

**DRAFT KENYA STANDARD**

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# **Basic requirements for a slaughter house - Specification**

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**PUBLIC REVIEW DRAFT, JANUARY 2018**

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First Edition 2017

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## TECHNICAL COMMITTEE REPRESENTATION

The following organizations were represented on the Technical Committee:

Ministry of Agriculture, Livestock and Fisheries- Directorate of Livestock Production  
Ministry of Agriculture, Livestock and Fisheries - Directorate of Veterinary Services  
Kenya Camel Association (KCA)  
University of Nairobi (UON)  
Kenya Industrial Research and Development Institute (KIRDI)  
Kenya Agricultural and Livestock Research Organization (KARLO)  
International Livestock Research Institute (ILRI)  
Farmers Choice (K) Ltd  
Consumer Information Network  
Ministry of Health- Food Safety Unit  
National Public Health Laboratory  
Government Chemist's Department  
Kenchic (K) Ltd.  
Kenya Meat Commission  
Kenya Nut Company Limited – Morendat Farm  
Choice Meats Limited  
Quality Meat Packers Limited  
Kenya Bureau of Standards (KEBS)- Secretariat

## REVISION OF KENYA STANDARDS

In order to keep abreast of progress in industry, Kenya standards shall be regularly reviewed. Suggestions for improvement to published standards, addressed to the Managing Director, Kenya Bureau of Standards, are welcome.

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# KENYA STANDARD

## Basic requirements for a slaughter house - Specification

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## Foreword

This Kenya Standard was prepared by the Meat and Meat Products Technical Committee under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards.

During the preparation of this standard, reference was made to the following documents:

Codex standard for processed meat and poultry products part 1 Volume 10 1994  
Kenya Meat Commission Act Cap 363  
Meat Control Act Cap 356  
Legal notice number 110 of 2010 - meat control act  
Red Meat Manual- Republic of South Africa  
Food, drugs and chemical substances Act Cap 254  
EMCA Act Cap 387  
Public health Act Cap 242.  
Indian Standard- Basic Requirements for an Abattoir (First Revision)  
Guideline Manual for the Management of Abattoir and other wastes of animal origin- Department of Agriculture and Rural Development, Gauteng Provincial Government- South Africa

The assistance derived from the above sources is highly acknowledged.

## 1. SCOPE

This Kenya Standard specifies basic requirements for a slaughter house for carrying out slaughter of a food animal.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies

- I. *KS EAS 39 - Hygiene in the food and drink manufacturing industry - Code of practice.*
- II. *KS ISO 22000 Food Safety Management Systems - Requirements for any organization in the food chain.*
- III. *KS EAS 151 - Hazard Analysis Critical Control Points (HACCP).*
- IV. *KS 2299 Code Of Practice for Ante-mortem and post-mortem inspection of meat animals.*
- V. *KS CAC/RCP 58-2005, Codex code of hygienic practice for meat.*
- VI. *KS EAS 12 - Specification for potable water*

## 3 DEFINITIONS

For the purpose of this standard the following definitions shall apply:

### 3.1 Food Animal-

any mammal or bird declared to be an animal for slaughter.

### 3.2 Carcass-

the body of any slaughtered animal after bleeding and dressing.

### 3.3 Evisceration –

to disembowel and remove entrails of a carcass

### 3.4 Lairage-

means holding pens for livestock at a slaughterhouse prior to slaughtering.

### 3.5 Meat-

means any portion of an animal which is intended for human consumption, whether fresh, chilled or frozen or otherwise processed by any means whatsoever or included in any article of food for human consumption.

### 3.6 Red offal –

include heart, liver, kidney, spleen, tongue, lungs, pancreas.

### 3.7 Green offal –

include the rumen, reticulum, omasum, abomasum, small intestines, large intestines, colon, and gizzards.

### 3.8 White offal-

include the brain, spine, bone marrow, testicles and teats.

### 3.9 Slaughterhouse-

means any place kept for the purpose of the slaughter of animals for human consumption.

### 3.10 Stunning-

is any mechanical, electrical, chemical or other procedure which causes immediate loss of consciousness; when used before slaughter, the loss of consciousness lasts until death from the slaughter process; in the absence of slaughter, the procedure would allow the animal to recover consciousness.

### 3.11 fractious animals-

animal that would not submit to the harness. readily angered; peevish; irritable; quarrelsome

### 3.12 clean area –

area designated for slaughter operations after evisceration to dispatch

### **3.13 unclean/dirty area –**

area designated for slaughter operations from stunning to evisceration

### **3.14 Unclean operation –**

In animal slaughter, unclean(dirty)operations entail animal handling in lairages, stunning, bleeding, flaying or scalding (in pigs or poultry),remove of trotters, head, hide or skin/hair or feathers (in pigs or poultry).

### **3.14 Clean operations -**

evisceration, carcass splitting; diaphragm, fat, tail trim; carcass washing and dispatch to the cold room.

## **4. LOCATION**

- 4.1** A slaughterhouse shall be located in an area which is reasonably free from objectionable odors, smoke and dust. Adequate dust-proof access-ways connecting the slaughterhouse with public roads shall be available. The slaughterhouse must be completely separated from any other buildings used for industrial, commercial, agricultural, residential or other purposes other than connected building used for the processing of the meat
- 4.2** The plan for construction of slaughter house shall follow the relevant provisions of EMCA Act, Physical Planning Act, Meat Control Act, Food Drugs and Public Health Act, Public Health Act and County physical Development Plans.
- 4.3** The slaughter house site shall be guided by the Part Development Plan (PDP) of the area.
- 4.4 General Provision.**

Slaughter house shall be hygienically managed and under the supervision of a competent authority.

A slaughterhouse shall have—

- (a) Properly built and drained lairage erected not less than ten meters from the slaughterhouse and equipped with adequate facilities for ante-mortem inspection and Isolation pens for suspect animals.
- (b) Fenced cattle races from the lairages to the slaughterhouse, properly drained and in a suitable place equipped with facilities for washing the animals.
- (c) Separate facility for handling hides and skins
- (d) Separate room for the cleaning and treatment of intestines and ovals.
- (e) Separate room for the storage, disposal and treatment of inedible and condemned animals, carcass and meat.
- (f) Impervious, easily cleaned and resistant to wear and corrosion materials.
- (g) Floors constructed of dense, acid-resistant, waterproof concrete and have appropriate non slip finish.
- (h) Walls smooth and flat and made of smooth-surfaced Portland cement plaster or other non-toxic, non-absorbent material applied to a suitable base, and walls shall be provided with sanitary bumpers to prevent damage by movable equipment.
- (i) Coves with sufficient radii to promote good sanitation shall be installed at the juncture of floors and walls in all rooms.
- (j) Ceilings of adequate head room be smooth and flat and be constructed of portland cement plaster or other acceptable impervious material that allow for easy cleaning
- (k) Provisions for adequate natural lighting and ventilation
- (l) Doorways at least one hundred and fifty centimeters wide and the doors must be made of rust-resistant metal having tight soldered or welded seams. Door jambs shall be covered with rust-resistant metal.
- (m) Pest proofing to prevent the entry of insects and rodents
- (n) Dressed timber used for all exposed interior wood work, and it shall be painted with a good non-toxic oil or plastic base paint, treated with linseed oil or with a clean wood sealer.
- (o) all parts of floors where wet operations are conducted well drained, with at least one drainage inlet provided for each thirty five square meters of floor space. The inlets shall be placed under the

dressing rails if necessary together with drainage valleys, not less than seven decimal five centimeters wide, with a slope of the floor towards drainage valleys or inlets of at least two decimal five centimeters per meter.

(p) Drains for paunch and stomach contents at least twenty centimeters in diameter.

(q) Waste disposal system of adequate size and must comply with Environmental Management and Coordination Act (EMCA1999) and local regulations.

