFRE	Attic Insulation Retrofit	\$0.08 / square foot
ROOFNE	Attic Insulation New Construction	\$0.04 / square foot

**Table 1. Energy Code and Program Requirements for Roof Insulation
in New Construction/Major Renovation**

(California Title 24 2008, Table 143-A Requirements)

Assembly Type	Climate Zone 1		Climate Zone 16	
	Code Requirements	Minimum Program Requirements ¹	Code Requirements	Minimum Program Requirements ¹
Metal Building	U ≤ 0.065	NA ²	U ≤ 0.065	U ≤ 0.052
Wood-framed & Other	U ≤ 0.049	NA ²	U ≤ 0.039	U ≤ 0.031

¹ Certificates of Compliance, the Insulation Certificates, and plans and specifications submitted for a building permit applications required to verify compliance with the provisions of Title 24-2008 will be utilized to determine whether U-values of roof and wall assemblies exceed code by 20%.

² Incentives for roof insulation in new construction/major renovation projects are only available in Climate Zone 16.

R = R-value which is the resistance of the insulation to the conduction of heat.

U = U-factor or U-value is the measure of heat flow or conductivity of heat loss through the assembly.

WALL INSULATION

Measure Description: Wall insulation reduces the rate of heat loss through the walls of a building. Increasing the amount of wall insulation reduces building heat gain and subsequently reduces the cooling load for the enclosed building space. Insulation is rated according to an R-value, with higher values providing a higher resistance to heat loss.

Applicability: New construction and retrofit installations are eligible via a post-purchase application process.

Equipment Eligibility: Insulation must be installed in facilities that are cooled with mechanical systems, and must meet all other program terms and conditions. Compliance with the minimum efficiency requirements of Wall Insulation measures may be demonstrated with equivalent U-factors, subject to approval of Pacific Power.

- Retrofit Applications: Wall insulation installed must provide an additional R-10 equivalent over the R-value of previously installed insulation.
- New Construction/Major Renovation: To qualify for incentives in new construction/major renovation projects, an additional minimum increment of wall insulation above that required by the applicable California energy code must be installed, as described in Table 2.

Table 2. Energy Code and Program Requirements for Wall Insulation in New Construction/Major Renovation

Assembly Type	Climate Zone 1		Climate Zone 16	
	Code Requirements	Minimum Program Requirements ¹	Code Requirements	Minimum Program Requirements ¹
Metal Building	U ≤ 0.113	U ≤ 0.090	U ≤ 0.061	U ≤ 0.073
Metal Framed	U ≤ 0.098	U ≤ 0.078	U ≤ 0.062	U ≤ 0.074
Mass Light	U ≤ 0.196	U ≤ 0.157	U ≤ 0.170	U ≤ 0.204
Mass Heavy	U ≤ 0.253	U ≤ 0.154	U ≤ 0.160	U ≤ 0.192
Wood-framed and Other	U ≤ 0.102	U ≤ 0.082	U ≤ 0.059	U ≤ 0.071

¹ Assembly U-value must exceed code by 20%. Certificates of Compliance, the Insulation Certificates, and plans and specifications submitted for a building permit applications required to verify compliance with the provisions of Title 24-2008 will be utilized to determine whether U-values of roof and wall assemblies exceed code by 20%.

R = R-value which is the resistance of the insulation to the conduction of heat.

U = U-factor or U-value is the measure of heat flow or conductivity of heat loss through the assembly.

Items to submit with application:

1. Dated sales receipt/invoice with install date and retailer/contractor name, address and phone number.
2. Itemized listing of insulation type, square footage, and R-Value installed.
3. Certificates of Compliance, Insulation Certificates, and plans and specifications submitted for the building permit (new construction/major renovation only).
4. If retrofit, include pre-existing R-Value and total R-Value (post-installation).
5. A completed copy of Table 3, the Envelope Application Supplement.
6. A current copy of the Pacific Power utility bill for the address where the item(s) are installed.

Prequalification Required? No.

<u>Equipment Code</u>	<u>Measure Description</u>	<u>Incentive</u>
WAINRE	Wall Insulation Retrofit	\$0.10 / square foot
WAINNE	Wall Insulation New Construction	\$0.05 / square foot

HIGH-EFFICIENCY WINDOWS

Measure Description: High-efficiency windows are designed to reduce the rate of heat transfer through the window assembly and prevent solar heat gain while still allowing sufficient light through the window to illuminate the space. The National Fenestration Rating Council (NFRC) certifies the energy performance of window assemblies and glazing products in two categories, thermal transmission which is measured by a U-factor and solar heat gain which is measured by the Solar Heat Gain Coefficient (SHGC).

Applicability: New construction and retrofit installations are eligible via a post-purchase application process. Skylights and swinging doors are not eligible.

