CARE OF BRIDGE FLOORS

By Clyde Piper,
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Fayette County's steel bridges are of the various kinds that are general over the State, with the usual floor construction, namely, plank, creosoted wood block, and concrete, all of which have their limitations and objections. These bridges are today carrying loads that the designer and builder never dreamed would be found on our highways. Traversed as Fayette County is by the Whitewater River and its tributaries, there is hardly a main or secondary road without a steel bridge of some size.

We have tried to conserve our floors to get the greatest possible use from them. Originally the floors were nearly all 3 inch plank laid crosswise. This plan under present traffic, subjects the bridge to considerable vibration and the floor plank to a heavy impact from the wheels, which results in broken planks.

We have floored the bridges with a length-wise flooring, 10 to 12 feet wide, with planks 2 inches thick. This strengthens the floor, eliminates vibration, noise and broken planks. These bridges were floored originally with native oak, which is practically out of local market. At present many of these have the second top floor on them, lengthening the life of the first floor several years.

The creosoted wood block floor is susceptible to water and then heaving follows. We have a block floor that has been in use for many years. My predecessor had taken this floor up and relaid it several years ago. Some of the blocks were deteriorating and were odd shape from the pressure of heaving until we were unable to hold them down with any treatment we had used. We used a concrete mixer and the cold mix asphalt with washed pebbles and sand, running them through the mixer until the pebbles were thoroughly coated. This mix was spread on the floor 1½ inches in thickness, leveled down smooth and covered with sand to take care of any surplus asphalt in the mix. This job so far has been very satisfactory and did not add much dead weight to the floor. We have had very good success with other block floors by treating them the second year after they were laid with the used oil from our motor trucks. We sweep the floor with fiber push brooms first, then follow with a heavy stable broom, removing all dust and dirt possible, scraping any substance that adheres to blocks. Then follow with sprinkling
cans and fiber brooms, brushing the oil until the floor is thoroughly covered.

We have also used the cold mix asphalt on block floors. All dust and dirt must be removed, scraping any that adheres to the floor, thorough cleaning being necessary to insure a successful job. When asphalt strikes dust it will not adhere at all, while the oil will penetrate a little dust. The floor being clean the asphalt is poured on and brushed until the floor is fully coated. Then dry sand is sprinkled over the floor. The sandcoat follows closely after the brushing. We have had very satisfactory results with this treatment. Either of these treatments gives a covering for the floor that is a preservative and is also water-proof.

Concrete floors should be watched closely for checks or cracks. Should any appear they should be taken care of immediately. Any depressions appearing should be filled with tar or asphalt, bringing them up to a level with the floor.

Several of our old plank floors have been replaced with a creosoted oak made up of 2x4's set on edge and fastened together, with 3 angle bar tie rods, into slabs one foot in width. This type of floor makes a self cleaning surface and is free from swelling or bulging. Some we have laid were bolted to the channel irons through the end of each plank or slab. After laying some in this way we changed and laid a 3x4 creosoted timber on each end, using only three bolts to the piece which speeds up the laying of the floor and also cuts the cost. These floors should be covered with asphalt, preferably the cold mix, brushed in with broom and sanded. They are laid without skilled labor, can be laid rapidly, and require closing the bridge for only a short time. They carry little dead weight in proportion to their strength.

There is on the market rolled iron plate made in different widths to be placed on the old wooden floor at the traffic lanes. It eliminates vibration, wear on the floor and also serves as a traffic guide. It presents a non-skid surface and makes a nice driveway.

A bridge floor to give all the service possible should be level with the road or approach and should be kept smooth to eliminate all vibration possible.