

# ***TO HEAT OR NOT TO HEAT***

Consider a three-floor business building with a thermostat for heating on each floor. Although each floor has its own thermostat to control the heating, a single unit provides heat to ALL three floors, or NO heat is provided to all three floors. A central circuit board designed is required that will control whether the heating unit will or will NOT provide heat to the building, depending on the input from the three thermostats. The heating unit provides heat to ALL three floors when any two of the three floors agree that the heat should turn on. The exception is when the thermostat on the top floor and the bottom floor indicate the heating unit should turn on, but the thermostat on the middle floor indicates the heating unit should NOT turn on. In this situation, no heat is provided.

Project contents:

- Computer Generated Cover Page
- Table of contents
- Problem description
- Truth table with variable description
- Un-simplified minterm expression from truth table
- K-Map with simplified minterm expression
- Boolean Algebra simplification of un-simplified minterm expression from truth table
- Logic Diagram using AND-OR circuit
- Simplified NAND implementation
- Conclusion

