Landhuggers
ARCH 3017: Architecture Design V
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The Fresnel diagram as an underlying parti of the landhugger morphology. 
Left: Pavilion in a field; Right: Courtyard with inner garden.

Low-rise courtyard structures (landhuggers) are a powerful urban and architectural mechanism to produce affordable, sustainable and energy-efficient architecture: landhuggers maximize surface exposure to contained volume and keep proximity to the ground. The Landhuggers studio takes on the formal exploration of this morphological type and tests its fit and formative impact in housing design – and especially low-cost, modular, affordable housing. The brief of the studio is aligned with the current international architectural competition San Francisco Affordable Housing Challenge and students will be encouraged to submit their final projects in the concurrent competition (deadline Apr 21, 2020). More details about the competition can be found at:

https://beebreeders.com/architecturecompetitions/sanfranciscochallenge/

The studio will be structured in three modules:

The first module will focus on a formal study on landhuggers though analog rule-based design methods. Brief exercises with physical models will study the notion of three-dimensional planar growth. A workshop in formal composition using Froebel’s Kindergarten blocks will kick-off the module to open up the fundamentals of the formal strategies used in the studio.

The second module will focus on a transformational study of actual built landhuggers (mat buildings) though digital rule-based design methods. Precedents will be modeled in terms of shape rules that will be transformed to produce sets of designs in successive degrees of affinity to the original design. A workshop in Shape Machine for Rhino – a software developed at SCL at Georgia Tech – will kick off this module to showcase the modeling and editing of architectural ideas in terms of visual rules defined in Rhino.

The third – and main module of the studio – will put in practice the lessons learned in the first two studies using the current international architectural competition San Francisco Affordable Housing Challenge as the platform of the studio. The programming should be flexible to accommodate different users and varying requirements. e.g. families, single professionals, couples, number of units etc. The particular brief of the final project (and entry to the competition) will be decided by each student.

Keywords: Landhuggers: Mat buildings; Courtyards; Thick 2D; Shape Grammars; Shape Machine