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भारतीय मानक मसौदा

भेड़ और बकरियों का आवास - रीति संहिता

(आई एस 2733 का दूसरा पुनरीक्षण)

Draft Indian Standard

HOUSING OF SHEEPS AND GOATS – CODE OF PRACTICE

(Second Revision of IS 2733)

ICS 65.020.30

Animal Husbandry and Equipment
Sectional Committee, FAD 32

Last date of comment: 17 June 2023

FOREWORD

(Adoption clause will be added later)

Sheep and goats form an integral part of the country's rural economy for their multifaceted role in providing wool, meat, milk, skin, hair and manure. Sheep and goats have been raised for milk, meat and wool for thousands of years and were milked even prior to cows. As per the increasing demand of animal protein in the country it is necessary to augment meat production from sheep and goat besides other animal protein sources (milk, fish, egg, chicken, etc.). Apart from meat, natural fibres from sheep (wool) and goats (pashmina) are important products that cater to needs of country's woollen and carpet industries. This Indian Standard suggests suitable and economical structures for raising small flocks of these animals and also to serve as a guide to those farmers who would like to raise these animals as a part of their livelihood and job security.

This standard was first published in 1964, and subsequently revised in 1985. In this second revision, various provisions of the standard have been reviewed thoroughly and more comprehensive by updating terminology, including layouts of different sub structures like shed, rooms and houses etc with a view to keep abreast with the changing rearing practices and the experience gained in due course of time. Further, the standard has been brought out in the latest style and format of the Indian Standards, and references to Indian Standards wherever applicable have been updated.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1 SCOPE

This code prescribes the general layout of the yard and the methods of construction of the commercial houses for sheep and goats in different agro-climatic regions of India.

2 REFERENCES

The following standards contain provisions which through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

| <i>IS No.</i> | <i>Title</i> |
|----------------|---|
| IS 258 : 2000 | Potash alum — Specification (<i>second revision</i>) |
| IS 277 : 2018 | Galvanized steel strips and sheets (Plain And Corrugated)—(<i>seventh revision</i>) |
| IS 712 : 1984 | Specification for building limes (<i>third revision</i>) |
| IS 737 : 2008 | Wrought aluminium and aluminium alloy sheet and strip for general engineering purposes — Specification (<i>fourth revision</i>) |
| IS 797 : 1982 | Specification for common salt for chemical industries (<i>third revision</i>) |
| IS 1077 : 1992 | Common burnt clay building bricks — Specification (<i>fifth revision</i>) |
| IS 1237 : 2012 | Cement concrete flooring tiles — specification (<i>second revision</i>) |
| IS 2212 : 1991 | Brick works — Code of practice (<i>first revision</i>) |

3 TERMINOLOGY

For the purpose of this code, the following definitions shall apply –

3.1 Sheep

3.1.1 Ewe - A female sheep

3.1.2 Ram - A male sheep

3.1.3 Lamb - A young sheep up to 3 months of age

3.1.4 Weaner - A young sheep from 4 to 9 months of age

3.1.5 Yearling - A young sheep from 10 to 15 months of age

3.2 Goat

3.2.1 Doe - A female goat

3.1.2 Buck - A male goat

3.1.3 Kid - A young goat up to 3 months of age

3.1.4 Weaner - A young goat from 4 to 9 months of age

3.1.5 Goatling - A young goat from 10 to 15 months of age

4 LOCATION

4.1 The housing for sheep and goats shall be located on a dry, elevated and well drained place, not exposed to strong winds, heat or cold. A place where there is a longer period of shade in a day, may be preferred. Longer walls should face the north-south direction.

NOTE - In case, the location for construction is within the municipal limits, the plan for construction shall follow the relevant by-laws prescribed by the municipal authorities of the place.

5 PLAN

5.1 An open yard space with a shelter for housing sheep and goats is considered as minimum facility for catering both welfare and production. Housing with different space and provision is recommended for pregnant ewe/doe, lambing/kidding pen, lambs/kids, yearling sheep and goats, breeding males and females and sick animals. There should be separate for storage of feeds and fodder, shepherds and other appliances. The general plan is given in Figure 1. The number of units for each type to be provided in the yard depends on the number of animals to be looked after. The area of each unit depends upon the minimum floor space specified for each animal and the number of animals to be kept in each unit.

