



DESIGN CONSIDERATIONS WHEN SHOPPING FOR USED EQUIPMENT OR FABRICATING EQUIPMENT

For
Trainers and Trainees

Prepared
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under

PROCESSING
FOR COMMERCIAL
EXPLOTATION OF
SELECTED TREE FRUITS
AND VEGETABLES IN
TANZANIA AND RWANDA
PROJECT

Design Considerations when Shopping for Used Equipment or Fabricating Equipment

One must remember that food process equipment should be designed for sanitary operation and ease of maintenance and cleaning.

1. Food contact should be constructed of non-corrosive and non-toxic materials
2. Surfaces of equipment in contact with food must be easily cleaned and accessible for inspection.
3. All machine parts should be designed for quick disassembly and reassembly. This facilitates cleaning and repair. All machine parts in contact with food should be accessible for cleaning.
4. Surfaces of equipment in contact with food should be smooth and continuous. Rough spots, crevices and open seams should be avoided or repaired.
5. Sharp corners in equipment are difficult to clean. Cooking kettles, holding tanks and similar units should have long curves at the juncture of the bottom and side walls. Pipelines and ducts should be curved and rounded.
6. Equipment such as kettles, vats, bins or mixers should have sectional covers that are free from seams, crevices or hinges in which dirt might collect.
7. Dead-end areas in all equipment should be avoided. Such areas are difficult to clean and may allow the growth of spoilage organisms.
8. Metals such as lead (soft solder), cadmium, antimony and zinc must not be used in fabricating food equipment. Copper or copper containing alloys are not suitable for most food applications.
9. Equipment must be designed to avoid the loss of small parts such as bolts, keys or washers into the food. Mixing blades

should be welded to or continuous with the drive shaft. The shaft and blades should be removable at a point above the surface of the product.

10. Swivel joints, stuffing boxes or glands in which food might accumulate or harbor spoilage organisms should not be used.
11. Food products should be protected from lubricants and condensates. Moisture condensing on piping or ceilings may drop into open kettles or holding vats and contaminate the food with dirt or peeled paint.
12. Drive shafts should be sealed to keep lubricants from reaching the food.
13. Food piping systems must have sanitary thread, and threaded parts must be accessible for cleaning. Sanitary valves that are easily disassembled for cleaning should be used.
14. Coupling nuts on piping and valves should have sufficient clearance to allow ease of disassembly and cleaning.

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