Construction of Asphalt Pavements
Topics

Production

Selection of Materials
Preparing Mix Design
Properly Storing Aggregate
Properly Drying Aggregate
Adding Binder and Mixing

Transportation

Timely Delivery
Match Paver Speed

Laydown

Proper Thickness and Crown
Proper Density at Screen
Proper Size and Type of Rollers
Proper Vibration Frequency
Proper Rolling Pattern
Asphalt Plants

Batch Plant

Drum Plant
Material Flow

(Taken from The Asphalt Institute Manual ES-1, Second Edition)
Material Stockpiles
Covered Stockpiles
Mix Production Costs

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depreciation</td>
<td>$1.24</td>
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<tr>
<td>Maintenance</td>
<td>$1.13</td>
</tr>
<tr>
<td>Labor</td>
<td>$1.79</td>
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<tr>
<td>Energy/Drying</td>
<td>$2.87</td>
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<tr>
<td>Electric Power</td>
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<tr>
<td>Equipment</td>
<td>$0.97</td>
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<tr>
<td>Aggregate</td>
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<td>Asphalt</td>
<td>$20.57</td>
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<tr>
<td>Other</td>
<td>$0.44</td>
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<tr>
<td>Total</td>
<td>$40.31</td>
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</tbody>
</table>

![Pie chart showing cost distribution]

National Center for Asphalt Technology

CIVL 4155/6155
Batch Plant
Cold Feed Bins
Aggregate Dryer
Dryer Cutaway
Mixing Tower Cutaway

(Taken from The Asphalt Institute Manual ES-1, Second Edition)
Screen Deck & Hot Bins

(Taken from The Asphalt Institute Manual ES-1, Second Edition)
Pugmill Mixer

(Taken from The Asphalt Institute Manual ES-1, Second Edition)
Typical Mixing Cycle

1. Aggregate enters pugmill from weigh box
2. Asphalt cement enters pugmill from spraybar
3. Aggregate and asphalt cement are mixed
4. Finished mix discharged through pugmill gate
5. Pugmill gate closes to receive the next batch
Storage

SLAT CONVEYOR
Drum Plant
Batch Plant
Drum Plant
Parallel-Flow Drum Plant

(Taken from The U. S. Army Corps of Engineers Hot Mix Paving Handbook)
Counter-Flow Drum Plant

(Taken from The U. S. Army Corps of Engineers Hot Mix Paving Handbook)
Double-Drum Plant

(Taken from The U. S. Army Corps of Engineers Hot Mix Paving Handbook)
Double-Drum Plant

(Taken from The ASTEC Double-Barrel Brochure)
Double-Drum Plant

(Taken from The ASTEC Double-Barrel Brochure)
Portable Drum Plant
Hot Mix Asphalt Paving
Paving Train
Asphalt Paver

- Hopper
- Side Arm
- Screed
Asphalt Paver

Screed

Hopper

Side Arm
Paving Machine

Source: PTC Pavement Guide Interactive
Paving Machine

Source: PTC Pavement Guide Interactive
Paving Train
Material Transfer Device
Asphalt Compaction

![Graph showing asphalt compaction efforts vs. mix temperature in °C. The graph indicates three temperature ranges: favourable compaction temperature, start of compaction, and end of compaction.](image-url)
Asphalt Compaction

Screed
Breakdown Roller
Intermediate Roller
Finish Roller
Traffic
Asphalt Compaction
Asphalt Compaction
Asphalt Compaction