

**SUBSECTION 4.20  
EQUIPMENT FOR ASPHALT CONCRETE PAVEMENT**

- I. **Description:** The contractor will provide equipment to produce, haul, place, compact, and core asphalt concrete pavement.
- II. **Equipment:** Ensure weighing and measuring equipment complies with Subsection 4.21, “Weighing and Measuring Equipment.” Synchronize equipment to produce a mixture meeting the required proportions.
- A. Production Equipment:**
1. drum-mix type, weigh-batch, or modified weigh-batch mixing plants that ensure a uniform, continuous production;
  2. automatic proportioning and measuring devices with interlock cut-off circuits that stop operations if the control system malfunctions;
  3. visible readouts indicating the weight or volume of asphalt and aggregate proportions;
  4. safe and accurate means to take required samples by inspection forces;
  5. permanent means to check the output of metering devices and to perform calibration and weight checks; and
  6. additive-feed systems to ensure a uniform, continuous material flow in the desired proportion.
- B. Drum-Mix Plants:** Provide a mixing plant that complies with the requirements below.
1. Aggregate Feed System. Provide:
    2. a minimum of 1 cold aggregate bin for each stockpile of individual materials used to produce the mix;
    3. bins designed to prevent overflow of material;
    4. scalping screens or other approved methods to remove any oversized material, roots, or other objectionable materials;
    5. a feed system to ensure a uniform, continuous material flow in the desired proportion to the dryer;
    6. an integrated means for moisture compensation;
    7. belt scales, weigh box, or other approved devices to measure the weight of the combined aggregate; and
    8. cold aggregate bin flow indicators that automatically signal interrupted material flow.
- C. Reclaimed Asphalt Pavement (RAP) Feed System:** Provide a separate system to weigh and feed RAP into the hot mix plant.
- D. Mineral Filler Feed System:** Provide a closed system for mineral filler that maintains a constant supply with minimal loss of material through the exhaust system. Interlock the measuring device into the automatic plant controls to automatically adjust the supply of mineral filler to plant production and provide a consistent percentage to the mixture.
- E. Heating, Drying, and Mixing Systems:** Provide:
1. a dryer or mixing system to agitate the aggregate during heating;

2. a heating system that controls the temperature during production to prevent aggregate and asphalt binder damage;
3. a heating system that completely burns fuel and leaves no residue; and
4. a recording thermometer that continuously measures and records the mixture discharge temperature.

**F. Asphalt Binder Equipment:** Supply equipment to heat binder to the required temperature. Equip the heating apparatus with a continuously recording thermometer located at the highest temperature point. Produce a 24-hr. chart of the recorded temperature. Place a device with automatic temperature compensation that accurately meters the binder in the line leading to the mixer.

1. Furnish a sampling port on the line between the storage tank and mixer. Supply an additional sampling port between any additive blending device and mixer.

**G. Mixture Storage and Discharge:** Provide a surge-storage system to minimize interruptions during operations unless otherwise approved. Furnish a gob hopper or other device to minimize segregation in the bin. Provide an automated system that weighs the mixture upon discharge and produces a ticket showing:

1. date,
2. project identification number,
3. plant identification,
4. mix identification,
5. vehicle identification,
6. total weight of the load,
7. tare weight of the vehicle,
8. weight of mixture in each load, and
9. load number or sequential ticket number for the day.

**H. Truck Scales:** Provide standard platform scales at an approved location.

**I. Weigh-Batch Plants:** Provide a mixing plant that complies with Subsection 4.20.II.B, "Drum-Mix Plants," except as required below.

1. **Screening and Proportioning:** Provide enough hot bins to separate the aggregate and to control proportioning of the mixture type specified. Supply bins that discard excessive and oversized material through overflow chutes. Provide safe access for inspectors to obtain samples from the hot bins.
2. **Aggregate Weigh Box and Batching Scales:** Provide a weigh box and batching scales to hold and weigh a complete batch of aggregate. Provide an automatic proportioning system with low bin indicators that automatically stop when material level in any bin is not sufficient to complete the batch.
3. **Asphalt Binder Measuring System:** Provide bucket and scales of sufficient capacity to hold and weigh binder for 1 batch.
4. **Mixer:** Equip mixers with an adjustable automatic timer that controls the dry and wet mixing period and locks the discharge doors for the required mixing period. Furnish a pug mill with a mixing chamber large enough to prevent spillage.

**J. Modified Weigh-Batch Plants:** Provide a mixing plant that complies with Subsection 4.20.II.I, “Weigh-Batch Plants,” except as specifically described below.

