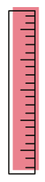
**THE FLOATING CRADLE** IS A MOUNTING SOLUTION FOR LIGHT AND SMALL BOOKS TO BE EXHIBITED OPEN. THE MAIN ADVANTAGE OF THIS SYSTEM IS THAT MAXIMIZES WALL/VERTICAL SPACE WHEN SHELF/DECK SPACE IS LIMITED.

IT IS A SHELF AND A BOOK CRADLE IN ONE. IT WAS INTRODUCED AT THE WINTERTHUR LIBRARY FOR THE EXHIBITION "HAPPY CAMPERS", WHERE THE INTENTION WAS TO SHOW A LARGE VARIETY OF SMALL BOOKS (FROM 22.56 GMS. TO 88.97 GMS. IN WEIGHT).

## SUITABLE OBJECTS

0 - 0.100 KG.
0-22 LB.
(WEIGHT)



NO LIMIT
(DIMENSIONS)

90 - 180 DEGREES
(OPENING)


PAMPHLETS, LIGHT BOUND MATERIALS AND EVEN NEWSPAPERS CAN BE MOUNTED IN A FLOATING CRADLE BUILT WITH THE MATERIALS ON THIS PROPOSAL. THERE ARE NO LIMITS REGARDING THE SIZE OF THE BOOK, AS FAR AS IT IS NOT TOO HEAVY AND IT CAN BE OPEN TO OR MORE THAN 90 DEGREES, WITHOUT STRESSING THE SPINE. THIS MEANS THAT BOOKS WITH TIGHT JOINT OR OVERSEWN STITCH SHOULD BE AVOIDED.

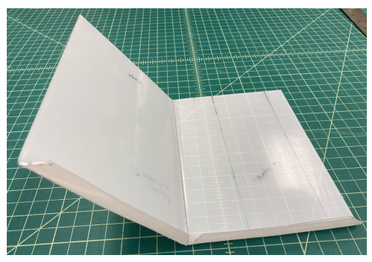
## ELEMENTS OF THE CRADLE

THE FLOATING CRADLE HAS TWO MAIN ELEMENTS:

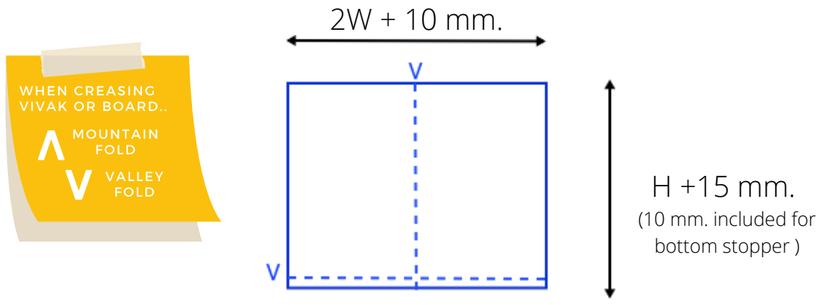
PRIMARY SUPPORT
&
SECONDARY SUPPORT.

START BUILDING THEM BY KNOWING THE HEIGHT AND WIDTH OF THE BOOK. THEY HAVE TO BE CONSTRUCTED SEPARATELY, AND THEN PUT TOGETHER.


### PRIMARY SUPPORT

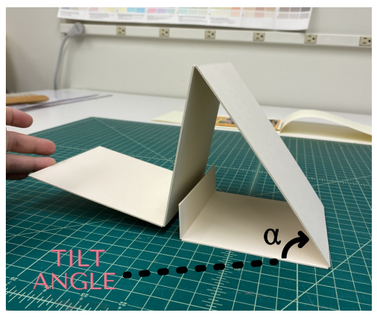


THIS IS A "V" SHAPED, RIGID SUPPORT, MADE OF CLEAR 0.060 VIVAK. THE BOOK IS DIRECTLY STRAPPED TO THIS ELEMENT. ITS CONSTRUCTION BEGINS WITH A SHEET OF VIVAK WITH THE FOLLOWING DIMENSIONS :




