DEPARTMENT OF ENERGY
UNDERGRADUATE RESEARCH FELLOWSHIP
FOR ENERGY EFFICIENCY IN BUILDINGS



U.S. DEPARTMENT OF ENERGY

UC DAVIS
UNIVERSITY OF CALIFORNIA

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

The Research Program Consists of:

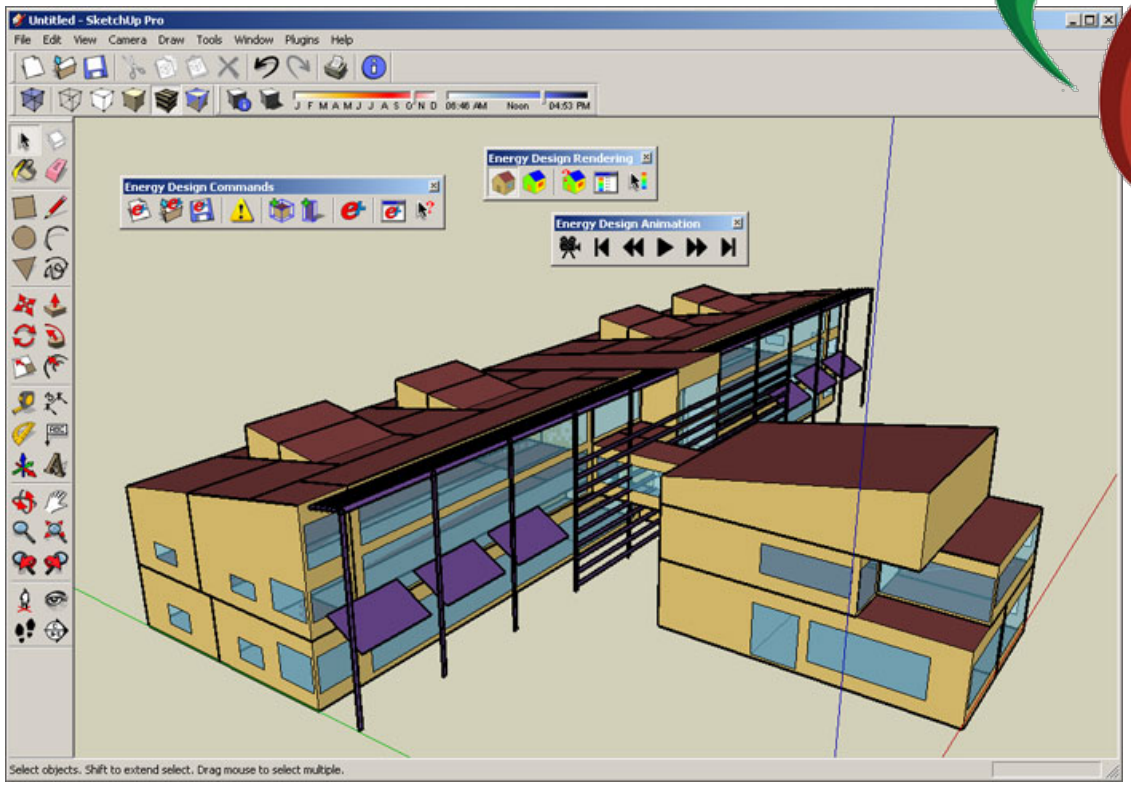
- Specialized coursework in energy efficiency
- Research during the academic year
  - Focus on numerical simulation of high efficiency cooling strategies
  - Hands on experience with state of the art energy efficiency solutions
  - As part of UC Davis Western Cooling Efficiency Center team
  - As part of an interdisciplinary undergraduate research team
  - Collaboration with national laboratories
  - Cooperation with industrial affiliates
  - Academic publication of research results
- Workshop at National Renewable Energy Laboratory (Golden, CO) Sept 14-16, 2016
- Summer 2017 engineering apprenticeship with industry
- Opportunity to present results at US Dept. of Energy Building Technology Office Peer Review in Washington D.C.

Preferred Qualifications

- Any undergraduate student may apply
- Most appropriate major disciplines include:
  - Mechanical Engineering
  - Civil and Environmental Engineering
  - Computer Science and Engineering
- Research fellows will have experience or interest in:
  - Computer modeling of physical systems
  - Heat transfer and thermodynamics
  - Design and control of complex multi-mode systems
  - Energy efficiency and sustainability in the built environment
- Research fellows will be familiar with or prepared to learn:
  - Matlab/Simulink, Python, C++, Excel, EnergyPlus
- Research fellows will also have the following characteristics:
  - Excellent communication skills
  - Natural leaders and team players
  - Self directed, curious, and motivated

The Research Focus – Developing Tools for …

- EnergyPlus
- Open Studio
- Technology Performance Exchange
- Building Component Library



EnergyPlus

OS

Research Focus – Hybrid Air Conditioning

- Hybrid systems mix multiple cooling strategies and switch between numerous modes of operation to heat/cool/dehumidify efficiently across a range of operating conditions
- Integrate systems for mutualistic efficiency advantages
- Can reduce peak electricity demand by 40% or more
- Some technologies promise 65% savings for annual cooling energy consumption
- Advanced technologies include
  - Variable speed fans and compressors
  - Heat recovery
  - Dessicant dehumidification
  - Indirect evaporative cooling
- Following slides illustrate a few examples

Applicants to apply for interview:

- Submit application, and resume via Aggie Job Link
  "Job ID #813755 – STDT 4 - Student Assistant - Western Cooling Efficiency Center "

  Applications deadline: August 1 2016

- Contact for information:

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