



EBOOK

**8 Things to Consider
When Designing Food
Processing Plants for
Optimum Hygiene and
Food Safety EBook**



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Introduction

A high standard of hygiene is a prerequisite for the safe production of food, and the foundation on which HACCP and other safety management systems depend. Measures should be in place to prevent contamination of food from physical, microbiological, and chemical sources to avoid potentially severe health hazards.

To achieve this, a clean and wholesome environment during slaughtering, processing, packaging and storage should be maintained at all times.



1. Design

The first step to achieve optimum hygiene and safety in a food processing plant is the design with the primary objective to design and construct a building that is cleanable. Many existing facilities do not have optimum sanitary design and construction. While this may be possible to achieve with certain adjustments, it is certainly far easier to build with sanitary design criteria in mind without adding a great deal of cost.

The objectives of designing and constructing a hygienic food processing facility are to minimize harborages, prevent the entrance of pests and other sources of contamination like raw material, air, water, environment, workers, equipment and drains.

It is at this design stage that consideration should be given to the building quality, environmental and ecological aspects, as these do impact the degree of effort in preventing contamination.

2. Workflow

Consideration should also be given to the flow pattern for food products, personnel and equipment to prevent potential contamination of the finished product. Flow should be in one direction and follow a logical sequence from raw material handling to finished product storage.

- Straight line process flow is regarded most efficient. Smooth rapid production should be sought with minimum expenditure of worker time and energy.
- Layouts should minimize the chances of recontamination of a semi-processed or processed food by unprocessed or raw material. Cross contamination must be effectively prevented. Raw materials and processed foods must therefore be kept apart.
- Materials and tools should receive minimum handling, and equipment minimum worker attention.
- Maximum utilization of space and equipment should be achieved
- Quality control must be sought at all critical points
- Minimum cost of production should be sought

3. People Flow

- Straight line flow is regarded most efficient as with work flow
- Cross contamination must be effectively prevented between people and products
- Hand washing and boot washing facilities before entering processing areas and in between processing and high risk areas is therefore extremely important.
- People movement in and out of facilities should minimize the chances of recontamination by people that had already gone through the change room and hygiene facilities.

4. Equipment

Equipment should be designed according to hygienic design principles. Construction material should be Stainless steel with finished or polished surfaces. Construction of equipment should be simple and with open construction for easy cleaning of the equipment.

5. Drainage

One of the most important aspects of a well-designed food processing plant is proper drainage systems – not only to get rid of waste water/product, but to guard against contamination through bacterial build up, insect and pest infestation, equipment harboring foreign bodies as well as ingredients and raw materials. Drains systems should be well design, stainless steel, easy to drain, easy to clean and to prevent biofilm. Floors should have adequate falls to drainage points and the drains should be able to handle the volume of water.

6. Cleaning and Disinfection Systems

An effective cleaning and sanitation program for equipment and premises must be in place to prevent contamination of products. Cleaning should be done on a daily basis with low pressure foam cleaning systems. Systems should be designed to facilitate water saving and should be done regularly to prevent the formation of bio film.

7. Hygiene Requirements for Personnel

Successful hygiene design is only complete with the implementation of a safe and healthy work environment, and administrative controls, or a management system that ensures a high standard of hygiene during manufacturing and preparation of foodstuffs. One of the most effective control measures is access control, which ensures effective hand cleaning, hand disinfection, shoe and boot cleaning systems

8. Maintenance

Scheduled preventative maintenance should take place outside production areas and outside production hours. Spare parts management, tool hygiene and management and training should be part of the maintenance policy.

Conclusion

To design a food processing plant for optimum hygiene and food safety, consider the whole chain: from plant layout, construction, equipment, cleaning and disinfection, maintenance, personal hygiene, training and introduction of hygiene management system. Together they form a whole to ensure optimum hygiene and food safety management.

If you need help with designing your food processing plant, hygiene lobbies or food safety systems please contact us at info.za@pht.group