Standard Performance Contract

Section 2:
Estimating Energy Savings and Incentives

2.3.4 Cool Roofs

A Cool Roof can be installed on an existing roof or installed as part of a renovation project involving the roof (Cool Roofs installed as part of a new construction project are not eligible as they are required by Title 24 energy code).

Roof must be flat or "low-slope" where rise is not greater than 2 inches of run in 12 inches of fall. Building must have electrically or natural gas engine-driven compression cycle or gas-fueled absorption and must not have a radiant barrier between the ceiling and the surface of the roof. Material must be applied over air-conditioned space only. Exposed HVAC ducting is eligible for Cool Roof application. Eligible products must have a minimum five-year manufacturer's warranty.

The estimating tool is based on the Department of Energy's "COOL ROOF CALULATOR". Data inputs for existing and proposed roofs include:

• **City -** From the pull-down menu, select a city that best represents the building location; this will, in turn, automatically select a weather zone. (The program uses the California

Energy Commission's CTZ weather data, which breaks up the state into 17 weather zones.)

• **R-Value -** Enter the total R-Value of the roof (including insulation, roofing material, dropped ceiling, and plenum space). R-Value is a rating based on a materials ability to resist heat flow. R-Values of typical roof insulations are listed by selecting the "Typical R-Value" button.

• **Solar Reflectance, SR (%) -** Enter the Solar Reflectance of the existing roofing material and of the proposed cool roof material. Solar Reflectance is the ratio of reflected solar radiation to the total radiation that falls on the surface (incident solar radiation). Values range from 0 for perfect absorbers to 100% for perfect reflectors. Solar Reflectance values of typical roof surfaces are listed by selecting the "Typical SR" button.

• **Infrared Emittance, IE (%) -** Enter the Infrared Emittance of the existing roofing material and of the proposed cool roof material. Infrared Emittance is a measure of a warm or hot materials ability to shed infrared heat. Values range from 0% to 100%. Infrared Emittance values of typical roof surfaces are listed by selecting the "Typical IE" button.

• **Air Conditioning Efficiency -** Enter the Engineering Units (kW/Ton, COP, SEER, or EER) and the efficiency value for the existing air conditioning system. Air Conditioner Efficiency is the measure of energy in (kW) divided by energy out (cooling).

• **Heating System Efficiency -** Enter the heating system source (fuel or electricity). If the source is electric then the estimation software assumes an efficiency of 100%. If the Heating is fuel then the user must enter the Seasonal Heating Efficiency also known as the AFUE (Annual Fuel Utilization Efficiency). AFUE is a measure of the percentage of heat from the combustion of gas or oil that is transferred to the space being heated during a year, as determined using the applicable test method in the Appliance Efficiency Regulations of paragraph 112. AFUE takes into consideration the additional energy required for the warm up periods during cycled operation.

• **Roof Area (sqft) -** Enter the roofing area in square footage. Include only areas that cover conditioned space. Areas not covering conditioned space are not eligible for incentives.