

# Step-by-Step Instructions

Note: Please read carefully the LaserBox User Manual before moving to this step-by-step guide. What's covered in this guide is the extension of the user manual. The sample projects files come in the lq format and also the LQ format that's compatible with **LaserBox**.

## Lesson 1 Laser Cutting and LaserBox

In this lesson, projects will be processed under the offline mode of **LaserBox**, and the companion software will not be involved.

About the **Bring Sketch to Life** feature of **LaserBox**: First, you draw on an engraving material labelled with a circular barcode, put the material in the machine and then press the button on the machine to make it start working. The machine then will cut along the outline, engrave the details drawn in black and cut out the ones drawn in red. The **Bring Sketch to Life** feature allows you to laser cut what you want without using the companion software.

### Steps:

- ◆ Pick out a 3mm basswood sheet which has a circular barcode label on it.
- ◆ Draw your design on the wood sheet.
- ◆ Put the design in the **LaserBox**.

- ◆ Press the **Start** button on the machine.

## Lesson 2 Polygon Collage

You need to prepare the hexagonal wood boards before class so that students could have more time in designing in class.

This lesson introduces the **Marquee** tool of the companion software **laserbox**.

### Steps:

- ◆ Import the Hexagon Pattern file to the software and use **LaserBox** to cut wood boards into hexagons. (The number of hexagonal wood boards you prepare depends on the class size.)
- ◆ Hand out the pre-cut hexagonal wood boards.
- ◆ Have students draw their letter designs on the paper.
- ◆ Put one of the paper sheets in the **LaserBox**.
- ◆ Open the **laserbox** software and click the **Marquee** icon.
- ◆ Take out the paper and place a hexagonal wood board in the machine.
- ◆ Using the software, adjust the extracted image to a right size, and place it to the corresponding position of the wood board.
- ◆ Select "3mm Basswood" from the material drop-down menu.

- ◆ Click the **Start** icon in the software and press the **Start** button on the machine.

### **Lesson 3 3D City**

In this lesson, projects will be processed under the offline mode of **LaserBox**, and the companion software will not be involved.

The **Bring Sketch to Life** feature allows you to get your design cut. First, you draw on an engraving material labelled with a circular barcode, put the material in the machine and then press the button on the machine to make it start working. The machine then will cut along the outline, engrave the details drawn in black and cut out the ones drawn in red. This feature allows you to laser cut what you want without using the companion software.

#### **Steps:**

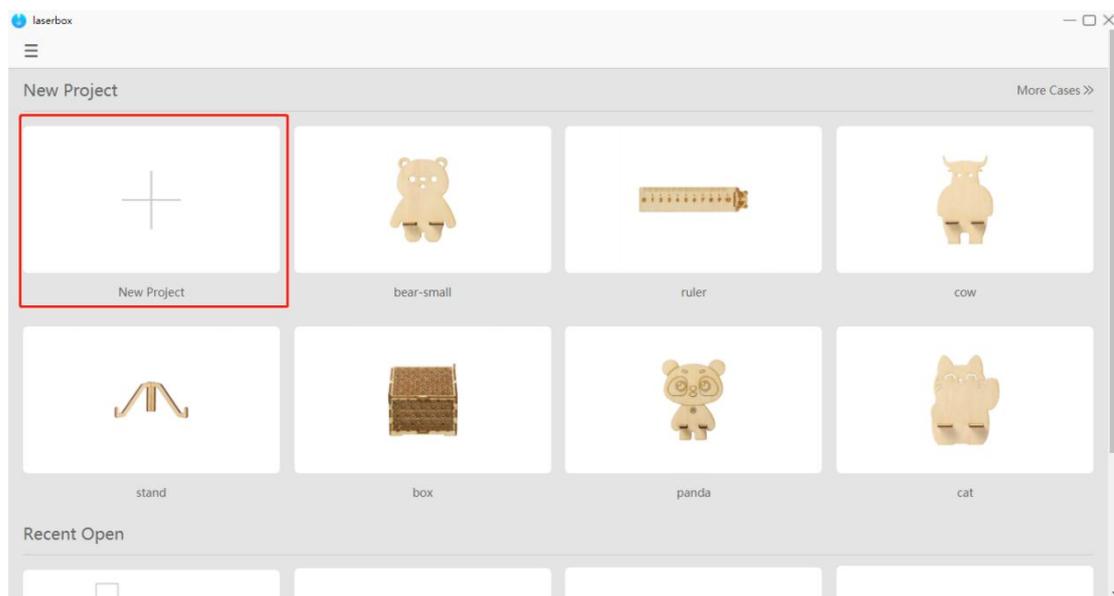
- ◆ Pick out a 3.5mm cardboard sheet which has a circular barcode on it.
- ◆ Draw the outlines of buildings on the cardboard (Pay close attention to the colors you use).
- ◆ Put the cardboard sheet in the machine.
- ◆ Press the **Start** button on the machine.

