

Minimum Specification for Goat Housing

The receiving of this specification does not imply approval of a grant application. However, if written approval is issued, then this specification becomes part of the contract between the applicant and the Department of Agriculture, Fisheries and Food.

This is a minimum specification. Where the word “SHALL” is used, then that standard (at least) must be followed in grant-aided buildings. Where a procedure is “RECOMMENDED”, this is advice only on good practice.

Note that all references to other Department Specifications are to the current edition of that specification [available on the Department of Agriculture, Fisheries and Food Website (www.agriculture.gov.ie) under Farm buildings]. Similarly, references to Standards are to the current edition of the Irish, British or European Standard, as appropriate.

This specification refers to bedded loose housing for goats as the simplest and most unusual housing type. Proposals for other types of housing shall be submitted for approval by the specialist unit.

This specification incorporates all of the requirements in S.I. No. 14 of 2008, European Communities (Welfare of Farmed Animals) Regulations, 2008. Any building which does not comply with the accommodation, hygiene, and safety clauses of this specification may not be used by law.

1. SAFETY

APPLICANT'S RESPONSIBILITY FOR SAFETY

Applicants are reminded that they have a duty under the Safety, Health, and Welfare at Work Act 2005 to provide a safe working environment on the farm, including farm buildings, for all people who may work on that farm. There is a further duty to ensure that any contractor, or person hired to do building work, provides and/or works in a safe environment during construction. It is the farmer's responsibility to provide a construction stage project supervisor.

SAFETY DURING CONSTRUCTION

Farmer/Applicant Responsibility: Certain construction dangers may be encountered in the course of building or conversion work. Neither the Minister or any official of the Department will be in any way liable for any damage, loss or injury to persons, animals or property in the event of any occurrence related to the development and the applicant shall fully indemnify the Minister or any official of the Minister in relation to any such damage, loss or injury howsoever occurring during the development works.

Dangers: If any or all of the work is undertaken by the applicant/farmer he/she should seek competent advice and undertake all temporary work required to ensure the stability of excavations, superstructure, stanchion foundations and wall foundations, also to divert any drains, springs or surface water away from the works, and to guard against possible wind damage, or any other foreseeable risk.

Power lines: Farm buildings shall not be constructed under or nearer than 10m to an overhead power supply. If advice is required, or if power lines need to be diverted, it is the applicant's responsibility to contact, in writing, the local ESB supervisor before construction commences, and then to follow the ESB conditions.

Danger to children: It is the applicant's responsibility to prevent children from playing or spending time in the vicinity of any building work.

2. CONCRETE SPECIFICATION

Concrete shall be to the standard set out in the Department's specification S101 and shall be certified in the same manner.

3. ELECTRICAL INSTALLATIONS

Wiring and fittings shall be installed, and all work shall be carried out in accordance with the Second Edition of the National Rules for Electrical Installations, ET 101/1991 and Amendment A1:197, and specifically Section 705 - Electrical Installations for Agricultural and Horticultural premises. An ETCI completion certificate shall be required, signed by the Electrical Contractor(s) or a person duly authorised to act on his/her behalf to certify that the electrical installation has been constructed and/or has been tested according to the National rules of Electrical Installations and has been found to be satisfactory. An associate certificate, specifically for agricultural work, the "Supplementary Agricultural Certification Form" shall also be signed by the Electrical Contractors or authorised persons and the number of the main ETCI completion Certificate clearly marked on it. If no valid numbered ETCI Certificate is available for the completed installation, then the Electrical Contractor shall complete a new numbered ETCI Certificate indicating that the new installation has been tested for safety and compliance, and note that number on the Supplementary Form. The signed printed "Supplementary Agricultural Certification Form" together with a copy of the ETCI Completion Certificate shall be given to the Department before grant-aid can be finally certified.

4. SITE

Sites for goat housing shall be dry, not subject to flooding, and convenient to fodder, waste storage, and other facilities. Clean water from roofs and yards shall be piped away to avoid contamination with soiled surfaces.

