

PAVINGtheWAY

A PUBLICATION OF THE PLANTMIX ASPHALT INDUSTRY OF KENTUCKY AND THE KENTUCKY ASPHALT PAVEMENT ALLIANCE

In Remembrance . . .

ELLIS G. WILLIAMS (1918 - 2003)

Asphalt Engineer Par Excellence

Ellis Williams was a true believer in asphalt paving. Sadly, on the Sunday before Thanksgiving, Ellis passed away. And yet those of us lucky to have known Ellis can take some measure of solace for the knowledge he shared with thousands involved in the asphalt industry, the way he educated us about asphalt paving, and his experience and guidance with technical challenges. We were blessed that he was always a phone call away if we wanted to get advice, ask a question, or confirm our own ideas.

Most of all, we were thankful for him being our friend and for being our industry's guru.

On a personal note, I was fortunate to be his friend for over 30 years. I remember him being one of the few promoters of asphalt in my home state of West Virginia facing an army of Portland Cement industry engineers. I remember his help as we started the first asphalt association in the state. I remember how happy he was when asphalt was awarded on a project on Appalachian Corridor G over the concrete option. The project was the first major alternate bid project in the state and was a major

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Thoroughbred of Asphalt Paving

Central Kentucky is synonymous with beautiful horse farms—and its world-renowned horse racing industry. And when a horse owner has invested millions of dollars in a horse, they want the best. And that's where asphalt has a unique role.

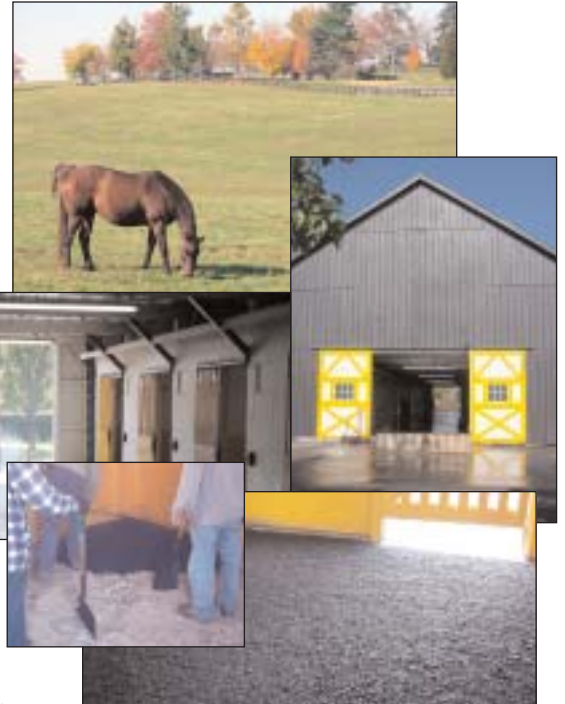
Let's take a look at Claiborne Farm in Paris, Ky. Most of the horse stalls at Claiborne Farm, and at other horse farms across the state, are paved with asphalt. Hinkle Contracting of Paris, Ky., is responsible for much of the paving at Claiborne Farm.

"Besides contributing to the cleanliness of the stall, there are many reasons that asphalt is perfect for paving horse stalls," said Tom Ralston of Hinkle.

Asphalt-paved stalls are easy to clean and disinfect. Asphalt gives with the weight of the horse, reducing wear and tear on the animal's legs and feet. These stalls also require low maintenance, do not retain odors, provide adequate traction and stay level. The asphalt mix is durable but porous, which permits the permeability of liquid.

"Asphalt paving of horse stalls is a labor-intensive and tedious process, with low production as compared to most roadway paving projects," Ralston said. "However, it is possible to pave 20 to 25 stalls per day, with each stall requiring three to four tons of mix."

