

Abattoir (slaughterhouse or meat plant):

Abattoir is the only specialized official place in which food animals should be slaughtered, inspected and prepared for direct human consumption. The first step in planning an abattoir is to discover the ultimate maximum daily slaughter of each class of food animal and the proposed disposal and treatment of the edible and inedible by-products.

Principle health hygienic basis of slaughter house:

1. Sanitation
2. Antimortem inspection
3. Slaughtering animal
4. Post mortem examination
5. Final inspection
6. Chilling and transport of meat

Sites:

suitable site for an abattoir should have the following facilities ...

1. main water and electricity supply (1000L/ton) dressed carcass weight daily.
2. Mains sewerage.
3. Contiguity with uncongested road and rail system.
4. - Proximity with public transport.
5. freedom from pollution from other industries , odors , dust , smoke

6. Freedom from local housing and other development to avoid complaints about noise and smell.
7. Good availability of stock nearby.
- 8- sufficient size for possible future expansion. In general, urban sites should be avoided, rural and selected industrial sites are preferred

Main components of an abattoir:

1. **Stockyard**: it meant for collection and marketing of livestock in large number it should be roofed to protect animals and staff .this area should have water and feeding facilities and there should be separate isolation pens with watering and feeding for fractious and infectious diseases.
2. **Emergency slaughter unit**
3. **Lairage**: it meant to keep 2 to 3 days stock for slaughter .the rest is being given to restore their normal physiological condition.usually animal travel long distance to reach abattoir and if not rested properly the quality of meat is adversely affected
4. **Slaughter hall** :from lairage animals are transferred to slaughter hall, which is usually situated at distance of 10 meter from lairage **.it has several sections:**

A. Drive/races:the animal reach to holding pen and then they driven to stuning pen .

B. Stuning pen:it area where animal are made un conscious before killing.

C. Bleeding area: immediately after stuning the animal has to be bled to death ,this area should possess agood gradient for collection of blood.this area should be so located that that the blood shall not be splashed on other animals being slaughtered or on carcass being skinned. The bleeding channel should be at least 1.5 m wide, possess a good gradient, side walls of the same height, and two drains, one for blood only and the other for water when cleansing only.

D. Carcass dressing area: in this area a number of operations are carried out as removal of hide and skin ,head removal ,evisceration ,splitting ,trimming and first wash .Dressing of carcass should not be done on floor. A dequate number of hand wash basins with sterilizers and hot and cold water outlets should be provided in this area ,sufficient space

should be provided for the de boning removal and thorough washing of heads.

E. Inspection area: before evisceration the carcass has to be examined carefully for any pathological lesions. once the carcass send to next section all its visceral organ and whole eviscerated carcass are reexamined carefully. then its decided whether the carcass has to be sent to chilling section or condemned meat room or detention room.

F. Cold storage: if meat is to be consumed immediately after dressing the carcass has to be sent immediately for sale and cooking .Otherwise in all other cases carcass should be chilled soon after the post mortem inspection .kept at a constant temperature not more than 7C for carcasses and cuts or 3C for offal. chilling is practiced to set up the meat firmly and check any microbial growth. chill doors should be sliding or single or double hinged .An area in cooler shall be provided for chilling and storage of detained carcass and parts, this area should be segregated from the remainder of cooler and shall be equipped with seal and lock.

G. Cutting and deboning room: once the carcass is firmly set in chilling room, deboning (separation of meat from bone) becomes easier and cut in to pieces. the operation is performed in controlled temperature (10-12 °C) area by skilled and efficient worker.

H. Detained meat room: Carcasses detained for further examination should be routed by a special rail to the detained meat room which should be located adjacent to the main slaughter hall inspection points in order to achieve close link over disease findings. From this detained meat room the overhead rail must reconnect with the main slaughter line for direction of the carcasses either to the chill room or to the condemned room.

I. Condemned meat room: : it directly connected with inspection area In order to arrange for proper sorting and holding of materials unfit for human consumption prior to transmit, adequate space , refrigeration and drainage along with the supply of durable and lockable containers and weighing facilities are essential.

J. Stomach and intestine cleaning room.

K. Quality control laboratory: this is meant for detailed examination of specimen from carcass and their respective viscera .microbiological test ,parasitological test etc. are conducted here.This area should be well equipped for detail examination of carcass and organs because the final decision of acceptance or rejection of meat and offal depend on report of quality control laboratory .this area should be directly connected with slaughter hall.

Accessories Sections of an abattoir:

- 1. Blood collection:** it is underground to bleeding area ,blood has nutritional and commercial importance and it cannot be allowed in waste as in traditional slaughter system.
- 2. Hide and skin store:**
- 3. Red offal room :**many visceral organs have commercial as well as food value like liver ,lung, heart,kidney these organs trimmed and placed in chill or freezing room .
- 4. Equipment wash:**
- 5. Manure inlet :** large amount of dung from lairage ,emptying of rumen and intestine need a separate section to deal with this huge mass to avoid problem of flies ,floor and wall of this area should

easily washable ,properly drained and can be easily disinfected

6. **Vehicle washing:**for cleaning of meat transport and animal transport vehicles.
7. **Facilities for personnel:**abattoir should have well located toilet rooms ,separate hall with lockers and shower facilities , changing room, facilities for drinking water,washing.

Carcass Evaluation:

After P.M,final inspection, the carcass divided to:

1. Absolute marketable carcass:

(Whole carcass,fat,bone fit for human consumption and could be pass)

2. Marketable carcass :Carcass can be passed after removing benign lesion or localized abcess,trauma, and fasciola from liver)

3. Conditional passed meat :meat treated in some way to remove its damage and these treatment include :(boiling., stemming, pickling, chilling, fat redundancy)

4. Inferior quality meat

5. Absolute condemned meat:whole meat organ condemned by burning or by chemical material and this meat not fit for human consumption due to contagious disease or many lesion and this include:(anthrax,tetanus,black leg,FMD,

actinomycosis, septicemia ,uremia,toxemia
,juindice,generalized cysticercus, malignant
tumer,generalized melanosis)