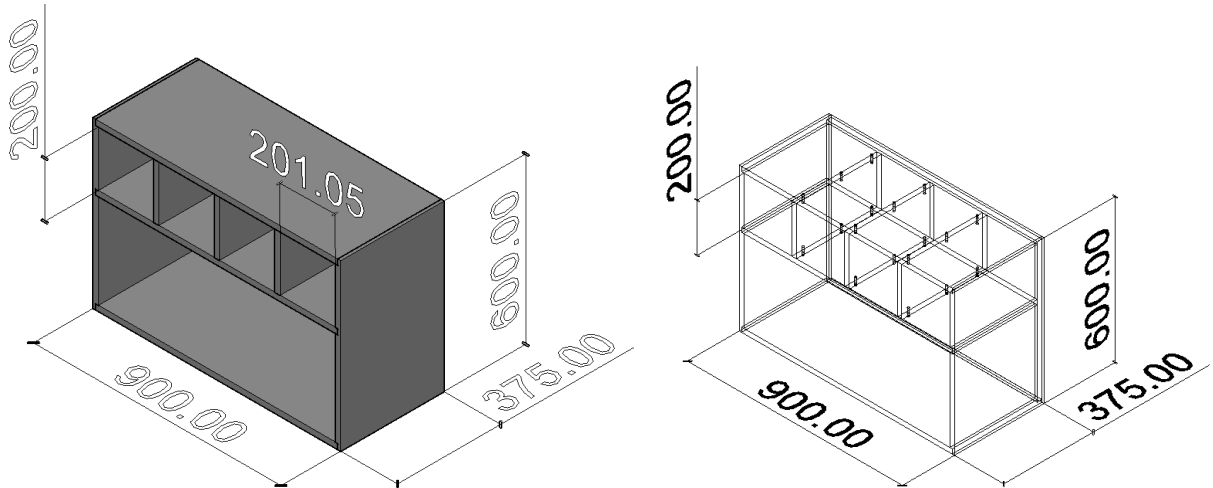


Wood 482

MasterCAM Assignment – Nesting Toolpath

Assignment:

Each student has to create the nesting toolpath and horizontal drilling toolpath for the cabinet displayed below. The CAD file is available in the course folder in the share drive Z. Uses AutoCAD to find all the additional dimensions if needed.



Deliverable:

- One MasterCAM file for the nesting toolpath
- Print out of the nested drawing in MasterCAM
- One Homag Weeke program code (mpr) for the nesting toolpath

- One MasterCAM file for the horizontal drilling
- Print out the component in MasterCAM
- One SCM 5 Axis program code (pgm) for the horizontal drilling toolpath

(All files must be save into the folder of your full name, and submit in the “Undergraduate Drop Box Wood 482 MasterCAM Assignment #3” folder)

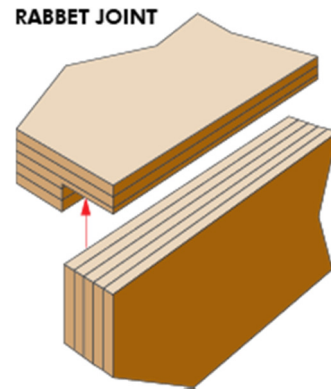
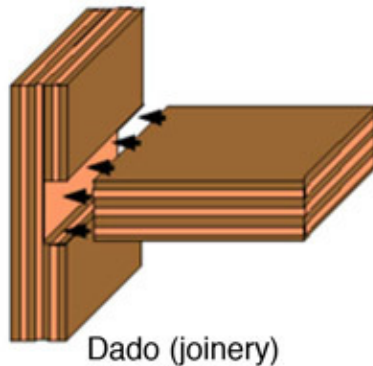
Due: Beginning of the next Lab.

Direction:

- 1) Convert / redraw the cabinet (3D Drawing) in 2D drawing.
- 2) Optimize all the components to one sheet of $\frac{3}{4}$ ” x 8’ x 4’ plywood by using nesting function in MasterCAM.
- 3) Use MasterCAM to create the nesting toolpath for the Homag Weeke.
- 4) Use MasterCAM to create the horizontal drilling toolpath for the SCM 5 Axis CNC Router.

Cabinet Construction Information:

- All the Gables / Top / Bottom / Horizontal Divider are dado connection
 - Through dado is 1/2 of the panel thickness
- The Back panel is connected with Rabbet connection with Gables/Top/Bottom/Divider
 - The rabbet is 1/2 of the panel thickness



- No groove needed for the Divider at the back
- All the connections for Vertical Divider are 8mm dowel connection
 - Location of the first dowel are 37mm from the FRONT end of the cabinet
 - Require 3 dowels for each connection
 - The spacing of the dowels is in the incremental of 32mm from the first dowel (37mm from the Front end of the cabinet)

Guideline:

- Overall Size of the Cabinet: (W) 900mm Width x (H) 600mm Tall x (D) 375mm
- Total of 9 components
- Tabs are required for the smaller components
- Nesting programming
 - All components need to have enough spacing in between each other to avoid gouging
 - No Lead in/out required
 - Use "Climb" cut for all the cutting
 - All tools turn clockwise
 - Depth of vertical holes = 10mm, Depth of the horizontal holes = ??? (will discuss in class)
 - Diameter of the dowel = 8mm
- All vertical dividers will be cut to final size on the nesting program. Therefore, only the vertical drilling program for the SCM 5 Axis is required.

Parts Sizes:

Top/Bottom = 375 mm x 880.95mm

Divider = 355.95mm x 880.95mm

Vertical Shelves = 200mm x 355.95mm

Gable = 600mm x 375mm

Back = 880.95mm x 580.95mm

Tools Available for CNC Term Project

Homag – use the tool # in MasterCAM (use the full number)

Tool # 204 – 9.525 mm (Diameter) Alter shear bit

Tool #206 – 6.35 mm (Diameter) downcut bit

Tool #211 – 12.7mm (Diameter) straight cut bit (For pocketing)

Tool #213 – 12.7mm (Diameter) Alter shear bit (for contouring)

Tool #214 – V bit for engraving

Tool #63 – Vertical 3mm (diameter) lance drill bit

Tool #62 – Vertical 8mm (diameter) dowel drill bit

Tool #61 – Vertical 35mm (diameter) cup hinge drill bit

Tool #60 – Vertical 5mm (diameter) drill bit

SCM 5 Axis – use the tool # without the 100 in MasterCAM (ex: 104 = 4)

Tool # 104 – 9.525 mm (Diameter) Alter shear bit

Tool #106 – 6.35 mm (Diameter) downcut bit

Tool #111 – 12.7mm (Diameter) straight cut bit (For pocketing)

Tool #112 – 8mm (Diameter) drill bit (both vertical and horizontal)

Tool #113 – 12.7mm (Diameter) Alter shear bit (for contouring)

Tool #114 – V bit for engraving

All other Drill tools in the fixed unit