

Topics in Computer Application Design
ARCH 5064 | ARCH 4164 | SPRING 2017
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project brief

The mass data that computational design software manages allows for mass customization over the standardization of modularity. No more can this be scene then in the panelization of a building skin. Grasshopper allows us to design a single panel with a set of rules and parameters - which we can implement at a mass scale with great variances. Mass customization is the 21st century's mass production.

Goal: Each one of you will design a building skin that is reactive to a set of data. The data that will be monitored will be your choice based on your interests. Each modular piece of the skin (the panel), shall have an element that responds to the selected data. This will allow for multiple state changes when applied to the facade at large. Simplified, you will be:

- 1). Designing a single panel with reactive elements to a selected piece of data.
- 2). Designing a surface that your panel may be implemented on. This surface can be either a building wall or roof. Your panel size and reaction should be based on the purpose of the skin.

We have been playing with apertures in the panel that open and close(reactive piece) based on the location of an attractor point (data), but many other options may and should be explored. The same logic should be used - your panel will change based on it's location in the skin system.

deliverable

must be a modular responsive system within your studio project context (it does not need to be a part of your studio projects final design, but must be placed within the context). Having this context will make it easier to settle on design options

you are to design this both by use of physical modeling and digital modeling with the goal of producing one of each showing sections of the final skin.

due on 3-27-2017

1 physical model at 6"::1'-0" showing 1 panel

1 section perspective of the skin at work showing at least 9 panels at different state changes. 24"x26" board.

submission

due date is 3-27-2017

A board with the discussed drawing named LastName_FirstName_PanelProject.pdf

A photo of your physical model (if not included on the board), named LastName_FirstName_PanelModel.pdf

notes

Think of different elements of a traditional building skin to implement - which might include:

- insulation
- structure - how your panel will be held up
- joint - how your panel will connect to another
- transparency vs. opaqueness
- energy harvesting and sustainable technology / other emerging technology
- materiality

Data your panel could react to might be:

- relationship to the sun
- programmatic relationship behind the panel
- height or depth
- angle to ground
- relationship to the surrounding panels

Every panel should be set up to have:

- 1) A base state that has constants that never change.
- 2) A reactive piece that changes per the data it interacts with
- 3) That data that the panel reacts to

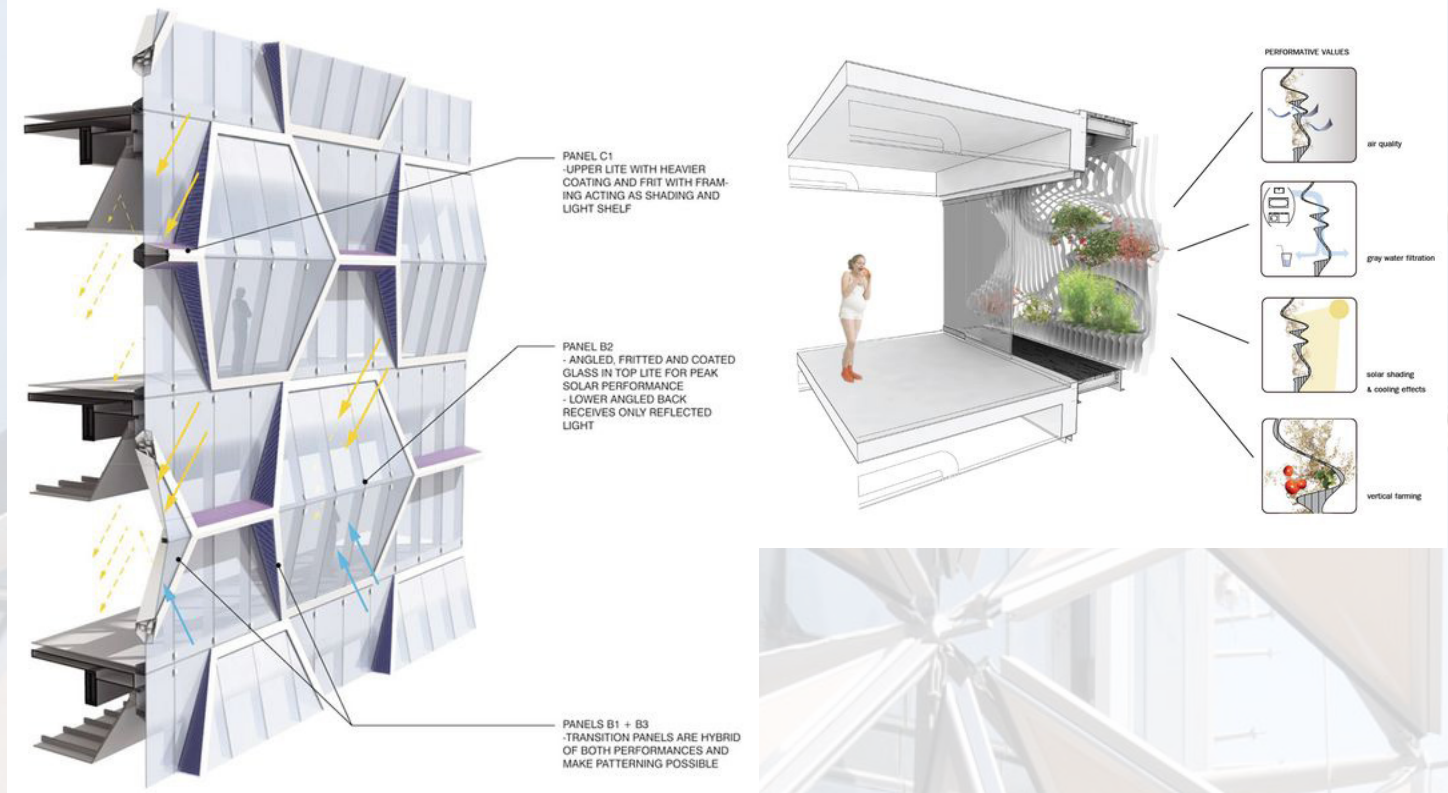
Panels can either be dynamic (panels that react over time) or passive (panels that react once and are installed in that reactive state)

