

SUPPORT TRAYS

Purpose

Trays are used to provide adequate support and handling of various types of objects and may also be used as space saving tools by stacking multiple trays in one box. The size of the box, the height of the box, and the weight of the objects will determine whether or not a single, double, or triple tray will be required. Trays were used for rehousing objects such as watch fobs, beaded bags, jewelry, arrows, knife sheaths, dolls, and other objects from the ethnographic collection at the Nebraska History Museum.

Description

The tray is made using pH neutral, corrugated blueboard. Trays may be covered with ethafoam and soft-structure Tyvek for additional cushioning or padding. The trays are designed to fit in standardized or custom boxes.

Materials, Tools, and Supplies

- 1/8in or 1/4in Ethafoam
- Variable heat hot glue gun
- Glue sticks
- Metal straight edge
- Soft-structure Tyvek, cut to size
- pH neutral blueboard, 1/4in
- Utility knife

Directions

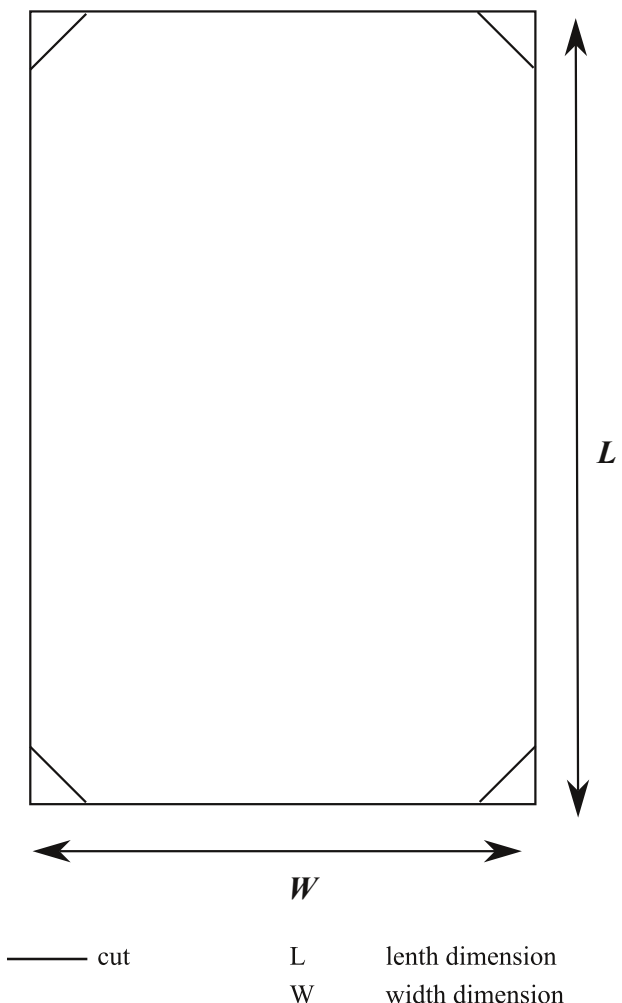
Single Layer Tray

- 1) Determine the dimensions of the storage box and the objects that will be stored in the box (length, width, height). The height of the objects and the height of the box determines how many trays may be placed in the box.
- 2) Draw the tray according to the diagram.
- 3) Cut out the tray with a sharp utility knife. Change the blade often.
- 4) Cut the corners at an angle to help lift the tray out of the box.



Fig. 1 Small beaded bags on storage trays.

Fig. 2



Stacking

1) Stacking trays is a great way to maximize space. The amount of space between each tray should be enough to prevent flattening, abrasion, or other damage to the objects from the tray above.

2) Determine the height of the tallest object on the tray. Add $1/2in$ to the height to determine the height of the rigid tray supports. Tray supports can be made from ethafoam (for light weight objects) or blueboard (for medium to heavy weight objects).

3) The number of tray supports is determined by the size of the tray and the weight of the objects. The trays should remain rigid and not bend or buckle when loaded with objects and placed within the box. The size of the tray and the weight of the objects determines the number of tray supports needed as well as the type of support needed. Small trays should have four supports at the edges (Fig. 4); medium trays should have four edge supports with one to two supports in the center (Fig. 5); and large trays should have four to six edge supports with two to three supports in the center (Fig. 6).