To begin the process, the stall floors are prepared with a thin layer of aggregate. Asphalt is then transported into the stall using a loader, such as a Bobcat, that is small enough to fit through the stall doors. Workers rake



Hinkle Contracting is paving the stalls at Claiborne Farm in Paris, Ky.

and shovel the mix until they create a uniform mat. They typically keep the center higher than the edges to allow liquids to drain. Finally, the asphalt is compacted using a small plate compactor.

When it comes to paving horse stalls, asphalt is the winner.

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breakthrough for our industry. By the way, asphalt highways now dominate in West Virginia as it does in virtually every state. Ellis remained active in West Virginia in recent years. In fact, at the time of his death, this man, 85 years young, was consulting on a large West Virginia Turnpike project utilizing thick asphalt to rehabilitate a worn concrete section.

Of course, his work with our industry in Kentucky was a remarkable journey. He addressed all facets of asphalt paving, roadway design, mix design, plant operations, paving operations, compaction and maintenance.

It would be rare indeed to find a Kentucky asphalt contractor that Ellis has not advised and/or performed consultant work. His work is evident on highways, airports, parking lots and specialty projects throughout the Commonwealth. It would be impossible to count the number of times that people in our industry picked up their phones and called on Ellis for help.

Ellis was born in 1918 in Muhlenberg County, Ky. After serving as a First Lieutenant for the U.S. Army, he enrolled at U.K. and got his civil engineering degree in 1948. He was an ardent fan of big blue athletics. In fact, at times I think he thought that he could out coach some of the U.K. coaches. At one time he was head of the KYDOH Asphalt Section. For 27 years, he was a district engineer for the Asphalt Institute. In 1983, he opened his own consulting firm. He and his wife Doris, who preceded him in death, were an inseparable couple who graced many industry functions as a team – side by side, always gracious and engaging.

He is survived by his son, Tom, daughter-in-law, Corinne, and grandchildren, Thomas, Amy and Kyle. They meant the world to him.

Remembering his love for U.K., the Ellis G. Williams Endowed Scholarship Fund has been established at the University of Kentucky College of Engineering.

On behalf of the asphalt industry, we give our heartfelt thanks to Mr. Ellis G. Williams. In Thanksgiving seasons to come, we will no doubt reflect on the many contributions Ellis made to the industry and give our thanks that we are proud to have known him.

– **Dean Blake,**
executive director of PAIKY

Did You Know? Asphalt Batch Plant Operation

Asphalt plants can be generally characterized as either "batch" the components and how these facilities work to produce quality

Fines/Additive Silo

Some plants may have an additional silo for storing mineral filler or fines from the baghouse.

Baghouse

The baghouse removes fine dust particles from the exhaust gasses before they are released into the atmosphere. It is basically a series of cylindrical filter fabric bags through which the exhaust gas travels. The primary collector and baghouse are extremely efficient environmental systems that have resulted in virtually no particulate discharge from asphalt plants.

Primary Collector

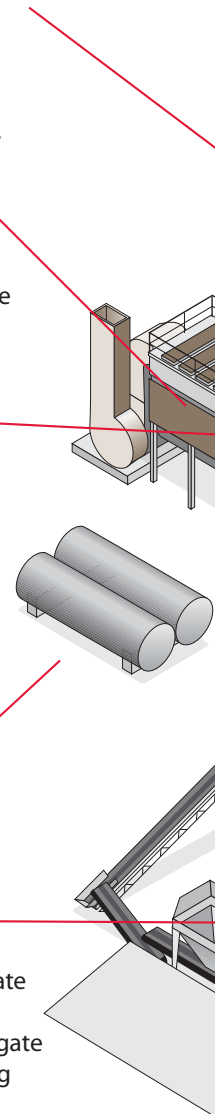
The primary collector removes large dust particles from the exhaust gasses before entering the more efficient secondary collector (baghouse).

Asphalt Cement Storage Tanks

Asphalt cement is stored in tanks while awaiting delivery to the pugmill. Asphalt cement in the tanks is heated between 300°F and 350°F depending on the grade and type of asphalt. Asphalt is delivered from the tanks to the pugmill for mixing with the aggregate.

