

The tiles on my large concrete deck are buckling.

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Drew from Moffat, Ontario has a very large concrete deck 10 feet in the air, covered with ceramic tiles. For some strange reason, six of the tiles have buckled up, several years after they were glued in place. They have been there for several years, so it would not be caused by the deck shrinking under the tiles. That could have been the cause with a new deck. This really becomes a case of studying how to track down a problem. We need to see if the problem is in the concrete, or in the tiles. I recommend removing the tiles carefully. Observe what is under the tiles. If it is loaded with white powder, efflorescence, then the problem would be caused by water in continuous quantities (like a downspout) that is soaking the concrete under these tiles which brings the salt from the concrete to the surface and can easily push up the tiles. In this case find the source of the water and deviate it elsewhere. Clean off the salt with muriatic acid and re-glue the tiles. If there is no sign of salt, but the concrete itself is heaved up in this area it is probably water getting to the reinforcement bars that are inside the concrete, causing rust which can crack and raise the concrete itself. This is more difficult to solve. You must find and stop the water source, but you will also need to stop the rust. On a small area like this you could wait for everything to dry out, then flow a thin epoxy mix into the crack, long and slow with the objective of covering the rebar to stop or reduce the rust. If the concrete is flat, then it is probably a problem of grout swelling. Simply remove the grout around the problem tiles and re-glue them, use epoxy grout and the problem should not come back. If you are tiling from scratch to install tiles outdoors I would recommend special uncoupling/drainage membranes designed specifically to solve these problems. [Click here](#) to see details on DITRA, and look for the extra high configuration for outdoor use. They even have the possibility of integrated rain gutter systems to control the drip off of the deck or porch.

Keywords:

Decks, Adhesive, Efflorescence, Rust, Tiles, Concrete