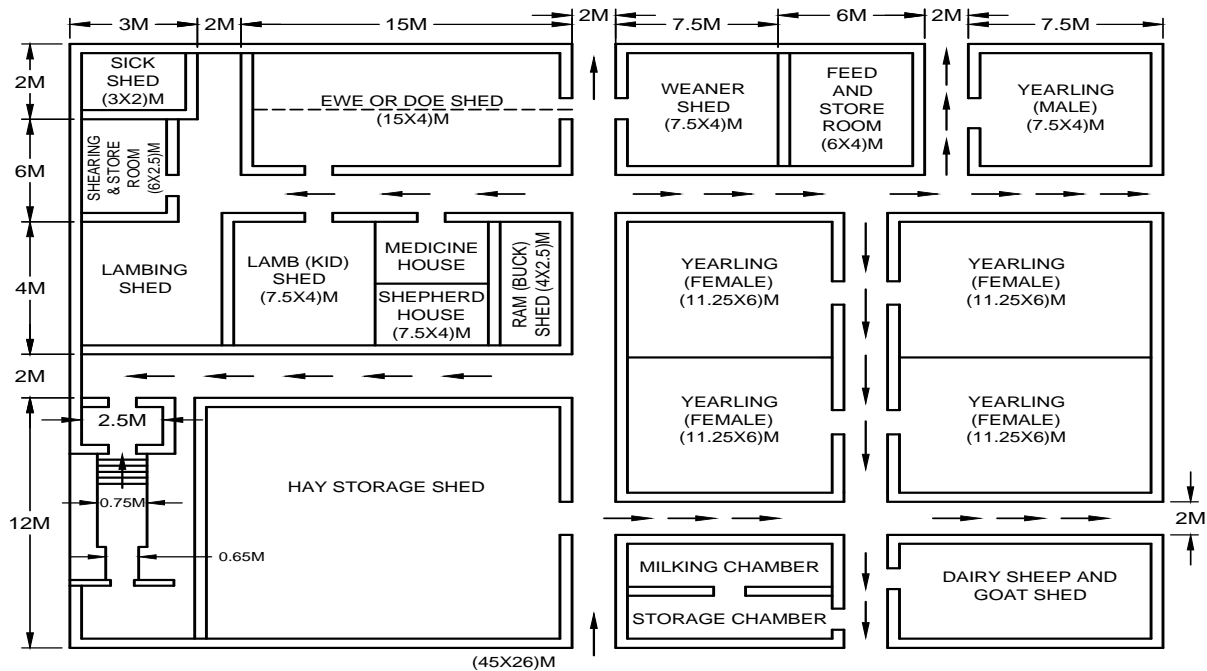


FIG 1 SKETCH OF SHEEP/GOAT SHED

6 UNITS

6.1 The housing of sheep and goats has the following units

- a) Animal Shed
- b) Shearing shed
- c) Store room

d) Shepherd's room

6.1.1 Animal Shed – It includes the space for shelter having adjacent open coral that provides activity allowance to the animals besides facilitating cleaning of the shed. In semi-intensive rearing system, animals are generally let loose in the grazing area during morning and the open space facilitates with supply of drinking water for rest during the noon. Coral or run is provided at the rate of 2 m²/animal and the ground level is kept 15-30 cm down the main shed and should have 6 feet fencing all around. As described earlier, following types of sheds are required for housing the sheep and goats. A diagrammatic representation has been shown in Figure 1.

- a) Ewe or Doe shed
- b) Ram or Buck shed
- c) Lambing or Kidding shed
- d) Lamb or Kid shed
- e) Weaner shed
- f) Yearling shed (male)
- g) Yearling shed (female)
- h) Sick shed
- i) Shearing shed
- j) Store and Shepherd's house

6.1.1.1 Ewe or Doe shed – These sheds shall be used for housing ewes or doe kept for breeding purpose. An average shed should accommodate not more than 60 ewe or doe and shall be 15 × 4 m size and 3 m high. There should be provision of manger for feeding and bucket or trough for watering. The side wall of the house should be up to 0.7-1.0 m high with galvanized wire fencing with hole size small enough to prevent entry of birds (*see* Figure 2).

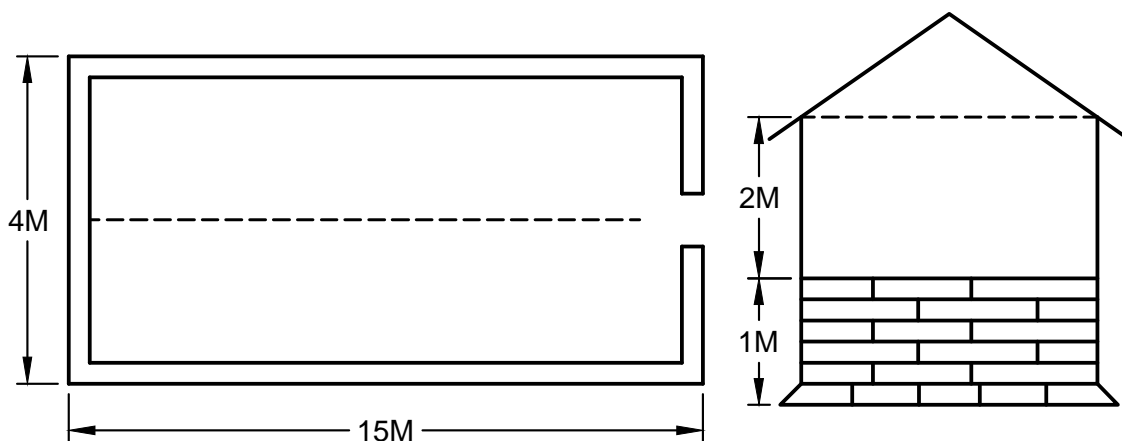


FIG 2 EWE OR DOE SHED

6.1.1.2 Ram or Buck shed – It is used for housing rams or bucks reared for breeding purpose. The shed shall be 4 x 2.5 m size and 3 m high and should accommodate not more than 3 animals. The shed shall be partitioned lengthwise to form 3 equal compartments, as shown in Fig. 1. The partitions may be either of wooden planks or half-cut BALLIS. The partition shall be not more than 1 m high from the floor. In the partition, there should be a gap of 100 to 150 mm between each BALLI or plank to enable the rams or bucks to see one another. There should be provision for feeding and watering (*see* Figure 3).

