

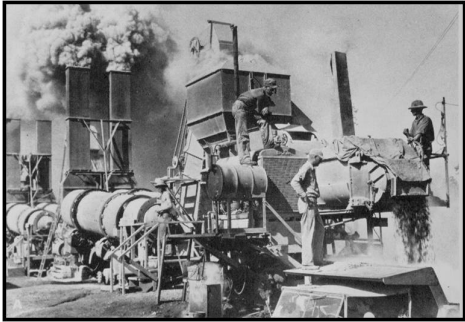
**Construction of Quality Hot Mix Asphalt Pavements - 1 Day Course** asphalt institute




**PLANTS & PRODUCTION**



**Bob Horan, P.E.**  
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**Mechanicsville, Virginia**

**Early Asphalt Plant** asphalt institute



**Plants and Production** asphalt institute

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**Basic Functions of Plants** asphalt institute

- Store component materials
- Combine aggregates in proper proportions
- Heat and dry aggregates
- Add and mix liquid binder in proper proportions
- Coat aggregates uniformly
- Store mixture and load trucks without segregation

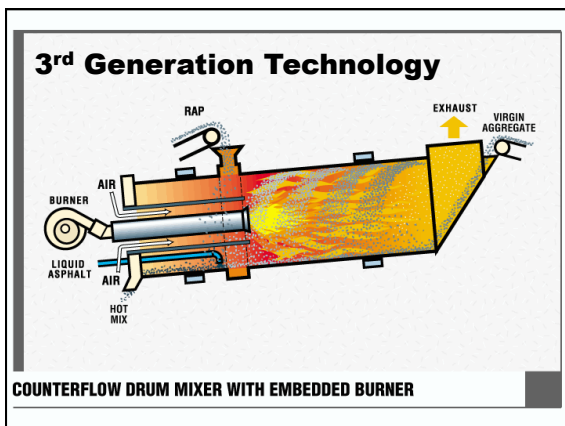
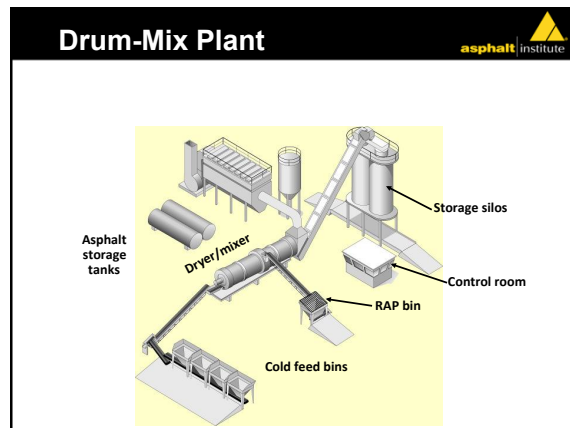
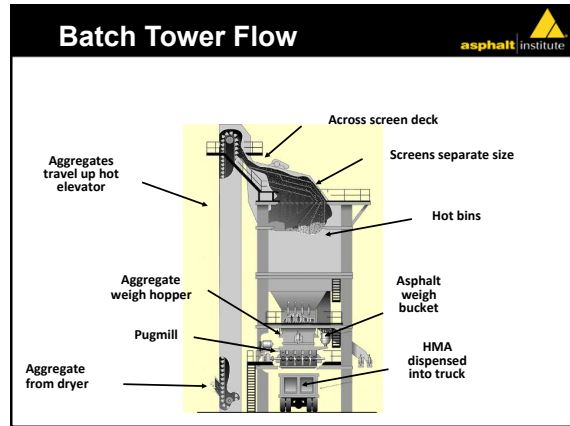
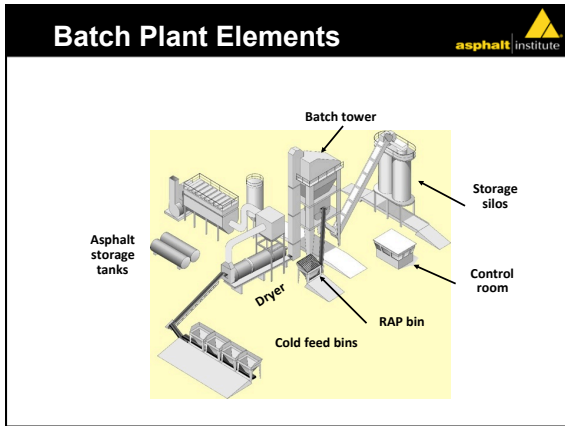
**Reproduce the mix design !**