### **Lesson 4 Tangram**

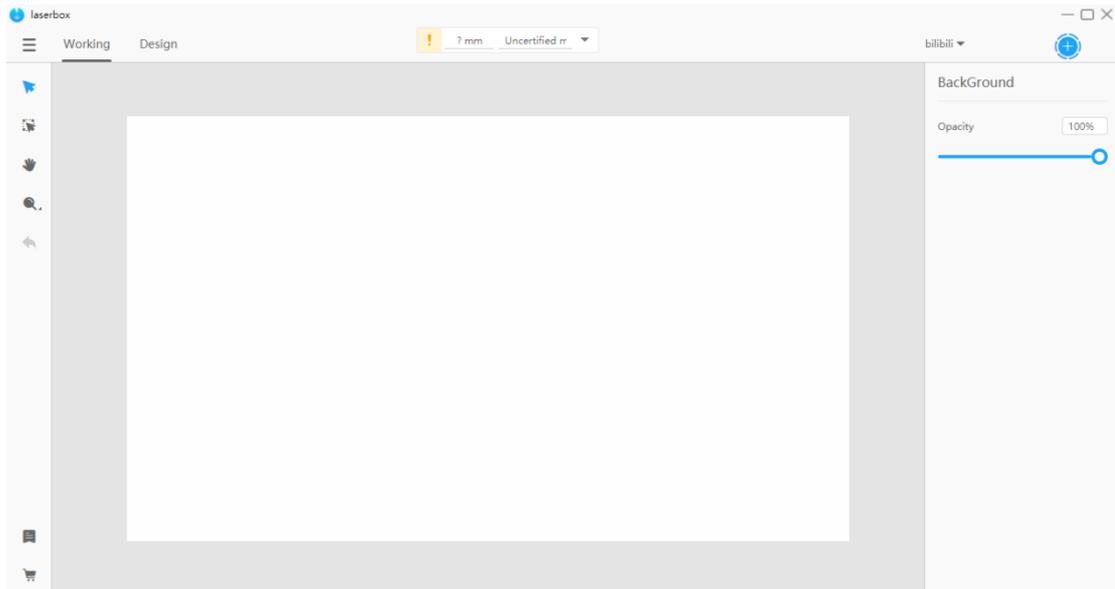
In this lesson, students will make a 100mm\*100mm tangram.

