Urban Curriculums Must Address Climate Change

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The scale of the built environment’s impact on climate change will require that it be addressed seriously if we are to attempt to meet The Paris Agreement climate goals. The built environment accounts for approximately 36% energy usage, and 49% greenhouse gas admissions from construction. Increasingly ambitious energy performance benchmarks are being set by cities, states, and nations. It will be imperative that new constructions meet top energy codes; these goals will also have to be applied to the entire building stock. This transformation will require teams-skilled professionals in Architecture, Engineering, Energy Modeling, and Design- to address this challenge.

At New York City College of Technology, we are developing a technical curriculum around this change. An example of this integration can be seen in the second Building Technology course. Previously this course focused on traditional light wood frame construction; over the past few years the course has transformed to focus on the following elements:

- Wall assembly building science with emphasis on air barriers
- Moisture barriers and vapor control through walls
- Evolution of smart barriers and their transformative implications to wall assemblies
The trajectory of high-performance codes and the importance of codes in addressing climate change

Introduction to building energy modeling

Advanced framing techniques

The Building Technology II curriculum has been developed with collaborations with high performance and passive house architects, suppliers, and professional organizations. The goal of this evolution in the course is that the program and curriculum are to be a model for dissemination of high tech and high-performance assemblies in Architecture and CMCE curricula. City Tech is important because of the scale of its breath and depth; the program is part of the largest architecture school and its student body is one of the most diverse in New York City.

Author(s) Biography (200 words each):

Alexander Aptekar is a licensed architect and Assistant Professor at New York City College of Technology. He was the Principal Investigator for the Solar Decathlon Team in 2015. He is also a practicing architect specializing in high performance and passive house architecture and serves as the Co-director of the Department’s Architecture Technology four-year Bachelor of Technology degree program. Aptekar was a member of the team who developed the curriculum for the school's five-year Professional Degree program. He is a researcher and provides mentorship to students studying high-performance buildings and wall assemblies. Aptekar received his Master of Architecture from Yale University and his undergraduate degree from Oberlin College. He works on the AIA New York Committee on the Environment and New York City College of Technology’s Sustainability Council.