

Kickapoo High School

Swimming Pool Assessment

November 16, 2018

The Kickapoo High School Swimming pool has been a fixture in the area since its construction in 1966. The pool is a rectangular lap pool with a diving hopper. The pool dimensions are 40'-0" X 75'-1", ranging in depth from 3'-0" to 12'-0". The pool has a surface area of 3,000 s.f. and an approximate volume of 153,450 gallons. The pool has an all tile finish, DE filtration and uses Sodium Hypochlorite as a disinfectant.

General Observations:

Pool Vessel:

It does not appear many modifications have been made to the pool vessel. There has been a fair amount of tile repair/replacement that has taken place over time. This is to be expected given the age of the pool. There are several areas where the tile has delaminated from the substrate and will require replacement. In many areas a significant amount of grout is missing. There are two areas where the tile has come loose and the mud set substrate is deteriorated. Deterioration of the subgrade can be anticipated under many of the areas where the tile has come loose.

Calcification due to weeping at the floor/wall interface and near hairline cracks, pipe penetrations and fixture is evident in the tunnel. The majority of the calcification is to be expected; however, there are a few areas that should be repaired.

The slope of the pool floor from the 5'-0" depth to the 12'-0" depth does not conform to the current pool code.

Pool Deck:

The deck coating shows signs of wear. Cleaning the deck is a necessity in aquatics facilities, this will be difficult with the current condition of the deck covering. The pool has an access tunnel around it's perimeter. The underside of the pool deck has areas which have significant calcification from water that is migrating across the surface. It appears the majority of the water is not pool water, it is coming from below the windows at the exterior wall of the pool room.

The distance from the locker room exit to the pool does not meet current code. 15' is required to the pool edge from the shower room doors. I believe this can be accomplished by moving the door closer to the showers on the backside of the privacy wall.

There are no deck drains.

Pool Mechanical Equipment and Piping:

The gutter and inlet piping has been upgraded to schedule 40 PVC. There are 12 return inlets, they have been replaced with new inlets, piping and link seals. The gutter drain drops and grates have not been replaced and some show significant deterioration and indications are they are leaking. The main drain piping was not observed below grade; it is assumed to be in poor condition. The main drain grates do not appear to conform to the Virginia Graeme Baker Act. If documentation is available to confirm compliance, the grates should be inspected and the life expectancy should be verified.

A valve used to drain the pool has failed and is no longer operable. The valve is approximately 4' below the equipment room floor. The original construction plans indicate the valve is in a 6" line that exits the building and runs to a manhole near the corner of the building.

The original Separmatic DE filter manufactured in 1966 is still in use. The filter has an effective area of 180 s.f. The filter is capable of cleaning the water at a rate of 2 gpm/ s.f. The maximum flowrate the filter can achieve is 360 gpm. The turnover time for the pool is approximately 7 hours (code was 8 hours when constructed). Current code does not allow the turnover time for a public pool to exceed 6 hours.

The pumps have been replaced and appear to be functional, although they may not be able to provide enough flow to achieve a 6 hour turnover.

The chemical controller and feed equipment appear to be in good shape and operational.

The surge tank is in good condition and piping to and from the tank has been replaced.

The pool is heated through a heat exchanger. The condition of the heat exchanger is unknown.

Deck Equipment:

The diving board/stand shows signs of age. The board appears to have been painted, presumably with material that will prevent slippage. This may be an issue for the board manufacturer, further investigation will need to take place.

The ladder, grabrails and handrails appear to be in good shape and all are tight in their anchors.

Guard chairs are portable and seem sufficient.

A Spectrum Motiontrek ADA lift is present. ADA compliance is met per the most recent DOJ guidelines.

Action Items:

Note: Attached is a list DSPS uses to determine when pool plans require submittal for review and inspection. Several of the items that require attention may require a state submittal. State submittal will require the facility to be compliant with the current code or be granted variances for items that compliance is unachievable.

Repair of the tile and grouting will be necessary if the pool is put back into operation. The biggest variable is the condition of the mudset throughout the pool. Providing the mudset is sound across the majority of the pool and grout is added to protect it; the pool surface can be repaired without a great deal of expense. Based upon the age of the pool, I would anticipate issues with tile spalling and failing mudset to occur and need repair annually. Removal of the tile and mudset would require a great deal of labor and may be cost prohibitive based upon the age of the pool.

Compliance with the VGBA will need to occur (if not previously completed) and drain cover life expectancy should be verified.

Pool gutter drops should be inspected and repaired where possible.

Water from the exterior wall that is passing through the foundation should be stopped.

Move pool access doors at the showers if compliance with DSPS 390 is necessary.

Deck drains: Possibly add a Stegmeier mini-paver drain in the deck mudset at the back of the gutter.

Valve replacement or alternate method for draining the pool should be installed.

Filter replacement could be considered if the pool is to remain in service after extensive renovation related to the pool surface.

Budgets:

Remove tile and mudset: \$ 85,000 - \$ 100,000

Mudset and tile: \$ 275,000 - \$325,000

Plaster finish (pool to be approx. 2" deeper) \$ 65,000 - \$ 80,000

Replace gutter drops: \$ 15,000 - \$25,000

Install grating over the gutter: \$30,000 - \$ 40,000

VGBA Compliance (if needed): \$ 6,500 – \$ 8,500

Install Stegmeier mini-paver deck drain: \$ 15,000 – \$ 18,000

Drain valve replacement: \$ 10,000 - \$ 15,000

Filter replacement: \$ 8,000 - \$ 25,000

Conclusion:

The Kickapoo High school pool went into operation 52 years ago. The pool has served the community well, but is reaching the age where major renovation or replacement should be considered. In my opinion, the tile/mudset finish is the most concerning. The failures that have shown thus far; are what can be expected across the rest of the vessel. It is difficult to predict any future failures but they should be anticipated in the next few years. Repairing the tile and regrouting the entire vessel should help prolong the life of the pool and are a necessity if the pool is to be put back in operation. The pool wall concrete (back of the wall) appears to be structurally sound and in fair condition. We are unable to assess the condition of the concrete pool floor, if it is sound and in good condition plastering the vessel or resetting tile should be considered.

There are four options that can be discussed regarding the future of the pool.

1. Make the necessary repairs, put the pool back in service and anticipate additional maintenance until failure. (approx cost: \$ 5,000 - \$ 10,000)
2. Major renovation: removal of tile/mudset, repair the gutter drops, repair the drain piping, plaster or tile finish. (approx cost: \$ 300,000 - \$400,000)
3. Construct a new pool vessel. (approx cost: \$ 650,000 - \$ 750,000)
4. Decommission the pool and repurpose the space. (approx cost: TBD)

Option 1 is a short term solution 1-5 years.

Option 2 has risk due to the unknown of the concrete substrate.

Option 3 will provide a new code compliant swimming pool to be enjoyed for approximately 50 years.

Option 4 shifts costs from aquatics to another activity.