This will be a brief and intense project - I will be available for digital desk crits mid-week and you must meet with me on Monday as well.

I encourage you to use all resources available to you - books, drawings, studio professors, professors from another class, bosses/co-workers, other students, especially people that work in the shop etc....

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examples of drawings



resources

- # Pinterest board - <https://www.pinterest.com/jlwaskiw/section-perspectives/>
- # Kinetic Architecture - Charles D. Linn and Russell Fortmeyer
- # Digital Vernacular - James Stevens and Ralph Nelson
- # Digital Fabrication Book
- # <http://www.aaschool.ac.uk/PORTFOLIO/PROJECTSREVIEW/index.php>
- # <http://www.archdaily.com/780661/the-livings-parametric-3d-printed-airplane-partition-is-designed-to-mimic-bone-structure>
- # <http://archinect.com/blog/article/146531520/shigeru-ban-studio>
- # <http://make-lab.org/category/makelab-large/>
- # <http://archinect.com/features/article/65758020/student-works-beyond-prototype>
- # <https://vimeo.com/channels/217918/39166294>
- # <https://www.youtube.com/watch?v=ctDW6g8tT3U>
- # <https://www.youtube.com/watch?v=P0OjkphxIHQ&list=PLsDYCyUR8mCSJBMI5trSBkt1L4HDgDe7k&index=25>
- # <http://softlabnyc.com/category/grasshopper/>
- # <http://www.archdaily.com/781560/backyard-bi-h-ome-kevin-daly-architects>
- # <http://www.archdaily.com/781692/future-of-us-structural-building-envelope-sutd-advanced-architecture-laboratory>
- # <http://www.archdaily.com/781960/5-ways-architects-are-redefining-craftsmanship-for-a-postdigital-age>
- # <http://www.archdaily.com/782664/this-modular-green-wall-system-generates-electricity-from-moss>
- # <https://vimeo.com/exlab/videos/page/5/sort:date>
- # <http://archinect.com/firms/project/71080927/the-figural-joint/149755529>
- # https://www.ted.com/talks/doris_kim_sung_metal_that_breathes
- # https://www.ted.com/talks/michael_pawlyn_using_nature_s_genius_in_architecture
- # http://mindmedium.blogspot.com/2011_04_01_archive.html
- # <http://ming3d.com/wordpress/?p=935>
- # <https://www.youtube.com/watch?v=IEv4pzkGv2c>
- # <https://www.youtube.com/watch?v=BSEVoFi9MpQ>
- # <http://retaildesignblog.net/2013/12/18/temporary-portable-facade-by-mahsa-vanaki-studio/>