### Steps:

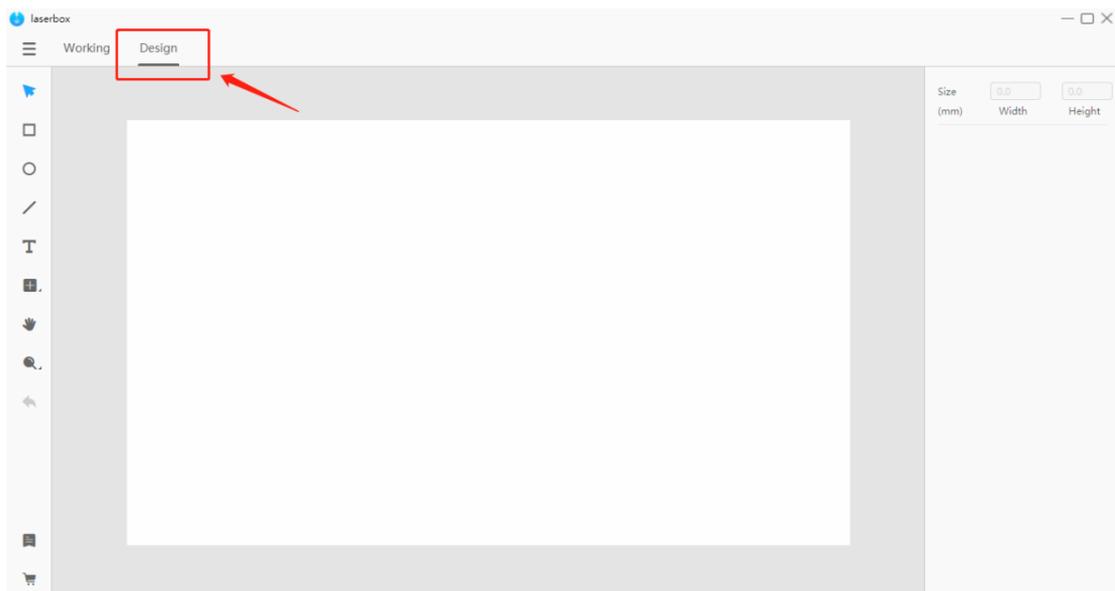
- ◆ Open the **laserbox** software;
- ◆ Click the **+** icon to add a new project;



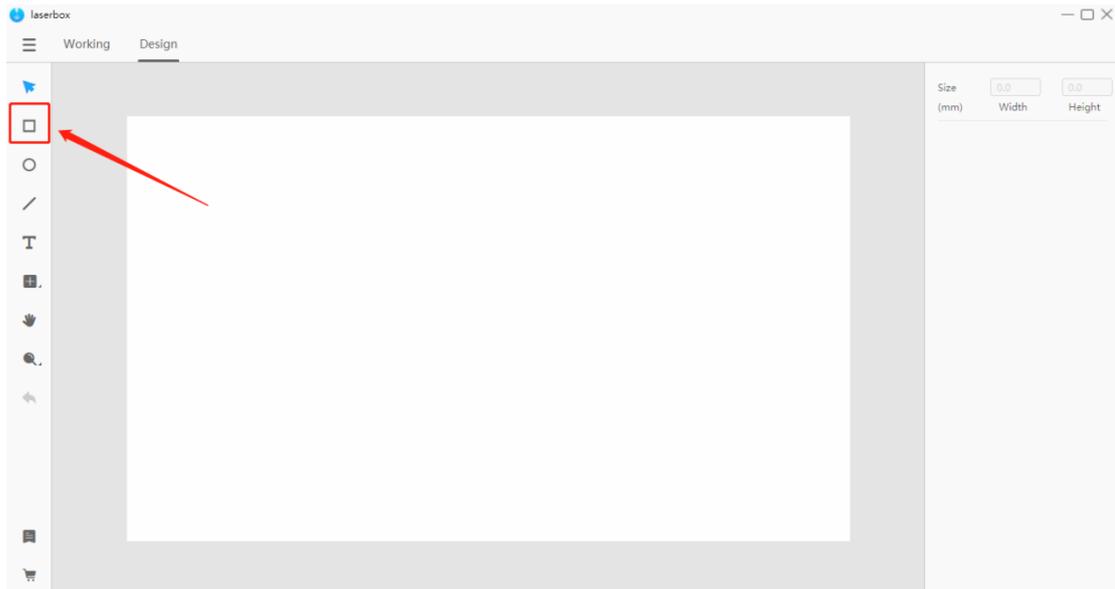
- ◆ Then you will see the main interface of **laserbox**.