Equipment Eligibility: Windows must be installed in a facility that is cooled with mechanical systems, and must meet all other program terms and conditions.

- Window Assemblies: Pre-fabricated window assemblies with a U-value less than or equal to 0.35 and a SHGC value less than or equal to 0.33, rated in accordance with the National Fenestration Rating Council (NFRC), are eligible.
- Site-Built Window Systems: The glazing used in site-built window systems must have a U-value less than or equal to 0.30 and a SHGC value less than or equal to 0.33, rated in accordance with the NFRC, to be eligible. Additionally, site-built metal window systems must contain a thermal break within the frame assembly.

Items to submit with application:

1. Dated sales receipt/invoice with install date and retailer/contractor name, address and phone number
2. Itemized listing of window manufacturer, dimensions, type, U-Value and SHGC
3. Documentation of window efficiency:
 - a. Original NFRC rating stickers for pre-fabricated window assemblies.
 - b. Manufacturer specification sheet indicating U-value and SHGC of glazing product and frame assembly thermal break for site-built window assemblies.
4. A completed copy of Table 3, the Envelope Application Supplement.
5. A current copy of the Pacific Power utility bill for the address where the item(s) are installed.

Prequalification Required? No.

<u>Equipment Code</u>	<u>Measure Description</u>	<u>Incentive</u>
WNSBRE	Retrofit Site-Built Window	\$0.34 / square foot
WNASRE	Retrofit Pre-Fabricated Window	\$0.34 / square foot
WNSBNE	New Construction Site-Built Window	\$0.34 / square foot
WNASNE	New Construction Pre-Fabricated Window	\$0.34 / square foot

Table 3. Envelope Application Supplement
(Submit copy of table with application for insulation or windows)

Customer	Customer Name						
	Facility Address						
	Facility City, State, Zip						
	Is Primary Heating Provided by Electric Resistance? (circle one)		YES		NO		
	Facility Square Footage						
	Roof Assembly Type (check one)		<input type="checkbox"/> Attic and Other	<input type="checkbox"/> Metal Building	<input type="checkbox"/> Single Rafter	<input type="checkbox"/> Above Deck	
	Wall Assembly Type (check one)		<input type="checkbox"/> Metal Framed	<input type="checkbox"/> Wood Framed	<input type="checkbox"/> Mass	<input type="checkbox"/> Other	
	Is Building Space Mechanically Cooled? (circle one)		YES		NO		
Required Insulation Information (Roofs & Walls)	Select Project Type (check one)		<input type="checkbox"/> Retrofit <input type="checkbox"/> New Construction/Major Renovation				
	Select type of insulation installed (check one or both)		<input type="checkbox"/> Roof Insulation <input type="checkbox"/> Wall Insulation				
	RETROFIT ONLY	Select type of existing wall insulation (check one)		<input type="checkbox"/> Blown-In Insulation <input type="checkbox"/> Batts or Rolls <input type="checkbox"/> Continuous Insulation			
		Provide R-value of existing wall insulation					
		Select type of existing roof insulation (check one)		<input type="checkbox"/> Blown-In Insulation <input type="checkbox"/> Batts or Rolls <input type="checkbox"/> Continuous Insulation			
		Provide R-value of existing roof insulation					
	Please provide information about the type and amount of insulation installed in the table below:						
	Blown-In Insulation			Batts and Rolls			
	Number of bags used:		Roof	R-Value	Thickness (inches)	Area Insulated (sq. ft.)	
	Area insulated (sq. ft.):						
	Insulation thickness:	in.					
	R-value of insulation:						
	Type of insulation (check one):		Walls				
	<input type="checkbox"/> Cellulose						
	<input type="checkbox"/> Fiberglass						
<input type="checkbox"/> Other							
Continuous Insulation							
Manufacturer/Brand			Thickness Installed (inches)				
R-Value per Inch			Area Insulated (sq. ft.)				
Window Information	Select type of windows installed (check one or both)		<input type="checkbox"/> Pre-fabricated assemblies <input type="checkbox"/> Site-built windows				
	Prefabricated Window Assembly U-value						
	Prefabricated Window Assembly SHGC						
	Area of Prefabricated Windows Installed (sq. ft.)						
	Site-Built Window Glazing U-value						
	Site-Built Window Glazing SHGC						
	Does window frame contain a thermal break (circle one)		YES		NO		
	Area of Site-Built Windows Installed (sq. ft.)						

REFLECTIVE ROOFING PRODUCTS (COOL ROOFS)

Measure Description: Cool roofs include a variety of paints, coatings, tiles and other materials applied to or incorporated into roof surfaces that reduce the amount of solar radiation absorbed by a facility’s roof. Cool roofing products have high solar reflectance and high radioactive emittance, which reduces solar gain of the roof and building, subsequently reducing the cooling load during warmer months. However, cool roof products may increase heating loads during cooler months.