## 5 SLAUGHTER HOUSE LAYOUT PLAN

5.1 The slaughter house shall have the essential facilities for the following activities:

- I. Receiving the animal
- II. ante-mortem inspection
- III. isolation of sick/diseased animals
- IV. Resting place for animals before slaughter
- V. Carrying out humane slaughter – stunning box
- VI. Flaying, dressing and washing of the carcasses
- VII. Hanging carcasses and edible offal
- VIII. Handling by-products
- IX. Handling solid and liquid wastes
- X. Inspection of meat
- XI. Chilling and Freezing facilities
- XII. Emergency slaughter
- XIII. Staff welfare
- XIV. provision of hot and cold of potable water
- XV. Toilets and changing rooms

5.1.1 A flow diagram for basic operation of a slaughter house is shown in Fig. 1 for information and guidance only. The layout of entire slaughter house, as far as possible, shall follow forward flow principle. Figures 2 and 3 show a typical layout plan for slaughter house and a sample planning outline

5.1.2 The slaughter house design shall provide for the separate gates for the entry of slaughter animals and exit of the products.

5.1.3 Should the retail or wholesale market for finished products be required to be included within the complex itself, the same should be physically excluded from the rest of the establishment in such a manner that the customers have an access only to these sections where such business is transacted.

5.2 Slaughter houses shall have an adequate separation between clean and dirty sections, which shall be arranged in such a way that from the introduction of a live animal into the slaughter house up to the emergence of meat and offal classed as fit for human consumption, there shall be a continuous process, without any possibility of reversal, inter-section or over lapping between the live animals and meat, and between meat and by-products or waste.

## 6. SECTIONS OF A SLAUGHTER HOUSE

6.1 In view of the facilities to be provided (5.1), the slaughter house shall have the following units:

6.1.1. **Reception**(a) The slaughter house shall have reception area of adequate size and shall have adequate artificial lighting if animals are offloaded at night(b)Offloading ramps shall be movable or stationary and shall:–

- i. be so constructed to avoid injury of animals during offloading and provide a stable area to facilitate the free movement of animals.
- ii. not have open spaces between the offloading ramp and the vehicle.
- iii. be at the same height of the vehicle for which it is used.
- iv. have guide rails.
- v. have permanent non-slip floor at a slope of not more than 20°.
- vi. not have sharp protruding edges or any other features that may cause injury.



### 6.1.2 Lairage

Cattle, goats, sheep and pigs shall be penned separately. In the case of pigs, pigs from different origins should be penned separately, in accordance with their origins. Depending on the size of the animals and the duration of time that the animals will be penned, the penning space shall not be less than:

- a) For each adult cow – 1.74 square metres floor area.
- b) For each bacon type pigs and small porkers, sheep and goats – 0.56 square metres floor space.
- c) For each heavy pigs and young calves – 0.74 squared metres floor area. In the case of pigs, water sprays or hoses shall be used for cleaning and cooling hot, dirty or fractious pigs.
- d) For poultry- 10 to 15 birds per square metre

Fractious animals shall not be penned with other animals. Provision shall be made in pens for -

- i. Facilities such as racks, mangers or other suitable feed containers which are easy to clean and will allow the feeding of the animal away from the floor.
- ii. Facilities for the safe and humane keeping and handling of animals.
- iii. A water trough with an adequate and accessible supply of clean, portable water at all times.
- iv. Sufficient facilities for the adequate and regular cleaning of pens.
- v. Adequate facilities for isolation of sick or suspect animals.
- vi. The pens shall always be maintained in a good state of repair and sharp points such as jagged ends or protruding nuts and bolts which could cause injury to animals shall be removed or suitably dealt with. Protection from weather elements shall be provided.
- vii. Animals shall not be penned in overcrowded conditions and the floor of the entire pen, including the off-loading banks, passages, races and pens shall be so constructed as to provide acceptable non – slip surfaces that can be regularly cleaned and kept suitably dry and in a condition fit for the holding of livestock.

### 6.1.3 Slaughter hall

The slaughter halls and ancillary accommodation thus provided shall be separated, keeping in view the economic and local requirements, by solid walls depending upon the site. The slaughter hall shall have the following facilities:-

#### 6.1.3.1 Stunning area

There shall be a separate area designated for stunning the animals depending on the species.

#### 6.1.3.2 Bleeding area

A curbed-in bleeding area of adequate size shall be provided. It shall be so located that the blood shall not be splashed on other animals being slaughtered or on the carcass being skinned. A floor wash point should be provided for intermittent cleaning.

