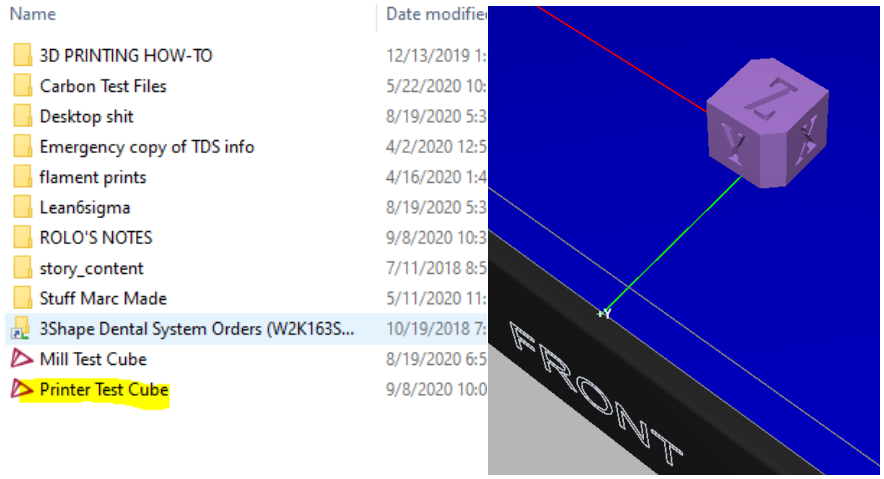
Printing Cube Test SOP

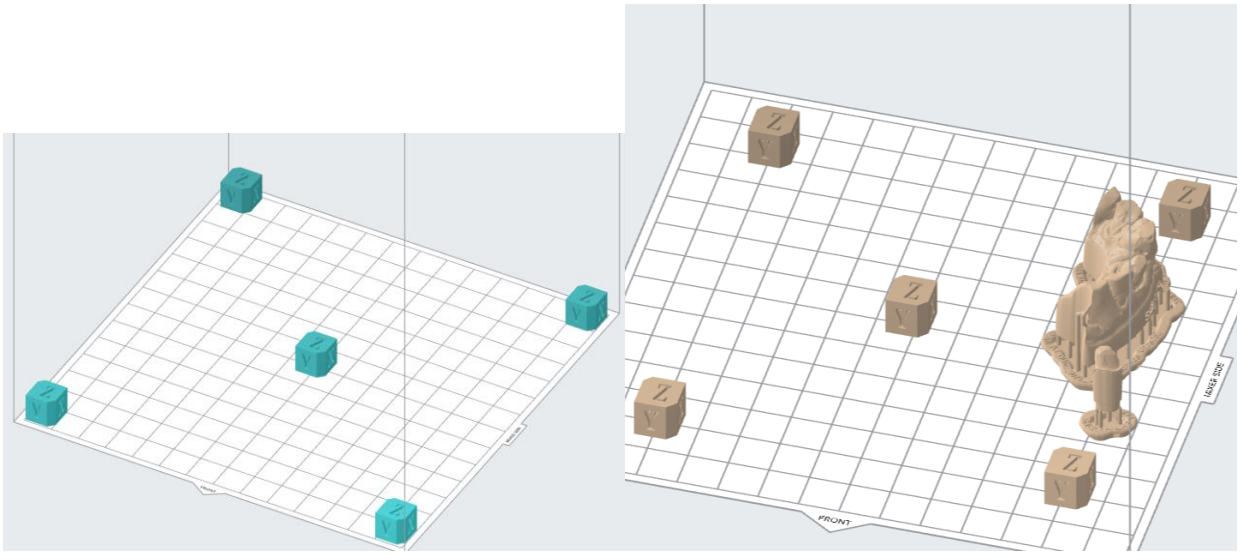
This process is to be initiated once per month to verify minimum dimensional quality of our product from the print room processes. Please check appropriate Trello boards for actual times or contact your team lead for more detailed information.

Step 1

Utilizing the nesting software for the printer to be tested, nest the test cube .stl file with any other models waiting to be printed. Resin type is not a concern of this test. The new cubes have axis available for proper placement. If you are unsure of anything, ask your team lead or other senior operator.



Please be sure to place cubes in the center of the build plate and (optional) corners.



Step 2

Print the test cube and follow the rest of the printing process for models as usual. Take extreme care when removing the cubes from the build plate. **Take every precaution during processing of the cube to prevent dimensional changes** at the end of the line.

Step 3

Mark each cube with printer ID and carefully measure test cubes in X, Y, and Z axis.

Enter values into spreadsheet provided (print cube worksheet).

Please be aware that X and Y will change based on nesting. The exact position of these is not as important as the actual measurement. Only their dimensions will directly impact our product.

When documenting the caliper measurements, X and Y may be swapped with little affect. Z should always be Z on every cube measured. If you do not understand how to find an axis on the cube, stop and contact your team lead.

All axis measurements should be taken a minimum of five times. The mean of those five measurements should be entered as the "actual" axis measurement. If you do not understand how to find the mean of the caliper measurements on the cube, stop and contact your team lead.

Mill / Printer	Expected X	Actual X	X Delta	Expected Y	Actual Y	Y Delta	Expected Z	Actual Z	Z Delta	Pass / Fail
Roland 205	10.00		10	10.00		10	10.00		10	
Roland 206	10.00		10	10.00		10	10.00		10	
Versa 1	10.00		10	10.00		10	10.00		10	
Versa 3	10.00		10	10.00		10	10.00		10	
Versa 2	10.00		10	10.00		10	10.00		10	
Versa 4	10.00		10	10.00		10	10.00		10	

Step 4

Anything above 10.2 mm or below 9.8 mm is failing and show by a red cell.

Mill / Printer	Expected X	Actual X	X Delta	Expected Y	Actual Y	Y Delta	Expected Z	Actual Z	Z Delta	Pass / Fail
Objet	10.00	10.05	-0.050000000	10.00	9.99	0.0099999	10.00	9.99	0.0099999	Pass
Carbon	10.00	9.95	0.050000000	10.00	9.96	0.0399999	10.00	9.98	0.0199999	Pass
Ruff	10.00	10.05	-0.050000000	10.00	10.02	-0.019999	10.00	10.00	0	Pass
Tiger	10.00	10.11	-0.109999999	10.00	10.01	-0.009999	10.00	9.91	0.0939999	Pass

Passing values will show up white. If a printer has a failing value, remeasure the cube, recalculate the means, and re-enter the values in the spreadsheet. **If it is still failing, put the printer in question down** and contact your team lead**. No product may run on a machine that fails this test** unless otherwise directed by management.

Step 5

Finally, log info into Google form provided by Rolo in chrome bookmark.