The site shall be carefully chosen with a view to minimising operational and constructional problems. It shall be well separated from potential fire hazards and sheltered if possible. As a general guide, goat facilities should be located not less than 50m from any waterbody. The minimum distance between goat facilities and a public/private water supply source, either surface or ground, shall be 60m. In vulnerable situations this distance shall be increased up to 300m.

Note: Any land drains shall be stopped at least 10m on the upstream side of a site and diverted around to re-connect with the drainage system at least 10m on the downstream side of the storage area.

5. GENERAL

Goat housing may be provided in existing structurally sound and otherwise suitable farm buildings.

- a) Goats require dry, well-ventilated draught free and easy to clean housing with good natural lighting.
- b) Fittings and internal surfaces of all buildings and equipment to which goats have access should not have sharp edges or projections. Fittings should be arranged so as to avoid injury.
- c) Design which allows feeding, cleaning, disinfection and general hygiene
- d) Design that allows a thorough inspection of goats and easy stock management.
- e) Facilities for storing and handling wastes.
- f) Adequate natural and artificial lighting.
- g) Adequate drinking water.
- h) Adequate drainage
- i) Housing and equipment shall take account of the fact that goats are climbers and anything less than 2m above ground; (light-fittings and PVC water pipes etc. are liable to be chewed. All doors and gates within housing shall be sliding.
- j) There are four main types of housing, individual stalls, individual pens, cubicles, loose housing (bedded or on slats).

5.1 Space Requirements

The following minimum accommodation requirements shall apply:

- Floor area for adult goat. 1.8m^2 .
- Passage width for feeding 1.3m for barrow, 5.0m for tractor/trailer.
- Kidding pens, 2m^2 per goat, are recommended. One pen is sufficient for a herd of 30 goats; 2 pens for herd size 30 - 60, and so on in the same ratio.
- At least one isolation pen shall be provided, preferably in a separate building from that which houses the herd. The pen should be self-contained and have a floor area of 2.5m^2 . It is recommended that at least one isolation pen shall be provided per 50 goats. Isolation pens may be used as kidding pens provided they are constructed to the isolation pen standard.
- Kid rearing pen is recommended. A pen of floor area 2m^2 will accommodate 12 kids for about the first 4 weeks - thereafter pen size of 4m^2 is required. Kidding pens may be used as rearing pens and isolation pens (see above).
- Male goat pen, if required, shall be located well away (at least 15m) from the milking/dairy facility to avoid the risk of tainting milk. Floor area shall be at least 2.5m^2 .

6. BUILDING

The superstructure shall conform to current edition of Department's specification S101 – Minimum Specifications for the Structure of Agricultural Buildings.

6.1 Roof Cladding Materials

Roof and Side cladding materials and their installation shall conform to the current edition of S102.

6.2 Floors

6.2.1 Concrete

Floors shall be 125mm concrete laid smooth with a non-slip finish to falls of 1 in 60 on 150mm of well compacted hardcore. All floors shall incorporate 1000 gauge polythene DPC membrane with 600mm overlaps laid on the sand under concrete. The polythene membrane shall be taken up along walls to meet DPC where this has been installed.

Provision shall be made for the proper collection and disposal of wastes from housing which shall normally be stored in a manure pit with the associated soiled water tank.

Deep litter systems or low-level floor beds are the most favourable type of flooring in goat housing. See Figure 4 for details of feed barrier / pen bed interface. It is recommended that the building be designed so that the central passageway is a minimum 0.60m above the floor of the bed rather than below ground. This way the floor level of the bedding can facilitate ease of entry for machinery at the gable end of the building to clean out the bedding through doors.

The purpose of the low level floor is two fold. Firstly as goats are climbers they like to be able to step up to the food and secondly to accommodate the build up of bedding in a deep litter system.

