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Carrie E Keel* (Carrie.E.Keel@student.Mercer.edu), Department of Mathematics, Mercer University, Macon, GA 31207, and **J K Denny**. *Modeling temperatures for a building with seven zones*. Preliminary report.

The air conditioning system for a local volunteer medical clinic consists of four heating, ventilation, and air conditioning (HVAC) systems with independent controllers. Due to the configuration of the building, these HVAC systems do not effectively cool many parts of the clinic. We will present a temperature model of this clinic using a system of differential equations to divide the building into seven zones. Our collection and use of data to determine constants in the model will be discussed, and we will propose methods for improving the efficiency of the clinic's HVAC system. (Received September 28, 2005)