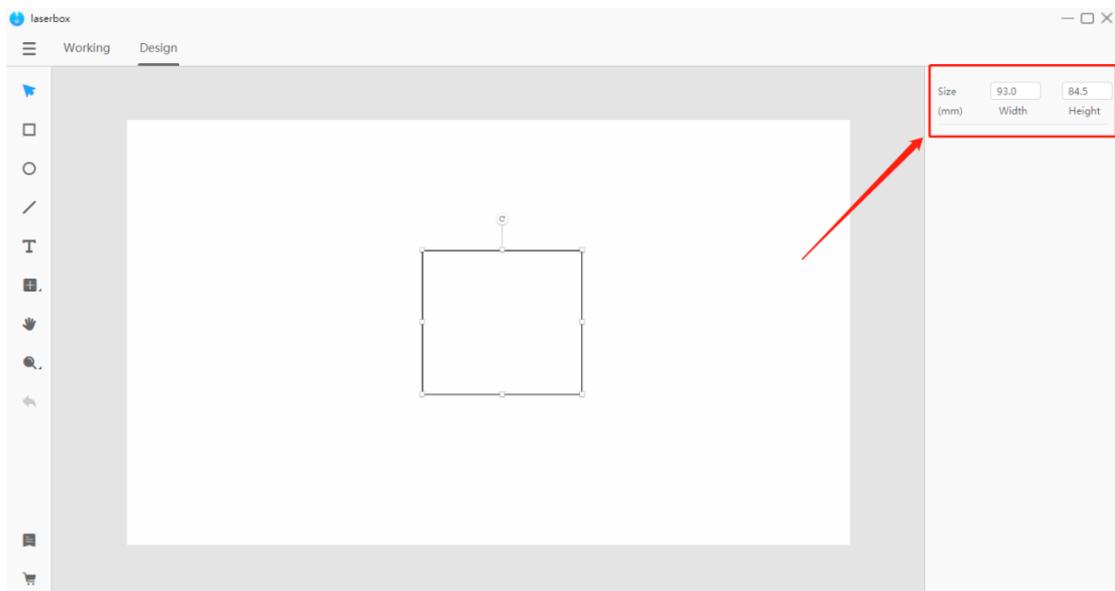
◆ Go to **Design**.



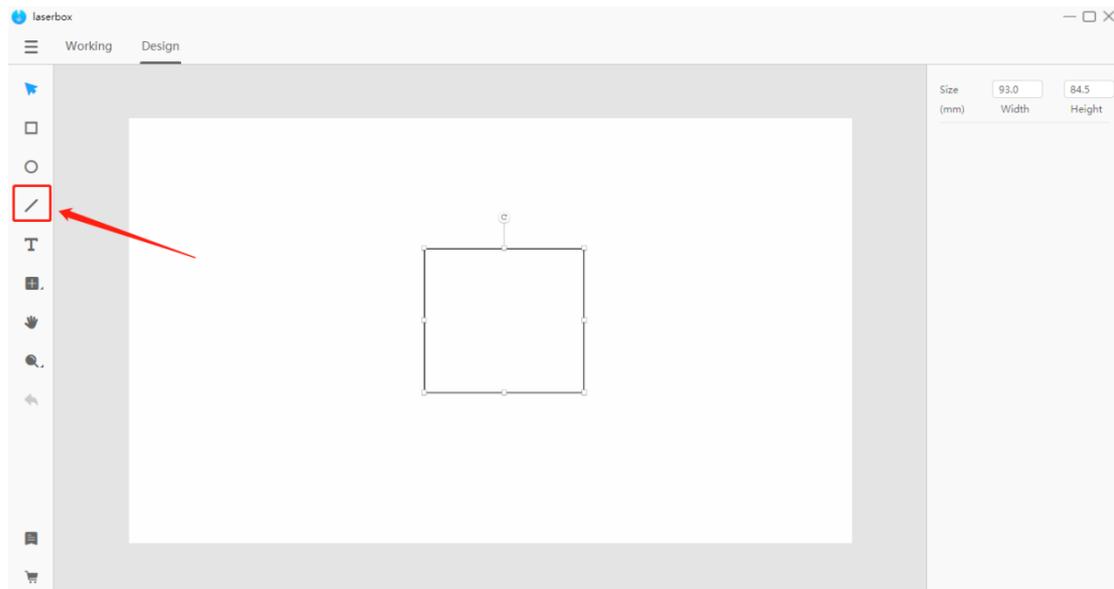
◆ Select rectangle  , and draw the outline of a tangram.



The **R** key is the shortcut to create a rectangle. So, you can also press **R** to insert a rectangle. You need to highlight the rectangle if you want to adjust its size.



◆ Click the **/Line** icon to insert a line.



