## Introduction:

A zoning (segregation) plan may be implemented when a manufacturing plant has identified areas of potential for microbiological cross contamination. Usually a hazard assessment determines potential contamination sources, susceptibility of the product and control measures suitable for these areas. The facility is designed and constructed to separate areas where high-risk foods are processed, exposed or stored from areas where lower-risk foods and raw foods are processed, exposed or stored, and from equipment washing areas, microbiological laboratories, maintenance areas, waste areas, offices, and toilet facilities.

The degree of hygiene control in the facility depends on the type of the operation and the analysis of the potential risk. Based on the assessment, the facility is divided into areas with different allowable processing steps, different rules and/or procedures for persons who are allowed entry, and/or different levels of cleanliness. Generally, the more sensitive the product or the consumer, the more important it is to separate the facility into different hygiene areas. Each manufacturing operation requires an appropriate environmental cleanliness level in order to minimize risks of contamination. Buffer zones, sanitizing stations, physical (or other) barriers are often placed between the basic GMP areas to the high hygiene areas.

## Types of Zones:

There is no standardized language or system for designating the number, names, or types of zones within a food establishment. Depending on the product and process and the intended consumer the number of hygiene areas established may vary. Following are some examples with description:

**Zones:**

- **Basic GMP area:** basic hygiene area, non-critical (sometimes wet side of operation)
- **Salmonella processing zones** (PSCA): separated from rest of processing area (sometimes dry side of operation)
- **High Risk (**high-hygiene, ready to eat food area, critical side, high risk area): with more stringent requirements and procedures. Physically segregated and designed to a high standard of sanitation, hygiene, and cleanliness. Operating practices relating to personnel, product and production are controlled to minimize contamination.
- **wet to dry** areas
- **“dirty” (relatively speaking) to clean**
- **raw materials to finished**

- **basic hygiene area to a high hygiene**
- **processed to unprocessed**

**Buffer Areas**: Entry and exit doors are tightly fitted and self-closing. Floor is properly sloped. Air exhaust is used. Hands-free hand washing sink is provided on the non-critical side of the buffer area. Drying hands with paper towel is recommended.

**Changing rooms**: Used to provide physical separation and for changing to minimize contamination of protective clothing.

## Examples of Food Processes that may utilize zoning:

- Low Acid Canned Food
- Organics
- Allergens
- Dairy
- Aseptic
- Dry food Processors (infant formula, peanut processing, chocolate)

## Common Industry Best Practices:

- Utilize color coded schemes to ensure that equipment that used in raw product handling areas is not used where ready-to-eat products are handled.
    - Use tags, different colored clothing, etc…
- Direct and control employee and equipment traffic between the raw side and finished product side.
    - Dedicated workers may be assigned to hygienic areas
    - Dedicated equipment, pallets, utensils and other tools are used
    - Avoid bringing products and ingredients without appropriate decontamination/treatment into high risk area.
- Prevent or minimize dust movement
- Establish a master sanitation schedule to assure timely and effective sanitation for basic GMP and transitional areas. Use wet or dry cleaning as appropriate.
- Establish appropriate cleaning and hygiene procedures

## References:

Compartmentalization or segregation of the facility into specific areas is a common practice in food processing (FAO/WHO, 2006; Holah, 2005).

*GMA, Control of Salmonella in Low Moisture Foods, pp 1-81, February 4, 2009*