LIGHTING DESIGN – FOOD PROCESSING FACILITIES

In all food processing facilities, well distributed and good quality lighting is required throughout the facility. The overall intensity of illumination in workrooms is well defined by the USDA, FDA, and ANSI/IES. For example, the intensity of illumination in workrooms should be no less than 30 foot candles. At locations where inspection or grading takes place, local inspectors require a minimum of 150 foot candles. Thus, the lighting fixtures in a food processing facility must be capable of maintaining the proper lighting specifications.

Because sanitation is such a critical part of our food processing industry, a great deal of time and energy is spent washing and sanitizing all processing equipment and the rooms containing this equipment. The machinery, equipment, floors, walls, ceiling, and the lighting fixtures must be capable of performing in a wet and damp environment.

High-pressure washdown with hot water and/or sanitation chemicals may approach 1000 psi water pressure. Lighting fixtures must be constructed in such a manner that they do not leak, corrode or cause fires or electrical problems. Likewise, the lamps must be protected so that should they break, for any reason, glass or other matter would not be dispersed throughout the production area.

For the food processing industry, all lighting fixtures should be listed for wet locations as a minimum requirement. A fixture that has a marine listing indicates that the fixture is suitable for extremely harsh washdown procedures.

The National Sanitation Foundation International (NSFI) certification indicates that the fixture and the manufacturing facility that made the fixture have passed a battery of tests that pertain to the stringent requirements of the FDA and USDA.

The NSFI is a not for profit, independent, third-party certifier of products and systems for conformity with consensus and official regulations and specifications, industry standards and product specific test protocols. NSFI requires that all materials, which could come into contact with food products, meet the stringent requirements of the Federal Food, Drug, and Cosmetic Act (FDA) as amended. All testing and analysis is performed by NSFI staff scientists which include, but are not limited to, toxicologists, chemists, micro-biologists, mechanical engineers and other industry experts.

NSFI approved lighting products are listed for the following areas:

NSFI CERTIFICATION	DESCRIPTION OF LOCATIONS/ USE AND COMMENTARY	TYPICAL LIGHTING APPLICATIONS
NON-FOOD ZONE	Areas where direct contact with food products during normal operations would not be suspected. Equipment is located outside the normal washdown area. There is a concern that the fixture will add contamination to the protected space or food product (e.g. cleanability - will the finish withstand cleaning, chipping paint, deteriorating paints or finishes, lens impact resistance, lamp glass breakage, etc.)	Kitchens; food storage; dry process areas; damp process areas- no drip possibility.
SPLASH ZONE	Areas where direct contact with food products during normal operations would not be expected; however, the fixture may be situated such that liquids used in the processing or cleaning procedures, may splash, spill, or otherwise soil - either intentionally or inadvertently - the surface of the fixture. There is the potential for dripping or draining onto other surfaces or even the process. Since these fixtures are often used in washdown areas. Wet location listing is not sufficient. Fixtures must be tested to withstand high pressure hose washdown. The concerns of Non-Food Zone also apply.	Wet or damp process areas; high pressure purging and/or decontamination used in the process; areas using hose washdown.
FOOD ZONE	Areas where direct contact with food products is normally expected and surfaces from which the food may drip, drain, or splash back onto surfaces normally in contact with food. Equipment other than lighting fixtures typically require this certification (e.g. work tables, cutting boards, other direct contact equipment).	Category not typically used for lighting.