



MARKET APPLICATION FOCUS

Transportation

Precast Segmental Bridge Construction

Epoxy Bonding

Project:

JFK Airport AirTrain

Owner:

New York City

Designer/Builder:

Port Authority of New York & New Jersey

Construction

AirRail Transit Consortium

Engineer:

Figg Bridge Engineers

Year:

1999 - 2002

THE PROBLEM



As most travelers can attest to, getting from Manhattan to John F. Kennedy International Airport is no easy task. There is no method of mass transportation that can carry business people, vacationers and airline personnel to the airport from New York City. The only means of travel for many is by taxi, personal car or bus. This means dealing with heavy traffic and unpredictable travel times.

There also is no direct link from the subway system in Queens or Long Island Rail Road to JFK Airport. Travelers making connections at JFK often have to go from one terminal to another, and there currently

is no effective system to transport travelers within the airport.

THE SIKA SOLUTION

The solution to this transit void was to build a rail line connecting the NYC subway system and the Long Island Railroad to the airport. In addition, the rail line would connect all the terminals at the airport, making connections much easier.

The \$1.5 billion AirTrain will allow travelers to reach Manhattan in less than 45 minutes, rather than the 1-2 hours it currently takes by car because of traffic and road conditions. In addition, a complete loop around the airport will only take 8 minutes instead of the 20 minutes it currently takes.

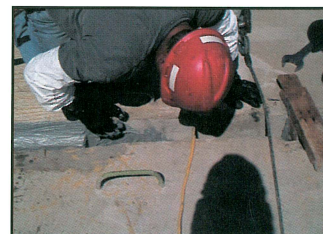


The 8.7 mile elevated light rail system is being built as a precast concrete segmental bridge to minimize disruption to the airport and neighboring roads. This fast method of construction allows spans to be erected in less than 2 days.

The span-by-span and balanced cantilever methods of erection are being constructed using epoxy resin in the joints. The epoxy being used is the Sikadur 31, SBA, a high-modulus, structural epoxy paste specially formulated for use in a wide range of temperature conditions. The main functions of the epoxy are:

- Act as a lubricant between the precast segments
- Waterproof the joints and protect the steel tendons
- Transfer the compressive/shear forces across the joints

Sikadur 31, SBA has been used on hundreds of projects worldwide for the past 30 years. The product has been independently tested for consistency and meets the American Segmental Bridge Institute specifications.





For Transportation Structures... Sika's System approach to Concrete Repair and Protection

Anti-Corrosion Primer and Bonding Bridge

Sika Armatec® 110 EpoCem® - protects the steel from corrosion in areas of inadequate cover. Improves bond of repair mortar to both substrate and steel.

High Performance Repair Mortars

SikaTop® Plus mortars - two component polymer modified materials containing Sika FerroGard 901 corrosion-inhibiting admixture.

Corrosion-Inhibiting Impregnation

Sika FerroGard® 903 - spray-applied to protect areas outside the repair zone against future damage. Proven to penetrate and reduce corrosion effects of carbonation and salt exposure.

Surface Leveling/Pore-Filling Mortars

SikaTop® leveling mortars - achieve a level surface by filling pores, bugholes, or other irregularities in the surrounding substrate.

Anti-Carbonation Coatings

Sikagard® 550W and 670W - protect concrete facades from the damaging effects of carbon dioxide (carbonation), water and pollutants. Either crack-bridging (550W) or rigid (670W), both are available in a variety of decorative colors.

Joint Sealing/Waterproofing

Sikaflex® High Performance Sealants - premium-grade polyurethane joint sealants that are fully compatible with Sika's concrete repair systems.

Epoxy Injection and Bonding

Sikadur® epoxy resins help restore structural integrity by injection of cracks and voids. The most comprehensive range of epoxy products for structural bonding and grouting.

Structural Strengthening Systems (FRP)

Sika CarboDur® & SikaWrap® - a proven system of external strengthening using carbon fiber laminate strips, carbon fiber fabric, and glass fiber fabric. Stronger than steel yet lightweight and non-corrosive, these system components can solve unique strengthening problems in a variety of concrete structures.



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