

## SECTION 8 POOL FINISH

### LESSONS:

1. Ceramic tiles provide the most effective and efficient long term surface, on pool surrounds. However, specific attention should be paid to their colour, non slip nature and installation. In regard the pool tank the Myrtha lining should be seriously considered as an alternative to tiles.
2. Pay particular attention to ensure adequate fall in the slope of the floor on all wet areas.
3. Ensure your contract allows for both remedial work and loss of pool time in the event of a problem.

This section covers the finish of pool tanks and the floors of pool surrounds, change areas, toilets and showers. These were predominantly tiled but some other surfaces were used.

The fixing of tiles in and around swimming pools is a much more complex job than the tiling of other buildings. Contractors experienced in laying pool tiles need to be employed in pool work. The sub-contracting of tiling work by the successful tile contractor could prove to be a problem later if an inexperienced tiler ends up with the job. Not doing the work correctly can be expensive and result in pool closures, as Richmond has found. In this case I believe the replacement cost was on the contractor, however it is unclear who wore the cost of pool closure while the work was carried out. This was also the case at QE11 where pool surround epoxy flooring was replaced twice at the contractor's expense. These examples show the importance of a contract that includes remedial action in the event of product or workmanship failures, but the loss of pool time in this event should also be included in the contract.

### Pool Tanks:

All pool tanks covered in the review were tiled with the exception of the Alexandra pool which has a vulcanised rubberised lining with the commercial name Myrtha. This pool has been in operation for two years with no apparent problems to date. While this type of pool lining is comparatively new to New Zealand they have been in use overseas for many years with 1500 Olympic pools world wide. Their cost is similar to a concrete and tiled pool, though recently labour costs of concrete and tiling have increased. The major difference between these two pool types is in maintenance costs where the Myrtha pool is approximately a third less. Another advantage a Myrtha learners pool has is that these floors can be cushioned. In view of tiling problems experienced with the pools I visited the Myrtha type pool would seem to be a viable alternative.

One site has experienced continual problems with its learner pool mosaic tiles coming off. Regardless of replacing sections of mosaics over many years the problem still exists. While the contractor is meeting the cost, it is a nuisance to the pools operation. The Richmond Pool, opened in September 2004, has had the wave and lap pool closed for retiling due to the contractor not following contract specifications.



Richmond wave pool tile replacement

In regard to tiling of the pool tank, the most common problem would appear to be poor workmanship. Of the sites visited, problems with tiles occurred due to inadequate preparation of the concrete surface to be tiled, tiling over expansion joints or incorrect fixing compounds. The majority of sites visited had experienced problems with tiling or epoxy floor finishes. One site opened in December 1996 is still experiencing problems with mosaic tiles.

Many pool floor and wall tiles were not laid evenly and have resulted in bathers cutting their feet. Rough or uneven tile surfaces are lethal to skin that has softened due to long periods of immersion in the pool.

#### Pool Surrounds:

A variety of poolside finishes were used at the sites visited, namely:

- Tiles only - 8
- Epoxy coated concrete - 1
- Nuplex seamless sand and resin surface - 1
- Combination of tiles and non-slip coloured concrete – 1

Epoxy finished pool surrounds accounted for most of the problems experienced with the sites visited. Each site with this finish and the one that opened with a concrete surface and later epoxyed that surface have all experienced lifting problems that required recoating, all more than once.

Problems were also experienced with the cleaning of epoxy finished surfaces, in one case staining from furniture presented a cleaning problem, and a couple of other sites experienced difficulty keeping the roughened epoxy surface clean. Each situation was both time consuming and labour intensive.

Change and toilet area finishes were:

- All tiles - 6
- Epoxy coated concrete - 3
- Nuplex seamless sand and resin surface - 1
- Bare concrete - 1

One of these epoxy coated surfaces was smooth concrete, originally, that proved to be too slippery and was later sanded and epoxy coated. This has been done twice in five years. Another site has had the epoxy finish recoated as well. A third site replaced the epoxy surface with tiles after two years. This strongly suggests that epoxy coating is ineffective and a false economy. A senior council engineer said that their epoxy finished pool surround would not have been considered if the cleaning problems that have eventuated had been known at the time.

Examples of inadequate slope were often seen on poolside flooring, resulting in the pooling of water. The same applied to change and toilet areas, with one site having no drainage in the family change rooms. Apart from staff having to broom away excess water after cleaning, unsightly algae growth thrives in these wet or damp areas which in turn are a breeding ground for bacteria and disease. The need for adequate slope on pool surrounds, change areas and toilet/shower floors can not be over emphasized. I assume that the building code stipulates a required fall for pool surround and change area floors, if this is so it is either inadequate or is being ignored.

Another site had attempted to rectify the poor fall on change room floors by adding to the concrete floors around walls and corners to improve the run off of water. (see photo) This resulted in an obvious patch up job that does not appear to work. The photo also shows a timber dividing wall extending to the floor when I would have thought a gap to allow for cleaning and air movement would have been a better solution.



A patch up job on a changing room floor with inadequate slope

Common problems seen during the review were:

- Change areas and pool sides too slippery. An epoxy finish had been applied to these areas at two sites, with Oamaru having done the same area twice since 2000. The epoxy change room floor at Pioneer Pool failed within two years and was replaced with tiles. Both being good examples of a false economy.
- Two sites experienced cleaning problems with epoxy finished floors. The epoxy finish attracting dirt that proved difficult to remove.
- Pool management quoted poor colour choice of poolside tiles (too light) making cleaning a regular and time-consuming chore. I think it is agreed that the lighter the surface the more difficult they are to clean. Over half the sites had, in my opinion, tiles or a floor surface that made cleaning difficult and unnecessarily time-consuming due to the light colour finish.
- Non-slip, heavily grooved tiles also make cleaning difficult and time consuming due to dirt being trapped within the tile grooves.
- While not a problem, the Richmond leisure pool had an interesting choice of fawn coloured tiles. As this pool was empty for tile repairs the effect of these tiles could not be judged.



Richmond Pool under repair

Non-slip tiles on beach fronts of children's pools proving to be far from non-slip. While only one of the visited sites had a problem with this I have witnessed some dangerous situations at other pools around the country. This is a very important area to get right as children slipping tend to hit the back of their heads with little water to cushion the fall. This is too dangerous to be allowed. The cushioned Myrtha lining overcomes this problem.

- Inadequate drainage due to poor floor fall and undersized drains around poolside and change areas resulting in pooling of water. I cannot understand how this can occur. Adequate fall is an essential part of pool design and construction and is easily achieved.
- Upper Hutt has experienced problems with mosaic tiles lifting from the toddlers' pool floor over a number of years. (detailed at the start of this section)
- Poolside wash-down water flowing back into the pool overflow channels. Separate drainage must be provided for this function. Poolside wash down water from cleaning of the pool surrounds should not be going into the pool water or the overflow channels for the obvious reasons of hygiene and added pressure on the filtration system.



Poolside wash-down water flowing into pool over flow channels

It would appear that problems can be experienced regardless of the chosen finish of pool tanks and poolside/change area floors. In cases where experienced tile and flooring contractors have been employed, in regard to pool work, the problems outlined are minimised. Due to the number of pool tiling problems being experienced all over the country one review site (Karori) employed a special contract manager to oversee this work, with no problems experienced in the four years since opening. The laying of poolside tiles while other contractors are working on site can also present problems as these tiles should not be walked on until “cured” which can take as long as 7 days.