

Roller Compacted Concrete

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Roller compacted concrete roadway surfacing.

Photo Source: Southeast Cement Association

Traffic Range:

No limitations on traffic volume. RCC is normally limited to low speed traffic applications (less than 60 km/hr [37 mph]).

Life Expectancy:

20 to 30 years.

Unit Price:

Material & Installation: \$55 to \$70/m³ (\$46 to \$59/yd³).

Appearance:

RCC has a relatively rough texture and light gray color. The surface color can be modified using pigments or stains.

Advantages:

Does not require steel reinforcement, joints, dowel bars, or forms; Lower cost and shorter construction time than conventional PCCP.

Limitations:

Traditionally, limited to low speed applications due to poor ride quality and poor to marginal skid resistance. Improvements have been achieved by using high density paving machines.

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Product Description: Roller compacted concrete (RCC) is constructed by compacting zero-slump Portland cement concrete that has been placed using traditional asphalt paving equipment. RCC does not require steel reinforcing, joints, dowel bars, or forms. RCC possesses most of the benefits of conventional Portland cement concrete, but has a lower cost and shorter construction time.

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RCC surfacing.

Photo Source: Southeast Cement Association



RCC construction.

Photo Source: Southeast Cement Association

Stamped PCCP

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Stamped PCCP entranceway.

Photo Source: Golder
Associates Inc.

Traffic Range:

Typical AADT < 1,200.

Life Expectancy:

30 to 40 years for PCCP. 3 to 5 years for color coating.

Unit Price:

Material & Installation: \$70 to \$86/m²
(\$58.50 to \$72/yd²).

Appearance:

Stamped PCCP can be imprinted with various different patterns (e.g. brick, slate, flagstone, tile, stone, etc.) and numerous colors are available to choose from.

Pros:

Appearance can be selected to fit surrounding environment; Surface can be constructed to resemble expensive and decorative surface types at a lower cost.

Cons:

Higher initial cost than conventional PCCP; Imprint pattern can reduce ride quality and, in some cases, may reduce skid resistance.

Product Description: For stamped portland cement concrete (PCC), the surface of freshly poured PCC is patterned to resemble brick, slate, flagstone, tile, stone, or other traditional materials. The stamped concrete surface is covered with a coating product consisting of cement-modified acrylic resins and/or epoxy-based polymers and a blend of aggregates.

Stamped PCCP

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Various Stamped PCCP textures and colors.

Photo Source: Decorative-Concrete.net



Stamped PCCP surfacing.

Photo Source: Increte Systems Inc.

Stamped PCCP

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Stamped PCCP surfacing.

Photo Source: Increte Systems Inc.



Stamped PCCP surfacing.

Photo Source: FHWA-CFLHD

Whitetopping

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Whitetopping roadway surface.

Photo Source: Golder
Associates Inc.

Traffic Range:

No limitations on traffic volumes.

Life Expectancy:

20 to 30 years for conventional whitetopping. 5 to 15 years for UTW.

Unit Price:

Material & Installation: \$15.50 to \$19.10/m² (\$13.00 to \$16.00/yd²) for UTW; \$24.00 to \$32.30/m² (\$20.00 to \$27.00/yd²) for thin whitetopping.

Appearance:

Whitetopping typically has a smooth surface texture and light gray color. Appearance of UTW is characterized by fairly closely spaced joints.

Advantages:

Durable; Good ride quality; Excellent skid resistance.

Limitations:

High initial cost; UTW is relatively new technology.

Product Description: Whitetopping is a pavement rehabilitation technique that involves construction of a portland cement concrete (PCC) overlay on top of hot asphalt concrete pavement (HACP). Three different types of whitetopping are commonly used in construction: conventional whitetopping, thin whitetopping, and ultrathin whitetopping (UTW).