**Types of Facilities** asphalt institute

- Batch
- Continuous (drum-mix)
- Combination



**Batch Plant**



### Batch or Drum-Mix?

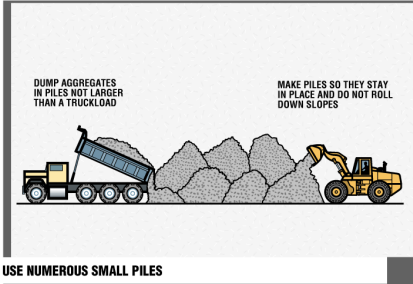
<p><b>Batch Plant</b></p> <ul style="list-style-type: none"> <li>• More versatile</li> <li>• More expensive</li> <li>• Static weighing</li> <li>• Semi-permanent</li> </ul>	<p><b>Drum Plant</b></p> <ul style="list-style-type: none"> <li>• Less expensive</li> <li>• High output</li> <li>• Weighs moving, wet aggregate</li> <li>• More portable</li> </ul>
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- Both make quality mix
- Choice based on business decision

### Basic Plant Functions

- Store Component Materials

### Horizontally Stockpiled Aggregate




DUMP AGGREGATES IN PILES NOT LARGER THAN A TRUCKLOAD

MAKE PILES SO THEY STAY IN PLACE AND DO NOT ROLL DOWN SLOPES

