

Item 320

Equipment for Asphalt Concrete Pavement



1. DESCRIPTION

Provide equipment to produce, haul, place, compact, and core asphalt concrete pavement.

2. EQUIPMENT

Ensure weighing and measuring equipment complies with Item 520, "Weighing and Measuring Equipment." Synchronize equipment to produce a mixture meeting the required proportions.

2.1. Production Equipment. Provide:

- drum-mix type, weigh-batch, or modified weigh-batch mixing plants that ensure a uniform, continuous production;
- automatic proportioning and measuring devices with interlock cut-off circuits that stop operations if the control system malfunctions;
- visible readouts indicating the weight or volume of asphalt and aggregate proportions;
- safe and accurate means to take required samples by inspection forces;
- permanent means to check the output of metering devices and to perform calibration and weight checks; and
- additive-feed systems to ensure a uniform, continuous material flow in the desired proportion.

2.1.1. Drum-Mix Plants. Provide a mixing plant that complies with the requirements below.

2.1.1.1. Aggregate Feed System. Provide:

- a minimum of one cold aggregate bin for each stockpile of individual materials used to produce the mix;
- bins designed to prevent overflow of material;
- scalping screens or other approved methods to remove any oversized material, roots, or other objectionable materials;
- a feed system to ensure a uniform, continuous material flow in the desired proportion to the dryer;
- an integrated means for moisture compensation;
- belt scales, weigh box, or other approved devices to measure the weight of the combined aggregate; and
- cold aggregate bin flow indicators that automatically signal interrupted material flow.

2.1.1.2. Reclaimed Asphalt Pavement (RAP) and Recycled Asphalt Shingles (RAS) Feed Systems. Provide a minimum of one bin for each stockpile of RAP and RAS to weigh and feed the recycled material into the hot-mix plant.

2.1.1.3. 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.

2.1.1.4. Heating, Drying, and Mixing Systems. Provide:

- a dryer or mixing system to agitate the aggregate during heating;

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

- 2.1.1.5. **Dust Collection System.** Provide a dust collection system to collect fines generated by the drying and mixing process and reintroduce them into the mixing drum.
- 2.1.1.6. **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.
- 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.
- Supply an in-line viscosity-measuring device located between the blending unit and the mixing drum when A-R binder is specified. Provide a means to calibrate the meter on site when an asphalt mass flow meter is used.
- 2.1.1.7. **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:
- date,
 - project identification number,
 - plant identification,
 - mix identification,
 - vehicle identification,
 - total weight of the load,
 - tare weight of the vehicle,
 - weight of mixture in each load, and
 - load number or sequential ticket number for the day.
- 2.1.1.8. **Truck Scales.** Provide standard platform scales at an approved location.
- 2.1.2. **Weigh-Batch Plants.** Provide a mixing plant that complies with Section 320.2.1.1., “Drum-Mix Plants,” except as required below.
- 2.1.2.1. **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.
- 2.1.2.2. **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 enough to complete the batch.
- 2.1.2.3. **Asphalt Binder Measuring System.** Provide bucket and scales with enough capacity to hold and weigh binder for one batch.
- 2.1.2.4. **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.

- 2.1.3. **Modified Weigh-Batch Plants.** Provide a mixing plant that complies with Section 320.2.1.2., “Weigh-Batch Plants,” except as specifically described below.
- 2.1.3.1. **Aggregate Feeds.** Aggregate control is required at the cold feeds. Hot bin screens are not required.
- 2.1.3.2. **Surge Bins.** Provide one or more bins large enough to produce 1 complete batch of mixture.
- 2.2. **Hauling Equipment.** Provide trucks with enclosed sides to prevent asphalt mixture loss. Cover each load of mixture with waterproof tarpaulins when shown on the plans or required by the Engineer. Clean all truck beds before use to ensure the mixture is not contaminated. Coat the inside truck beds, when necessary, with an approved release agent from the Department’s MPL.
- 2.3. **Placement and Compaction Equipment.** Provide equipment that does not damage underlying pavement. Comply with laws and regulations concerning overweight vehicles. Use other equipment that will consistently produce satisfactory results, when approved.
- 2.3.1. **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.
- 2.3.1.1. **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 able to maintain contact between the hauling equipment’s rear wheels and the finishing machine’s pusher rollers while mixture is unloaded.
- 2.3.1.2. **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.
- 2.3.1.3. **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 reference, or joint matching shoes.
- 2.3.2. **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. Provide windrow pick-up equipment, when used, constructed to pick up substantially all roadway mixture placed in the windrow.
- 2.3.3. **Remixing Equipment.** Provide equipment, when required, that includes a pug mill, variable pitch augers, or variable diameter augers operating under a storage unit with a minimum capacity of 8 tons.
- 2.3.4. **Motor Grader.** Provide a self-propelled grader, when allowed, with a blade length of at least 12 ft. and a wheelbase of at least 16 ft.
- 2.3.5. **Thermal Imaging System or Hand-Held Thermal Camera.** Provide a thermal imaging system or hand-held thermal camera meeting the requirements of [Tex-244-F](#).
- 2.3.6. **Rollers.** Provide rollers meeting the requirements of Item 210, “Rolling,” for each type of roller required for compaction.
- 2.3.7. **Straightedges and Templates.** Furnish 10-ft. straightedges and other templates as required or approved.

- 2.4. **Field Laboratory.** Provide and maintain a Type D Structure (Asphalt Mix Control Laboratory) unless otherwise shown on the plans in accordance with Item 504, "Field Office and Laboratory," and details shown on the plans.
- 2.5. **Coring Equipment.** Provide equipment suitable to obtain a pavement specimen meeting the dimensions for testing when coring is required.

3. 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.