#### 6.1.3.3 Hoisting area

A suitable means of hoisting the slaughtered animal shall be provided. The bleeding rail shall be of sufficient height for the animal carcass to hang above the floor. The height and length of rails provided for bleeding and dressing shall be as provided as shown in Table 1.

**Table 1. Requirement of height and length of bleeding and dressing rail**

No	Carcass	Height(metres)	Length per carcass(metres)
1	Bleeding rail for sheep, goats and pigs	3.0-2.2	0.45
2	Bleeding rail for cattle, camel, donkey	4.5- 5.0	0.60
3	Dressing rail for sheep, goats and pigs	2.0- 2.2	0.90
4	Dressing rail for cattle, camel, donkey	3.2	1.8 for legging, dehiding and 2.4 for evisceration.
5	Poultry		Leg to leg 10" Shackle to shackle 15" Big birds shackle to shackle 30-45"

#### 6.1.3.4 Flaying section

Flaying of carcasses shall not be done on floor. Adequate means and tools for dehiding or belting of the animals shall be provided. Means for immediate disposal of hides or skins shall be provided. Hides or skins shall be immediately transported either in a closed and appropriate carriage or by a chute provided with self-closing door to a room where they shall be held before moving to the preservation area. Means for immediate disposal of legs, horns, hooves, etc, should be provided. Floor wash point and adequate number of hand wash basins with sanitizer and cutting equipment sterilizer shall be provided in this section.

#### 6.1.3.5 Evisceration area

For cattle either a mechanical evisceration table or individual paunch/gut holders can be used for the reception and inspection of these products. Facilities shall be provided for the eviscerator to do the job hygienically. In the case of a mechanical conveyor belt, boot washing, apron washing and other washing/sterilising facilities shall be made available.

The evisceration platform used at smaller slaughter house shall be provided with a hand basin/steriliser. In all cases there shall be facilities for the sterilisation of the evisceration platform or offal containers.

Racks and/or facilities for handling red and green/rough offals shall be provided.

#### 6.1.3.6 Carcass splitting

Appropriate carcass splitting equipment shall be provided in the slaughter house. Carcasses shall be split straight down the middle as appropriate so as not to damage to the meat applicable for beef and pork carcasses.

#### 6.1.3.7 Carcass washing area

Potable water at sufficient pressure shall be provided to remove all blood, slight blood marks, bone, dust and marrow.

#### 6.1.3.8 Inspection facilities

The following facilities, conditions and such others as may be essential to efficient conduct of inspection and maintenance of sanitary conditions shall be provided by each slaughterhouse:-

- a) Adequate space, suitable and properly located facilities shall be provided for inspection of the various types of animals slaughtered. This section shall have adequate facilities for hand washing, equipment sterilization and floor washing and for immediate separation and disposal of condemned material.
- b) Sufficient natural and/or abundant artificial light at all places and such times of day when natural light may not be adequate for proper conduct of inspection.
- c) Rooms shall be kept sufficiently free from vapours and steam for inspection to be properly made.
- d) Racks, receptacles, or other suitable devices for retaining such parts as the head, tongue, tail, thymus gland and viscera, and other parts and blood to be in the preparation of meat until after the post-mortem is completed, in order that they may be accurately identified in case of condemnation of the carcass.
- e) Watertight metal carriers or receptacles for holding and handling diseased carcasses and parts, so constructed as to be easily cleaned; such trucks or receptacles shall be suitably marked in a conspicuous manner with the word " CONDEMNED" in letters not less than five centimetres high, and when required by the inspecting officer, to be equipped with facilities for locking or sealing.

#### 6.1.3.9 Carcass chilling area

Facilities that shall ensure chilling of the meat at temperature range -2 to 4 °c shall be provided. The space required per carcass and the distance between the rails in hanging or chill room, shall be in accordance with Table 2.

