



SMART Brief

T E C H N I C A L B U L L E T I N

DATE: 25 April 2012 **No:** SB-24-120425-Rev-112613
TO: Contractors & Distributors **Page** 1 of 1
FROM: Metro Technical Services Division
SUBJECT: **Above Sheathing Ventilation (ASV) Equivalence to 25% Solar Reflectance & Emittance**

Metro stone-coated steel roof panels (MetroTILE®, MetroSHAKE® or MetroROMAN®), installed direct to deck create a 1-inch (ASV) air space above the roof deck and provide the same seasonal cooling load equivalent to a roof with cool colors (25% solar reflectance), irrelevant of the Metro roof color.

The Oak Ridge National Laboratory (ORNL) study, “**The Tradeoff Between Solar Reflectance and Above Sheathing Ventilation for Metal Roofs on Residential and Commercial Buildings**,” by W. A. Miller Ph D., E. Herman & R. Graves, Dated January 2012, which states in part, Section 4., 1st bullet, Pg-35 the following;

“• Task 1A: Solar Reflectance needed for a steep-slope roof fitted with ASV to match the load of a SR 0.25 cool roof attached directly to the deck.

....a stone coated metal fitted with 0.75 in. (0.019 m) air space can both be black and still have a seasonal cooling load within 0.05% of the conventionally constructed cool-color (solar reflectance of 0.25) metal roof. Computations for retrofit application based on ASHRAE 90 (1980) shows ASV air spaces of 0.75 and 1.5 in. (0.019 and 0.038 m) would permit black roofs to have cooling loads equivalent to the direct to deck cool roof.”

Additional benefits of the ASV detail are fully explored and summarized in the report under Section 5., Recommendations, Pg-37, Para; 2., that can be downloaded using the following link. http://www.metroroofs.com/images/ASV_SolarReflectance.pdf

Metro Stone-Coated Steel Panels – EMITTANCE Performance (ASTM C 1371)

| METRO PRODUCT / COLOR | REFLECTANCE | EMITTANCE | | METRO PRODUCT / COLOR | REFLECTANCE | EMITTANCE |
|-----------------------|-------------|-----------|--|-----------------------|-------------|-----------|
| Aspen-71 | 0.31 | 0.93 | | Beechwood-25 | 0.15 | 0.94 |
| Birch-II-31 | 0.09 | 0.93 | | Blue-32 | 0.09 | 0.96 |
| Cedar-34 | 0.09 | 0.93 | | Charcoal-36 | 0.04 | 0.97 |
| Driftwood-CC-37 | 0.25 | 0.90 | | Mission Gold-CC-43 | 0.24 | 0.92 |
| Mission Red-45 | 0.14 | 0.96 | | Oak-CC-47 | 0.25 | 0.93 |
| Pearl White-ES-70 | 0.41 | 0.95 | | Sage Green-50 | 0.06 | 0.93 |
| Shadow Wood-51 | 0.04 | 0.92 | | Terra Cotta-55 | 0.12 | 0.94 |
| Walnut-60 | 0.06 | 0.92 | | Weather Slate-68 | 0.07 | 0.94 |
| Weathered Timber-65 | 0.08 | 0.95 | | | | |

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