

Abstract Submitted
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Turbulent Anisotropy and Dissipation/Production in the Indoor Environment DAVID MARR, MARK GLAUSER, Syracuse University — In the effort towards CFD validation and turbulent model calibration, various numerical terms are determined using various data sources such as DNS or experimental results. The presented research includes a series of PIV experiments and corresponding turbulent analysis in order to quantify these terms in the indoor environment. A variety of configurations are given to determine common values in such flow regimes as well as information critical to the CFD community for specific ventilation situations. Using a displacement ventilation design, where the heated body of the indoor occupant drives the flow, three components of velocity are presented around a breathing thermal manikin in various positions for a multi-faceted view of experimentally determined turbulence in the indoor environment. Specifically, an integrated length scale analysis in conjunction with the turbulent anisotropy and dissipation/production information is presented.

David Marr
Syracuse University

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