WHEN CREASING VIVAK OR BOARD..
MOUNTAIN FOLD
VALLEY FOLD

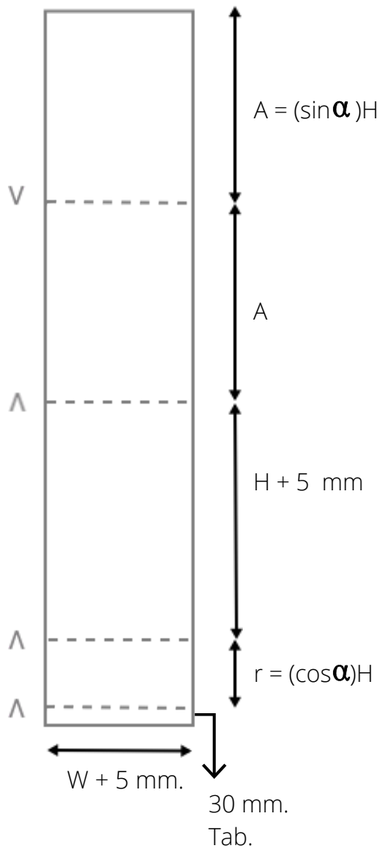
### SECONDARY SUPPORT




THIS IS A RIGHT TRIANGLE SUPPORT AND THE INTERFACE BETWEEN THE WALL AND THE PRIMARY SUPPORT. IT IS MADE OF 4-PLY MAT BOARD.

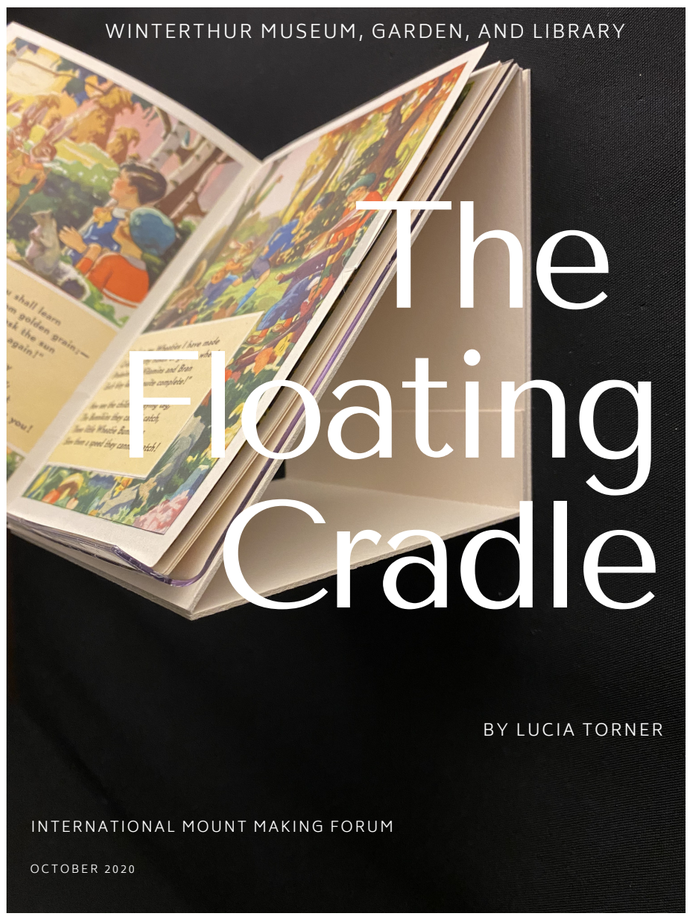
THE PRIMARY SUPPORT WILL BE ATTACHED TO THE TILTED FACE OF THE TRIANGLE, GIVING THE ANGLE ($\alpha$) TO THE OBJECT. THE OTHER FACE OF THE TRIANGLE IS ATTACHED TO THE WALL, WHILE THE SHORTER SIDE GIVES DEPTH (R) TO THE CRADLE.

