

6. CONCLUSION

- 6.1 With the rising concerns for UHI, alternatives solutions have been consistently developed to tackle this issue. *PerfectCool* coatings have been identified as one of the new technologies with the ability to effectively combat against the built-up of heat in urbanized areas.
- 6.2 *PerfectCool* coatings were found to have low reflectivity in the visible light region, yet are highly reflective in the NIR region (up to 81%). This means that although *PerfectCool* coatings are dark in color, they are able to break away from conventions, and be able to reflect 80% of the incoming heat.
- 6.3 By reflecting 80% of the incoming heat, the surfaces of the pavements with *PerfectCool* coatings become much cooler. This is clearly demonstrated in the on-site measurements. The surfaces coated with *PerfectCool* coatings recorded significantly lower surface temperatures when compared to their counterparts; *PerfectCool* coatings surface temperatures were 10°C lower than the conventional asphalt road. With a lowered surface temperature, lesser heat is expected to be absorbed and retained within the pavements. On-site measurement results have affirmed this notion (see Annex D).
- 6.4 *PerfectCool* coatings were also able to make users feel much cooler. Through the sensory survey conducted, all the participants were able to feel the benefits of *PerfectCool* coatings, and have voted that they felt much cooler when they stood on *PerfectCool* coatings.
- 6.5 Energy simulation has demonstrated the possible reduction in total electrical consumption through the application of *PerfectCool* coatings was up to 4.88%, with chiller loads reduced up to 7.69%. With the rise in the cost of natural resources, this reduction is able to translate into monetary benefits.

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- 6.6 As surfaces retain lesser heat, the damaging effects of UHI are mitigated, as lesser heat is release back into the environment during the night, making nights that much cooler.

- 6.7 Other benefits of a lowered surface temperature include increasing durability and lifespan of the road, lowering construction cost of roads through the selection of cheaper grades and thinner layer of asphalt, and eventually improving the life-cycle cost of construction of such roads.

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