

INFO SHEET

Assessing Below Ground Pools for Ground Water Issues

1 Introduction:

When time comes to assess a below ground concrete pool for re coating, there will be some aspects that one needs to take into consideration apart from the internal surfaces. By doing so, one will begin to understand the pools situation relative to other relevant issues that may impact the coating and its long-term performance. If one ignores these factors, then one runs the risk of missing important clues, which may save the contractor and the owner much angst.

2 Concrete Shell:

When a concrete pool is designed it will be with a compressive strength suitable for its intended use and with sufficient re-enforcing steel correctly imbedded. As an example, the engineer may specify 3500 - 4000 psi strength and at least 2" concrete cover for the steel work. Unfortunately, the actual onsite results may not be exactly as specified. Poor shotcrete application techniques, insufficient compaction, and movement of the steel reinforcing chairs, all lead to porous areas of concrete, insufficient cover and many other problems. Over time these may show up as leaks, failure of the finishes and rusted steel work, staining the surfaces.

3 What to look out for:

When assessing the pool, in addition to the usual signs of failed finishes, rusty spots etc., check the following:

- Is the pool on a hill-side, or is there a nearby bank or hillside that allows water to run off or flow towards, under or around the pool and its immediate surroundings?
- Is the pool near the sea, marina, or river or at the bottom of a valley?
- Does roof or rain run off flow away from the pool area? If not be aware.
- Are the pavers or coping tiles, buckled, with gaps between them or loose?
- Is the pathway or coping tiles, pavers that surround the pool showing any signs of white efflorescence? (Also look at the tile line above the water for the same white efflorescence)
- Are the coping tiles or pavers dark in colour?
- If the pool is already painted, then, are there any blisters on the existing paint (above or below the water line)?

If you see any of the above issues then it's highly indicative of water being around or under the pool and this may impact on the success of the coating, now or many years later.

- Efflorescence is a very good indicator of water being in the concrete (or in the ground surrounding the pool) and as the water moves in and out of the substrate, leaving behind the white powder (efflorescence) as the liquid evaporates.
- Dark colour pavers or coping tiles on the tops of pool walls can heat up on summer days. Due the thermal differential with the bottom of the wall (being buried and much cooler) creates a wicking effect with ground moisture. The moisture rises up the walls and leaves near the top, often leaving telltale white efflorescence too.
- Any blisters in the existing pool coating, will indicate moisture passing through the concrete shell into the pool (hydrostatic pressure). Note: A well-worn, thin pool coating may not show

any effects as the water and vapour can pass readily through it. A worn coating is one key reason to recoat a pool.



Figure 1 Dark pavers and coping with efflorescence present, with drainage. Resulted in blisters on pool walls



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Figure 2 So many water related issues resulting in tiles being lost. Note the area below the tiles, being porous it looks OK.

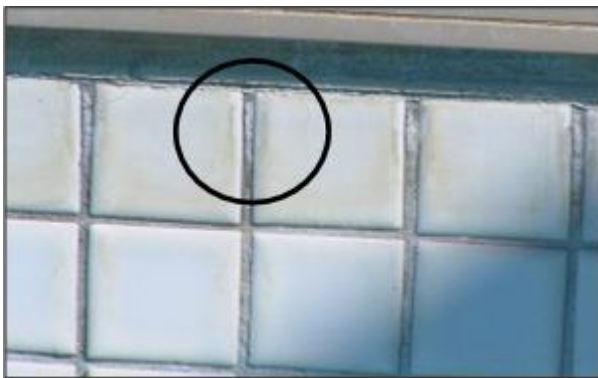


Figure 3 Showing telltale efflorescence on tile grout indicating water passing out from pool shell.



Figure 4 Effects of poor drainage around pool and causing in part delamination of render.

4 Solutions:

The best coating to use in a concrete pool, is one that is both water and vapour proof as it's going to keep the pool (salty) water away from the reinforcing steel and save the pool owner issues to do with concrete cancer.

The PaintNForget Coating System, is a high build coating (when using the E5114 Undercoat) , fits this requirement well.

However, if there are issues with moisture within or under the concrete surface, there is a chance that in time it will cause the coating to blister. This can be hard to forecast, unless you see signs as indicated above.

If you have seen these signs or have concerns, then you should:

- Advise the pool owner (in writing) of what you see and that there may be issues later on that you can't predict now because it's not something you can be certain about its best to err on the side of caution.
- Consider the use of a water proofing coating first such as Litcrete Hydro Ban cementitious waterproofing membrane. This may be a good insurance policy. It can then be over coated once cured with PaintNForget in the usual manner.

5 Summary:

Water is insidious and can make one's life difficult. More so if these aspects above are not noted and then considered. Most times there are no issues, and the project goes well, as does the performance of the coating. However, every now and then, situations arise, which are quite easy to detect beforehand. When so noted and the issues discussed with the pool owner a resolution can be forthcoming or at least the situation monitored so that if matters arise later on, there are no surprises to argue over