# ACC DESIGN GUIDELINE FOR ROOFING
# REVISED 1-31-2022

*Purpose: This guideline is established to ensure that roofs are in compliance with the Covenants, blend with their surroundings, and do not reflect nuisance levels of light into nearby properties. Project and site-specific considerations, and the negative impact of low reflectance values on energy efficiency will be considered in the context of the site and the spirit and intent of the Covenants. This guideline establishes standards for the selection and approval of roof colors and finishes.* **The types of roofing material currently being used in Sandia Heights include TPO, metal, tar/gravel, and rolled roofing. Other materials may be considered based upon their individual properties.**

***Authority: The SHHA Board formally recognized and adopted the ACC Design Guidelines (as contained in the ACC Handbook and on the SHHA website) as a "Community Document", thus becoming directly associated with the Sandia Heights Covenants (approved by Board motion, August 11, 2021).***

*The guidelines provide general standards only and the ACC reserves the right to deviate from them, as it sees fit, as dictated by site-specific considerations.*

1. **COLOR – NO WHITE:**
   a. White objects tend to stand out from, rather than blend with, their natural surroundings and are thus in conflict with Covenant restrictions. Many of the Covenants prohibit white roofs. Therefore, the ACC has adopted the Light Reflectance Value (LRV) and Solar Reflectance (SR) as standards to measure whiteness. LRV is used mainly for painted surfaces whereas SR is used with "green roof" and "cool roof" materials. The LRV and SR scales ranges from 0 (black) to 100 (white.) Dark colors tend to have an LRV or SR of less than 30. Light colors tend to have an LRV or SR of more than 70. Whites tend to have an LRV or SR of more than 90.
   b. Roofs that are exposed to view from nearby properties shall have a LRV or SR of 65 or less. A LRV or SR of 65 is comparable to a "tan" color.
   c. The ACC will also consider the visibility of a roof surface from neighbors in determining the acceptance of a roofing material. Roof reflectance should never influence neighbors in a negative manner.
   d. The LRV or SR of a roofing material can be verified by the paint or roofing material manufacturer's data sheets or by comparing a sample to standards maintained by the ACC in the SHHA office.
   e. At all times, in all instances, the inside of the parapets will be painted or stuccoed in the same color scheme as the outside walls of the home. In summary, the ACC will approve any roofing material with a LRV or SR value of approximately 0.65 (65%) or less. This value corresponds to a tan or darker color. A solar reflectance of 0.65 qualifies a roof for the Energy Star label, as defined by the USDOE, and significantly reduces the energy required to cool the home.

2. **GLOSS – NO HIGHLY REFLECTIVE FINISHES:**
   a. A high gloss finish has the potential to reflect nuisance levels of light into nearby properties. Gloss is a measure of the degree to which a surface functions as a mirror. The ISO and ASTM specular gloss scales include <10 (Flat) and >85 (High Gloss). In descriptive terms, the scale runs as follows:

| Description | Gloss |
|---|---|
| Flat (matte, velvet) | <10 |
| Eggshell (suede) | 10 - 20 |
| Satin/Silk | 20 - 45 |
| Semi-gloss | 45 - 65 |
| Gloss | 65 – 85 |
| High Gloss | 85 or higher |

   b. All roofing material shall have a "flat" or "low sheen" appearance. Finishes with a flat, eggshell, or low sheen designation are usually acceptable. Finishes with a semi-gloss or gloss designation are not acceptable. This gloss or sheen selection criteria especially applies to metal roofs. The gloss of a proposed material may be verified by the manufacturer's data sheets or by comparison to the standards maintained by the ACC in the SHHA office.

3. **SUMMARY DESIGN GUIDELINE:**
   a. Roofs that are exposed to view from nearby properties shall have an LRV or SR of 65 or less (indicative of a tan or darker color) and a specular gloss of 20 or less (indicative of a flat, matte, velvet, eggshell, or suede finish).
   b. Flat roofs that are screened by parapets and are not exposed to view from nearby properties shall have a LRV or SR of 90 or less and a specular gloss of 20 or less, where it can be demonstrated that a lower LRV or SR would have a significant negative energy impact.
   c. The color and gloss of proposed finishes may be verified by the manufacturer's data sheets or by comparison to standards maintained by the ACC in the SHHA office.

4. **OVERVIEW OF SOLAR REFLECTANCE PARAMATERS**

Choosing a suitable color and surface for a residential roof requires consideration of several conflicting and complex considerations. Color choice is affected by aesthetics, longevity and cost. A primary concern is heat load imparted to the dwelling. The ACC Guidelines were devised to allow the resident some flexibility in selection, while maintaining consistent and definable restrictions.

Several Figures-of-Merit are applicable to roof material. Unfortunately, these sound confusingly similar, but have very different meanings. In fact, they are often used interchangeably (and wrongly) by suppliers and contractors. The ACC has limited its Guidelines to address only those parameters that are easily understood and readily available from the material manufacturer.

The most often used material specifications are defined by:
**ASTM (American Society for Testing and Materials)**

SR Value, Solar Reflectivity, (0 black to 1.0 white), The fraction of incident radiation rejected. Also called “albedo”, may be expressed as % (.25 > 25)

SRI Value, Solar Reflectance Index, (0 black to 1.0 white), Measured by temperature rise of the surface rather than reflectivity, may be expressed as % (.25 > 25)

LRV Light Reflectance Value, (0 black to 1.0 white) is a color-specific reflectance measurement used for interior situations, painted surfaces or for comparison of different hues of the same material.

Glare and Sheen are reflectivity measured off-axis to access annoyance risk to adjacent observers and are rarely available to the retail buyer.

Of these, the SR value stated for a material is the most consistently and accurately measured parameter in data sheets provided by suppliers, therefore the ACC prefers this for its Guidelines. LRV is also usually reliable and can be used in some situations.

The ACC strictly prohibits white roofs primarily for reasons of aesthetics. This may seem in conflict with the environmental objective of minimizing heat load and air conditioning use. But the apparent advantage of a white roof is greatly reduced after exposure. ASTM data shows that after less than 3 years the SR of a white .95 roof is reduced to below .80, a medium tan. Also, the darker roof radiates more heat away after dark rather than conducting it to the understructure, resulting in a reduced 24 hr. total heat load, further lessening the advantage of the white surface.