

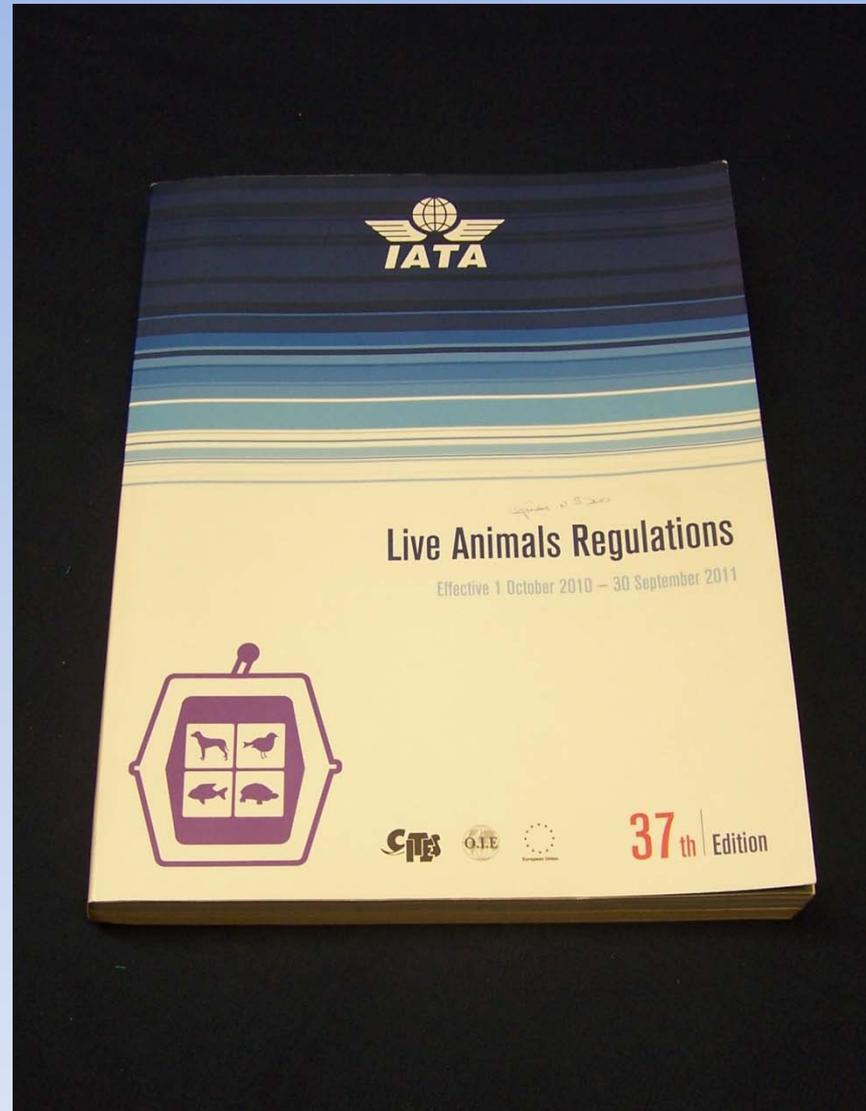
A photograph of a brown deer with antlers standing in a field. The deer is facing left and has a white collar around its neck. The background is a grassy field.