**Table 2: Requirement of space per carcass and distance between rails in hanging or chilling room**

No	Carcass	Space per carcass (metres)	Distance between rails(metres)	Height of rails Metres
1	Sheep and Goats	0.3-0.4	0.3-0.4	2.0-2.2 minimum( single changing)
2	Pigs	0.45-0.6	0.45-0.6	2.0-2.2
	a. Mass of pig >70kgs	0.3-0.4	0.3-0.4	2.0-2.2
	b. Mass of pig <70kg	0.3-0.4	0.3-0.4	2.0-2.2
3	cattle, camel and donkey	0.45-0.6	0.8-1.0	3.2 (for halves) 2.0- 2.2 for quarters
4	Poultry	10-15 birds 1m <sup>2</sup> per crate		

#### 6.1.3.10 Carcass freezing area

Facilities that shall ensure freezing of the meat at a temperature of -12 °c and below shall be provided.

## 7. ANCILLIARY/AUXILIARY FACILITIES

### 7.1 DISTRIBUTION ROOM

A separate area /room set aside for various functions i.e. sales or collection of products and or by products to avoid customers or outsiders from accessing prohibited areas in the slaughterhouse.

## **7.2 HIDES/SKINS ROOM**

A separate room outside the slaughter house shall be provided for temporarily storage of the hides/skins.

## **7.3 OFFAL ROOM**

A separate room and hanging space shall be provided for emptying and cleaning of stomachs and intestines. This room shall be provided with sufficient potable running water work tops. This room shall have a separate exit and sufficiently drained.

## **7.4 RETENTION ROOM**

Suitable and sufficient room shall be provided for the retention of all meat condemned as unfit for human consumption and shall be locked up separately.

Suitable and sufficient facilities shall be provided for the isolation of meat requiring further examination by the veterinary inspector within the premises of the slaughter house

## **7.5 LABORATORY**

A laboratory within the premises of the slaughter house may be provided

## **7.6 DISPOSAL OF CONDEMNED MEAT**

Suitable and sufficient facilities shall be provided for the disposal of condemned meat. This shall be through an appropriately designed condemnation pit or appropriately designed incineration facilities or other approved means of disposal.

## **7.7 SANITATION FACILITIES**

Appropriately located toilet and changing rooms should be provided in the slaughter house building sufficiently away from slaughter walls for the dirty and clean areas. A separate hall with lockers and shower facilities should be provided. Solid and liquid wastes from the sanitation facility shall be handled separately from slaughter house waste. Adequate drinking water and washing facilities shall be provided at convenient locations.

## **7.8 SUPPLY OF WATER**

Adequate supply of potable water shall be available at appropriate pressure throughout the premises. Sufficient supply of potable hot water above 82<sup>o</sup> C for sterilizing of equipment shall be available in the slaughter hall and workrooms during working hours. Suitable facilities for washing of hands (including adequate supplies of hot and cold running water, and soap or other detergent) shall be provided for persons working in an Slaughter house. Where non-potable water is used for fire control, it shall be carried in completely separate lines preferably identified by colour and with no cross-connection or back siphonage with lines carrying potable water.

## **7.9 SLAUGHTER HOUSE WASTE WATER DISPOSAL**

An efficient method of disposing of slaughter house wastes shall be provided in accordance with EMCA Act.

### **7.10 GREASE TRAP**

Catch basin for the recovery of grease shall be suitably located and not placed in or near edible products department or area where edible products are unloaded from or loaded on to vehicles, to facilitate ready cleaning, such basins shall have inclined bottoms and shall be without covers. They shall be so constructed that they may be completely emptied of their contents for cleaning. The area surrounding an outside catch basin should be paved with impervious material, such as concrete, and shall be provided with suitable drainage facilities. Suitable facilities shall be provided for the transfer of grease to the point of disposal after it is skimmed from the basins by mechanical or other means.

### **7.11 MANURE DISPOSAL**

A suitably designed facility for disposal of manure shall be provided. A separate drain line for water containing manure shall be provided. This waste water may be pumped by wet pit or dry pit non-clog pumps

and manure screened out and disposed off by mechanical or the other suitable means. Some consideration as in catch basin shall be given for location of this plant. An access path for easy and convenient removal of the manure shall be provided.