4) Tray supports made of blueboard can be made into triangular or rectangular supports. Triangles should be used for heavier objects. The dimensions of the supports are determined by the person making the housings.

Fig. 4

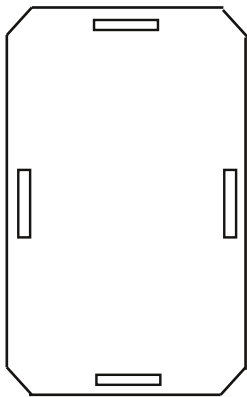


Fig. 5

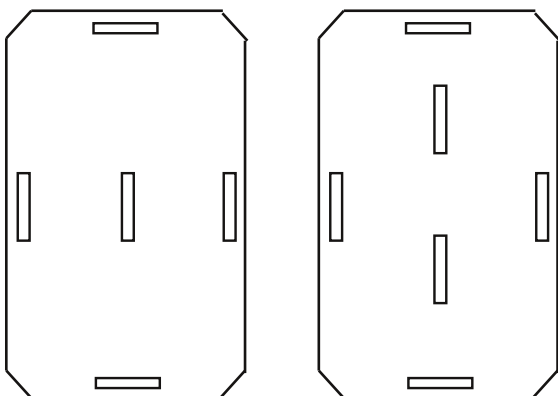


Fig. 6

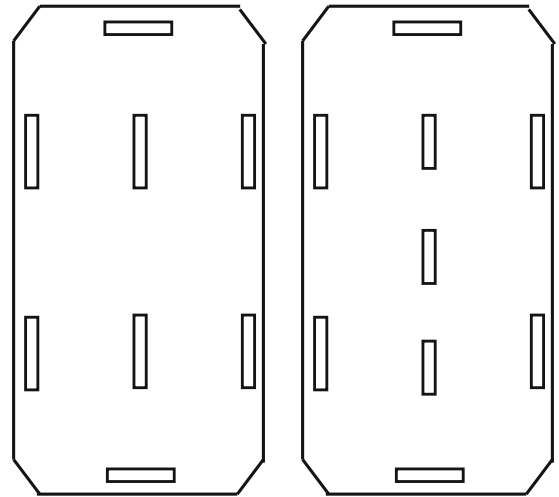
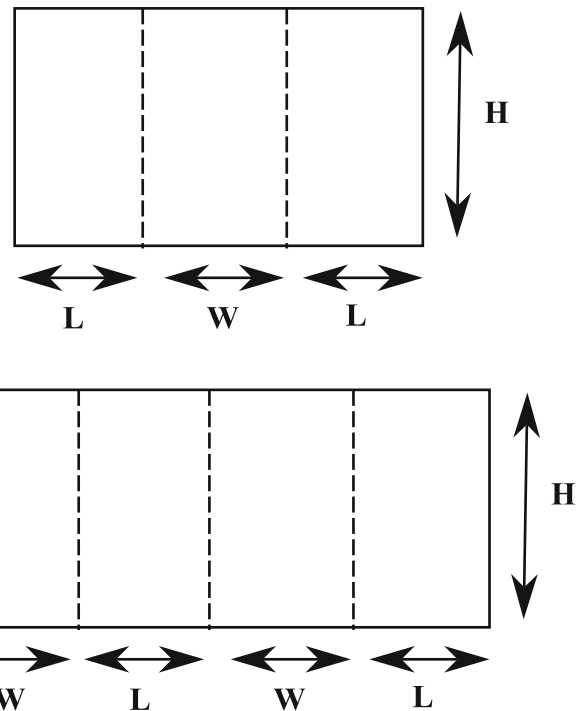


Fig. 7



—	cut	L	length dimension
- - -	score	W	width dimension
		H	height dimension

5) For triangle blueboard supports, refer to the top diagram in Fig. 7. Cut along the solid lines only using a sharp utility knife.

6) Score along the dashed lines using the utility knife or a bone folder. Be careful not to cut through the underside of the blueboard.

