**What is Roller Compacted Concrete (RCC)?**

* It’s a no slump concrete compacted by high density pavers and vibratory rollers.
* No reinforcing steel
* No forms
* No finishing
* Consolidated with vibratory rollers

**3D - Why Roller Compacted Concrete (RCC)?**

- Reduced construction time
- Early strength gain
- Cost-effective
- Open to traffic shortly after placement
- Durable - resistant to cracking and pushing
- No rutting or pot holes
- Long pavement life
- Minimal maintenance required
- Resistant to hydraulic fluid and fuel spills
- Will not soften under high temperatures

**When should the choice be Roller Compacted Concrete (RCC)?**

RCC is most effective when used on projects that

* Are the right project size (rule of thumb is 5000 CY or more)
* Have the right geometry (straight pulls)
* Proper loading capacity (RCC is good for adding structural capacity in HEAVY loading)
* The user knows what to expect in the end (the end result is not a slick slab-like surface)
How is RCC being used?

- Improve Structural Capacity of Existing Roadways
  - Lift thickness limitations
  - Drop-off limitations
  - Maintenance of cross-traffic
  - Construction speed

- Use RCC as base under asphalt
  - Success with Cement Stabilized Aggregate Bases

Why are other DOT agencies using RCC?

- Stimulate competition
  - Lower cost to the taxpayer

- Expand the portfolio of pavement types available
  - Price run-up of asphalt binder
  - Uncertain petroleum supply in future

- Concrete pavement at an initial price competitive with HMA

Roadway Applications for Roller Compacted Concrete (RCC)?

- Composite Pavements
- Turn lanes
- Interstate shoulders
- Lower Volume/Local Roads
The aggregate blending properties are set through the use of variable height, position and speed belts. The percentage of each aggregate utilized in the design mixture was adjusted until the design grading curve was met.

The materials were mixed at the correct amounts and optimum moisture in a continuous pugmill. The mix was discharged from the plant directly into end dump trucks, which in turn delivered the mix directly to the placement location.
And so construction begins!

Unsuitable material resulted in rebuilding the base.
One 10" lift of RCC was placed using a high density paver that produced a initial density of 90% or greater. RCC elevation was controlled using electronic grade controls sensing string lines. Compacted edges through edging shoes. Final compacted surface with dual drum rollers. Contract joints were sawn at a maximum of 15' intervals and as early as possible to reduce the chance of random cracking. The RCC pavement was cured applying a water and wax based white pigmented curing compound to the exposed surface. The curing compound is applied to the RCC pavement while it is still wet. Diamond Grinding for Rideability.
What about the not-so-straight pulls (AKA the ramps)?

Common Questions

- Strength
  - Design - 5000 psi @ 28 days
  - Actual - 4788 psi avg @ 7 days; 5938 avg @ 28 days
- Production?
  - McAshan was a small pilot project with less than 10,000 SY set-up
  - Using a continuous pugmill, production can range from 250 to 900 tons/hr
  - A crew can place 1000 to 2000 SY per shift
- How much does it cost?

LOCATION  | RCC THICKNESS (IN) | BID QUANTITY (CY) | BID PRICE / SY | BID PRICE / SY / IN
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US 78 Aiken Co. | 10 | 27,050 | $29.93 | $2.99
Lexington / Richland Co. | 10 | 51,500 | $33.60 | $3.36
Crossgate Rd | 10 | 4,000 | $66.00 | $6.60 **
I-385 Lauren Co. | 10 | 135,387 | $22.00 | $2.20
I-385 Greenville Co. | 8 | 54,957 | $21.85 | $2.73
SR 6 – Powder Springs | 7 | 16,500 | $28.78 | $4.11
I-285 Atlanta | 6 | 20,000 | $17.75 | $2.95
| 8 | 18,500 | $23.67 | $2.95
McAshan Dr - Bessemer | 10 | 2,702 | $95.83 | $9.58 **

*Prices cited are very competitive when the market is levelled.
QUESTIONS?