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**Wind Extraction for Natural Ventilation** TADEU FAGUNDES, NEDA YAGHOOBIAN, RAJAN KUMAR, JUAN ORDONEZ, Florida State University — Due to the depletion of energy resources and the environmental impact of pollution and unsustainable energy resources, energy consumption has become one of the main concerns in our rapidly growing world. Natural ventilation, a traditional method to remove anthropogenic and solar heat gains, proved to be a cost-effective, alternative method to mechanical ventilation. However, while natural ventilation is simple in theory, its detailed design can be a challenge, particularly for wind-driven ventilation, which its performance highly involves the buildings' form, surrounding topography, turbulent flow characteristics, and climate. One of the main challenges with wind-driven natural ventilation schemes is due to the turbulent and unpredictable nature of the wind around the building that impose complex pressure loads on the structure. In practice, these challenges have resulted in founding the natural ventilation mainly on buoyancy (rather than the wind), as the primary force. This study is the initial step for investigating the physical principals of wind extraction over building walls and investigating strategies to reduce the dependence of the wind extraction on the incoming flow characteristics and the target building form.

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