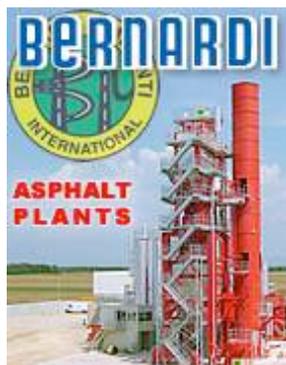


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feature articles

Monday 12 December 2005

White House road is repaired

A Canadian centreline repair system is proving its worth outside the White House on Pennsylvania Avenue in Washington DC. Although the rustic pavement surface was new, its poor longitudinal joints needed repairing. This is an early sign of road surface failure, a problem that can be caused by insufficient compaction of the edges due to a lack of edge support. It can lead to water absorption and cracking, especially where there is a risk from the freeze/thaw effect.

A coloured polymer binder and coloured aggregate surface course had been laid on the six-lane, three-block section in front of the White House, and while most of the work had good quality joints, two cold joints running the entire length of the project displayed early ravelling and unacceptable appearance problems.

Contractor Lane Construction considered the options for dealing with the problem, and paving contractor **Aggregate Industries** offered a solution: re-heating the longitudinal joints using special infrared heating equipment manufactured by Heat Design Equipment of Kitchener, Ontario, Canada.

The specifying authority for the project, the Federal Highway Administration, Eastern Federal Lands Highway Division, suggested carrying out tests at Rock Creek Park in Washington DC. These tests used a conventional longitudinal joint heater to reheat a test strip. The unit featured four separate heaters measuring 1.22m long by 4.6m wide, each of which could be adjusted from low infrared emissions of 60,000 BTU/hr to 110,000 BTU/hr. Various procedures were tried, and final approval was given to use the infrared heating equipment and test material the contractor had left over for the original project.

[click image to enlarge](#)



Heat Design Equipment's unit seen outside the White House

During re-heating of the test sections, overheating the synthetic resin (with its lower softening point than conventional asphalt bitumen), was a concern, as there was a risk of it burning and blackening. A special technique was chosen for the White House site, using a low heat with the infrared heaters placed at a higher elevation than usual. To avoid segregation problems due to the hand raking required at the joint, the contractor suggested removing the plus 6.35mm size from the test mix and adding more binder to improve workability, richness and final surface appearance.

The contractor reheated the test mix using an HDE mini recycler with an additional screen added to remove the coarser material. The synthetic resin was then added to the finer mix and the hot mix was placed in individual cardboard boxes then allowed to cool for use on the White House project.

Some 305m of longitudinal joint was reheated, with Aggregate Industries then doing all the repair work. Prepared blocks of repair material were again reheated in the HDE mini recycler. The blocks were placed on the screen deck just below an HDE 100 infrared heater that forms the top of the recycler, and within minutes the material was soft enough to fall through the screen to the storage area underneath.

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The longitudinal joint was reheated at the rate of about 1.2m/minute, new hot material was added to the joint, then luted. The joint was re-compacted with an **Ingersoll-Rand** DD-24 dual drum vibratory roller. Finishing was carried out using the roller parallel to the joint.

The reheating and repair resulted in a major improvement in the visual appearance of the joint, and this process will be used for future repairs as it provides a sealed joint ensuring a longer pavement life.

The US National Park Service is to buy two HDE units to carry on long-term repairs at the White House.

Other machines from Heat Design Equipment include infrared heating equipment for new asphalt pavement construction as well as repairs. The patented design is said to provide a high infrared emission over a large area, reheating asphalt in place quickly, without an open flame that would damage the asphalt.

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