

# **Abattoir**

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# Task of Meat Hygienist

- Meat and meat products should be sound and not constitute any public health hazard (meat borne diseases as T.B, BSE).
- Degree of contamination with spoilage microorganisms should be kept at a minimum to increase keeping quality of meat.
- Breaking of the parasitic life-cycle by condemnation of the cystic stage of the parasite (*C. bovis*, *hydatid cysts*).

- Protection of the consumer from the possibility of substitution of meats of food animals from other meats similar in appearance to them (cat/rabbit, horse/bovine).
- Prevention and notification of notifiable diseases (FMD).
- Rejecting carcasses of an inferior quality such as immaturity and emaciation.
- Protection of the consumer from buying meat of repugnant odour.

# **Slaughter animal**

means any animal brought into an abattoir for slaughter (FAQ definition)

## **Abattoir or slaughterhouse or meat plant**

is the only specialized official place in which food animals should be slaughtered, inspected and prepared for direct human consumption.

# Types of abattoirs

## Central abattoirs

### Traditional Old fashioned

. They are operated unhygienic conditions

### Modern automatic

Does not have any under processing operations for manufacturing of meat product

### Factory abattoir

Similar to modern automatic, starts with slaughtering food animals and end with ready to eat packaged meat products

### Inspection districts

- In rural area where scattered small slaughterhouses.
- They lack the minimum hygienic conditions

# Area size

The abattoir can be classified into: -

## 1. Small size

- Up to 30.000 animal unit/year
- Will occupy 1-2 Acres

## 2. Medium size

- 50.000 animal Unit! year
- 2-4 Acres

## 3. Large size

- 100.000 animal unit/year
- 4-6 Acres

N.B. Animal unit: Bovine (1), Camels (1), Swine (2), Calves (3), and Sheep (5)



# Essential requirements for abattoir:

## *1-Site:*

A suitable site for abattoir should have the following:

- Far away from inhabited centre to avoid complaints about noise and smell.
- Near to animal markets and railway stations.
- Near to water, electricity, and sewerage supply.
- Possibility of expansions must be considered.
- Adequate partitions between the clean and dirty sections.
- Free from pollution, from other industries, odors, dust, smoke, ash etc...

## *2-Water*

Potable Water supply must be distributed to all parts of the abattoir under adequate pressure.

\* Adequate supply of hot (not less than 82C°) and cold potable water for cleaning of the equipment.



### *3-Electricity*

\*Three...phase electricity should be supplied and stand-by generator.

### *4-Lighting*

\*An adequate natural or artificial lighting must be provided throughout the abattoir.

## *5-Ventilation*

Adequate ventilation must be provided to prevent accumulation of odors, dust and excessive heat

# *6-Construction*

## *6.1-Floors:*

Floors should be:

- Hard, non—slip.
- Impervious, non-toxic.
- Easily cleaned and disinfected.
- Easily drained.

## *6.2. Walls:*

a smooth, durable, impermeable material and covered by glazed tiles to a height not less than 3 meter from the floor

### **6. 3.Roof**

Roof should be designed to provide adequate ventilation and light.

### **6. 4.Drainage:**

#### ***Traditional abattoir:***

- Slope of the floor to the direction of the gutters.
- Non-covered drainage system inside the slaughter hall.

#### ***Modern abattoir:***

- Rapid elimination of waste material and water by transferring them to the effluent treatment unite to ensure maximum prevention of environmental pollution

## ***6.5.Doors:***

- Doors should be wide enough to allow passage of personnel, carcass and offal without contact with door away.
- A width 1 .37m is adequate.
- Doors must be constructed of rust resistant material.
- If made of wood, doors should be covered with rust-resistant smooth impermeable material.

# Main compartment of abattoir

## 1-Quarantine (Lairage)

- Lairages are built far away from the slaughter halls.
- Lairage should be roofed to protect animals and staff.
- Reinforced concrete divisions with iron gates are built in each lair age.
- Every species of food animals must have a separate lair age.



## 2-Slaughter halls

- Every species of animal must have separate slaughter halls.
- Slaughtering, dressing, evisceration and post-mortem inspection take place in slaughter halls.

# There are two main types of slaughter halls

*i-Traditional or old —fashioned slaughter halls:*

*u-Modern automatic slaughter halls:*

# There are four main types of line dressing

1. Gravity rail system 10-40 cattle/hour.
2. Intermittent powered system 10-75 cattle/hour.
3. Continuous powered system 40-120 cattle/hour.
4. Canpak system 50-150 cattle/hour.