7) Fold the blueboard along the scored lines. Using the hot glue gun on high setting, adhere the two sides together.

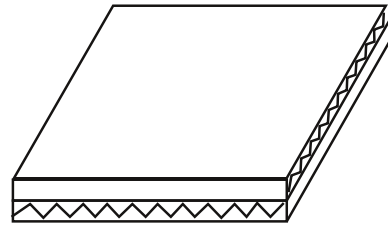
Double Layer Tray

- 1) Determine the dimensions of the storage box and the objects that will be stored in the box (length, width, height). The height of the objects and the height of the box determines how many trays may be placed in the box.
- 2) The length and width of a box and the weight of the objects determines the need for a double tray. If a single tray bends as it is lifted, a double tray is required.
- 3) A double tray requires two trays glued together with the corrugated blue board at right angles to adjacent layers for strength (see Fig. 3).
- 4) Draw the first tray according to the diagram in Fig. 2 with the flutes running lengthwise.
- 5) Cut out the tray with a sharp utility knife. Change the blade often.
- 6) Draw the second tray according to the diagram in Fig. 2 so the flutes of the blueboard are running at right angles.
- 7) Cut out the tray with a sharp utility knife. Change the blade often.
- 8) Using the hot glue gun on high setting, adhere the two trays together.
- 9) Cut the corners at an angle to facilitate lifting the tray out of the box.

Triple Layer Tray

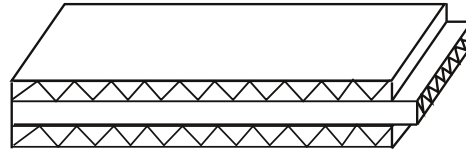
- 1) Determine the dimensions of the storage box and the objects that will be stored in the box (length, width, height). The height of the objects and the height of the box determines how many trays may be placed in the box.
- 2) The length and width of a box and the weight of the objects determines the need for a triplee tray. If a double tray bends as it is lifted, a triple tray is required.
- 3) A triple tray requires three trays glued together with the corrugated blue board at right angles to adjacent layers for strength (see Fig. 4).
- 4) Draw the first tray according to the diagram in Fig. 2 with the flutes running lengthwise.
- 5) Cut out the tray with a sharp utility knife. Change the blade often.
- 6) Draw the second tray according to the diagram in Fig. 2 with the flutes running widthwise.
- 7) Cut out the tray with a sharp utility knife. Change the blade often.

Fig. 3



Two trays glued together at right angles for additional support.

Fig. 4



Three trays glued together at right angles for additional support.

- 8) Draw the third tray according to the diagram in Fig. 2 with the flutes running lengthwise.
- 9) Cut out the tray with a sharp utility knife. Change the blade often.
- 10) Using the hot glue gun on high setting, adhere the three trays together.
- 11) Cut the corners at an angle to facilitate lifting the tray out of the box.

Cushion or Padding

- 1) Some objects require rigid support mounts, such as trays, but also additional soft support to prevent further damage. Determine if the objects needs additional cushioning.
- 2) If the objects needs cushioning, cut out 1/8in or 1/4" ethafoam according to the diagram in Fig. 2, using the tray's dimensions.
- 3) Using the hot glue gun on low setting, adhere the ethafoam to the tray. Do not use the hot glue gun on high setting for it will melt the ethafoam.
- 4) Cut out the same number of ethafoam pads as the number of trays.

Cover

- 1) Trays may also be covered with soft-structure Tyvek to prevent movement.
- 2) To determine the dimesions of the Tyvek cover, add 1.5in to the length and width of the tray.
- 3) Cut out the Tyvek cover with a sharp utility knife. Change the blade often.
- 4) Using the hot glue gun on low setting, adhere the Tyvek to the underside of the tray.

8) For rectangular blueboard supports, repeat steps 5-7 using the bottom diagram in Fig. 7.

Comments

Due to lack of storage space, trays were utilized as often as possible during the rehousing project at the Nebraska History Museum. Objects such as beaded bags, dolls, watch fobs, arrows, leggings, knife sheaths, and other objects were rehoused on trays. The trays were used in custom-made and standardized storage boxes.