## Recent Progress on Sanitary Equipment and Facility Design Best Practices

***Background from 1990 through 2011:***
Way back in the 80's, the USDA reviewed and approved documents submitted to them prior to new construction or renovation. This procedure ended just about the time I started my career in the Food Industry. The only well-known text sources were the USDA "Blue Book" which was reissued as a "Appendix A--Guideline" from FSIS in 1997, Thomas Imholt's *Engineering for Food Safety and Sanitation,* now in 2nd edition, guidelines from food companies such as Maggie Duke's work at Nestle and the few design manuals from engineering firms Davy McKee and John Brown.

For about 15 years, little was published, many experts retired and it became a challenge to enforce good sanitary design. "Show me where it says we have to do that!" was difficult to answer.

Consistently active during this period was Kraft Foods. Joe Stout and others continued to press the industry to improve, leading training courses for vendors and suppliers selling to Kraft. These efforts led to the American Meat Institute's (AMI) Equipment Sanitary Design Task Force, which began to teach seminars in 2002. The Facility Design Task followed in 2004. Joe led the Equipment Task Force and I co-chaired the Facility Task force with Dave Kramer from Sara Lee. Some of deliverables from these initiatives are available from Joe's website http://www.commercialfoodsanitation.com/?page_id=21

The Grocery Manufacturers Association (GMA) ran with the ball next and modified the AMI's work to better address low-moisture foods operations. Training courses began in 2010.

In the meantime another excellent text was published by Dr. J. Peter Clark, *Practical Design, Construction and Operation of Food Facilities*, in 2009.

There have also been a few sector-specific initiatives. The *Food Safety Guidelines for the Fresh Cut Produce Industry* became available in 2001. http://www2.unitedfresh.org/forms/store/ProductFormPublic/ The GMA issued the *Industry Handbook for Safe Processing of Nuts,* http://ucfoodsafety.ucdavis.edu/files/26474.pdf

***Equipment Certifications and Standards:***
In the U.S., a reliable approach to obtaining equipment and appurtenances with best-practice sanitary design is the 3-A symbol. http://www.3-a.org/2008/symbol/holders_list.html. An international certification from the European Hygienic Engineering and Design Group (EHEDG) is an alternative that has seen much broader use over the past 5 years. http://www.ehedg.org/?nr=82&lang=en

And let us not forget AIB https://www.aibonline.org/resources/ which is always a source of excellent information on sanitary design and operations.

***Sanitary Design and Food Safety:***
Food Safety is a larger topic than sanitary design, however food safety problems emphasize the role of facility and equipment design due to harborages and the challenges of properly sanitizing poorly designed equipment and facilities. Of course, Peanut Corporation of America's problems in 2008 elevated the topics to a heated national discussion, leading directly to the Food Safety Modernization Act in 2011. http://www.fda.gov/Food/FoodSafety/FSMA/ucm250568.htm

A particular focus of our firm is how the developing rules impact the physical infrastructure of the facility and equipment. The impacts over the first few years of the FMSA rollout impact QA/QC operations and data collection, but do not obviously require capital investment. The impacts may be more indirect, such as needing more room for sampling on the receiving dock, or additional cooler space for sample storage. As HACCP plans are reviewed under FSMA, equipment may need to be replaced if, for example, a more intensive kill-step reduces throughput. Ice machines, boot washers, renovations to improve lockers, laundry, or employee cleanup rooms, are investments that support meeting the goals of FMSA but are not directly required by the new rules. A much larger impact can result as product, people, materials, ingredients, rework and trash flow paths are modified to avoid cross-contamination from raw to cooked. At some point, the total burden of these modifications to an operating facility becomes too significant and you will desire a new, clean, efficient facility that impresses customers, strengthens your brand and allows you to sleep soundly at night.

Reading guidance documents from FDA websites is likely not sufficient to guide you to a decision on how far you need to go to meet not only the letter of the law but also the expectations of your customers, the certifiers for GFSI and other auditors. You will need some expert advice to guide you. I know a few who can help.