

The information in this document is a generic guideline to help facilitate the requirements needed for the application of *RCC Surface Pro* in conjunction with roller compacted concrete paving. These guidance notes do not supersede any formal written specification provided by an architect or project engineer. Please contact Solomon Colors to clarify any areas of uncertainty prior to bidding a project or physical application and placement.

The following criteria is based on one paving machine. Should multiple pavers be used then multiply the information accordingly.

PAVER AVERAGE PLACEMENT EVALUATION

Paving Width	25ft wide
Speed of Paver	6 - 8ft per minute
Cubic Yards Per Day	400 - 1500 yd ³ per day

LABOR REQUIREMENTS

Trowel Operator	Skilled trowel operator
General Labor	2 People to manage <i>RCC Surface Pro</i> Application

EQUIPMENT & TOOLS

Troweling Equipment	Ride-on-Trowel (<i>With Steel Pans</i>)
Trash Pump & Hose	High volume spraying system
Concrete Broom	Standard Concrete Broom (<i>If specified</i>)

NOTE: With all equipment there is a risk of breakdown, therefore backup equipment is recommended .

CONSIDERATIONS:

Our experiences with manufactured sands have been subjective and in some cases more difficult to work with. The moisture demand will need modification toward the higher range of the optimum levels. Samples should be tested prior to ensure the manufactured sands are workable to the desired finish. More suitable for finishing are regular concrete sands.



RCC Regular



RCC Smooth Finish



RCC Broom Finish

LISTENING HELPED FIND A SOLUTION

With more than two years of research and development both in the testing lab and more importantly actual projects in the field. The initial research was based around adding function and durability to roller compacted concrete. Listening to engineers and contractors the surface of roller compacted concrete was brought into question on many occasions. Therefore it was a natural fit to adapt our chemistry to assist in providing a better surface.

The surface finishing of roller compacted concrete was the easy part. More challenging was developing a system that would work within the existing parameters of RCC. Reviewing time and motion studies to analyze productivity, labor, additional equipment and cost was the next step to evaluating how *RCC Surface Pro* can bring additional value to a well-established industry.

THE CHEMISTRY & HOW IT WORKS

Many papers have been written about the research regarding the addition of silica and pozzolans in concrete. The results offer a wide spectrum of advantages when compared to standard concrete, depending on concrete mix-design, additive type, percentage, and application.

At the heart of *RCC Surface Pro* is a proprietary blend of nano-silica, with reactive emulsions suspended in water. This carefully balanced chemistry yields highly targeted results when applied to the surface of concrete. *RCC Surface Pro* becomes a natural pozzolan and binder. It reacts with calcium hydroxide through hydration, turning it into additional calcium silicate hydrate. The result is a more hardened and crystalline cement paste, with reduced capillaries throughout the surface.

ADDING WATER IS BAD, RIGHT

It may be concerning to see one gallon of what appears to be water (*RCC Surface Pro*) applied over 100 to 200 square feet of roller compacted concrete, increasing the water to cement ratio and weakening the surface. However, the exact opposite is occurring. *RCC Surface Pro* is a colloid, with the water acting as a catalyst that initiates the chemical process when troweled into the surface. The water is consumed by the nano-silica particles, this activates the chemical reaction for the accelerated hydration process that is natural to concrete.

CONCLUSION

Overall our findings have been that *RCC Surface Pro* extends a wide range of value engineered benefits for roller compacted concrete. Additional durability, function, aesthetics and now with a cost effective method of applying color to the surface. *RCC Surface Pro* represents a new dimension with potential opportunity for the use of RCC.

