Sustainable Facade Design
Spring 2018 | ARCH 4050/6050/6306 Technology Elective | Prof. Kyounghee Kim [kkim33@uncc.edu, Rm 227]
Seminar Tuesdays 2:00 – 4:15PM | RM255 in STORRS | Office hour by appointment

[Premise] Interoperability and integration between design, analysis and execution in architectural practice allow building façade systems to be increasingly complex and non-standard. As customized building façade systems increase in contemporary buildings, it is important to adopt the integrated design process that aids problem solving and design-making on façade design and execution.

[Problem] The pre-use phase and the use phase of a building accounts for 90% of building life cycle energy. There is an opportunity for research and improvements from building facades in order to achieve more sustainable built environment. It is important to minimize embodied energy of façade systems and to fully integrate them with HVAC and daylighting systems to achieve overall building energy efficiency.

[Learning Objectives] The course addresses general principles and theoretical framework that affect the ecological sustainability of a building façade system. The course specifically focuses on façade design, materials, and performance optimization of a façade system. Students will gain façade design and technical knowledge of a sustainable façade system by integrating performance based design, assembly drawings and physical models.

[Methodology]
The course will meet once per week, consisting of seminar and lab session as necessary. The seminar focuses on glass façade systems in the area of façade typologies, façade performance, materials, and system details and assembly.
Students will work collectively to familiarize key terminologies and theoretical framework on sustainable façade systems, establish strategies for analysis and sustainable matrix, develop façade system details, and finally execute a sustainable façade system.
Contributing to the group work, each student will learn deeper expertise on each topic through individual assignment and research work, which will develop through lab actives, discussion & debate, in-class presentations and model making.

[Grading]
Class attendance and participation 10%
Pin-up 1 20%
Pin-up 2 20%
Façade research report, Final project 50%

[Textbook]