

asphalt in action

a technical update



Project Spotlight:

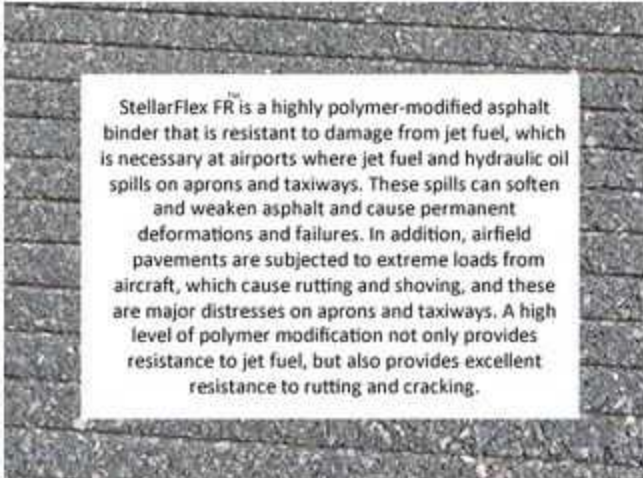
Boston-Logan Airport Finds Stellar Product in StellarFlex FR™

Axeon Specialty Products' fuel resistant asphalt, StellarFlex FR™ continues to be the chosen product for unique jobs across the country. On airport projects from Massachusetts to Florida and repaved roads frequented by horse-drawn carriages in St. Augustine and New York City, this product is proving itself to be both enduring and versatile. One airport project in particular, the Boston-Logan Airport, was so successful that results qualified this product for Federal Aviation Administration (FAA) P-601 specification.

In 2003, Boston-Logan Airport engineers were on the hunt for a solution to a specific problem, a trouble spot at the intersection of Taxiway N and Runway 4L-22R. As outbound planes are required to make a 180° turn from this taxiway onto the runway, the constant pushing and shoving movement left the asphalt pavement in that location deformed. That fall, Axeon SP's Technical Services Director Ron Corun spoke at an Airfield Pavement Workshop sponsored by the Asphalt Institute and the FAA. Ron's presentation on StellarFlex FR™ asphalt, which proposed modifications to the P-401 specification to maximize the benefits of the FR asphalt, was exactly what Peter Austin, Massachusetts Port Authority (MassPort) Project Manager, wanted to hear.

"Peter Austin talked with me after the presentation and offered a challenge," shared Ron. "After explaining the issue at hand, I worked with Peter to develop a specification for the fuel resistant asphalt binder and mix. Once complete, he offered us the opportunity to put the modified P-401 mix containing StellarFlex FR™ liquid down in hopes it would solve a previously unsolvable problem."

The project went very smoothly. The first 1300-ton test section was placed by Aggregate Industries in June 2004 and performance has been monitored throughout the ensuing years.



StellarFlex FR™ is a highly polymer-modified asphalt binder that is resistant to damage from jet fuel, which is necessary at airports where jet fuel and hydraulic oil spills on aprons and taxiways. These spills can soften and weaken asphalt and cause permanent deformations and failures. In addition, airfield pavements are subjected to extreme loads from aircraft, which cause rutting and shoving, and these are major distresses on aprons and taxiways. A high level of polymer modification not only provides resistance to jet fuel, but also provides excellent resistance to rutting and cracking.

"Prior to placing the StellarFlex FR™ mix at Boston-Logan Airport, I was told the asphalt pavement on the end of Taxiway N and Runway 4L-22R performed poorly and rarely made it through a hot summer without damage," said Ron. "The StellarFlex FR™ mix has now been in place for 12 years. There has been no deformation, rutting, or raveling and, to date, I have not heard of any performance issues. The grooving looks like the day we cut them."

The overall success of this first Boston-Logan Airport project led the engineers to use StellarFlex FR™ in more areas of the airport.

"One year after the original StellarFlex FR™ placement project, Peter was impressed enough with its performance to select our product for three alleyways over the following three years," said Ron. "The alleyways are the areas adjacent to the gates. The pavement in those areas is subjected to tremendous twisting and turning of heavy loads as the planes are pushed back from the gates. In addition, de-icing activities are performed at the gates and the alleyway pavements are subjected to these chemicals each winter. The oldest alleyway pavement is 10 years old now and all three alleyways are still in excellent condition."

Along with being on site for all pavement projects, Ron and members of his team have visited the airport over the years to monitor the product's performance. Most recently, Ron, along with Quality Manager Chrissy Skala and Corporate Services Specialist Blair Meadowcroft, met with the engineering team at MassPort to check in on all projects. The feedback continues to be nothing but positive.

"I haven't heard word of any issues with the product," said Richard Bessom, Capital Programs Department Program Manager at Massachusetts Port Authority. "There has been no need for any asphalt repairs since you put this down."

"It's done a good job for us," said Sam Sleiman, Director of Capital Programs and Environmental Affairs. "We don't need to go out there and look at it every day because we're not getting any calls about issues."

