FreeCAD Checklist: Creating a Lid for the Enclosure

This process follows the importing of the PCB STEP file and the creation of the first body (enclosure).

Part 1 – Add a New Body

☐ In the **Model Tree**, click on the **filename** (the main document).
☐ Under the **Tasks** tab, click **Create Body** to add a **second Body** for the lid.

Part 2 – Create a Shape Binder of the Enclosure

☐ Click on the **first Body** (the enclosure).
☐ From the **Part Design** menu, select **Create sub-object(s) shape binder**.
☐ This creates a Shape Binder of the enclosure to reference when designing the lid.
☐ Hide the **first Body** (the enclosure) in the **Model Tree** by pressing the **Spacebar**.

Part 3 – Create a Datum Plane for the Lid Sketch

☐ Select the **top face of the rim** of the Shape Binder.
☐ Click **Create a Datum Plane**, then click **OK** to accept the defaults.
☐ Click on the new **Datum Plane** to select it.
☐ In the **Tasks** tab, click **Create Sketch** to begin drawing the lid outline.

Part 4 – Draw the Lid Shape

☐ Use the **Create External Geometry** tool to reference the **outer edges** of the enclosure from the Shape Binder.
☐ Draw a **Rectangle** along these external lines to define the **lid's outer dimensions**.
☐ Click **Close** to finish the Sketch.

Part 5 – Create the Lid Solid

☐ With the new Sketch selected, choose **Pad** from the **Tasks** tab.
☐ Enter the desired height for the lid (e.g. **10 mm**) and click **OK**.
☐ The lid solid is now created.

Part 6 – Hollow the Lid

☐ Hide the Shape Binder in the **Model Tree** (press **Spacebar**).
☐ Rotate the view to see the **bottom face** of the lid.
☐ Select the **bottom face**.

☐ In the **Tasks** tab, click **Thickness**.
☐ Enter the wall thickness (e.g. **1 mm**) and click **OK**.

Part 7 – Final Adjustments and Cleanup

☐ Unhide the **enclosure Body** (select it in the Model Tree and press **Spacebar**).
☐ Delete the Datum Plane relative to the Shape Binder for the lid.
Note: The lid's Sketch and Datum Plane are attached to the Shape Binder. If we keep it, the lid will stay linked to the enclosure's geometry and move with it.
☐ Select the **lid Body** in the Model Tree.
☐ Right-click and choose **Transform**.
☐ Move the lid **upward** slightly to separate it from the enclosure visually.
☐ Click **OK** to confirm the position.

Part 8 – Save and Verify

☐ Check that the lid and enclosure align correctly.
☐ Ensure the wall thickness and clearances are as intended.
☐ Save the project as **.FCStd**.
☐ (Optional) Export both parts as **STEP** or **STL** for 3D printing or further design.