This research documents the output of an Integrated Building Design studio taught at California College of the Arts in spring, 2014. The studio partnered with the Autodesk / Instructables Pier 9 Workshop to produce a series of full-scale metal facade prototypes that demonstrate comprehensive understanding of performance, detail, and assembly.
New technologies of computational design and digital fabrication have opened up enormous possibilities for architects, as seen in the proliferation of exuberant forms, richly patterned facades, and increasingly comprehensive building information models that proliferate throughout contemporary architecture. And yet, there remains a gulf between the promise of these technologies and the day-to-day realities of architectural practice, much of which remains resistant to alternative modes of design and construction.

This advanced Integrated Building Design studio explores ways of bridging this disconnect by seeking opportunities to leverage digital fabrication technologies in a strategic, limited, and focused manner. This research seeks pragmatic ways for such technologies to interface with existing paradigms of construction, rather than purely speculative ones.

Towards this end, the studio interrogates architectural making both programmatically and pedagogically. Students worked with Berkeley’s REALM Charter School to design a new workshop and dining facility for the school’s Studio H program, an innovative design/build curriculum for high school students that has received national recognition. This speculative investigation of a making-centric curriculum and its architectural implications was coupled with a pedagogical focus within the studio on making and digital fabrication as a means to reinforce proof of concept. The studio collaborated with the Autodesk / Instructables Workshop in San Francisco to produce a series of full-scale envelope prototypes that demonstrate comprehensive understanding of performance, detailing, and assembly. The focus on the building envelope challenged students to embed material systems with intelligent behaviors derived from program, performance criteria, and experiential quality.
Amplified Interface–Solar performance and privacy diagram (Grabstein, Leung & Robles 2014)

Amplified Interface–Prototype (Grabstein, Leung & Robles 2014)

Amplified Interface–Prototype detail (Grabstein, Leung & Robles 2014)
ACKNOWLEDGEMENTS

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IMAGE CREDITS

Figure 1 - 3: Djojosugito, Adika and Martinus Setiawan (2014) Studio H2O. Berkeley, CA: Proposed.


Figure 6 - 8: Grabstein, Benjamin, Veronica Leung, and Abelino Robles (2014) Amplified Interface. Berkeley, CA: Proposed.


MARGARET IKEDA founded ASSEMBLY, a Berkeley-based architecture office, with Evan Jones in 1994. ASSEMBLY’s projects span in scale from furniture to multistory mixed-use housing. Inherent in the name is a focus on connections between physical materials and an understanding of the collaborative process of design. Margaret’s awards include the AIA East Bay Exceptional Residential Honor Award (2004) and the Gold Nugget Affordable Housing Award (finalist 2005), both for the Darling Flower Shop building in Berkeley. She was a finalist in the East River Design Competition in 1998. Margaret teaches at California College of the Arts and at UC Berkeley.

ADAM MARCUS is an Assistant Professor of Architecture at California College of the Arts, where he teaches design studios and courses in computational design and digital fabrication. He also directs Variable Projects, an architectural practice in Oakland, California. From 2011 to 2013, Adam was the Cass Gilbert Design Fellow at University of Minnesota School of Architecture, where he chaired the symposium “Digital Provocations: Emerging Computational Approaches to Pedagogy & Practice.” He has also taught at Barnard College and Columbia University. He was recently selected by Design Intelligence as one of the “30 Most Admired Educators For 2013.”

EVAN JONES founded ASSEMBLY, a Berkeley-based architecture office, with Margaret Ikeda in 1994. ASSEMBLY’s projects span in scale from furniture to multistory mixed-use housing. Inherent in the name is a focus on connections between physical materials and the collaborative process of design. Evan’s awards include the AIA East Bay Exceptional Residential Honor Award (2004) and the Gold Nugget Affordable Housing Award (finalist 2005), both for the Darling Flower Shop building in Berkeley. He was a finalist in the East River Design Competition in 1998 and received UC Berkeley’s Sookie Lee Prize in 1993.