

**INSTRUCTIONS
SSP ELEPHANT EXHIBIT DESIGN
CONTRIBUTOR'S FORM**

Here are some helpful steps to guide you in completing the Contributor's Form below:

Step 1: Create a profile of your elephant facility for the Elephant Exhibit Design Resource by choosing one or more design components from the list below which have worked well for you in managing your elephants. As an example, you may want to review the **St. Louis profile** in the Elephant Exhibit Design Resource.

Step 2: Please refer to the supplemental questions on the component list below (or Appendix B in the Elephant Exhibit Design Resource Guide) to help prompt your descriptions regarding each of the components you wish to discuss. Wherever possible please provide photographs, preferably digital, and/or drawings.

Step 3: Gain input from a variety of users (curators, managers, keepers and vets) who may have a variety of ideas about the merits of the design.

Step 4: Submit form to Guy Lichty for review and inclusion in the Elephant Exhibit Design Resource. If you have any questions, contact Guy Lichty at:

Guy Lichty
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North Carolina Zoological Park
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SSP EXHIBIT DESIGN FEEDBACK FORM

Date: _____

Facility/Location: _____
(Example: North Carolina Zoo/Asheboro, NC)

Name/title of person filling out form: _____

Scope and cost of project, if known: _____
(Examples: New barn \$3 million or exhibit renovation \$400,000, etc.)

Elephant capacity (sex ratio) of your facility: _____

Management system: _____
(Examples: protected contact, free contact, combination, etc.)

Contact info: _____
(Phone number/e-mail address)

Date barn and/or exhibit built or renovated or scheduled for completion: _____

ELEPHANT EXHIBIT DESIGN

Component List and Questions

Please choose one or more design components (underlined) from the following lists which have worked well for you in managing your elephants. Under each component is a series of supplemental questions to help you describe your design and why it has been successful for you. You do not need to answer all of the questions. They are meant to prompt descriptive details to help in your explanation. Please use a separate Exhibit Design Contributors Form (the first page in this document or Appendix C in the Elephant Exhibit Design Resource) for each component you choose to share. Wherever possible, please provide digital photographs and/or drawings.

Containment (exhibit and/or barn/paddocks)

- In what ways is your containment design:
 - Safe for the animals?
 - Safe for visitors?
 - Safe for staff?
- In what ways does your design:
 - Prevent escape?
 - Prohibit direct, unsupervised contact between the public and elephants?
 - Provide secondary containment?
 - Account for the strength and agility of elephants?
 - Allow for the exhibition of calves, which are much smaller than adults?
 - Allow you to house elephants separately, but adjacent to each other (with or without physical contact)?
 - Address protected contact management needs? Other management system needs?
 - Allow access to animals even while on exhibit (as in protected contact systems)?
 - Maximize visitor views of the elephants?
 - Meet aesthetic criteria/philosophy (as in natural habitat facilities)?
 - Allow animals 24-hour access to the enclosure?
- If moats are used, how are animals extracted or allowed to exit, especially in protected contact systems?

Space/configuration/prolonged indoor housing issues

- How did you meet the Association of Zoos and Aquariums (AZA) Standards for Elephant Care and Management?
- How did you maximize your use of space?
- How are your stalls, aisles, transfer doors, etc. aligned to maximize flexibility for the transfer of and keeper access to your animals?
- How are animals allowed social contact with each other when restrained or separated from each other in the barn when keepers are not present?
- What accommodations have you made for:
 - Moving animals off and on exhibit?
 - Separately, when only one animal is desired?
 - As a herd?
 - While bypassing other animals in stalls or paddocks?
 - Animals isolated for veterinary, maternal, husbandry or social reasons?

- Unrestrained social interactions during prolonged indoor housing or unsupervised periods of time?
- Varying demographic make up, e.g.
 - Cows with calves?
 - Multiple bulls?
- Animal introductions, e.g.
 - Bulls to cows?
 - Newborns back to mothers?
 - Calf and mother to herd?
 - New animals to existing?
- Animal training/operant conditioning?
- Vehicle or heavy equipment access

Shade/tree protection

- How did you provide shade for animals outdoors:
 - On exhibit?
 - Off exhibit?
- How is your shade structure protected from elephant damage?
- If trees are used, how did you protect them from elephant damage?
- How much shade did you provide?
 - Percentage of total available space?
 - Square footage per animal?

Substrate/flooring

- What substrate did you use outdoors:
 - On exhibit?
 - Off exhibit?
- How will you maintain it?
- How well does it drain?
- If turf is used, how will you keep it maintained/irrigated?
- What dry, cleanable feeding surface did you use and how does it:
 - Accommodate multiple animals?
- What type of flooring did you use indoors and how does it meet the following criteria where appropriate?
 - Impervious to water
 - Easy to clean
 - Quick to dry
 - Sloped toward the drain(s)
 - Smooth, but not slippery when wet
 - Rough, but not to irritate feet
 - Provide dependable traction
 - Provide heat or insulation from the cold
 - Provide comfort so animals can lie down
 - Resistant to damage from heavy use, frequent cleaning/disinfecting/tusks, etc.
- If rubberized matting or other flooring applications are used, what are they and how will they hold up under heavy wear, cleaning, and tusking?