ITS CONSTRUCTION BEGINS WITH A SHEET OF MAT BOARD WITH THE FOLLOWING DIMENSIONS:




**Tip**
For extra strength, cut the longer side of the piece, parallel to the grain of the board.

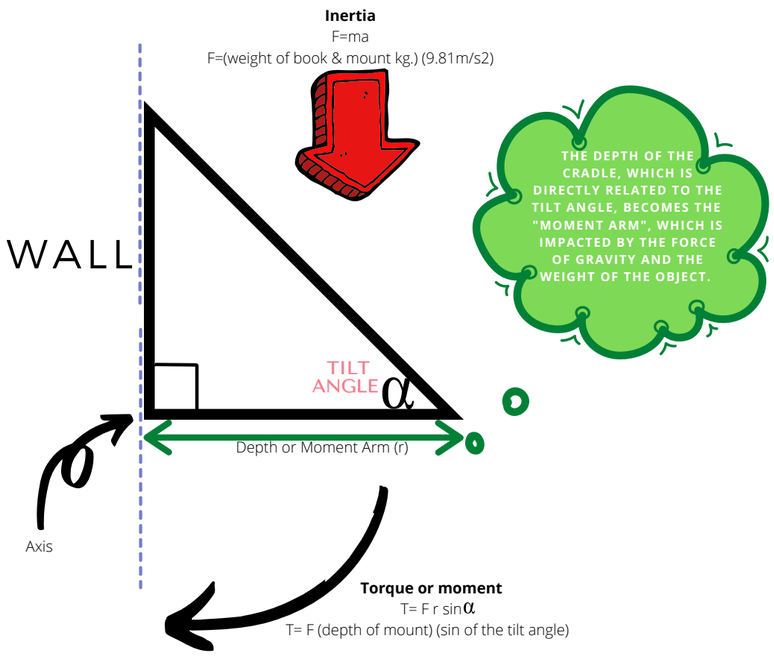
**Tip**
Choose a color of board that blends with the background of the exhibition case, so the book looks like it is "floating".




## TILT AND DEPTH

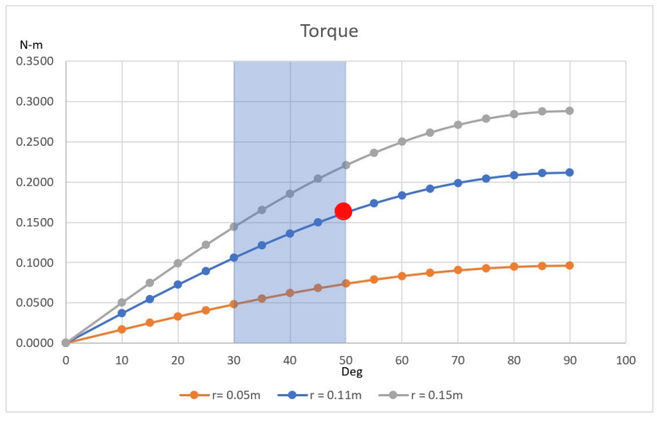
TORQUE IS THE ROTATIONAL EQUIVALENT OF LINEAR FORCE. IT IS ALSO REFERRED TO AS THE MOMENT, MOMENT OF FORCE OR TURNING EFFECT.

THESE TWO ASPECTS OF THE CRADLE PLAY A ROLE IN ITS STABILITY AND THEY NEED TO BE DEFINED TO CREATE THE SECONDARY SUPPORT.
A BIT OF PHYSICS AND MECHANICS CAN HELP, SPECIFICALLY, BY CALCULATING THE TORQUE.




**Weight of the book: 25 g.**
**Total weight with mount: 196 g.**
**Tilt angle: 50 degrees.**
**Depth (r): 11 cm.**

THE TORQUE OF THIS SPECIFIC BOOK WITH THIS SPECIFIC MOUNT IS 0.162 NM ( ● ).
BY EXPERIENCE, IT IS KNOWN THAT NAILS AND 415 TAPE HOLD IT IN PLACE ON A CORK AND FABRIC WALL, FOR AT LEAST FOUR MONTHS. THIS CAN BE USED AS REFERENCE FOR UPCOMING EXHIBITIONS.




