Project title:

*Benchmark and redesign of humidification system for affinage case*

Engineering discipline(s):

Mechanical Engineering,

Required skills, materials and equipment:

**Skills:** Mechanical design, materials, FEA, mechanical forensics

**Materials:** failed units (provided by Wegmans)

**Equipment:** Humidification case (provided by Wegmans – in store),

Background and motivation: *What is the current situation and how would this project improve it?*

Currently Wegmans relies on an external vendor to provide a humidification system for their affinage cases that are present in some Wegmans stores. The current system is prone to failure. There is a piezo-electric nozzle that atomizes the air and is the fundamental component of the system. This unit is used in conjunction with a water delivery system that must be serviced frequently. The failure of this system is costly and time consuming as the vendor requires original parts to be used in service.

Objective: *What does this project hope to accomplish?*

The goal of the project would be to find the root cause of the failure and through an analysis/design activity create a superior system to the system currently in use. The system also uses proprietary components; a secondary goal would be to identify the unique characteristics of these components to see if they could be simplified.

Deliverables: *What specifically should the project produce in order to be a success?*

- Benchmark of current system, research of humidification process
- Complete set of requirements and specifications for system
- Identify root cause of failure in current system
- Identify several design concepts, CAD only, these should include:
  - Concept for fixing exiting system
  - Concept for replacing existing system
- Decision matrix indicating most promising design alternative
- CAD of design proposal, including associated drawing package
- Prototype of design
- Ideally a working breadboard/engineering model

Recommended team size: 4

Mentors: