

Saint Louis Zoo River's Edge
Substrate/Flooring of River's Edge Elephant Facilities

Natural substrate (a combination of dirt, sand, and screening, layered over chat) is used in the outside elephant exhibits and off-display elephant holding yard of the Saint Louis Zoo's River's Edge. Generally, 1-2 times each season, annual yard maintenance occurs which allows for old substrate to be removed and/or re-graded along with additional substrate that is then added. The substrate combination used allows for drainage and remains "hardy" enough for daily elephant wear and tear. Hay and browse is placed throughout the exhibit, either directly on the ground itself or tucked into outcroppings that comprise the gunite containment walls.

Inside the barn, the floors are poured concrete with a broom finish, having a 4% slope to the trench drains located outside of each stall. This slope facilitates daily cleaning and prompt drainage/drying of waste and water; it does not seem to impede the natural movements of the elephants. Over time, however, spotted areas nearest these drains that receive the majority of waste/urine can become slick with urine build-up and must be addressed for keeper and elephant safety, though the majority of the stall flooring maintains safe traction.

The stall floors are not heated, though they have been tested and appear to maintain a consistent temperature within the 50's and 60's year round. (Above each stall individual gas heaters also allow for customized comfort zones, though the entire facility is maintained by a forced air system.)

Each trench drain present in the elephant transfer aisles is secured with stainless steel sleeve anchors that are easily removable when access is required to these drains. All trench drains empty into a ~3 foot diameter sewer that contains a basket removed daily via a manual pulley system to prevent excess debris from entering the sewer system.

Overall, this system appears quite effective though it is important to prevent 90 degree junctures in the system pipe work that prevent debris from traveling efficiently throughout the system and can cause chronic clogging.

Saint Louis Zoo River's Edge Elephant Facilities – General Information

When the St. Louis Zoo initiated planning for the River's Edge in 1996, we decided to focus our commitment on one species of elephant, the Asian elephant. We do not have plans to exhibit/house Africans in the foreseeable future, but we designed our facility to hold Africans in case our focus changes down the road.

Our future plans for our elephant population are to maintain the elephants in our collection (meeting or exceeding all AZA guidelines/standards), to develop/build a socially compatible herd through a successful breeding program and to cooperate and participate with the Elephant TAG/SSP on elephant conservation efforts both in captivity and in the wild.

Elephant Management Facility:

The St. Louis Zoo 13,000 sq ft Elephant Management Facility (EMF) was completed in 1999. This was the first elephant facility to be designed and constructed specifically with protected contact in mind as the primary management strategy for elephants. There is 6720 total sq ft of indoor elephant space divided up into 8 stalls and corridors (corridors can also be used as elephant holding either separately or when connected to an adjoining stall).

The indoor space was designed for maximum flexibility in managing elephants. The 8 stalls can be "connected" in a multitude of ways using gates and corridors. This building offers a great deal of flexibility in housing elephants – we can create separate stalls or connect 2 or more stalls together to create larger living spaces for one elephant or a group of elephants. We can shift elephants in at least two directions from every stall. There are solid doors, mesh doors and pass through gates to allow us to regulate the amount of visual and tactile contact elephants can have when in adjoining stalls. All shift doors are hydraulically operated. Some of our hallway gates are manual pre-set gates and some are hydraulic depending on the locations and intended purposes of the gates.

All of the stalls and corridors are capable of containing an adult bull elephant. Two of the stalls are larger with solid walls for periods of time during musth when the bull(s) may need more space and isolation.

Special access panels are designed into the stall walls to provide the handlers with safe workstations to access feet, ears, etc. for routine elephant management and veterinary procedures. Each stall is outfitted with an overhead chain for hanging elephant toys – and this chain doubles as a hoist anchor should we ever need to use our hoist to help an elephant back onto its feet. Each stall has several "tie-downs" for enrichment items or for use as anchor points with chaining for management or during an emergency. All stalls are equipped with automatic waterers which provide fresh water to the elephants upon demand. One stall is equipped with four showerheads when we want to provide the elephants with an indoor rainshower for enrichment.

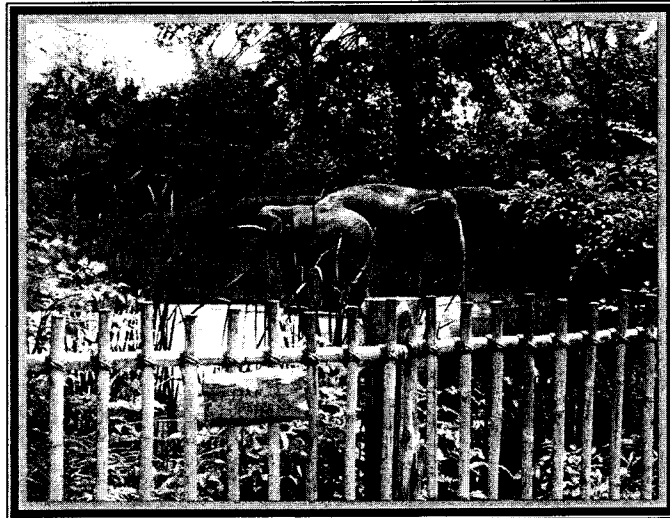
The barn is kept between 55-60 degrees using forced air gas heat. Each stall also has an overhead radiant heater which we can individually regulate depending on how warm we want the stall to be.