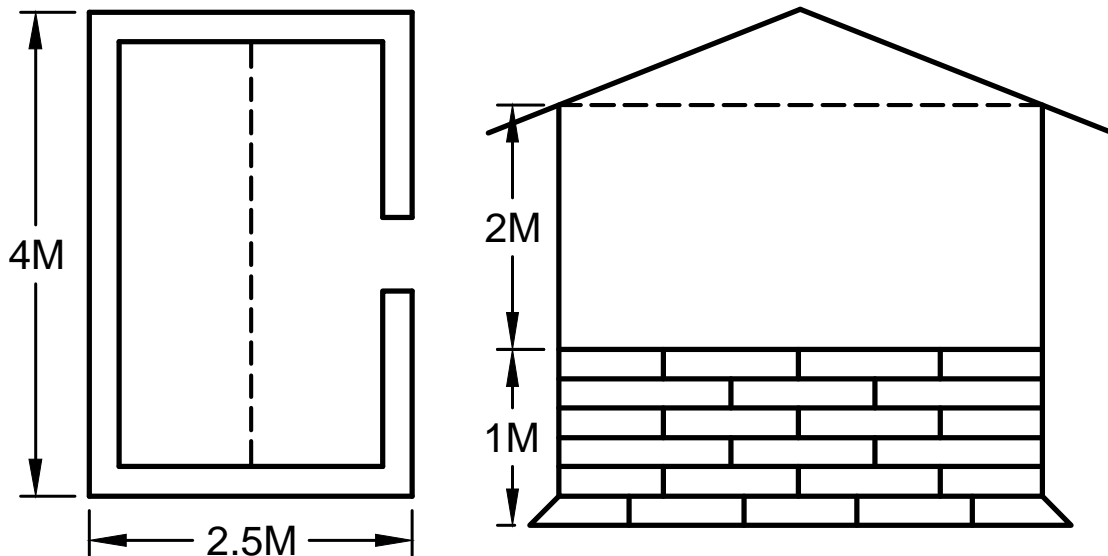


FIG 3 RAM OR BUCK SHED

6.1.1.3 Lambing or kidding shed – These sheds shall be used as maternity room for ewes or does. The shed shall be 1.5 x 1.2 m size and 3 m high with provisions for feeding and watering (*see* Figure 4).

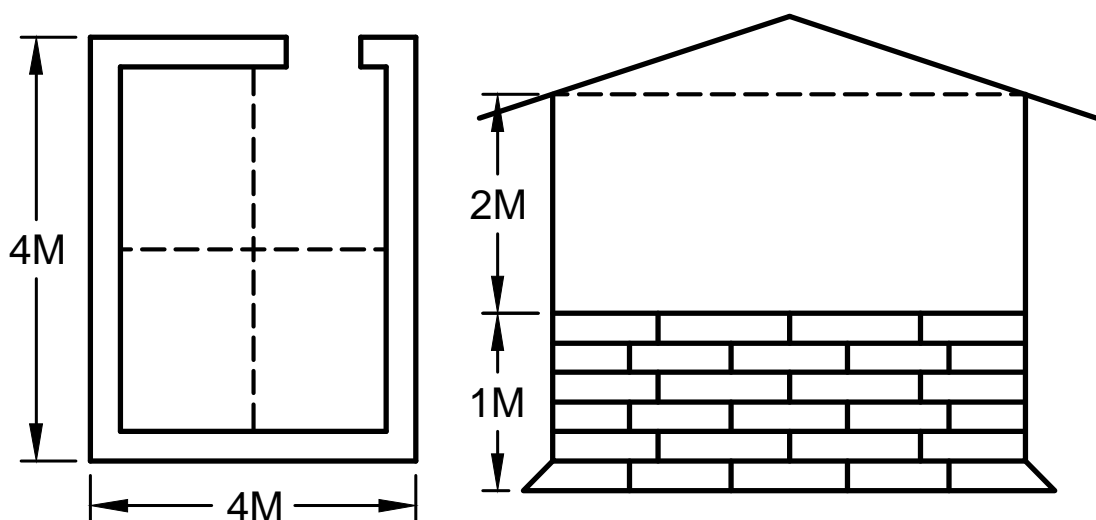


FIG 4 LAMBING OR KIDDING SHED

6.1.1.4 Lamb or Kid shed – The lamb or kid shed shall be used for housing lambs or kids until weaning (see Figure 5). This shed accommodate the pre-weaner stocks, which needs special care like nursing from the dam, ensuring adequate milk feeding and facility for provision of creep feeding and watering. The shed shall be 7.5×4 m in size and 3 m high to accommodate not more than 75 animals. The shed shall be partitioned breadth-wise dividing into 2 compartments. The compartment having the dimensions 5×4 m shall be used to keep the un-weaned animals and the other compartment having dimensions 2.5×4 m shall be used for keeping the weaned but yet to mature enough with a developed or functional rumen that support sufficient solid feed consumption. Lamb or kid shed should be provided at the rate of five such units for 60 breed able ewes or does.