### *3-Emergency slaughter room or Isolation block (Sanitary slaughter unit) (mini abattoir)*

- It is a very small abattoir contains :-
  - Lairage for 4 cattle.
  - Slaughter hall.
  - Detained meat room (chilled) for keeping the carcass until the results of laboratory examination.
  - It should be situated near to the lairage and by-product unit to get rid of dead animal from lairage into render plant.
  - If there is no isolation block in the abattoir, suspected and diseased animal should be isolated and slaughtered at the end of slaughtering of healthy animal to avoid cross infection and contamination.

## ***4- Condemned meat room:***

For keeping the carcass and organs unfit for consumption and then taken either into :-

***a) Render plant (By-products unit)***

***b) General incinerator (Outside town)***

## ***5-Detained meat room:***

For keeping carcass and organs required further examination. It is a chilling room  $-1^{\circ}\text{C}$  to  $+4^{\circ}\text{C}$ .

## ***6-Chilling room:***

For keeping carcass fit for human consumption (approved carcass) until dispatching.

Its temperature ranged from  $-1^{\circ}\text{C}$  to  $+4^{\circ}\text{C}$  and the relative humidity 85%.



## *7-Veterinary Laboratory:*

A well-equipped laboratory is essential for diagnosis and confirmation of the suspicious cases as well as for maintains the overall hygiene standards.

Small laboratory for trichinella examination should fitted, connected with pig slaughter halls.



***8-Accessory  
compartments:***

## *8-1 -Hide and skin store:*

Hides and skin of slaughtered animals should be transferred directly after skinning either mechanically or manually to this store where they are prepared and stored. Hide & skin store can be used for reception of cattle and sheep feet.

## 8-2- Gut and tripe room:

- The initial separation and emptying of stomach and intestines is normally carried out in this room. Subsequent processing of stomach & intestines should take place in a separate unit.

## 8-3--Red offal room:

- *Edible offal, in relation to slaughtered animals such as liver, kidneys and lungs should be trimmed and placed in a chill or freezing room. Edible offal's must be held at a temperature not exceeding 3C if stored for distribution.*

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## **8-4-The edible fat room:**

This is a completely separate holding room, usually located near the gut room and where edible fat is held.

## **8-5-Cutting room:**

The hygienic procedures undertaken with the initial carcass dressing are continued in the cutting room. During the cutting process ,the temperature of the building must not exceed 10 C).

Adequate facilities are necessary in the form of suitable equipment, hot water, potable water to keep the whole area hygienic and waste disposal system meets hygienic requirements



## **8-6--In edible area:**

Materials unfit for human consumption with the exception of hide and skin should be sited away from the edible areas, since improper handling of these organs can result in unhygienic conditions.

## **8-7-Fresh meat dispatch area:**

The fresh meat dispatch area must be sited away from the dirty part of the abattoir and easily reached by vehicles associated transport of meat and offal for human consumption.



## *8-8- Facilities for personal:*

A sufficient number of water bathes for both sexes are employed with showers and wash hand basins must be provided (one for every 15 employees). The dressing rooms should be properly separated from the toilets and open directly on to working areas. A Laundry and car park are necessary for modern abattoir, beside that a system of communication comprising internal telephone and loudspeakers.

## ***8-9- Veterinary office:***

An adequately equipped lockable room for the use of the veterinary service and a larger one for the meat inspectors. The rooms provided with hand- washing and showers facilities ,and lockers for (work and personal) and meat inspection equipment. A convenient means of cleaning footwear before entry into changing rooms is an advantage.

## ***8-10-Manure bay:***

This should be sited near the lair ages on the dirty side of the abattoir. Its floor and sides should be impervious, with provision made for overflow, liquors to be drained away. Disposal of waste material must be carried out without creating objectionable conditions

## ***8-11- Vehicle washing:***

The cleaning of meat transport and animal transport vehicles usually neglected, so the former should be done in the clean side of the abattoir with high pressure hot water and detergent with a good drainage for vehicles and wash area. For animal lorries it is sufficient to clean with cold water under pressure and provision of disinfections.

## ***8-12. Freezing room:***

For keeping the carcass requires special treatment e.g. light infestation with *C. bovis*, where carcass must be kept at -10°C for 10 days.

Beef quarters must be frozen to below -7c and pork below -15c and stored at below -17c for beef and below -20c for pork, freezing times are not specified.

## ***8-13. By-product unite:***

For further processing of all materials which are unfit for human consumption.

**Thank you**

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