**K. Aggregate Feeds:** Aggregate control is required at the cold feeds. Hot bin screens are not required.

1. **Surge Bins:** Provide 1 or more bins large enough to produce 1 complete batch of mixture.

**L. Hauling Equipment:** Provide trucks with enclosed sides to prevent asphalt mixture loss. Cover each load of mixture with waterproof tarpaulins. Before use, clean all truck beds to ensure the mixture is not contaminated. When necessary, coat the inside truck beds with an approved release agent from the list maintained by the TxDOT’s Construction Division.

**M. Distributor:** Furnish a distributor that will apply asphalt material uniformly at the specified rate or as directed.

1. **Transverse Variance Rate:** When a transverse variance rate is shown on the plans, ensure that the nozzles outside the wheel paths will output a predetermined percentage more of asphalt material by volume than the nozzles over the wheel paths. The type and grade of asphalt material shown on the plans will be used to perform the test. If verification does not meet the requirements, correct deficiencies and furnish a new test report.

**2. Calibration:**

a) **Transverse Distribution:** Furnish a distributor test report, no more than 1 year old that is signed and sealed by a Texas Licensed Engineer, documenting that the variation in output for individual nozzles of the same size does not exceed 10% when tested at the greatest shot width in accordance with Tex-922-K, Part III. Include the following documentation on the test report:

- (1) The serial number of the distributor
- (2) a method that identifies the actual nozzle set used in the test, and
- (3) the fan width of the nozzle set at a 12 inch bar height.

b) **Tank Volume:** Furnish a volumetric calibration and strap stick for the distributor tank in accordance with Tex-922-K, Part I. Calibrate the distributor within the previous 5 years of the date first used on the project. Calibration needs to be signed and sealed by a Texas Licensed Engineer. The ODR may verify calibration accuracy in accordance with Tex-922-K, Part II

**N. Placement and Compaction Equipment:** Provide equipment that does not damage underlying pavement. Comply with laws and regulations concerning overweight vehicles. When permitted, other equipment that will consistently produce satisfactory results may be used.

1. **Asphalt Paver:** Furnish a paver that will produce a finished surface that meets longitudinal and transverse profile, typical section, and placement requirements. Ensure the paver does not support the weight of any portion of hauling equipment other than the connection. Provide loading equipment that does not transmit vibrations or other motions to the paver that adversely affect the finished pavement quality. Equip the paver with an automatic, dual, longitudinal-grade control system and an automatic, transverse-grade control system.

2. **Tractor Unit:** Supply a tractor unit that can push or propel vehicles, dumping directly into the finishing machine to obtain the desired lines and grades to eliminate any hand finishing. Equip the unit with a hitch sufficient to maintain contact between the hauling equipment’s rear wheels and the finishing machine’s pusher rollers while mixture is unloaded.

3. **Screed:** Provide a heated compacting screed that will produce a finished surface that meets longitudinal and transverse profile, typical section, and placement requirements. Screed extensions must provide the same compacting action and heating as the main unit unless otherwise approved.

4. **Grade Reference:** Provide a grade reference with enough support that the maximum deflection does not exceed 1/16 in. between supports. Ensure that the longitudinal controls can operate from any longitudinal grade reference including a string line, ski, mobile string line, or matching shoes. Furnish paver skis or mobile string line at least 30 ft. long unless otherwise approved.
  5. **Material Transfer Devices:** Provide the specified type of device when shown on the plans. Ensure the devices provide a continuous, uniform mixture flow to the asphalt paver. When used, provide windrow pick-up equipment constructed to pick up substantially all roadway mixture placed in the windrow.
  6. **Remixing Equipment:** When required, provide equipment that includes a pug mill, variable pitch augers, or variable diameter augers operating under a storage unit with a minimum capacity of 8 tons.
  7. **Motor Grader:** When allowed, provide a self-propelled grader with a blade length of at least 12 ft. and a wheelbase of at least 16 ft.
  8. **Handheld Infrared Thermometer:** Provide a handheld infrared thermometer meeting the requirements of Tex-244-F.
  9. **Rollers:** Provide rollers meeting the requirements of Subsection 4.22, "Rolling," for each type of roller required for compaction.
  10. **Straightedges and Templates:** Furnish 10-ft. straightedges and other templates as required or approved.
- O. **Coring Equipment:** When coring is required, provide equipment suitable to obtain a pavement specimen meeting the dimensions for testing.

III. **Measurement and Payment:** The work performed, materials furnished, equipment, labor, tools, and incidentals will not be measured or paid for directly, but will be subsidiary to pertinent Items.