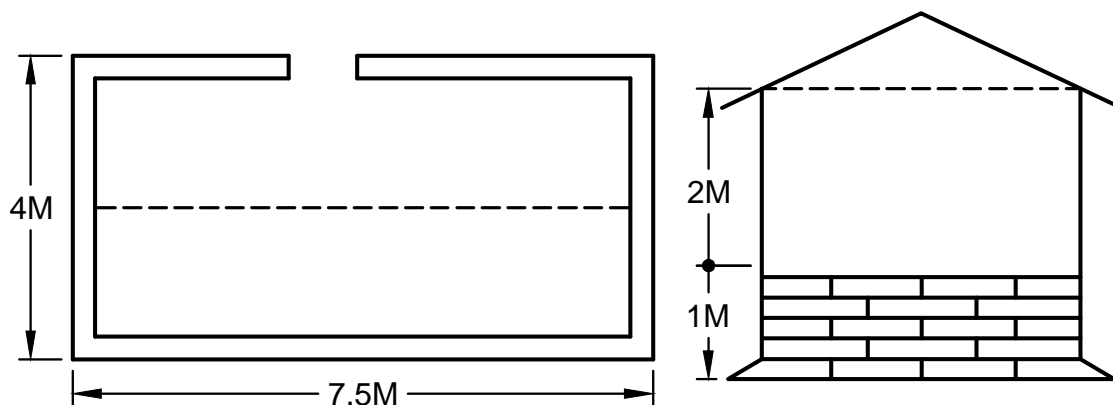


FIG 5. LAMB OR KID SHED

6.1.1.5 Weaner shed – The weaned animals are reared separately, which can be allowed for short-grazing initially day grazing and then stall feeding to meet their daily requirement. These lambs/kids can be housed in large groups of 40-50 in a shed similar to lamb or kid shed with size 7.5 m length \times 4.0 m width \times 3 m height. The same house can also accommodate some of the weaner stocks that can be reared separately in small groups of 15-20 for strategic marketing with provision of feeder and waterer to attain finishing or targeted weight. The shed shall be partitioned breadth-wise dividing it into 2 compartments, each having 3 separate enclosures of 2.5×1.5 m² with 1 m path in between (see Figure 6).

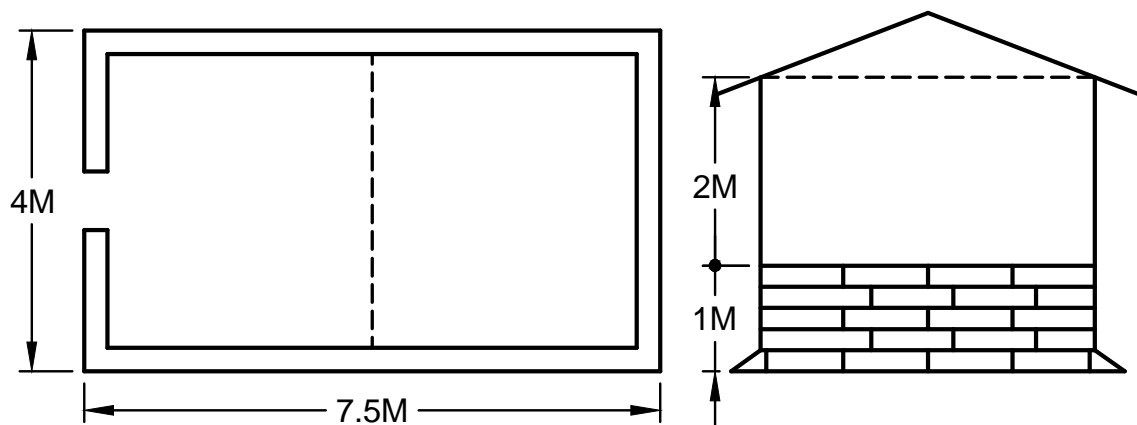


FIG 6 WEANER SHED

6.1.1.6 Yearling shed (male) – Yearling shed for male should be little away from the female stock and a total flock of 300 breed able ewes or does can have 15-20 rams or bucks. A shed with size $7.5 \times 4.0 \text{ m}^2$ can comfortably accommodate 15-20 rams or bucks kept in groups, but if kept separately they require 1.5 to 2.0 times the space requirement. The shed should have manager for feeding and watering in groups or individually (*see* Figure 7).

