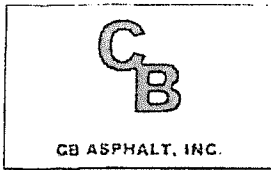


2. Back Reference Data



ATTACHMENT (A)

GENERAL PURPOSE OF THE DRUM-MIX ASPHALT CONCRETE HOT PLANT

The plant to be utilized in this application by C.B. Asphalt Inc., is a Drum-Mix Asphalt Concrete Hot Plant. Drum mix plants have replaced almost all of the continuous mix plants and gradually replacing batch mix plants. Almost all new mixing plants produced today are drum mix plants. There are two types of drum mix plants, parallel flow and counter flow. Drum plants do all the mixing in the same drum that is used to dry and heat the aggregate. Drum plants do not resize the material or use a screen deck, hot bins, and a mixer. Drum plant advantages over batch or continuous plants are higher production rates, less moving parts, lower maintenance, and the ability to use a higher percentage of RAP (recycled asphalt pavement). By eliminating the screening process and the batch time sequence, production rates have become greater with decreased noise measurements and overall product agitation lending additional favor to clean air requirements. When RAP is introduced into a drum mix plant, it is heated both by aggregate heat transfer and by the exhaust gases of the burner. This dual heating action allows the drum mix plant to run higher RAP percentage than batch mix plants with like or lower emission parameters. It is not uncommon to have drum mix plants producing HMA with 50 percent RAP or greater. Presently, and in an effort to recycle lending favor to "green" operations, C.B. Asphalt is planning on utilizing at or near 25% RAP in the HMA produced at this facility though exact proportions will be determined by possible contract specification restriction requirements and product mix designs. RAP is usually introduced by a conveyer near the center or latter part of the drum mixer.

A drum mix plant consists of five major components, the cold aggregate feeds, bitumen supply, combination drum dryer and mixer, surge or storage silos, and the dust collection system (bag house). The cold feeds are similar to those in a batch plant with the additional function of proportioning the aggregate for the mixture. Since there is no hot bin or weigh hopper, the cold feeds must be able to accurately feed and control the blend of aggregates. Also, since there is no weigh hopper in a drum plant, the aggregate must be weighed prior to its introduction into the dryer. This is accomplished by equipping the conveyor that charges the aggregate into the dryer with a belt speed sensor. The aggregates are proportioned out of each cold feed bin onto a feeder belt according to the percentages given by the mixture design. These percentages must be based on a total percent by aggregate basis, instead of a weight by total mixture. Belt speed used to determine the wet weight of aggregate entering the drum per hour. Using the aggregate wet weight per hour and its moisture content, the correct proportion of bitumen can be mixed with the aggregate.

The aggregate is mixed with the bitumen in the dryer and the mixture is discharged onto a conveyor or bucket elevator for storage in a surge bin more commonly referred to as a silo. The asphalt binder is stored at the plant during production in the same manner as at the batch plants, either in a vertical or horizontal storage tank. Burner fuel is also stored on site in the same manner though most typically this tank is substantially smaller than the liquid bitumen tank.



The original drum mix plant design is a parallel flow system. Parallel flow drum mix plants are the most common, however newer designs are counter flow systems like the plant C.B. Asphalt is utilizing with this application. The counter flow designs are slowly replacing older parallel flow plants as most typically, parallel flow plants provide yet further reductions in emissions. This fact lends additional favor to being considered and measured as cleaner with respect to pertinent environmental considerations. A parallel flow dryer or drum mixer has the aggregate flow in the direction of the exhaust gases or towards the burner. The parallel flow drum mixer mixes the aggregate with bitumen at the opposite end of the dryer from the burner while the counter flow is inverse allowing for greatly reduced burner mixing exposure times thereby reducing given emissions.

The next page is a basic schematic drawing reflecting this specific plant and its respective components. The schematic is not to scale and though extremely close, actual configuration may vary slightly to accommodate the Foothill locations truck ingress and egress etc.