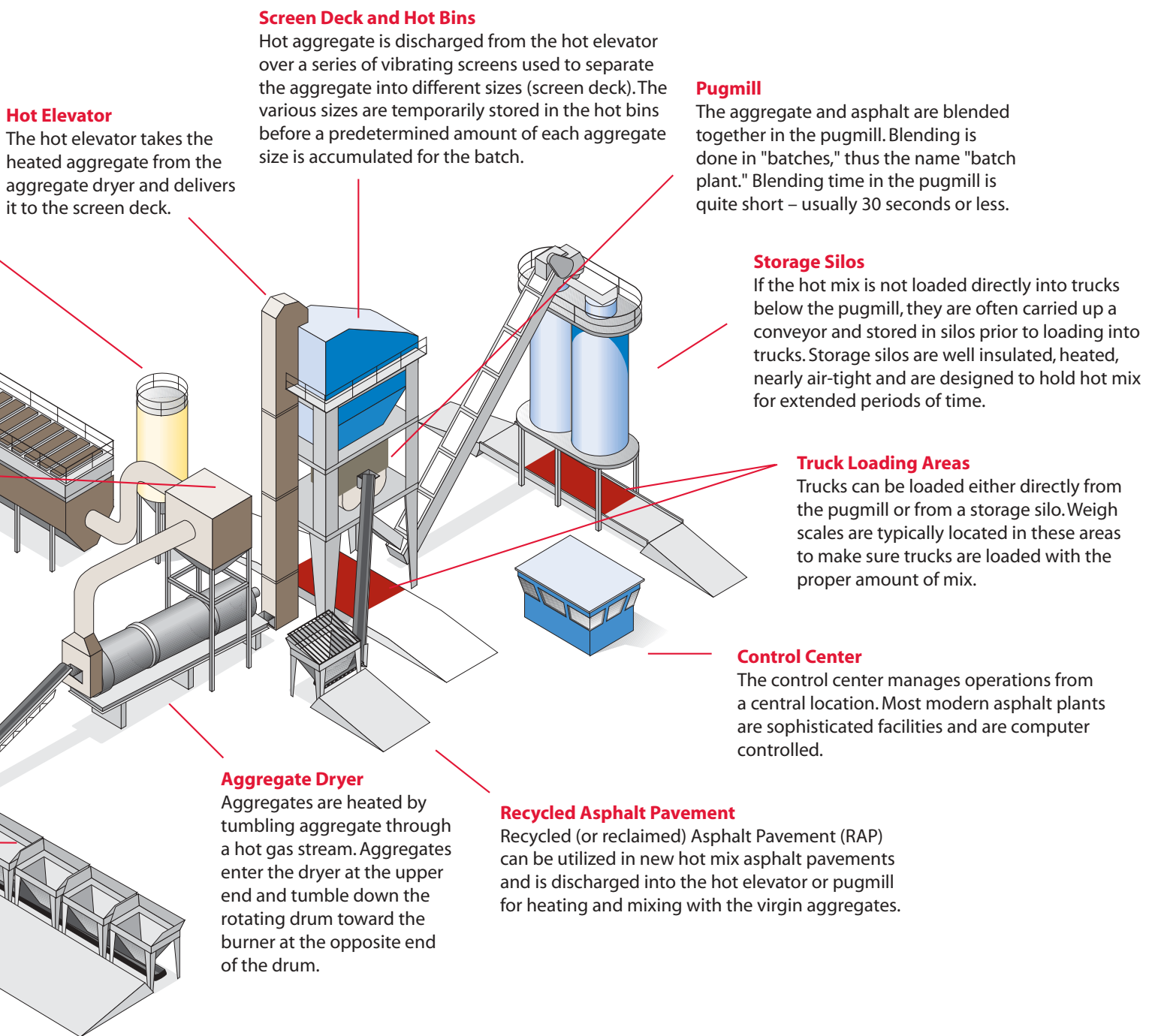
Cold Feed Bins

Stockpiled aggregates are loaded into the cold feed bins for delivery into the aggregate dryer. Each bin holds a separate aggregate size or gradation. They have an adjustable gate that meters the aggregate onto the moving conveyor belt.