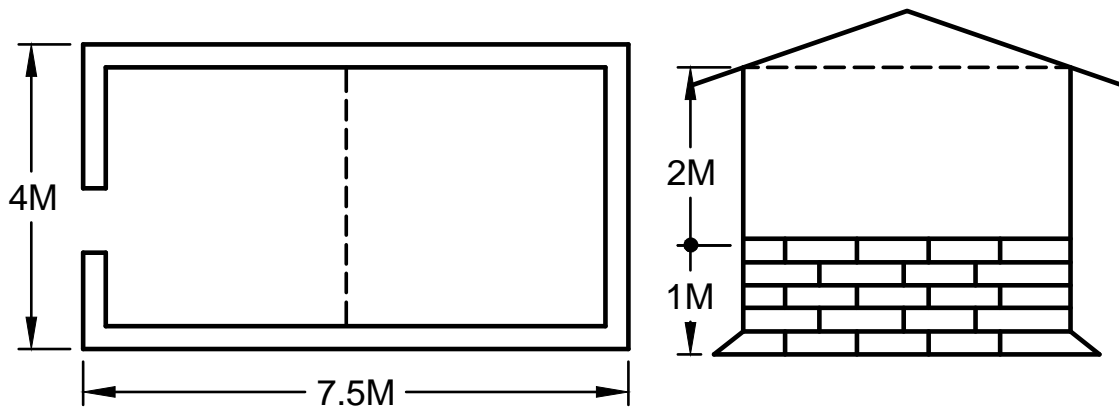


FIG 7 YEARLING MALE SHED

6.1.1.7 Yearling shed (female) – A large shed of size $45 \times 6 \text{ m}^2$ with four partitioning both length and breadth wise can comfortably accommodate 300 yearling ewes/does. The shed should have manager for feeding and watering in groups (*see* Figure 8).

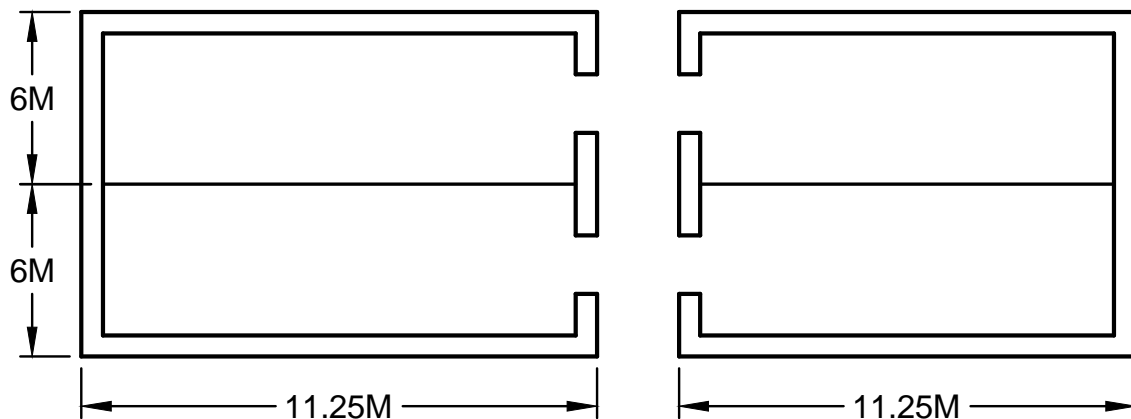


FIG 8 YEARLING FEMALE SHED

6.1.1.8 Dairy sheep and goat shed – The shed shall consist of stalls for keeping milking doe. The stalls may be arranged in two rows with a passage in between them. The dimensions of each stall meant to keep a single milking doe may be 1.2 m wide and 1.4 m long. The length of the shed shall depend upon the number of milking doe kept for milk production. There shall be partitions separating on stall from the other. Racks for hay and greens may be provided in the shed (*see* Figure 9).

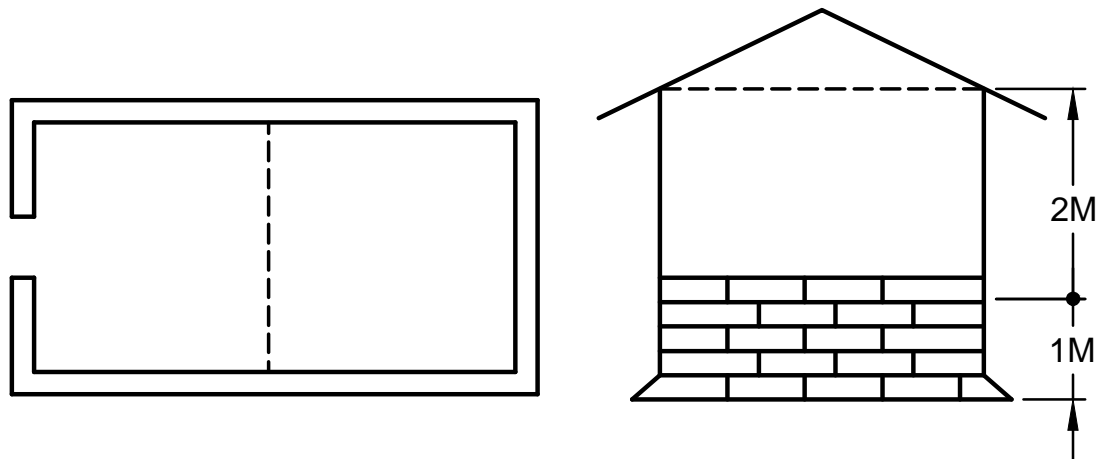


FIG 9 DAIRY SHEEP/GOAT SHED

6.1.1.9 Sick animal shed – A sick shed is meant for segregating ailing and disabled animals. The shed shall be 3 x 2 m size and 3 m high. There shall be a door of 1m width and 2 m height on one of the broad sides of the shed. The lower half of the door may be made of wooden planks and the upper half of wire netting. There may also be a window 0.7 m broad and 1-2 m high with a wire net covering (*see* Figure 10).