USE NUMEROUS SMALL PILES


### Stockpile Contamination



### Avoid Contaminated Material




### Paved & Sloped Area

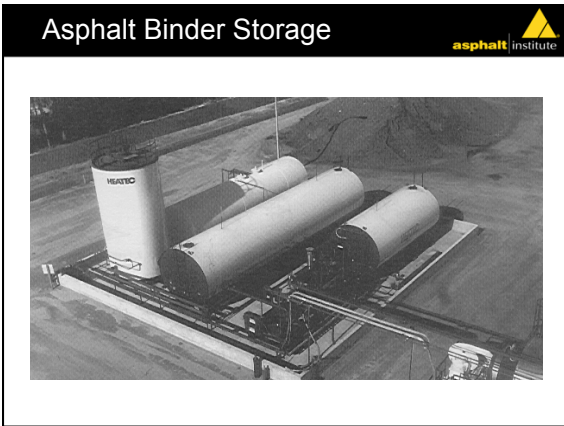


PAVED, SLOPED STOCKPILE AREAS SAVE MONEY

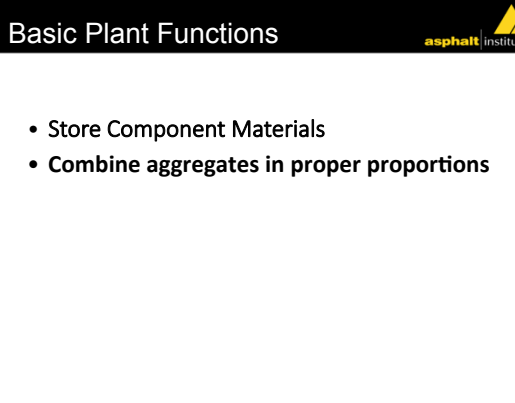
### Covered Stockpiles



KEEP RAIN OFF STOCKPILES



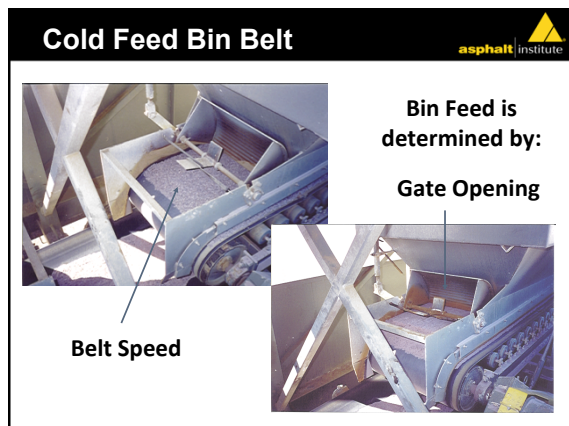
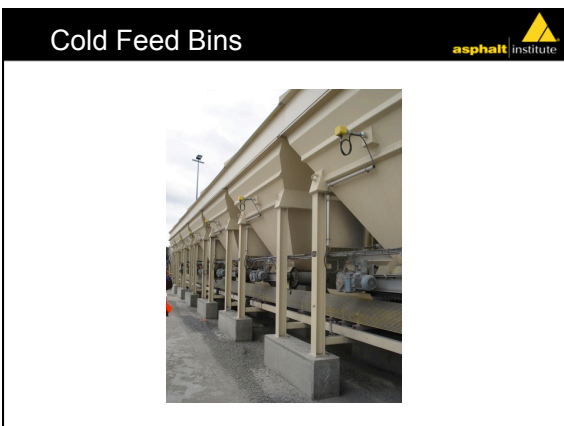
### Basic Plant Functions

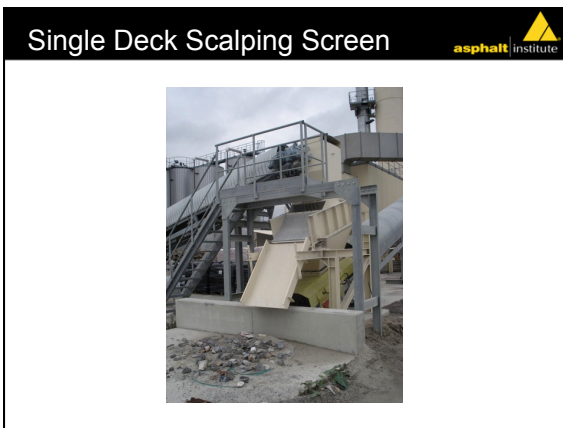
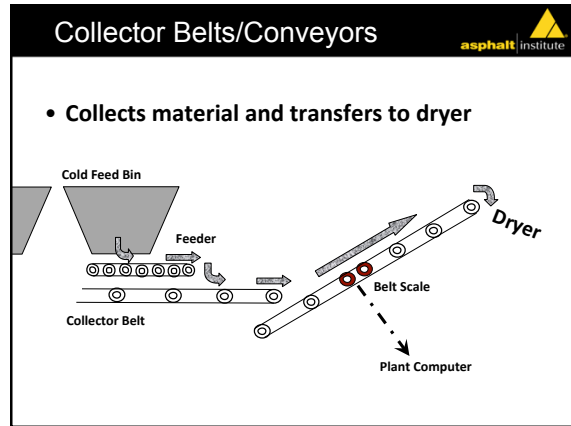
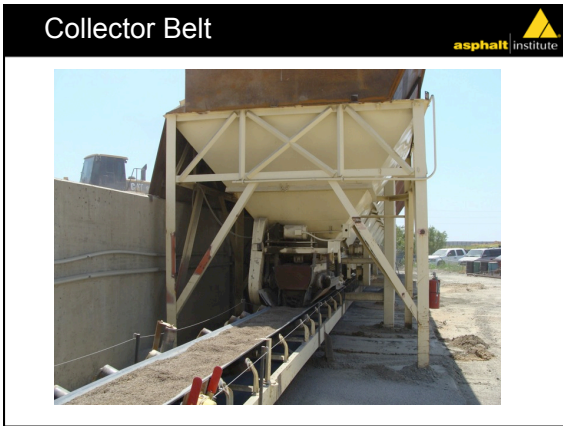


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- Store Component Materials
- Combine aggregates in proper proportions

This slide lists the basic functions of an asphalt plant: storing component materials and combining aggregates in proper proportions.





