



Food Safety Starts with the Building Design

By Mark Broomell, P.E.
Director of Food Processing Facilities
Providence Engineering

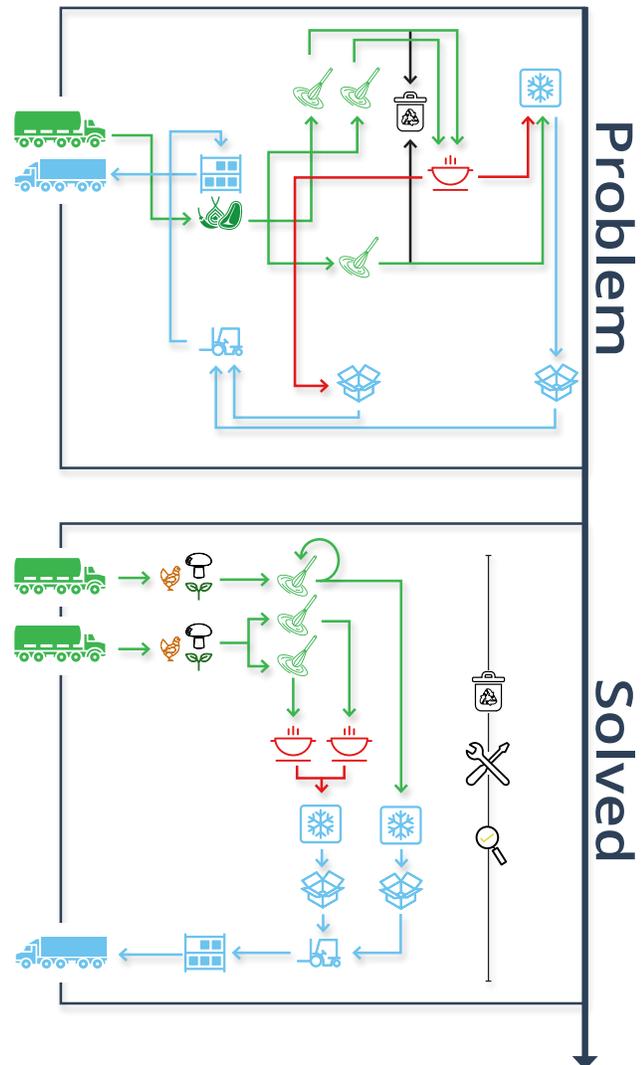
Food safety is an extremely important component in the complex world of processing and delivery of our food products. But have you thought specifically about how your building affects food safety? At Providence Engineering, food safety starts with the building design, and it remains the focus at each step of our process. Below is a brief overview of three things to consider in the design and continuous improvement of food safety in your facility:

Flow - Moving Food, People and Materials

How does product and people move through your facility? Food process facilities need direct non-intersecting flow. This is critical, especially in (zone 1) food process rooms. We must control how people and materials flow in and out of all spaces. Sounds easy, but when you are successful and need to expand your building, this can easily get out of control. Sometimes you are left with a food-safe but inefficient operation. Or worse, a need to constantly monitor and manage a less than optimal food process environment.

Recently, I worked with a processor to design a renovation of an existing building for a Ready To Eat (RTE) food product. The existing room layout was complicated. Finding flow was key to making the project work. We discovered we could create 2nd floor employee support spaces (break room/locker room) and then deliver the employees to their respective work areas directly through a 1st floor central corridor with hand sinks, boot-wash stations, and gown racks. We created a direct and non-intersecting flow of people.

This is just one, quick example of how consideration of flow within a facility ultimately made the process within that building safer and more efficient.





Building Components - *Walls, Floors, Ceilings and Doors*

Does your food-process facility have durable, cleanable walls, floors, ceilings, and doors? What about proper air quality, temperature, pressurization, and lighting? These are important questions that should be considered early in the building-design process, as they will impact the successful operation of your facility. Moreover, these building components will have a major impact on food safety in your facility, both in the short and long term.

One example that can be particularly problematic are soft, hollow walls i.e. FRP on plywood on wood studs. Spaces within this type of wall construction can become a harborage of condensation, mold, and vermin. Walls of this type can quickly become “high maintenance” and always in need of repair.

Like hollow walls, above ceiling crawl spaces can also become a food-safety concern. These hidden, inaccessible spaces are a place for significant condensation to develop due to “cold” spaces below with a “warm/humid” attic space above. The food safety problem is made worse because it is hidden and you do not see the problem developing during your day to day operation.

Overall, it is important to be mindful of the building components selected for specific use within your facility. If you cannot afford the best materials now, you can at least be aware of where the problems may develop...and you can make allowances for future upgrades.

Design Synergy - *Owner/Design-Professional Relationship*

The last point to consider when thinking about food-safety within your facility is the relationship you have with your building design professional. As the owner/operator of your facility, you know your vision, challenges, threats, and operation best. The design professional knows how to design buildings.

But designing a food-process facility is vastly different than designing schools, churches, and office buildings. Food process facilities commonly include spaces with unique temperature requirements, including +35°F coolers, -20°F ice cream freezers, and -40°F spiral flash freezers. Additionally operation flow and clean-ability of building components are quite different than your typical building. With these unique qualities in mind, it is best to find a design professional who has worked on these food facility projects before.

Moreover, that design professional should demonstrate a willingness to deeply understand the specific qualities that make your facility unique. At Providence Engineering, we call this “design synergy.” It is our goal, on every project, to develop a design synergy with you and your team. We believe that by developing this synergy, and understanding your specific needs and priorities, we’ll be able to design a building that contributes to your food-safety goals and the overall success of your process.