Building Shipping Crates

AAZK Conference 2013

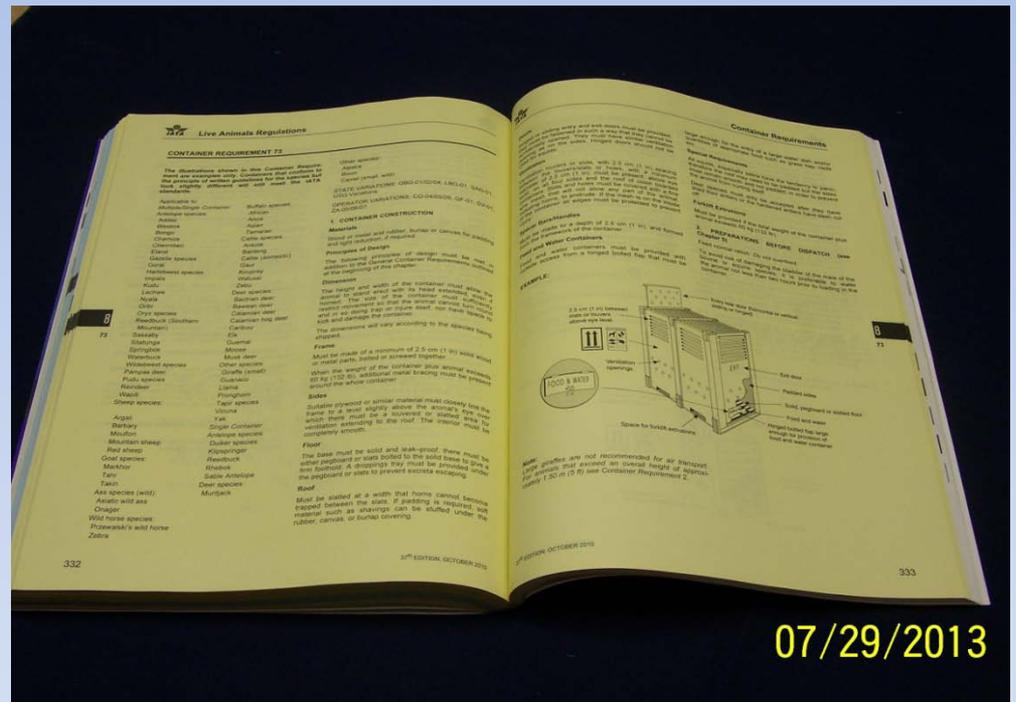
Resources

- International Air Transport Association (IATA) Manual



Resources

- Pages 332 – 333 were references for the impala crate shown in the following images.



Antelope Shipping Crate:

- This is based on the requirements of the IATA.
- Interior dimensions set by the keepers' requirements for the particular animal to be shipped.



Antelope Shipping Crate:

- The sides and tops have 1" wide slots that are covered with a wire mesh called hardware cloth.



Antelope Shipping Crate:

- There are guillotine doors on both ends of the crate.
- For added security, lockable hasps are attached to the doors.



Antelope Shipping Crate:

- Only one of the doors is required to have a food and water hatch.
- The hatch provides a way to give the animal food and water without having to open the guillotine door.



Antelope Shipping Crate:

- The slots provide plenty of ventilation.
- The slots also provide good visibility into and outside of the crates.



Antelope Shipping Crate:

- To help prevent injuries, the sharp edges of the hardware cloth are covered with a wood frame.



Antelope Shipping Crate:

- View of the top of the crate showing the 1” ventilation slots.
- 8” corner brackets are used throughout to help stabilize the crates.



Antelope Shipping Crate:

- Crate handles are positioned so that keepers can more easily pick them up and carry them.
- For comfort, the handles are rounded using a $\frac{1}{2}$ " radius bit.
- The handles are attached to the frame of the crate allowing a comfortable gap between the crate and the handles.



Antelope Shipping Crate:

- Ventilation holes covered with hardware cloth.
- The 2 x 2 frame lifts the crate so that, if necessary, the crate can be mechanically lifted.



Antelope Shipping Crate:

- Screws are used throughout to insure solid construction.



Antelope Shipping Crate:

- The base is made of $\frac{3}{4}$ " exterior grade plywood
- $\frac{1}{2}$ " slots are routed in the base through which urine and feces can go.
- The edges of the slots are rounded using a $\frac{1}{8}$ " radius round-over bit.
- The slots are also spaced wide enough apart as to provide adequate footing for the animal.
- To protect the plywood, spar urethane is applied to both sides of the base.



Antelope Shipping Crate:

- The bottom is solid to catch the urine and feces.
- The bottom also has several coats of spar urethane to help protect the wood and make cleaning easier.



Antelope Shipping Crate:

- For easier cleaning the base can be removed and hosed off



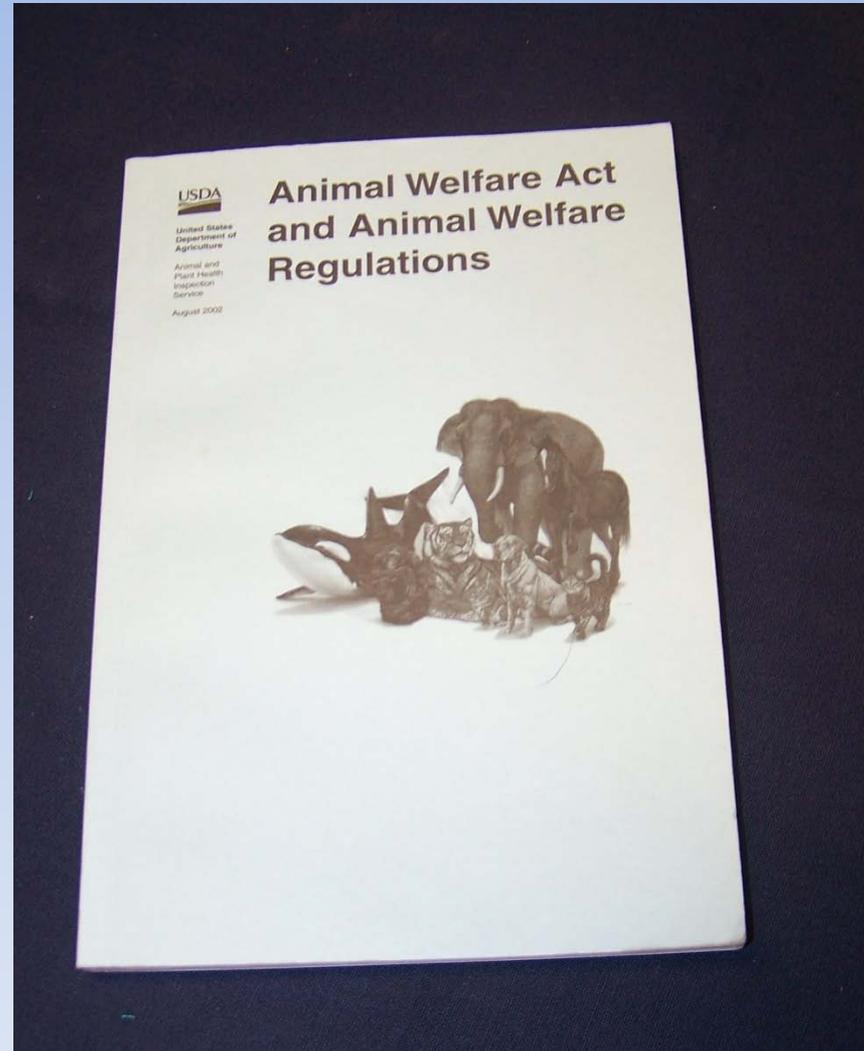
Antelope Shipping Crate:

