Arch 4050/6050: Purposeful Repurposing: 
An introduction to Energy and Daylight Simulation

“I wish people would stop asking me what my favorite buildings are. I do not think it really matters very much what my personal favorites are, except as they illuminate principles of design and execution useful and essential to the collective spirit that we call society…For irreplaceable examples of that spirit I will do real battle.” Ada Louise Huxtable

Premise:
The built environment accounts for almost half (49%) of all energy consumption annually in the United States. The net environmental impact is that buildings produce over one-third (36%) of greenhouse gas (GHG) emissions annually and consume an estimated fifty percent (50%) of water consumption in the United States. More importantly is that it is estimated that by 2035 half of the 400 billion square feet of U.S. building (200 B Sf.) will be re-purposed rather than be replaced by new building stock. Understanding how to assess these socially relevant artifacts is critically important to insuring their sustainable attributes in praise of occupant productivity and the implication reduced energy/ resource use.

The Wilson Junior High School (WJHS) was design by A.G. Odell and Associates ca. 1954. It severed CMS until 2010. WJHS will serve as the vehicle to explore the essential attributes of evidence based design by uncovering its original design intent through energy simulation this daylit and naturally ventilated school will become a vehicle to drive a question of social relevance and sustainability. This course will provide the framework for a base-line field assessment/ simulation project to achieve greater energy efficiency in the future. This project supports the efforts to achieve value goals of community service by extending the life and performance of a socially significant community artifact.

Objectives:
The goal of this course is to provide an understanding of building energy simulation, and its evaluation as a research method. It will focus upon documenting both the social/ technological issues that are at the center of the debate over the purposeful repurposing of historically significant buildings and sustainability.

The course will assess the energy efficiency futures for a community based educational program:
- Students will assess the architectural envelope /daylighting and energy performance attributes of the WJHS as designed [ca 1954]
- evaluate its performance against current energy and daylight practices, and;
- Provide guidelines for the repurposing of the architectural envelope system, and address its implication to electric lighting and hvac system alternatives.

Instructional Method:
The case is composed of seminars, field data assessment and laboratory simulation exercises.

Evaluation:
The primary method for evaluation will be based upon the completion of a published document of the process and contain recommendations for achieving those goals.

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1 This course fulfills the required professional elective course requirement for M Arch II.