

# ROCK SPRINGS 4-H CAMP – HISTORIC RESTORATION PROJECT

JUNCTION CITY, KANSAS

COMPLETION: 2013

## Restoration Result



## PROJECT ASSESSMENT

### *“What needed to be done”*

Rock Springs 4-H Camp is located approximately 12 miles southwest of Junction City, Kansas. The history of the Camp dates back to its ranch beginnings in 1857. When the property was acquired by the 4-H Foundation in 1946, one of the first amenities built on the property was a massive, sectional 60' x 120' concrete swimming pool.

Built to the best of standards in that era, the original construction included sectional 17" thick walls, and abnormally wide, copper V-expansion joints filled with felt as the backer and bitumen as the sealant.

After years and years of use, structural movement and deterioration along with the effects of freeze / thaw cycling created large gaps between the sectionally poured concrete. Old steel piping used for the recirculation system rusted, cracked and did not function without leaking. The pool lost over 7,000 gallons a day.

The pool gutter could no longer be used. Return lines set in the pool walls were closed and capped over.

6" PVC piping with drilled 'holes' was laid completely around the pool. Another 6" PVC pipe stretched across the pool decking from the filter to the return line system in the pool.

Turnover rates no longer met commercial standards. The existing diving well no longer met current diving and safety depth standards. Diving boards were roped off and not used. The concrete diving well suffered some of the worse freeze / thaw damage of the entire pool.

Of particular concern was that this pool did not offer any popular attractions that were part of newer aquatic complexes such as slides, water features and the like.

# BEFORE HISTORIC RESTORATION

Before Restoration Work Begins



Sectional Concrete Gutter & Coping Cap Movement



Freeze Damaged, Cracked & Outdated Diving Well



Peeling Paint off Expansion Joint Sealant



Corroded Cast Iron Plumbing



# RENOVATION PLAN

## “How it was done”

Assessing the pool’s condition was the first step in this restoration Project. Already acknowledging that the concrete gutter, coping and portions of the decking had to be removed, concentration turned on assessing the remainder of the pool shell. A Schmidt Hammer Test showed that with the exception of the diving well floor, the rest of the structure had Compressive Strength readings in excess of 4,000 psi.

Because the diving well did not meet current depth standards for diving board use, plans were made to cut, remove and deepen the pool. That made poor Compressive Strength readings on the diving well floor irrelevant.

Abnormally wide (2” - 3”) expansion joints were covered with layers of pool paint, however the joint edges were straight and sound. Finding suitable material for such wide joints proved to be challenging, but not impossible.

Environmentally friendly Hydro-blasting (UHP) removed layers of pool paint and remaining caulking and bitumen expansion sealants.

The shear length of the pool allowed the addition of a 0-Depth Entry inside the pool, thereby avoiding intrusion onto the original rock bathhouse.

New water features, piercing and a large attractive slide were added to the pool setting.



### Cutting Demolition and Removal of Sections of Concrete from the Gutter and Diving Well

Before Stainless Steel gutter installation, adjustments had to be made to the walls at the sectional joints. While the walls were structurally intact, they experienced movement near the joints that caused them not to be ‘plumb’ with each other. Movement was generally restricted to the upper areas of the walls. Mechanical abrasion was used to rid the worse differences. Supporting stainless steel plates were added to the top (now cut portions) of the walls to restrict future movement. New decking included expansion joints that limited the concrete mass from pressuring onto the pool walls that would cause repeated irregularity.

Lightweight fill was used below the reinforcing steel and shotcrete for the 0-Depth Entry.

SCH-80 PVC plumbing was used throughout and a new 20-Hp pump updated the recirculation system to current 6-Hour Commercial Turnover Rates.

Following excavation, shotcrete was used to construct the new diving well and 0-Depth Entry.

The entire pool was re-surfaced with reinforced polymeric INTER-GLASS®.

# HISTORIC ROCK SPRINGS 4-H POOL RESTORATION

Gutter Installation in Progress



Concrete After UHP Paint Removal



Shotcrete Added Entry Steps



Shotcrete Added 0-Depth Entry



New Shotcrete Diving Well



Water Slide Installation in Progress



## PROJECT SPECIFICATIONS:

TOTAL SQ. FT.:	13,360T <sup>2</sup> POOL & DECKING
POOL SHAPE:	MODIFIED RECTANGLE
TYPE OF CIRCULATION:	STAINLESS STEEL GUTTERS
TYPE OF CONSTRUCTION:	SECTIONALLY FORMED & POURED
TYPE OF FINISH:	INTER-GLASS®
Engineering:	Norton & Schmidt Consulting Engineers