WCB
WALL AND CEILING BUREAU

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March 27, 2015
Davis Joint Unified School District
Attn: George Parker
1919 5th Street
Davis, CA 95616

RE: Premature Deterioration of Exterior Finish
Montgomery and Korematsu Elementary Schools

Dear George,

At your invitation, I visited the Korematsu Elementary School, a carbon copy of the Montgomery Elementary School to evaluate the cracking and delamination of the thin brick wainscot. The schools are relocatable buildings installed in 2004, meaning that they were primarily built off site, trucked to the site, post and beam construction with wood stud infill. The underlayment as I understand it was either OSB or wood sheathing. A scratch, brown and finish coat of stucco was installed over 2 layers of Grade D paper and 17gauge woven wire lath. A wainscot of thin brick tile was installed last. The finish coat has significant cracking and mottling. My initial response to the cracking is that a seismic event occurred, because of the severity and number of cracks. You confirmed that the whole campus has soil movement and heaving. Which could be the reason for the cracking, but the mottling and differences in the sand finish indicate that the brown coat was not cured to allow for even suction during the application process. The process was rushed in other words. After 10 years I believe that all the major cracking has occurred, and that the walls are hard. The solution is to patch the cracking, and install a good coat of acrylic paint or elastomeric paint with some mil thickness to bridge the cracks.

The most interesting condition, one that I have not seen before, is having the stucco finish coat installed over the area to be wainscoted. Whoever put the tile up knew that stucco finish is not an acceptable base for thin brick so they painted the stucco with Well-Crete, a plaster bonding agent. Based on the failure of the bond between the two, I would also guess that the tile contractor used an acrylic based adhesive to stick the tile. Few people understand that Well-Crete and acrylics are not compatible, and do not bond to each other when the bonding agent is installed first. But I think that is what has happened. The tile was installed using an adhesive that could not bond to the Portland Cement basecoat because a layer of stucco and a coat of incompatible bonding agent were applied over the brown coat, so any impact or movement in the building delaminates the tile from the wall. George, you have two choices, based on revenue. Take the tile off and re-install an elevation at a time, or install siding over the tile to cover the failed installation a building at a time. Neither is the optimum situation but both will accomplish what you need, long term durability characteristics in your exterior walls.

If you've further concerns or questions, please don't hesitate to call.

Sincerely,

Bruce Bell
Technical Director