The hydraulic ERD (Ricketts design) is located inside the EMF. The ERD is adjustable, has a built in scale and can rotate an elephant onto its side. The ERD is located in the center of the barn so that it is easily accessible from all of the stalls and exhibits and can be entered from either direction as needed. Our elephants all pass through the ERD at least once a day and sometimes twice.

Six of the eight stalls are monitored with video and we have plans to purchase and install additional video equipment in the future to provide monitoring of all stalls and exhibits.

Outdoor Elephant Facilities:

There is 53,860 total sq ft of outdoor elephant space divided up into three exhibits and one off-view holding area. The exhibits are naturalistic exhibits with grass, plants and trees. In 2001 eight 45-50' trees were added to provide shade for the elephants. The exhibit barriers are either gunite or cable. Three of the outside facilities (2 exhibits and the off-display yard) have barriers which are high enough to contain bulls and/or cows. One exhibit has lower barriers and it will only be used to exhibit cows and calves.



Our largest exhibit is 23,250 sq ft and was designed with 8' barriers. It is intended to exhibit only cows and calves (not bulls). The adjacent exhibit can exhibit both bulls and cows – it has higher barriers and is 15,500 sq ft in size. The third exhibit is 9000 sq ft and can also exhibit either bulls or cows. We have the flexibility to use all of these exhibits as separate yards or to connect all into one very large living space if desired. The off-display yard is behind-the-scenes and adjacent to the barn – it is 5000 sq ft in size and can hold either bulls or cows.

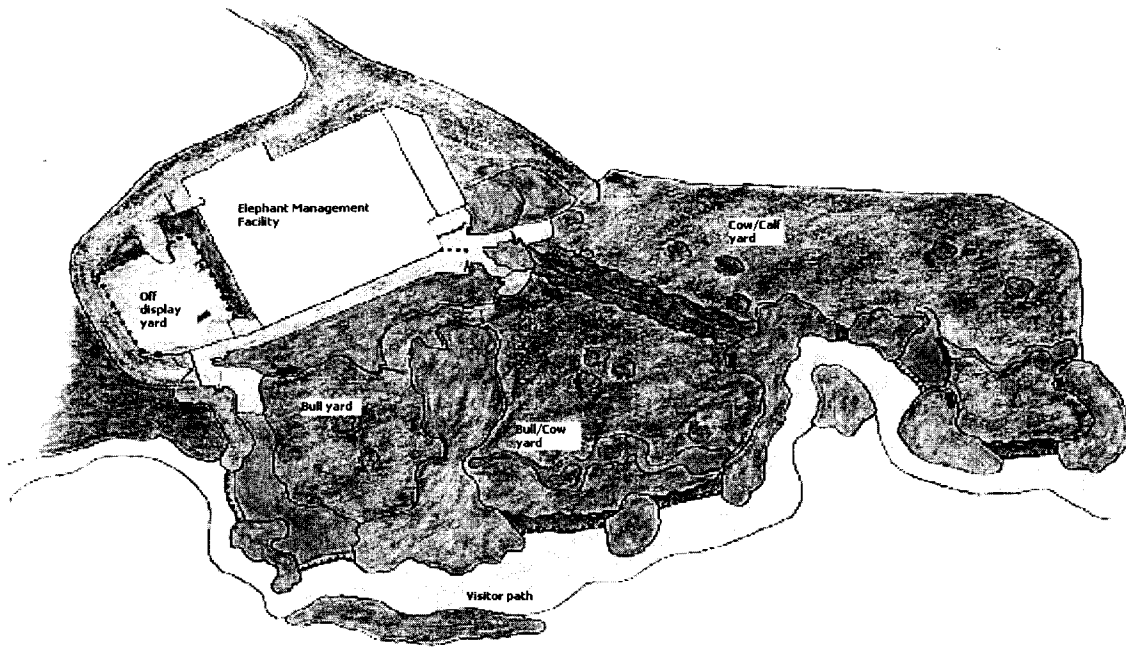


Diagram of Saint Louis Zoo River's Edge elephant exhibits.

The exhibits are interesting and complex. The terrain is various – there are mounds for climbing, deadfall trees to push on/maneuver around and the yards are large and long to encourage walking/exercise. Every exhibit has a water feature. Our cow/calf exhibit 7' deep pool holds nearly 40,000 gallons of filtered water and also has a waterfall that the elephants can swim under and a stream that they can access as well. Our second exhibit has a smaller pool (~10,000 gal) and a recirculating stream that the elephants can access. Our third exhibit has a 90,000 gal pool which is 9 ft deep.



Waterfall at Saint Louis Zoo's River's Edge (cow/calf exhibit)

We are committed to having our elephants outside as much as possible, summer and winter. For elephant comfort in the winter, every exhibit has 1 to 3 overhangs/windbreaks with overhead radiant heaters to provide the elephants with comfort zones when they are in the exhibit on cooler days in the winter. The outdoor elephant transfer gangways are equipped with heating coils to melt snow and ice.