



Heat Design Equipment Inc. of Kitchener, Ontario, Canada has been manufacturing infrared joint heaters since 1995, along with other infrared asphalt heating equipment such as hot-in-place patch equipment, hot boxes, and recyclers.

In 2008 and 2009 HDE took part in research studies by the University of Tennessee and Arkansas for their respective DOT's comparing several technologies to improve construction of a better longitudinal joint. The use of the joint heater in the tests resulted in the highest density and water impermeability of the several technologies evaluated.

But research is only part of the equation in improving on asphalt pavement construction techniques. Manufacturers have to provide technology that is user friendly and provides a tool for contractors to efficiently use the equipment to achieve the required specification and quality. HDE recently provided Hanson Aggregates of Jamesville, New York a joint heater for reconstruction of a runway at Wheeler Sack Airfield and the following summary was given regarding the project by Daniel Meehan, VP, Hanson Aggregates North America of Jamestown , NY. :

Project: Runway Repair

Location: Wheeler Sack Army Airfield, Fort Drum, Watertown, New York

Hot Mix Asphalt Producer: Hanson Aggregates, Watertown, New York

Hot Mix Asphalt Contractor: Hanson Aggregates, Jamesville, New York

“The repair to runway 8-26 at Wheeler Sack Army Airfield was to include two lifts of an Army Corps of Engineers specified, Superpave designed, base course mix. The top course was also an Army Corps of Engineers specified, Superpave designed, top course mix placed in one lift. Field project specifications and payment included mat and joint densities. A smoothness specification which included profilograph testing was also part of the payment factor at the airfield. Achieving joint density on a cold longitudinal joint was going to be the greatest challenge for this project. An infrared joint heater was mounted to the paver to aid in the compaction of the cold joint. The infrared heater increased the cold longitudinal joint temperature by approximately 100 degrees allowing the rollers to compact the joint to an average density of greater than 92.4%. Compacting the

joint to 92.4% or greater resulted in a pay factor of 100% and an almost visibly seamless longitudinal joint. The project engineer showed a great deal of interest in the infrared joint heater, since this was the first time the technology had been used on any airfield project at Fort Drum. With the base course successfully compacted and completed a great deal of interest, by government officials and industry experts, was generated about the infrared joint heater and the longitudinal joint density that was achieved because of the heater. On July 31st a site visit, to see the joint heater, was arranged for New State Department of Transportation officials and industry experts. The attendees were Zueb Zavery (New York State Department of Transportation), Gregory Harder (Northeast Regional Engineer for the Asphalt Institute), and Christopher Ward (Atlantic Testing Company). Longitudinal joint failure is of great concern to all that attended the site visit. By using the infrared joint heater and achieving a high level of compaction on the longitudinal joint, failure should be mitigated resulting in a longer lasting pavement. This process may be adopted as a best paving practice by the New York Department of Transportation and contractors throughout the North East. “



According to Bob Kieswetter, President of Heat Design, one of the key words in Mr. Meehan's comments is seamless, as cutting away the uncompacted cold edge of a pavement lane does not allow an easy impermeable joint, and also does not provide a good load transfer across the joint. Using the joint heater provides this, much like paving in echelon to provide a hot joint. Hanson used an HDE JMH400PA joint heater, with 4 individual 100,000 Btu full surface infrared heaters. The joint heater was attached to a Cat AP100E wheel model paver paving at typical speeds of 25-35 feet a minute.