- ### Basic Plant Functions
- Store materials
  - Combine aggregates in proper proportion
  - Heat and dry aggregates

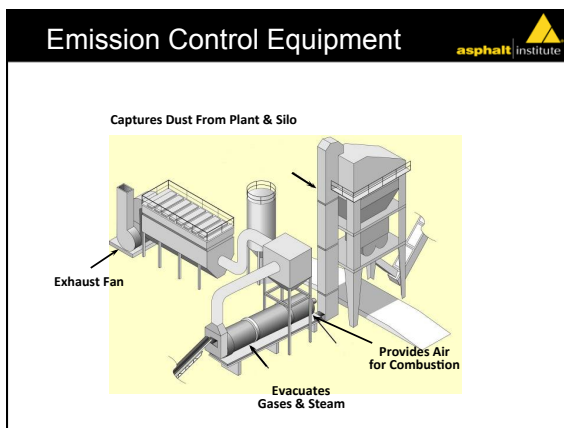
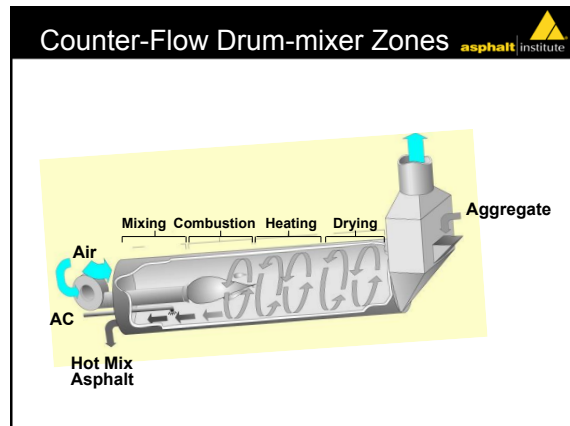
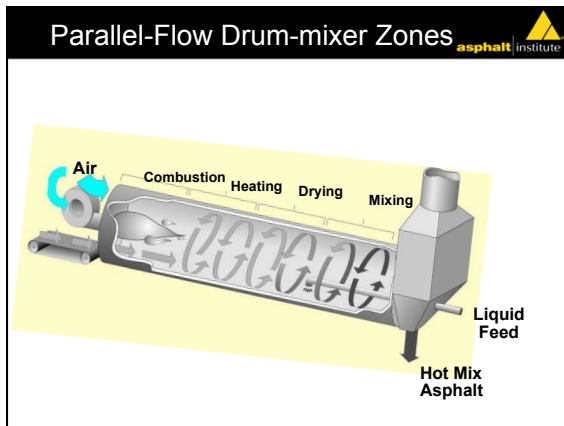
- ### Heat And Dry Aggregates
- Aggregate Dryers**
- Gas or liquid fueled burner
  - Removes moisture from aggregate
    - Surface and internal
  - Heat aggregate to production temperature
  - "Super-heat" aggregate for heat transfer to cooler RAP being blended

### Two Types of Dryers

A photograph of a large, cylindrical industrial dryer. The dryer is mounted on a concrete base and has a spiral staircase leading up to it. It is part of a larger industrial facility.

