




**Matthew Munsick** has been a member of Morgan Corporation for fifteen years. In that time he has managed industrial, commercial, residential, environmental, and heavy highway civil construction projects. Prior to joining the Morgan team he was employed by a General Contractor based out of Atlanta, GA that constructed multi-family structures, high rise buildings, and commercial buildings. His experience spans many different facets of construction in a variety of environments with an array of material and equipment knowledge. Matthew holds a Bachelor of Science Degree in Business Management from the University of South Carolina-Upstate. Mr. Munsick has been at the forefront of construction technologies for Morgan Corporation in the fields of Global Positioning System applications for site construction, the successful installation of bottomless culverts, custom material screening operations, soils and aggregates processing. Recently, Matthew has been charged with developing a new Cement Products Division for Morgan Corporation that includes Pavement Rehabilitation and Recycling, Roller Compacted Concrete for pavements and structures, and Cement Treated Bases.



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## The Contractor's Perspective on Roller Compacted Concrete

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## History of RCC



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Heat island effect reduced, sustainable, less lighting

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## Methods for Successful Construction

- Suitable Materials and Proper Handling
- Appropriate Plans and Specs
- Qualified Contractors
- Capable Equipment
- Competent team (Engineer, Contractor, and QC)
- Realistic Construction Plan



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## "The Right Specs for the Job"



1. **What are we building?**  
Dam, Base, Pavement (road or hardstand)
2. **Do the specs address the environmental and logistical conditions?**  
Plant location, Material delivery, Weather
3. **What conflicts are there?**  
Phasing, Schedule, Utilities
4. **Who is responsible for QC and are they familiar with the project and material?**

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**Material Selection:**

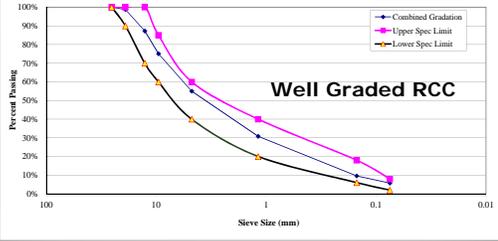
Aggregates need to be of good quality:  
 Low LA • Sound • High Angularity • Low SSD  
 Well Graded • Fine Aggregates are Critical  
*Prevent segregation through handling*



Cement needs to be of good quality  
 Look for consistent chemistry  
 Water needs to be free of deleterious materials  
**Suppliers are important!**

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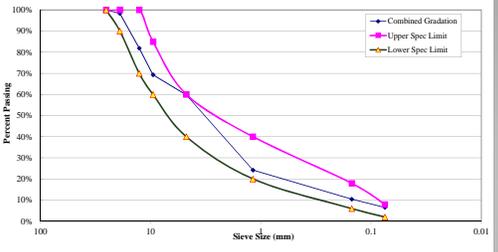
- Aggregate selection very important!
- Responsible for mix workability, segregation, ease of consolidation, strength, and finish
- Geology, soundness, and angularity all affect the mix



Well Graded RCC

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**Gap Graded RCC**

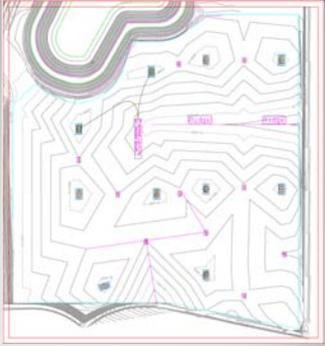


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Is RCC the right tool for the job?

Make a pull plan!

Geometry can greatly affect production and quality



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**Pull Plan**

Take into consideration:

- >Contours
- >Structures
- >Productions (joints)



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**Joints:**

- ✓ Construction
- ✓ Fresh
- ✓ Cold
- ✓ Isolation

Each have their own characteristics and place and must be constructed accordingly. A pull plan will help greatly.

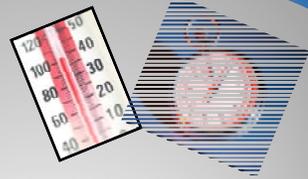


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**Joints**

- Construction
- Fresh
- Cold
- Isolation

- 1) Maintain moisture
  - Through wetting or cover with plastic
  - Be careful to keep moist, but do not wash paste off (fresh)
- 2) Keep contaminants from washing on the joint
- 3) Do not overlap the screed too much on existing mat.
- 4) Watch the time, weather, and temperatures



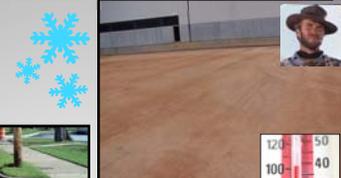
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**Subgrade and Base Prep**

- ✓ Uniform
- ✓ Free draining
- ✓ Homogenous
- ✓ Compacted
- ✓ Not frozen



Good Bases:

- Stabilized Soils
- Aggregate
- Uniform SM or SC material
- Low PI Soils



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**RCC Quality Control**

- > SUBGRADE
- > ASTM D 1435 (RCC CYLINDERS)
- > ASTM C309 or ASTM C 171 (CURING)
- > ASTM D 1557 (DENSITY)
- > WEATHER CONDITIONS
- > STOCKPILE MANAGEMENT
- > GRADE CONTROL
- > PLANNING



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**Test Sections**

*Why are they important?*

- ✓ Test the equipment in production mode
- ✓ Check the QC equipment
- ✓ ★ Establish the roll pattern ★
- ✓ Verify production mix matches design
- ✓ Shows the client the product on their site
- ✓ Perform before production



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**Compaction-Finishing**  
Critical for:

- >Strength
- >Aesthetics
- >Smoothness
- >Permeability
- >Use an appropriate compactor
- >Do not over roll!
- >Stay with the roll pattern
- >Maintain moisture



Other compactors can be useful also.

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**QC, Curing, & Finishing**

- One points, moisture checks
- Take densities often
- Make enough cylinders
- Maintain moisture
- Cure and cut control joints as soon as possible





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**Cores VS Cylinders**




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- Communicate the construction plan when **TEST PAD** is constructed
- Have an established QC plan before Construction!
- Testing procedures similar for embankment construction.
- Curing methods are accomplished by wet curing or a membrane application.




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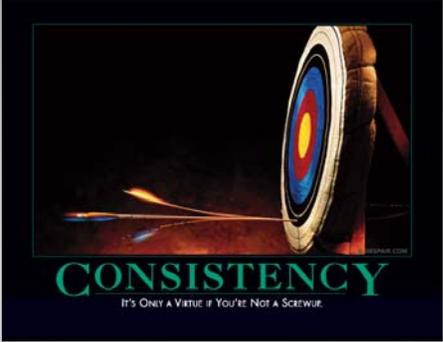



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**CONSISTENCY**  
It's Only A VIRTUE if You're Not A SCRAWL.

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QUESTIONS?



Thank you, *Matt Munsick*  
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