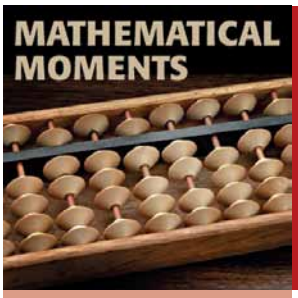
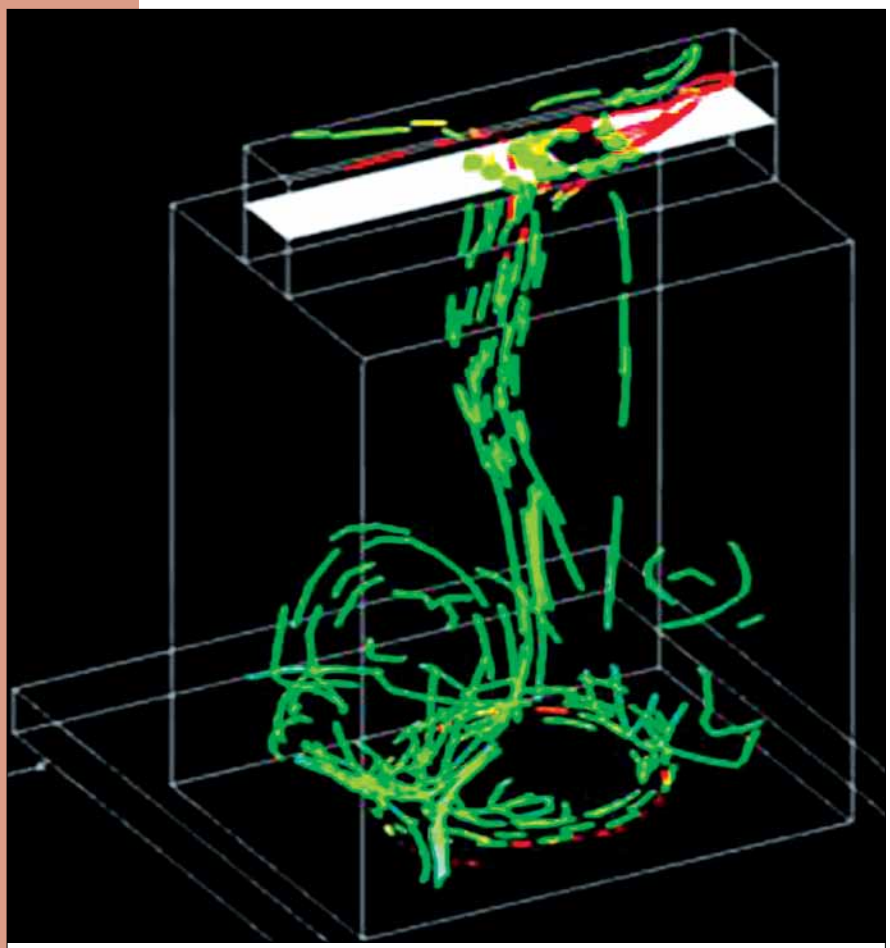


Building Efficiently

Buildings use so much energy that cutting consumption by one-half would be equivalent to taking every passenger vehicle and light truck off the roads for a year. Such a reduction can be done by integrating components, such as air conditioning and lighting, into one continually monitored system, as is done with hybrid cars. This integrated approach depends on mathematics: Fluid dynamics is used to locate vents and heat sensors optimally, while graph theory and linear algebra help identify the most important parameters in the huge amount of data the sensors collect. This makes it possible to make real-time adjustments essential to the system's efficient operation, which is cool for the occupants and the planet, too.



Coupled thermal and air flow computational fluid dynamics study in a building.

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