**Aggregate & Air**


- Parallel-flow
  - Same direction
- Counter-flow
  - Opposite direction



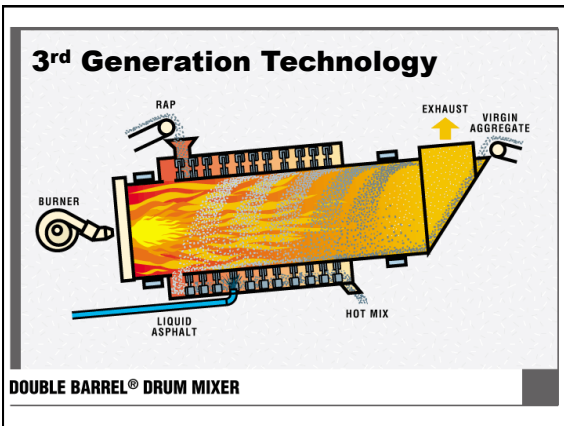
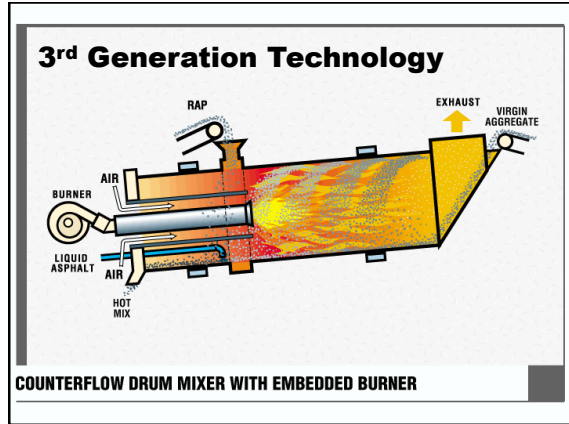
- ### Insufficient Drying
- Trapped moisture
  - Poor asphalt - aggregate bond
  - Tender mixes
  - Rapid heat loss after mixing
  - Asphalt content errors


- ### Insufficient Heating
- Poor mixing
    - Rich and lean spot
    - Uncoated Aggregate
    - Poor compaction
  - Insufficient heat transfer to RAP

- ### Basic Plant Functions
- Store Component Materials
  - Combine aggregates in proper proportions
  - Heat and dry aggregates
  - Add liquid binder in proper proportions

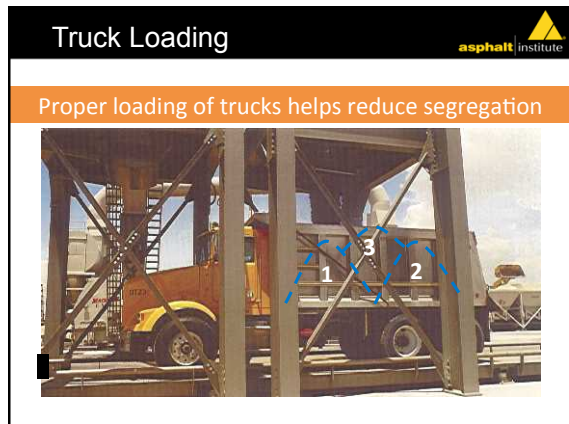
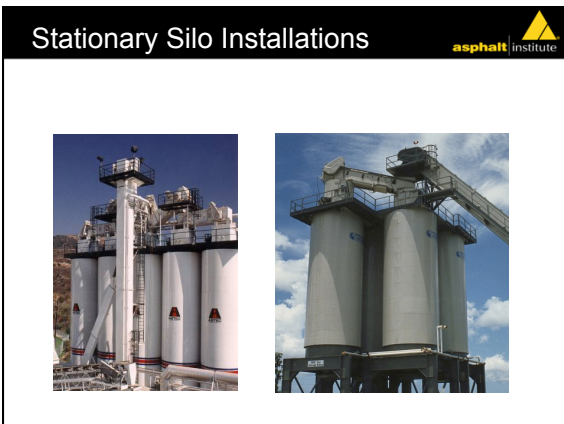
**Basic Plant Functions** 

- Store Component Materials
- Combine aggregates in proper proportion
- Heat and dry aggregates
- Add liquid binder in proper proportions
- Mix to coat aggregates uniformly



**Basic Functions of Plants** 

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### Truck Loading

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- Use multiple drops
- Loading sequence:
  - Front

### Truck Loading

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- Use multiple drops
- Loading sequence:
  - Front
  - Back

### Truck Loading

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- Use multiple drops
- Loading sequence:
  - Front
  - Back
  - Middle
- Always transfer in "bulk"

### Haul Trucks

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- Clean, smooth beds
  - Approved release agent
  - No diesel!
- Insulated & tarped
  - Front, sides, bottom
  - Thin overlays, long hauls, cold weather

### Basic Plant Functions

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### Questions?

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