- Flat head stainless steel screws are used to secure the base to the bottom frame of the crate.



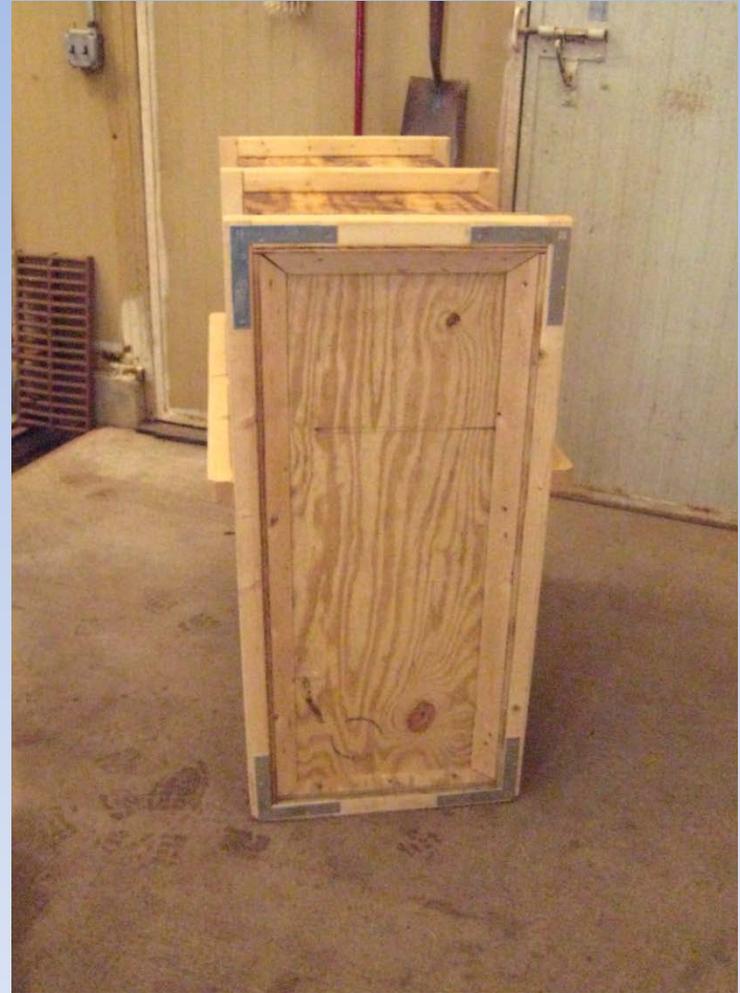
Resources

- This manual is used when an animal is transported by trucks or other container vehicles.
- This was the reference for the crane shipping crate.



Crane Shipping Crate

- The crane shipping crate is not required to have as many ventilation slots as the impala crate; Nor is it required to have the food and water hatch.
- There is only one door on this crate.
- For shipping purposes the door is secured with wood screws driven into the frame.



Crane Shipping Crate

- The ventilation holes are rounded using a $\frac{1}{4}$ " radius round-over bit.
- The black ventilation mesh is to help keep the bird calm.



Crane Shipping Crate

- Angle brackets are attached to the frame to provide stability.
- The door guides are beveled to help the bird enter and exit the crate.
- The inside corners have beveled supports.
- The back has a window covered with hardware cloth and a curtain to allow keepers to periodically check on the bird.
- The keepers added the cushioned material to the top and bottom of the crate.



Crane Shipping Crate

- Screws are used throughout construction of the crates



Crane Shipping Crate

- Better view of the ventilation holes and the beveled door guides



Tools Needed

- The edges of the slots and/or holes are rounded over using an $1/8''$ or $1/4''$ radius bit as shown.
- Using a rounding over bit smoothes the edges but also helps eliminate a lot of sanding.



Tools Needed

- The top bit is a $\frac{1}{2}$ " radius bit used for rounding over the edges of the crate handles.
- The bottom bit is an $\frac{1}{8}$ " radius bit used to round over the slots and holes.



Tools Needed

- View of a plunge router with a ½" straight bit used to cut the slots in the impala crates.



Tools Needed

- Jig used with the plunge router to guide the router when cutting the slots in the doors of the impala crate.