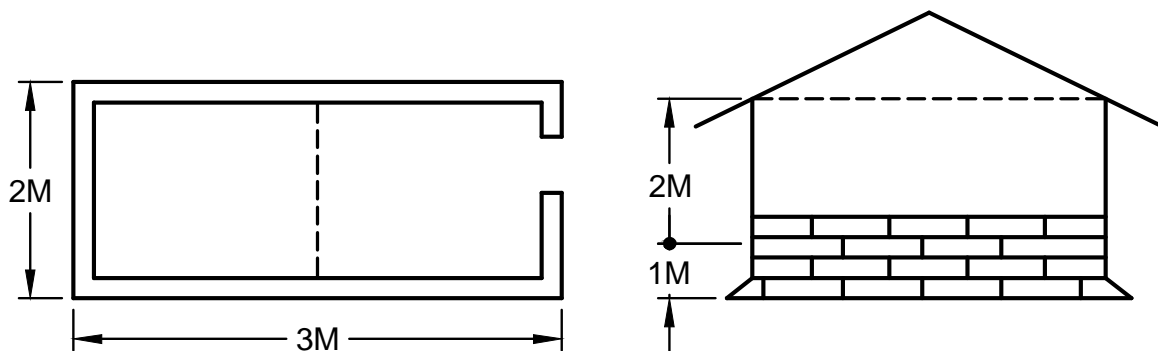


FIG 10 SICK ANIMAL SHED

6.1.1.10 Shearing shed – The shearing shed may consist of two compartments with a dividing wall. One should be open type for shearing the animals and the other for storing wool and shearing equipment. The room may be 6 x 2.5 m size and 3 m high. There shall be a wooden door one metre wide and two metres high in the front side of the room. It may also have two windows, one on each side of the long sides of the room. Each window may be 0.7 m wide and 1-2 m high. The windows may be covered with wire-netting. One coral or holding pen for at least 30 sheep in front of the shearing shed and another holding pen behind the shearing shed may be provided to hold shorn sheep after shearing (*see* Figure 11).

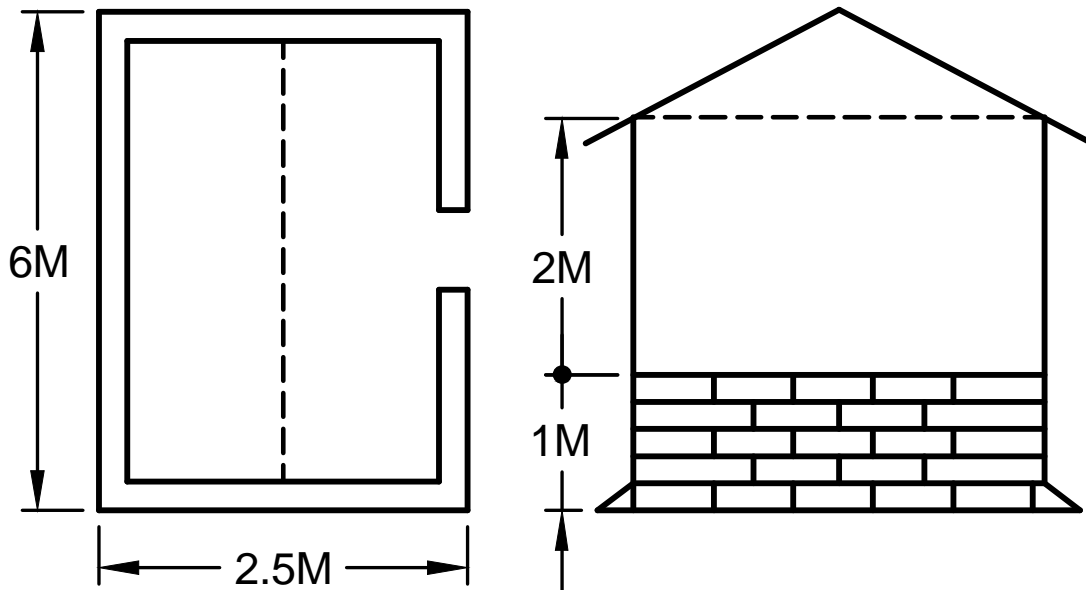


FIG 11 SHEARING SHED

6.1.1.11 Feed and forage Store – The feed and fodder storage can be built separately in the vicinity of animal shed that facilitates ease of transportation to different units. The size may be different for different geographical regions aimed at storing the feed resources to feed during scarcity or concentrates and supplements to feed for maintain production. The size may be 6 x 4.0 m size and 3 m high (mentioned in Figure 1).

6.1.1.12 Milking room and storage chamber – The floor should be made of cement concrete tiles (see IS 1237) or movable or immovable slatted wooden platform raised 450 mm above the ground. The floor shall have a slope of 25 mm for every 1 m. For each row of stalls, there shall be a brick masonry drain 300 to 400 mm wide and 75 mm deep. The dimension of the room is 11.25 x 5 m (see Figure 12).

