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Hot Mix Asphalt Production and Placement Best Practices for Airports

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Topics to be Covered

- What makes a good hot mix asphalt pavement
- The Asphalt Plant – Process Control and Quality Control
- Placement Techniques
- The End Result
- Recommendations for improvement

What makes a good hot mix asphalt pavement

- Mix Design
- Quality Aggregates
- Performance Graded Asphalt Cement
- Constructability (aggregate availability, mix properties, drainage)
- Performance
- Durability (air voids, asphalt cement, stability)

The Asphalt Plant

- Process Control – Plant Testing of Aggregates and Plant Mix (Checklist)
- Quality Control – Field Testing and Sampling by Contractor and Consultant
- Asphalt Cement Grade – Clean Tanker, Verification of Properties
- Loading Trucks

Placement Techniques

- Shuttle Buggy (MTV) – consistent mat temperature
- Echelon Pavers
- Breakdown Roller, Rubber Tired Roller, Finish Roller
- Establish rolling pattern for compaction (calibrate)
- 3 passes then off (**do not over-roll)**

Placement Techniques – cont'd

- Joint treatment (**See Vince!!**) – sawcut joints, stagger transverse joints
- Sawcut longitudinal joint after completion before next day's production
- If no MTV
- Avoid segregation
- Do not dump paver wings, no re-spread of mix, load truck properly

The End Result

- The hot mix test report
- Interpretation (what is important?)
- Air voids, A.C., stability
- Gradation irritation! Fixation on the asterisk
- Appearance of the mat (even mat)
- Compaction results
- What do the numbers really mean?
- Get a qualified pavement engineer to assess variations

Recommendations for Improvement

- Tolerances for aggregates and A.C. can be improved (specifying or tightening up the tolerances do not always equate to a better mix)
- OPSS tolerances – lower and surface course tolerances
- Tolerances for asphalt cement (-0.3% to +0.5%)
- Variances do not always mean there is a problem with the mix

Recommendations for Improvement

- L.A. Abrasion vs. Micro-Deval (the debate continues)
- Frictional characteristics of shield aggregates vs. traprock
- The aggregate resource dilemma
- Slope vs. tolerances (.5% fall means ponding) 5mm in 4.5 m

Recommendations for Improvement

- Superpave – is it time for airports?
- BRD variances for traprock mixes and metamorphic rock
- Investigate local commercially available aggregates