#### **7.12 EMERGENCY SLAUGHTER HOUSE**

Appropriate facility shall be provided for the emergency slaughter of animals. The facility shall have all the necessary equipments for hygienic meat preparation.

#### **7.13 POST MORTEM ROOM**

Appropriate facilities shall be provided for conducting post mortem of animal arriving dead at the slaughter house or dies at the lairage.

#### **7.14 VETERINARY OFFICES**

There shall be suitable and sufficient offices facilities for the veterinary/inspecting officer equipped with adequate sanitary and hygiene facilities. The offices shall be located in the slaughter house to enable the officers have effective control of all activities within the slaughter house.

#### **7.15 SAFETY REQUIREMENT**

Adequate firefighting equipment and appliances shall be fixed in accordance with Occupation Safety and Health Act (OSHA). Adequate facilities for first-aid shall also be provided.

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Figure 1— flow diagram for basic operation of a slaughter house

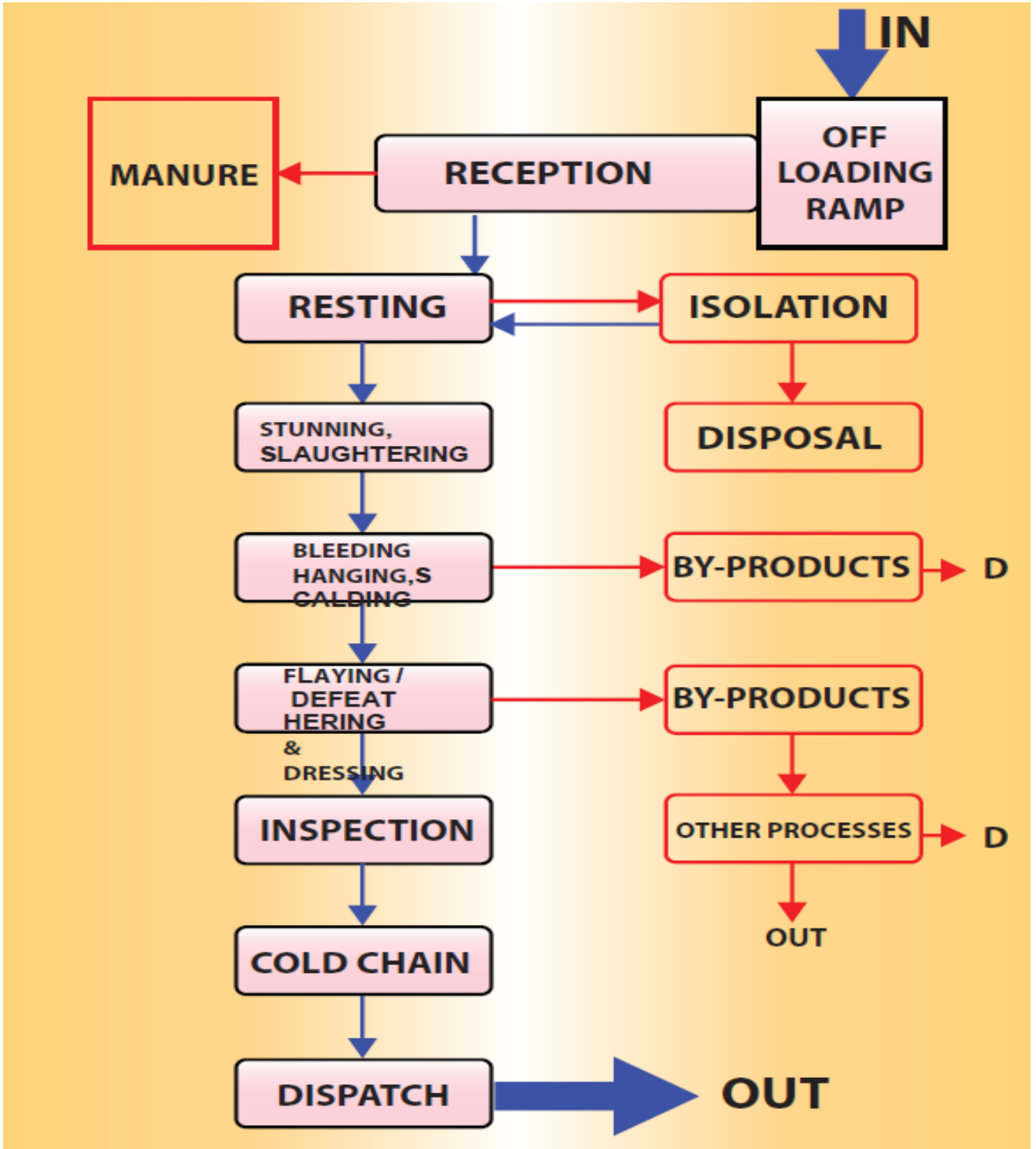
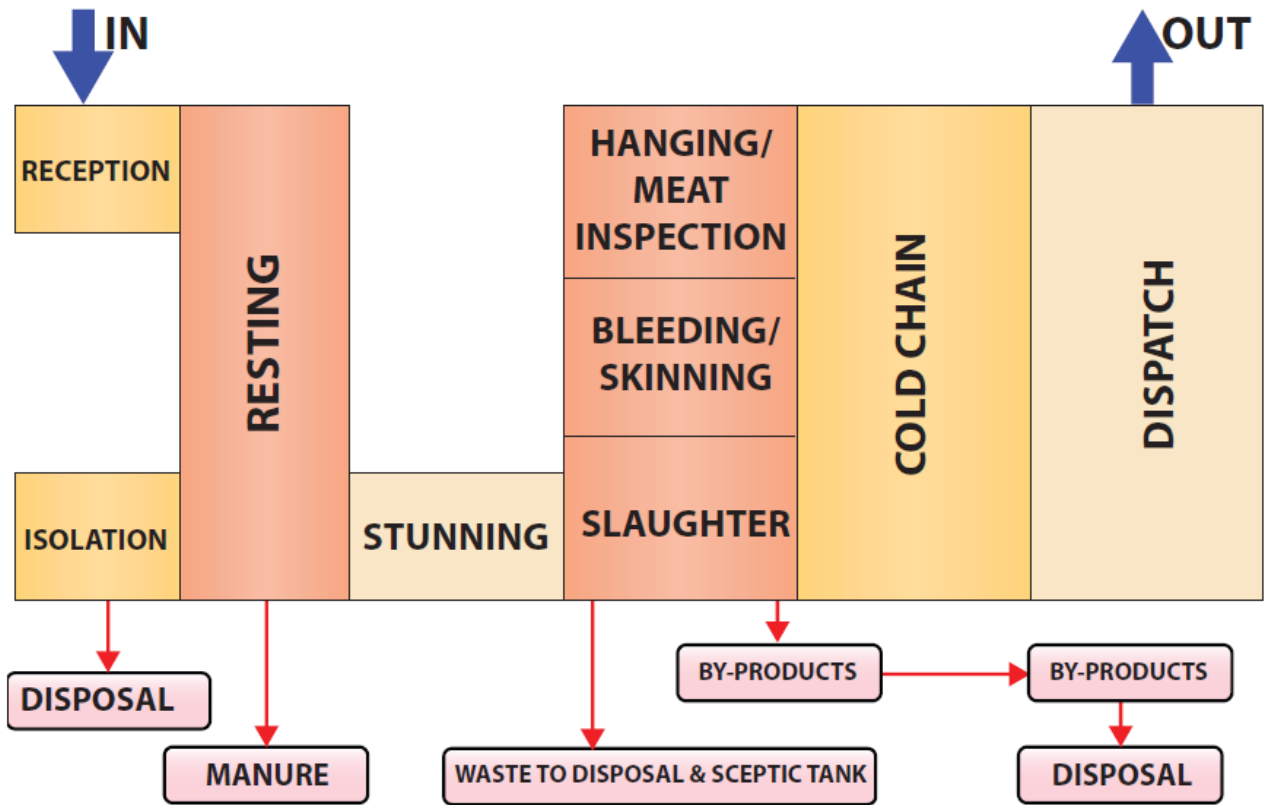


Figure 2— A typical planning outline for a slaughter house



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Figure 3— A typical layout plan for a slaughter house