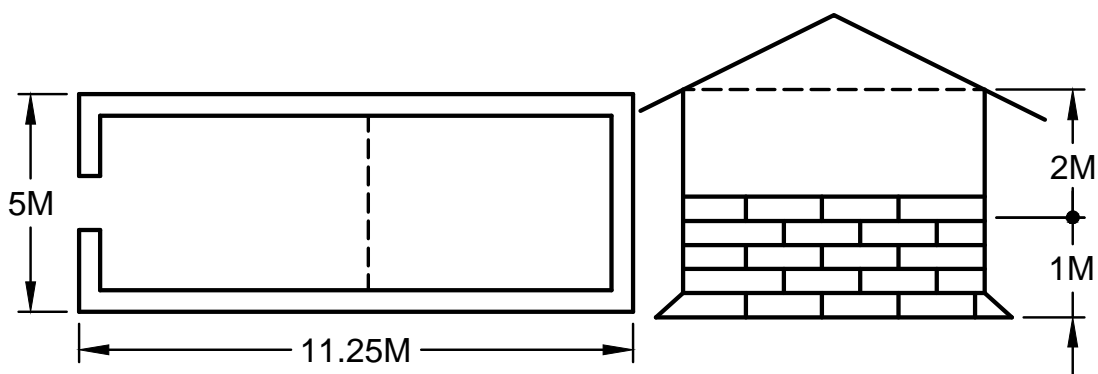


FIG 12 MILKING ROOM A STORAGE CHAMBER

The walls may be of brick in cement mortar up to 1.2 m in height and the rest of the portion shall be covered with wire-netting supported by angle irons of 50 x 50 x 6 mm section or wooden posts of suitable section. The walls of the stalls adjoining the passage shall be 1.5 m high and they shall be of brick in cement mortar.

6.1.1.13 Shepherd's house – The shepherd's house may have two parts, one to accommodate storage facility for medicines and other appliances and the other for the caretaker, which shall be located at a convenient place in the yard. The house may be 6 x 4 m size and 3 m high. There shall be a door one metre wide and two metres high on the long side of the shed facing the passage of the yard (*see* Fig. 1). The door leaf may be of wooden planks. There may be 4 windows; one of these facing the passage of the yard and the other three facing outside. Each window may be 0.7 m broad and 1.2 m high and covered with wire-netting (*see* Figure 13).

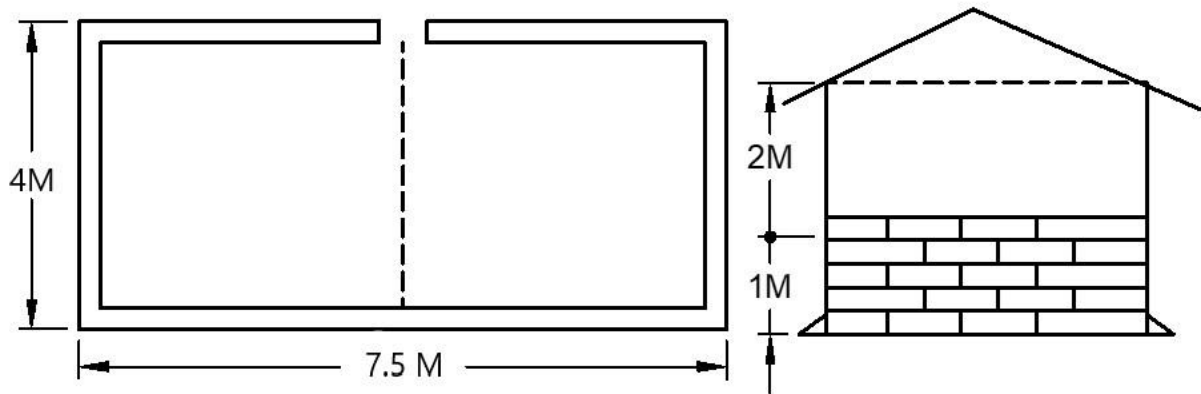


FIG 13. SHEPHERD'S HOUSE

7 CONSTRUCTIONAL REQUIREMENTS OF UNITS

7.1 Floor – The flooring may be either of moorum or of strong wooden battens and, where the rainfall is quite heavy, the latter type of flooring may be preferred. In the case of wooden batten flooring, the width of each plank shall vary from 75 to 100 mm and the thickness between 25 and 40 mm. The sides of the planks shall be well rounded and the clearance between two planks shall range between 10 to 15 mm to facilitate the disposal of dung and urine. The wooden-batten flooring shall be constructed at a height of at least one metre above the ground level. In this case, a suitable ramp or steps of wooden planks shall be provided. In the case of moorum flooring, a plinth wall between 150 and 300 mm in height shall be provided. For the shearing and store room and shepherd's room the flooring may be moorum or brick in cement mortar, and the floor shall be levelled properly. The floor should be Kachha or sandy under hot dry conditions of arid or semi-arid areas. A suitable drain should be provided at the end of the floor side. The depth of the drain should be 75 mm and width 300 to 400 mm.

