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Group #15

Summary of group project: Single Enclosure System

In this engineering project, a new innovative design has been carried out to build a multi-functional system that delivers all utilities to support large-scale kitchens, such as those for restaurants or cruise liners. The single enclosure system is expected to allow electricity, gas, and cold and hot used on all kitchen appliances to flow through one location, which is expected to benefit sales throughout the board of Hood Depot, not just of the system itself, but of the compatible kitchen hoods as well. Since the design is a single enclosure system for kitchen, it will be able to carry hot/cold water, as well as pump gas and provide electricity for cooking appliances on a regular basis.

In order to fulfill the tasks required, work was done on both mechanical and electrical aspects. On the mechanical side, pipe sizing and selection needed to be considered in order to minimize the cost, but still maintained an optimal performance of the working fluid. For safety awareness, necessary sensors were also installed to detect an output to the control monitor whenever needed.

Once a structural design was determined, the stress seen inside the enclosure system was analyzed and reinforcements were added where needed in the form of T-Bars and cross-bars, as well as bends and folds in the sheet metal. Design constraints due to the machines available to us in Hood Depot forced us to modify and adapt our model to a feasible solution.