The **L** key is the shortcut to create a straight line. So, you can also press **L** to insert a straight line.

### Steps:

- ◆ Open the **laserbox** software.
- ◆ Put a wood board in the machine.
- ◆ In the drawing area of the software, insert a rectangle, and adjust its size to 100mm\*100mm.
- ◆ Insert lines inside the rectangle.
- ◆ Select "3mm basswood" from the material drop-down menu.
- ◆ Click the **Start** icon in the software.
- ◆ Press the **Start** button on the machine.

## Lesson 5 Cross Halving Joint

Students will design a mysterious creature in this lesson.

### Steps:

- ◆ Draw animal body parts on the paper.
- ◆ Open the **laserbox** software, then add a new project.
- ◆ Click the **Marquee** tool.
- ◆ Insert rectangles on the extracted image. The rectangles will be cut into slots later so it is necessary to place the rectangles at the right position.
- ◆ Select "3mm Basswood" in the material dropdown menu of the software.
- ◆ Click the **Start** icon.
- ◆ Press the **Start** button on the machine.

## Lesson 6 Base Supporting Structure

In this lesson, students will make chess pieces. The making of chess board is not included in lesson 6.

### Steps:

- ◆ Open the **laserbox** software and add a new project.
- ◆ Drag the **chess.lq** file into the software, or you can directly import the file.

- ◆ Use the **/Line** tool to draw a base supporting structure (check the **chess.lq** file to see details.)
- ◆ Select "3mm Basswood" from the drop-down menu.
- ◆ Click the icon  .
- ◆ Press the **Start** button on the laser cutter to process the wood sheet.
- ◆ Build the structural parts (wood glue is needed).

## Lesson 7 Layered Structure

### Steps:

- ◆ Open the **laserbox** software and add a new project.
- ◆ Drag the **layered stamp.lq** file into the software, or you can import the file.  
(students can give any shape to their stamps but it should be built based on a layered structure.)
- ◆ Use the **/Line** tool to draw a base supporting structure (check the **layered stamp.lq** to see details ).
- ◆ Import the **alphabet.lq** file.
- ◆ Design texts and adjust their directions.
- ◆ Select "3mm Basswood" from the drop-down menu.
- ◆ Click the icon .

- ◆ Press the **Start** button on the laser cutter to process the wood sheet.
- ◆ Build the structural parts (wood glue is needed).

## Lesson8 Box Structure

- ◆ Open the **laserbox** software and add a new project.
- ◆ Drag the **box structure.lq** file into the software.
- ◆ Use the **/Line** tool to draw a base support for the box (check the **box structure.lq** to see details).
- ◆ Select "3mm Basswood" from the drop-down menu.

- ◆ Click the icon 
- ◆ Press the **Start** button on the laser cutter.
- ◆ Build the structural parts (wood glue is needed).

## Lesson 9 Custom Coaster

### Steps:

- ◆ Brainstorm about the coaster's shapes.
- ◆ Open the **laserbox** software and add a new project.

- ◆ Use the figure tools to give the coaster a shape (or you can use a layered structure).
- ◆ Select "3mm Basswood".
- ◆ Click the **Start** icon.
- ◆ Press the Start button on the laser cutter to process the wood sheet.

Steps to select: 1. Draw an image on a piece of white paper and use the **Marquee** tool to extract the image.

2. Put the engraving material into the laser cutter and make sure the material is put in a proper position.

3. Select "3mm Basswood", click the icon  , and press the button on the laser cutter.

## Lesson 10 Cam Mechanism

### Steps:

- ◆ Open the **laserbox** software and add a new project.
- ◆ Import the **cam mechanism.lq** file (need to draw a cam mechanism)
- ◆ Use the figure tools to draw a cam mechanism.
- ◆ Select "3mm Basswood".

- ◆ Click the icon .
- ◆ Press the **Start** button to process the wood sheet.
- ◆ Build the structural parts (wood glue is needed).

## Lesson 11 Campus Layout

### Steps:

- ◆ Determine the function blocks.
- ◆ Brainstorm about how the blocks are arranged.
- ◆ Use **LaserBox** to turn ideas into reality.
- ◆ Based on your design, choose a correct way to process the wood sheet.