PROJECT 03: **Machine Code as Medium**

DUE: May 22, Friday

CONTEXT:

Of all the digital fabrication tools, the CNC mill is the most versatile. As opposed to laser cutters or 3D printers, CNC mills are often a size that can be utilized for architectural applications. The CNC mill can be used to cut out shapes (profiling) like a laser cutter, and it mill complex forms and textures like a 3D printer. Finally, it can cut a variety of materials including foam, wood, plastic and metal.

OBJECTIVE:

In this project, you will explore using the machine code as a medium. Using one **primary** Rhino CAM 3D or 2D CNC mill operation, you will design an architectural element with this operation in mind.

Choose one of the following primary operations:

- 2D- Profiling
- 2D- Pocket
- 2D- Hole Drill (through hole)
- 2D- Hole Drill (projected to surface)
- 2D- V Carving
- 3D- Parallel finishing
- 3D - Horizontal Finishing
- 3D - Radial Machining
- 3D - Spiral Machining
- 3D - Curve Machining
- You can choose one of the other ones if your project warrants it

You may use a secondary or tertiary mill operation in your project if your design calls for it.

In this assignment you will define an architectural element and develop a part of that architectural element. An architectural element may be a facade, wall panelings system, acoustical ceiling or a piece of furniture. You may use any tools at your disposal to design and develop the part that you will cnc mill.

Part A | Research: Friday 4/24/20

Choose the machine operating you want to work with. Research precedents for your architectural element. Create sketches of your design. (Layout on 1 page 11x17)

Part B | ARCHITECTURAL ELEMENT SITE: Friday 5/1/20
Define the site of your architectural element with the first iteration of your proposed design. (Site is priority) (Layout on 1 page 11x17)

Part B | **SURFACE CREATION**: Friday 5/8/20
Determine the part of the system that you will develop. Extract from the system a unit that you plan to cnc mill. You should have drawings of this unit. Drawings may be in the form of plan, axo, elevation. The drawings should highlight the unit as well as indicate its relationship to the units in proximity to it. (1-10 Pages 17x11 PDF)

Final Presentation: Friday 5/22/20

- Rhino Model + Rhino Grasshopper (if applicable) with saved CNC data(screenshot) and video / screen grabs recording the steps taken by you to document the cnc instructions.
- Rendering of your architectural element on site
- Rendering of architectural element close-up
- Exploded Axonometric showing a attachment system of your cnc mill
- Elevation, plan, axonometric
- Animation from your grasshopper definition (if applicable (extra credit))