Around the same time these projects were taking place, the FAA was in the process of looking for an alternative to coal tar sealers, which they projected would be outlawed in the near future because of its carcinogenic properties. In addition, coal tar has expansion inconsistencies that cause substantial alligator cracking within two to three years of application and allow for fuel penetration, which results in a short service life. After evaluating the performance of the Boston-Logan Airport StellarFlex FR™ mixes, the FAA adopted this product in July 2014 as the P-601 "Fuel Resistant Hot Mix Asphalt Pavement" specification.



(Above) This is an aerial shot of the Boston-Logan Airport showing where StellarFlex FR™ was laid, and (below) are images of the finished pavement showcasing how great the grooving looks after 10 years. It is straight and true with no rutting and deformation.





ST. AUGUSTINE: PAVING THE PATH OF THE STORIED PAST

St. Augustine's extensive history and various cultural influences are evident in its streets and buildings. The historical landmarks that tell the story of St. Augustine's past are what make the nation's oldest city a destination to visit.

One way that tourists can learn about the city's storied past is to take a horse-drawn carriage tour. Unfortunately, the asphalt pavement throughout the carriage route had become extremely worn from the constant clanging of horse shoes. In addition, the acid contained in horse urine was causing an abundance of potholes.

Last fall, local maintenance engineers for the Florida Department of Transportation (FDOT), decided a new surface was needed for the route along King Street and Castillo Drive in St. Augustine. After researching the best fix for this situation, they determined that StellarFlex FR™ fuel resistant asphalt binder, developed by Axeon Specialty Products, was the solution. This binder, which is specifically designed to resist damage from jet fuel at airports, was chosen because this product also resists damage from horse urine. In December 2014, Duval Asphalt of Jacksonville, Florida, was awarded a contract to mill two inches and replace with two inches of a 9.5mm wearing surface with StellarFlex FR™.

This same decision was made in 2007 for a similar project in New York City's Central Park. Sections of Central Park used for the New York Marathon were consistently being repaved to fix ruts and potholes caused by horse-drawn carriages, so that runners wouldn't get injured when traversing the worn pavement. New York City officials came to Axeon SP for advice on a solution for their issue and, eight years later, the StellarFlex FR™ (Fuel Resistant, and in this case, urine resistant) pavement is in excellent condition with no rutting and no potholes. When FDOT officials discovered the successful paving solution New York City used for horse-drawn carriage damage in Central Park, they too decided to use StellarFlex FR™.

Axeon SP produced and supplied the specially formulated PG 88-22 fuel resistant binder from its Savannah, GA., terminal. Paving took place April 13-14, 2015, when Duval placed 800 tons of the special 9.5mm mix produced from its asphalt mix plant facility on Phillips Highway in Jacksonville, FL.

The mix that was produced resembled the new FAA P-601 asphalt specification, adopted by the FAA last July, for airfield pavements to prevent damage from petroleum based products used by aircraft. The design gradation level was set at 50 with a design target air void content of 2.5%. The minimum VMA was set at 14% and the compacted gyratory specimen weight loss could not exceed 1.5% after immersion in kerosene for 24 hours. The minimum compaction was set at 95% of maximum specific gravity.

FDOT had specified in the contract that the use of vibratory rollers would not be allowed. The compaction process had to be done in static mode only, to prevent the possibility of damage to underlying structures. A warm-mix additive, Evotherm[®], was added to the binder to aid compaction and workability of the mix. There were several utility valves and manholes throughout the sections of King Street that were re-paved and the handwork that was done by Duval's crew members looked very good despite the fact that the binder graded out to be a PG 86.6-29.9.

According to FDOT maintenance officials, the costs of the mix came in under what they anticipated. They were also pleased with the appearance of the mix and the work done by Duval. As a result, the story of St. Augustine's past will, without a doubt, continue to be told as the horse-drawn carriages traverse visitors throughout "the oldest city" streets.



St. Augustine roads are resurfaced with Axeon SP's StellarFlex FR[™] to solve problems caused by horse-drawn carriages.



Once complete, the roads are better than ever and ready to continue the carriage ride tradition in St. Augustine.





AXEON SP AT AAAE CONFERENCE IN PHILADELPHIA

Axeon Specialty Products took part in the American Association of Airport Executives (AAAE) Conference in Philadelphia on June 7-9. Axeon SP showcased some key products, including StellarFlex FR fuel-resistant asphalt binder, which became the FAA P-601 specification in July 2014, and FlexGuard high performance thin overlay mix system. The event provided vendors and attendees a great opportunity to share and gain valuable information.



For more information on all Axeon SP products, visit our website www.axeonsp.com or contact Ron Corun at 410-952-4020 or Chrissy Skala at 856-579-5135. Please think of us for all your Specialty Asphalt needs.

The Axeon SP Asphalt in Action newsletter is distributed electronically and is also available on our company website, www.axeonsp.com.