Moisture adsorption and desorption (HAD) by internal building materials and furnishings can be significant in buildings. For many building cooling strategies, HAD may have overriding effects on building cooling loads. For example, natural ventilation of buildings in hot, humid climates has been shown to induce higher latent loads and higher room relative humidities during periods following ventilation.

Even the most sophisticated public domain building energy analysis programs cannot accurately predict these building moisture phenomena. In October 1986, a cooperative research effort between the Gas Research Institute (GRI), U.S. Department of Energy (DOE), Florida Power and Light (FPL), and the Florida Solar Energy Center (FSEC) was initiated to study moisture transport in buildings. One of the objectives of this project is the development of computer algorithms that accurately describe the behavior of moisture in buildings, materials and systems.

During the initial year of the project, a comprehensive search of the world literature has been completed. Moisture property data have been collected and compiled in computer friendly formats, and six major theories of combined heat and moisture transport have been identified. Each of the theories requires data that are unique to that theory.

The paper will present a synopsis of the need for building moisture transport research, a discussion of results to date, and efforts to incorporate HAD algorithms in existing public domain software.