



**Dampney**

# Protective Coatings at Work

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## Concrete Footing Repair Procedure for Batch Kilns:

An area of a concrete footing in a batch kiln at a hardwood lumber mill located in New Hampshire was repaired due to severe degradation of the concrete substrate. The kiln is used to dry primarily red oak lumber and the combination of tannic acid and moisture that is drawn out of the lumber during the drying process combined with temperatures between 150°-160°F (65°-71°C) used for the drying process, severely corroded the concrete. The aggregate of the concrete was exposed due to severe concrete loss.

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The above pictures show the concrete that was severely deteriorated from the combination of high temperature and tannic acid exposure for many years. The existing coating system that was applied did not protect the concrete and failed over time due to the acidic service environment. Approximately 1/4" – 1/2" (6mm - 12mm) of deteriorated concrete was removed with a needle gun power tool to a surface condition where the existing concrete was sound and free of laitance and any loose deteriorated concrete. Cracks within the concrete were opened-up with the power tool cleaning to enable them to be properly filled in with the new Protexior coating repair system.



The above pictures show the concrete footing being washed with an alkaline cleaner and an all-purpose cleaner to remove any dirt residue. The alkaline cleaner was used to neutralize the acidic surface from being exposed to the tannic acid; to a neutral PH of 7. The gap at the floor to footer transition was previously caulked. The caulk was removed due to a loss of adhesion to the concrete.

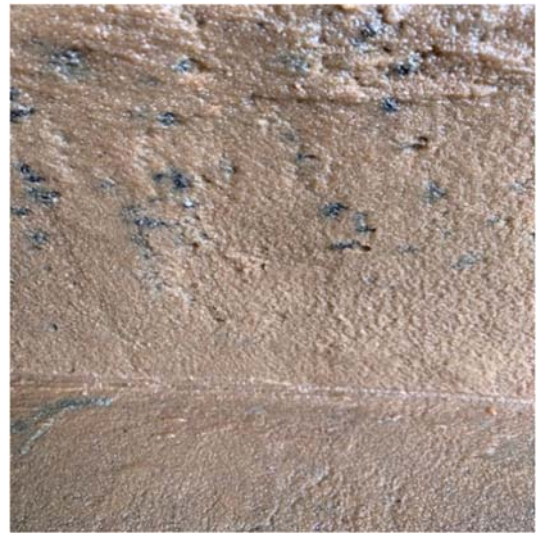


The above pictures show the concrete was prepared to an ASTM D4259 (Standard Practice for Abrading Concrete) with a surface roughness in accordance to ICRI CSP 6-8. The footing and approximately 10"-12" (254mm – 305mm) out onto the floor were prepared for the coating repair.



The above pictures show the coating repair with the Dampney Protexior 793 Epoxy Coating. The picture on the left shows the concrete after being primed with just the mixed liquid A and B components. The picture on the right shows the Dampney Protexior 793 Epoxy Coating after being thickened into a mortar and applied to the concrete to build up the deteriorated areas of the concrete. The mortar was applied between 1/8"- 1 1/2" (3mm – 38mm) to rebuild the deteriorated concrete surface and to establish a smoother surface for the finish coat to be applied. The gap at the floor to footer transition that was previously caulked was filled in with the Dampney Protexior 793 mortar, after first being wet primed with just the liquid Protexior 793.





The above pictures show the applied Dampney Protexior 793 mortar. The picture on the left shows the top of the footer that is horizontal and the picture on the right shows the vertical surfaced of the footer. The picture on the right also shows the floor to footer gap; that was filled in with the Dampney Protexior 793 epoxy mortar.



The above pictures show the finish coat of Dampney Protexior 794 applied to the concrete footing and floor area of the kiln at a dry film thickness of 4.0 - 6.0 mils (100 - 150 microns). This finish coat was chosen due to its ability to resist a wide range of acids, oils and chemical exposures and its excellent resistance to wet/dry thermal cycling when the kiln is in operation.

### **For Further Information:**

Additional information about the Dampney Protexior 793/794 coating system can be obtained from the Dampney Company at the address below.



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