7.2 Walls – The walls may be of brick in lime mortar up to two-third of their height from the floor level (*see* IS 1077 and IS 2212). The upper one-third portion of the walls may be of bird-proof netting. The chain-link netting may be supported by angle irons of size 50 x 50 x 6mm section and brick masonry columns placed alternatively at 1.5 m centre to centre. In the case of lamb or kid shed, the upper one-third part may be of wire netting supported by angle irons of size 50 x 50 x 6 mm at the four ends. The walls on the three sides of the shearing and store room may be of brick in cement mortar. The front wall (one of the broad sides of the room) may be of brick in cement mortar up to one-half the height from the ground level and the upper one-half portion may be of wooden battens or wire netting.

7.3 Roof – The roof may be lean-to or gabled type (*see* Fig. 2). The slope of the roof shall depend upon the rainfall and other climatic conditions of the region. The roof may be made of plain or corrugated galvanized iron sheets (*see* IS 277), aluminium sheets (*see* IS 737); asphalted corrugated, or plain light roofing material or SIRKI thatch. In case the roof is thatched, the thatching shall be at least 15 cm in thickness and it shall be rain-proof and fire-proof. In heavy rainfall areas gunny sacks treated with cement-lime mixture (*see* 7.3.1) may be used with thatch.

The eaves of the roof shall project out sufficiently long to prevent the rain water entering into the house.

7.3.1 Preparation of Cement-Lime Mixture – Stir thoroughly 12 parts by volume of cement and three parts by volume of lime (*see* IS 712) in 20 parts by volume of water. Add one part by volume of common salt (*see* IS 797) and one-half part by volume of alum (*see* IS 258) and stir until all ingredients are well mixed. Apply the mixture evenly with the help of a brush on the inner surface of the gunny sack. Give two coats of the mixture on the outer surface of the gunny sack. Stretch the gunny sack and dry in the sun until it becomes stiff.

7.4 Gate – Each shed may be provided with one or more gates either on the long or broad sides of the sheds depending upon the dimensions (*see* Fig.1) of the shed. The dimensions of each gate may be 0.8 m broad and one metre high. The gate leaf and frame may be made of wooden battens. It shall fit the entrance closely.

7.5 Manger – The manger may be either of cement concrete or of wood with two compartments for providing feed and hay. A separate hay rack may also be provided by fixing at level or slightly below the head of the animal. With the help of clamps, the manger may be raised within the height ranging between 450 and 600 mm from the ground. The water trough may be of cement concrete or galvanized steel pails or buckets and may be fixed or hung from a hook fixed to the walls. The manger may also be of portable type. The number of mangers and water troughs in each shed may vary according to the number of animals.

The manger may also be constructed as a raised wooden frame with openings to fit galvanized steel pails for keeping feed and water for goats. It may be constructed in the partition walls and be supported on iron or wooden brackets. These shall be raised at least 450 to 600 mm from the ground. The place to keep hay and other greens may be in the form of a rack fixed in the front wall from where the animals could pull out the greens when they require.

7.6 Partitions – The partitions separating one stall from the other may be of either simple wooden planks, galvanized steel sheets. The partition should be at least 150 mm above the floor level.

7.7 Dipping Tank – The dipping tank, to protect the animals from infection, may be made either of galvanized steel sheets or constructed of stone or brick in cement mortar, whichever is likely to prove economical, according to local conditions. The dimensions of a typical tank are given in Figure 14. If a galvanized steel tank is used, it shall be well bedded down and the soil rammed tight against it to prevent the sides of the bath from bulging when it is filled. If the base of the solid is unstable, the tank may be bedded in cement concrete. The dipping tank may be at one side of the yard.

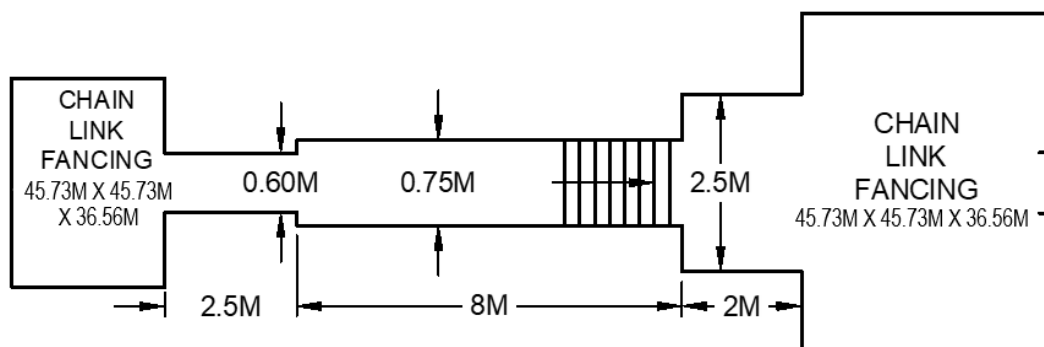


FIG 14 DIPPING TANK

7.8 Foot-bath – A foot-bath made of galvanized steel sheets, or brick in cement mortar shall be provided at the entrance to the yard to protect the animals from foot-rot disease. These baths may be embedded in the soil suitably.

7.9 Lighting – Provision for lighting should be made. A 7 W LED for each 10 m² floor space or 15 W bulb for 25 m² space or equivalent fluorescent tube light may be provided.