Source: National Asphalt Pavement Association (NAPA)

"plants" or "drum" plants. They produce hot mix asphalt in different ways. This edition will focus on "batch" plants. It includes a description of hot mix asphalt.



Screen Deck and Hot Bins

Hot aggregate is discharged from the hot elevator over a series of vibrating screens used to separate the aggregate into different sizes (screen deck). The various sizes are temporarily stored in the hot bins before a predetermined amount of each aggregate size is accumulated for the batch.

Pugmill

The aggregate and asphalt are blended together in the pugmill. Blending is done in "batches," thus the name "batch plant." Blending time in the pugmill is quite short – usually 30 seconds or less.

Storage Silos

If the hot mix is not loaded directly into trucks below the pugmill, they are often carried up a conveyor and stored in silos prior to loading into trucks. Storage silos are well insulated, heated, nearly air-tight and are designed to hold hot mix for extended periods of time.

Truck Loading Areas

Trucks can be loaded either directly from the pugmill or from a storage silo. Weigh scales are typically located in these areas to make sure trucks are loaded with the proper amount of mix.

Control Center

The control center manages operations from a central location. Most modern asphalt plants are sophisticated facilities and are computer controlled.

Aggregate Dryer

Aggregates are heated by tumbling aggregate through a hot gas stream. Aggregates enter the dryer at the upper end and tumble down the rotating drum toward the burner at the opposite end of the drum.

Recycled Asphalt Pavement

Recycled (or reclaimed) Asphalt Pavement (RAP) can be utilized in new hot mix asphalt pavements and is discharged into the hot elevator or pugmill for heating and mixing with the virgin aggregates.

Hot Elevator

The hot elevator takes the heated aggregate from the aggregate dryer and delivers it to the screen deck.

Porous Pavements

It's not your typical pavement.

To the untrained eye, porous asphalt is indistinguishable from traditional dense-graded pavement. But it can eliminate the need for retention ponds thereby solving many problems related to storm water management. Porous pavements can improve water quality as well.

First developed in the 1970s, porous asphalt allows water to pass through the pavement structure. This is contrary to traditional pavement designs that have dense surfaces where water runs across the pavement into drainage fields. The asphalt mixture is designed with fewer fines and allows water to travel through the pavement to a stone bed that slowly filters water into the soil. This process of storm water management minimizes runoff and reduces the chances for flash flooding.

Here's how it works. First contractors install a filter fabric to line the area to

be paved. The filter fabric is covered with 18 to 36 inches of a uniformly graded stone aggregate with more void space than usual. This void space is essential for proper infiltration. Contractors then cover the stone bed with porous asphalt.

Porous asphalt is environmentally friendly. Available data suggest that it is successful in removing suspended solids, metals, oil and grease before they reach the water table. As city and county agencies are subjected to new and more stringent water quality standards, porous asphalt plays an important role in improving water quality.

This asphalt innovation is easy for contractors to install, and it doesn't take extra training or equipment for asphalt plants to prepare the mix. Plus, the cost is virtually identical to traditional pavement, although the stone bed beneath is thicker and therefore costs more than the typical compacted sub-base. However,



Water drains from the porous asphalt surface.

porous pavements can eliminate the construction of retention ponds, an advantage that offsets the cost difference.

Porous asphalt has been successfully used in a variety of projects, from roadways to parking lots to playgrounds. Some of these early projects, now nearly 20 years old, have demonstrated excellent results with similar performance to projects with dense-graded mixtures.

This durable, environmentally friendly and reasonably priced method of storm water management is just another reason to choose asphalt for all paving projects.

Source: National Asphalt Pavement Association (NAPA)

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