Heating/ventilation/power

- What type of heating system (gas, electric, solar, ground source heat pump, etc.) did you use and why?
 - Efficiency?
 - Cost-effectiveness?
 - Energy conservation?
 - Environmentally friendly?
 - Serviceability?
 - Low maintenance?
 - Safety?
 - Animal/human health?
- How will you provide supplemental heat in emergencies or special cases?
- What type of air handling system did you use for ventilation/air circulation and why?
 - Efficiency?
 - Cost-effectiveness?
 - Energy conservation?
 - Serviceability?
 - Low maintenance?
 - Safety?
 - Animal/human health?
- What type of back-up system for electricity, hydraulics, etc. do you have in case of power failure?

Lighting

- What type of lighting did you provide in the barn (florescent, incandescent, metal halide, natural, etc.)?
- How does it provide for
 - Adequate light?
 - Energy efficiency?
 - Maintenance/serviceability?
 - Moisture resistance?
 - Cleaning?
- How many foot-candles?
- If natural light is used, what approach was taken?
 - Skylights?
 - Sona tubes?
 - Clerestory windows?
- What type of lighting did you provide outside the barn and why, e.g. security, loading/unloading, animal welfare?

Door and gate design

- What type of door system(s) did you use (hydraulic, pneumatic, manual, etc.) in your barn/paddocks/exhibit?
- What materials did you use?
- How does your design address
 - Animal safety?
 - Keeper safety?

- Potential damage inflicted by elephants?
- Insulation from outdoor temperatures?
- Loading or unloading for translocation?
- Power failure?

Manure removal/cleaning

- How are you accomplishing manure removal in your barn/paddocks/exhibit (manual, tractor, conveyer, etc.)?
- How does it minimize the use of time, labor and other resources?
- How does it address safety and health concerns?
- What systems do you have in your barn for efficient cleaning/disinfecting?
 - Drain types and locations?
 - Water pressure/hosing systems/locations?
 - Finishes on walls, bars, etc.?

Loading and unloading for translocation

- How does your facility accommodate the safe loading and unloading of elephants?

Water features, including drinkers

- What kinds of water features does your outdoor enclosures have (pools, mud wallows, drinkers, etc.)?
- What is the water source (potable, non-potable, underground well, etc.)?
- How do you keep water features sanitary?
 - Dump and fill?
 - Filtration system?
 - Manure removal?
 - Disinfecting?
- For pools
 - What is the drop and fill time?
 - What filtration system did you use, if any?
 - Do you have steps or a walk-in ramp or other and why?
 - How deep do you think a pool needs to be for your animals to get the best use out of it?
 - How do you address safety concerns?
 - Depth?
 - Access?
 - Presence of calves?
 - Geriatric animals?
- How do you provide fresh drinking water in your barn/paddocks?
 - If drinkers are used
 - Are they automatic or dump and fill?
 - What type of fill system did you use?
 - How do you keep them clean and sanitized?
 - What kind of access do the elephants have?
 - How do you account for competition?

Quarantine

- How do you manage quarantine?
 - Separate facility?

- Avoid cross-contamination?
- Address isolation?

Managing social situations, introductions, etc.

- Other than what was covered above, how does your design address social situations and introductions?

Calving and calf management

- Other than what was covered above, how does your design accommodate calving and calf management?
 - Calf delivery?
 - Calf manipulation for health check, nursing, etc?
 - Re-introduction of calf to mother, if prolonged?
 - Aggressive mothers?
 - Calf containment?
 - Milk collection?
 - Hand rearing?

ERDs and other restraint systems, hoists, winches

- What are the best features of your Elephant Restraint Device?
- Who designed and build it?
- What other built-in restraint features do you have?
 - Floor rings, tie-downs?
 - How were they designed and built in?
- What design features address lifting (or maintaining) a sick or injured elephant onto its feet?
 - Hoists?
 - Slings?
 - A-frames?
 - I-beams?

Enrichment/exercise

- How do your enclosures elicit a wide range of appropriate natural behaviors?
- What built-in enrichment do you have:
 - In your barn?
 - In your paddocks?
 - In your exhibit?
- If your exhibit is designed to represent a natural habitat, how did you design built-in enrichment features that look natural on exhibit?
- How have you designed exercise opportunities into your:
 - Barn?
 - Paddocks?
 - Exhibit?

Protected contact/confined contact/free contact design elements

- Other than what is covered above, how does your design meet the needs of a protected, confined and/or free contact management system(s) as defined by the AZA?

Scales

- How did you include scales in your design?
- Are they permanently installed or portable?
- What products did you use?

Behind the scenes accommodations

- How did you accommodate behind-the-scenes opportunities in your design?
- What separates the visitors from the animals?
- How close can the visitors get to the animals?
- How much do the visitors get to see of the facility/operation?
- How many visitors do you accommodate at a time?
- Do animal staff need to be present or can docents/educators/etc. conduct tours?

Indoor viewing

- What do you use for the public barrier (glass, moat, etc.)?
- What is the distance between the public and the animals?
- What do you allow the public to see?

April 2009 – G. Lichty