Deliverable B – Needs Identification and Problem Statement

GNG 1103[B]

B04-18

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Problem statement

Ambico, a door manufacturing company needs a jig to aid in the drilling of holes/tapping of their doors. It is our task to create a reusable, reliable jig(s) that is easy to operate that will fit the dimensions of the door hinge and backset, with the proper arrangement of holes for drilling/tapping.

Brief Summary

The engineers at Ambico Doors gave a brief introduction that presented the project that we would be creating a solution. Ambico is locally owned and operated; they manufacture doors in-house for almost any application and cliental around the world. The doors manufactured are either fully steel or wood clad. Wood clad doors are steel doors wrapped in wood veneer. For this project, we have been tasked with creating a jig(s) that will allow the laborers that install the door hinges in a more timely-manner by removing time spent precisely measuring. The jig(s) is to allow the labour to drill and tap the holes for fastening the hinge to the door without spending large amounts of time measuring. Furthermore, the jig(s) must be reliable, durable, cost-effective, and easy to use, otherwise the laborers will refuse to use the jig(s).

Interpreted Client Need Statements

- The Environments faced in the manufacturing shop.
    - Environment
    - Dusty
    - Noisy
- Using two different size butt hinges
    - 4 ½" by 4 ½”

    - 4 ½” by 5”

- Backset depth is 3/16”
- Three different backset measurements
    - ¼" - Used for Both hinge sizes.
    - 9/16’ - Used for 4 ½” by 5” Hinge.
    - 11/16” - Used for 4 ½" by 4 ½” Hinge.
- The Jig will be used on Wood Clad doors.
- Screws used to fasten hinges to doors are 12-24 with a depth of ¾".
- The current process takes about 30 minutes to complete each door.
    - Laborers' router out the Backset depth
    - Mark the spots where the holes will be drilled.
    - Drill then taps the holes.
- Design: Eliminate process of measuring, and add stability/precision to drilling/Tapping

Table 1: Weighting the Priorities

Jig Needs and Priorities	Grading scale (1-5, 5 being high priority)
Reliable	5
Easy to use	4
Durable	4
Drilling/Taping support	4
Cost effective	2
Clear labeling of sizes	2
Must be able to notify the laborer when they are done drilling through the frame	3

Future Questions

- Any specific constraints (i.e. weight, material, etc.)
- Labeling or markings required.
- Customization of jig(s) (Logos, colours, etc.)p