Applicability: New construction and retrofit installations are eligible via a post-purchase application process.

Equipment Eligibility: Incentives are only available for low-slope roofs when the qualifying product is installed over mechanically cooled building space. Qualifying products must be purchased and installed, meet all other program terms and conditions, and comply with the ENERGY STAR® Reflective Roof Products requirements as follows:

1. For low slope roofs (Rise to Run Ratio ≤ 2:12): Initial solar reflectance ≥ 0.65 and must be ≥ 0.50 after three years.

For further information on Cool Roofs and for a list of qualifying products, visit: www.energystar.gov

Items to Submit with Application:

1. Dated sales receipt/invoice with install date and retailer/contractor name, address and phone number.
2. Manufacturer’s equipment specification sheet.
3. A copy of the manufacturer’s warranty statement.
4. A completed copy of Table 4, Reflective Roofing Products Information Table.
5. A current copy of the Pacific Power utility bill for the address where the item(s) are installed.

Pre-qualification Required? No.

<u>Equipment Code</u>	<u>Minimum Efficiency Requirement</u>	<u>Incentive</u>
COOLRF	ENERGY STAR qualified	\$0.10 / square foot

Table 4. Reflective Roofing Products Information Table
(Submit copy of table with application)

Customer Name		
Facility Address		
Facility City, State, Zip		
Net Roof Area (Include only roof area over mechanically cooled space, and exclude roof openings and equipment curbs)		
Existing Roofing Product		
Existing HVAC Equipment Type		
Existing HVAC Equipment Size (tons or BTU/hr)		
Reflective roofing product is installed over mechanically cooled building space (circle one)	YES	NO
Heating Source (Gas or Electric)		

REFLECTIVE WINDOW FILM

Measure Description: Window films are thin layers of polyester film that are typically applied to existing windows to reduce solar heat gain. Adding window films to existing windows reduces building heat gain and subsequently reduces the cooling load for the enclosed building space. The National Fenestration Rating Council certifies the SHGC and visible transmittance of window film products from participating manufacturers.

Applicability: Retrofit installations are eligible for incentives via a post-purchase application process.

Equipment Eligibility: Reflective window films must be professionally installed and the customer/contractor will be required to submit the square footage of film installed, performance characteristics of the existing window, applied window film specifications, and the orientation of the window (i.e., North, East, South or West). Incentives for window films are calculated based on square footage, window orientation and other system parameters at \$0.12/kWh annual energy savings and are subject to approval by Pacific Power. Window films must be installed in a facility that is cooled with mechanical systems, and must meet all other program terms and conditions.

Items to submit with application:

1. Dated sales receipt/invoice with install date and retailer/contractor name, address and phone number.
2. Itemized listing of window types, orientation, square footage, and film installed.
3. Manufacturer’s window film specification sheet.
4. A completed copy of Table 5, Windows Film Information Table
5. A current copy of the Pacific Power utility bill for the address where the item(s) are installed.

Prequalification Required? No. Prequalification is recommended, but not required to receive incentives. Contact your vendor or Pacific Power for more information.

Note: Pacific Power has a calculation software tool available for vendors participating in our Energy Efficiency Alliance (EEA) to calculate project-specific energy savings, project economics, and eligible incentives for window film projects. Visit our website at pacificpower.net/wattsmart for a current list of participating vendors.

Table 5. Window Film Information Table
(Submit copy of table with application)

Customer Name							
Facility Address							
Facility City, State, Zip							
Building Heating System Type (check one)				<input type="checkbox"/> Natural Gas Heating	<input type="checkbox"/> Electric Heat		
				<input type="checkbox"/> Heat Pump	<input type="checkbox"/> Other		
Building Cooling System Type (check one)				<input type="checkbox"/> Air Conditioner	<input type="checkbox"/> Chilled Water System		
				<input type="checkbox"/> Evaporative Cooler	<input type="checkbox"/> Other		
Existing Window Type (check one)				<input type="checkbox"/> Clear, Single Pane	<input type="checkbox"/> Low-e, Double Pane		
				<input type="checkbox"/> Clear, Double Pane	<input type="checkbox"/> Low-e, Triple Pane		
				<input type="checkbox"/> Clear, Triple Pane			
Shading Coefficient (SC) of Window Film							
Provide Square Footage of Window Film Installed based on Orientation of Window							
North:		Northeast:		East:		Southeast:	
South:		Southwest:		West:		Northwest:	

<u>Equipment Code</u>	<u>Measure Description</u>	<u>Incentive*</u>
WINDFI	Window Film	\$0.12 / kWh

*For assistance calculating the project savings and incentives, contact Pacific Power on our energy services hotline at 1-800-222-4335 or via e-mail to: ca.bldgenvelope@pacificpower.net. Energy savings are subject to Pacific Power approval.