
Purdue Road School
March 07, 2012
Brad Cruea, Milestone Contractor’s LLC
M. Dudley Bonte, Rieth-Riley Construction
How do you assure yourself of a quality pavement?
The “Blue” Book

- Materials
- Methods of construction
- Equipment
- Pay methods
- Acceptance methods
- Test methods (ASSHTO, ITM’s, Other)

www.in.gov/indot
Standards & Specifications
Common HMA References in Standard Specifications

• Section 304-Asphalt Bases
  — Widening
  — Patching
• Section 306- Milling
• Section 400 – Asphalt Pavements
• Section 600-Incidental Construction
  — Sidewalks, Curbing, Approaches, Underseal
• Section 900-Materials Details
Section 400-
Asphalt Pavement

- Sec. 401- QC/QA HMA Pavement
- Sec. 402-HMA Pavement
- Sec 403-CMA Pavement
- Sec 404-Seal Coat
- Sec. 405-Prime Coat
- Sec. 406-Tack Coat
- Sec.407-Dust Palative
- Sec. 408-Sealing Cracks & Joints
- Sec. 409- Equipment
- Sec. 410- QC/QA SMA Pavement
Sec. 902
Asphalt Materials

- PG Binder Grades
- Tack
- Seal Coats
- Test Methods
- Approved Supplier Certification Program (ASC)
Sec. 904
Aggregates (for HMA)

- Quality
- Types (Gravel, limestone, slag, dolomite)
- Sizes
- Test Methods
- Fine and Course
- Skid Resistance (surfaces)
- Traffic Levels (ESAL)
- Certified Aggregate Producer Program (CAPP)
Let's take a closer look at the 400 Section
ABC’s of HMA
Section 400-Asphalt Pavements

• 401-QC/QA HMA Pavement
• 402-HMA Pavement
• 410-QC/QA HMA Surface-SMA Pavement
401-QC/QA HMA Pavements

- Materials (Asphalt, Aggregates, Recycled Materials)
- Certified HMA Producer Program
- Approved Mix Design Labs (AMRL)
- Design Criteria
- Construction requirements
- Acceptance (2 methods-PWL & Sublot basis-mix and density)
- Pay Items
Mixture Types - QC/QA HMA Pavement

- Item Description
  - QC/QA HMA, ___, ___, ___, ___ mm

  **ESAL Category (Traffic)**
  **Binder Grade (PG high temp.)**
  **Course (layer)**
  **Aggregate Size (NMAS)**

- QC/QA HMA, 2,64, intermediate, 19.0 mm

  **ESAL Category 2**
  **PG64-22**
  **Intermediate Course**
  **19.0 mm NMAS**

Sec 401
Possible JMF Combinations
Which to choose?

- ESAL Categories -5
- PG Grades (Incl. RAP) -6
- Courses -3 (base, intermediate, surface)
- Sizes(mm) –25.0, 19.0, 12.5, 9.5, 4.75, OG 25.0, OG 19.0
402-HMA Pavements 
(generally small quantities)

- Materials (Asphalt, Aggregates, Recycled Materials, same as 402)
- Certified HMA Producer Program
- Approved Mix Design Labs (AMRL)
- Design Criteria
- Construction requirements
- Equipment
- Acceptance (Type D certification)
- Pay Items
## Sec. 402 Mixtures

<table>
<thead>
<tr>
<th>Mixture</th>
<th>Type A</th>
<th>Type B</th>
<th>Type C</th>
<th>Type D</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESAL</td>
<td>200,000</td>
<td>2 Million</td>
<td>9 Million</td>
<td>11 Million</td>
</tr>
<tr>
<td>≈ AADT</td>
<td>4000</td>
<td>4000-15,000</td>
<td>15,000-30,000</td>
<td>&gt;30,000</td>
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<tr>
<td>Surface</td>
<td>12.5, 9.5, 4.75 mm</td>
<td>12.5, 9.5, 4.75 mm</td>
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<tr>
<td>Interm.</td>
<td>9.5, 12.5, 19.0, 25.0 mm</td>
<td>9.5, 12.5, 19.0, 25.0 mm</td>
<td>9.5, 12.5, 19.0, 25.0 mm</td>
<td>9.5, 12.5, 19.0, 25.0 mm</td>
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<tr>
<td>Base</td>
<td>19.0, 25.0 mm</td>
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</tr>
<tr>
<td>Surface</td>
<td>PG 64-22</td>
<td>PG 64-22</td>
<td>PG 70-22</td>
<td>PG 70-22</td>
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<td>PG 70-22</td>
</tr>
<tr>
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## Specification Comparison

<table>
<thead>
<tr>
<th>Requirement</th>
<th>401</th>
<th>402</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified HMA Plant</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Certified CAPP Aggregates</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Asphalt Supplier Certification Program</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Certified HMA Technicians</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Plant Quality Control Plan –QCP (ITM 583)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Job Quality Control Plan (ITM 803)</td>
<td>✓</td>
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<tr>
<td>Mix design by approved design lab</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Approved mix design (JMF)</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Certified HMA Field Supervisor (ITM 803)</td>
<td>✓</td>
<td>✓</td>
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<tr>
<th>Acceptance procedures</th>
<th>401</th>
<th>402</th>
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<tbody>
<tr>
<td>Per cent within limits (PWL)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Plate sampling &amp; testing by Agency (INDOT lab)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Density testing by cores (INDOT lab)</td>
<td>✓</td>
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</tr>
<tr>
<td>Incentive /disincentive pay based on volumetric properties and cores</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Contractor quality control tests (per QCP)</td>
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<td>✓</td>
</tr>
<tr>
<td>Type “D” certification</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Density control by “methods specification” i.e. roller patterns</td>
<td></td>
<td>✓</td>
</tr>
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No need to reinvent the wheel

Asphalt Pavement Association of Indiana