BY KNOWING THE TORQUE AT DIFFERENT SCENARIOS OF DEPTH AND TILT ANGLE, WE CAN FIND MORE STABLE DIMENSIONS FOR THE CRADLE. THIS GRAPH SHOWS A CONSIDERABLE INCREASE IN TORQUE AS BOTH, DEPTH AND TILT ANGLE INCREASE. HOWEVER, THE INCREASE IN TORQUE IS SIGNIFICANTLY HIGHER BY THE CHANGE OF DEPTH COMPARED TO THE CHANGE IN ANGLE.

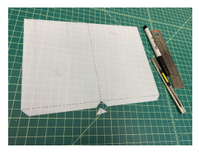
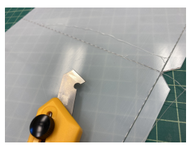
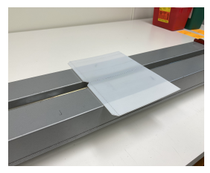
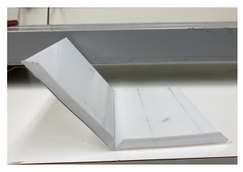
This means that a mount like this will be more stable if it is not too deep and it is closer to the wall, even when this means increasing the tilting angle.

## BUILD THE CRADLE - PHOTO STEPS

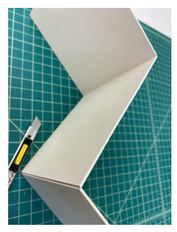
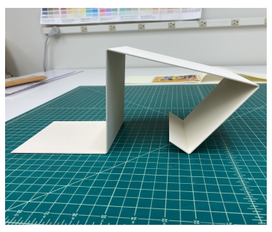
**Construction**

Measure the book and determine the opening angle. calculate dimensions and the tilt angle. Cut the pieces of mat board and Vivak.

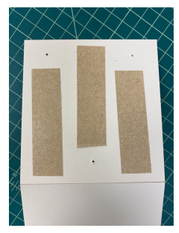
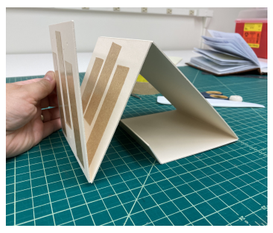

Start with the primary support: Mark and crease the folding lines on the piece of Vivak. Cut the pieces around the bottom stoppers. Fold using heat or a metal bender.

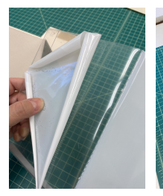
Continue with the secondary support: Mark and crease the folding lines on the piece of board. Pay close attention to the orientation. Fold.

Use an awl to mark the nails placement on the first panel. Place 415 double sided tape on the sides that go towards the wall, including the small tab.

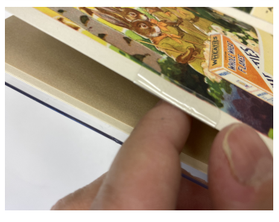
Remove the film from the Vivak. Practice putting together primary and secondary supports.




**Mounting**

Strap the book to the primary support using polypropylene strips and J-Lar Tape. Use mylar tabs to hold the opening pages in place.



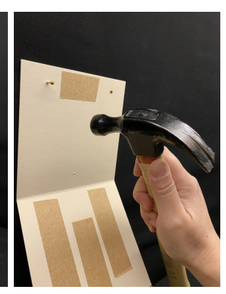



Using double sided tape, attach the outside of the primary support to the tilted face of the secondary support.

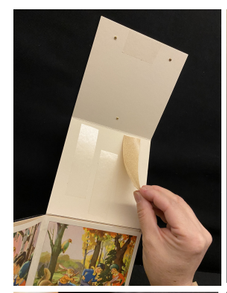


**Installation**

Remove the back from the tape on the first panel of the board and attach it to the wall; immediately, nail the panel to the wall.

Remove the back from the tape on the other panels. Fold and press the tab and support towards the wall.





The end