6.2.2 Slatted Floors

Slatted floors are the least common type of flooring for goat housing although they are permitted. As they are a specialist type of housing the designs will require prior approval to by the Specialist Unit. All tanks under slatted floors shall be as per the Department's specification S123 – Minimum specification for Bovine Livestock Units and Reinforced Tanks.

6.3 Foundation

Foundations for walls shall be excavated to a depth of 600mm below original ground level or until firm strata is encountered. The entire underfloor area shall be stripped of topsoil.

Footings shall be at least 225mm deep and as wide as the wall to be carried plus 225mm on each side.

6.4 Walls and Pen Divisions

6.4.1 External Walls

All external mass concrete walls shall be constructed as per the Department's specification S101 otherwise external walls shall be 225mm solid concrete blockwork with DPC at floor level. The height at eaves shall be minimum 3m over floor level, with venting a minimum of 2.0m over floor level to avoid draughts.

6.4.2 Internal Walls / Pen Divisions

6.4.2.1 Loose House

In larger herds, the loose house is usually subdivided to facilitate the management of the herd in groups of 30 - 40 animals. Divisions may be of 100mm solid concrete block walls, minimum 1.3m high from the pen floor finished as specified for wall finishes, but for ease of cleaning and to allow more flexibility it is recommended that divisions should be demountable of 18mm W.B.P. (water and boil proof) plywood, or timber or galvanised steel rails, or galvanised steel mesh, in angle iron frames.

6.4.2.2 Kidding pens, isolation pen, and kid rearing pens

Sizing of kidding pens, isolation pen, and kid rearing pens shall be similarly constructed as per clause 5.1. Kidding pens, isolation pen, and kid rearing pens shall be constructed as per the Departments specification S 147, Minimum Specification for Calving Pens, Separation Pens, and Isolation Boxes.

6.4.2.3 Buck Pens

Male goat pen shall have 150mm solid concrete block walls finished as specified for wall finishes and at least 1.5m high.

6.5 Wall Finishes

All internal walls to milking premises and dairy to the full height, to loose house to 2m over floor level, and concrete wall pens to full height shall be rendered 2 coat, 12mm and 6mm respectively with 3:1 sand:cement incorporating plasticiser or 1/4 part lime, to a smooth steel trowel finish. External walls shall be well pointed or smooth finished.

Mass concrete walls shall have a smooth, blemish free finish and any honeycombing and tie-bar holes shall be filled with an accepted non-shrink proprietary cement mortar.

6.6 Doors

All doors shall be as per Department of Agriculture, Fisheries & Food, Minimum Specifications for the Structure of Agricultural Buildings - S101.

Doors to loose house divisions and pens shall be of 18mm W.B.P. plywood, 25mm ledged, braced and sheeted timber, or of steel mesh in angle iron frames. Closing catches fixed half way down.

External doors, minimum width 1m, shall be of 50mm thick timber framing, braced and sheeted or angle iron framed with sheet metal cover. For operator safety reasons external doors should, where possible, be sliding.

Manual or automatic roller doors are also permitted where suitable.

6.7 Roof Water

Gutters and R.W. pipes shall be fitted to all roofs. R.W. pipes to discharge through stormwater drainage system or direct to nearest watercourse. All farmyard drainage shall comply with the Departments specification S129 – Minimum Specification for Farmyard Drainage, concrete Yards & Roads.

7. VENTILATION

Permanent open ventilation shall be provided, as per the Department's specification S101- Minimum Specifications for the Structure of Agricultural Buildings. This is a strict condition of grant-aid, in order to protect animal health and the working life of the structure. Opening/closing windows, or opening/closing half-doors, **shall not be included** in the required inlet/outlet areas given below. Full ventilation shall also be provided in any conversion or extension of existing buildings.

7.1 Inlet Ventilation

Air inlet openings shall be provided to animal housing at a minimum of 0.15m^2 of unobstructed ventilation per adult milking goat. Vented sheeting is recommended as the best form of achieving inlet ventilation.

Where sliding doors are present on sidewalls, the inlet ventilation requirements for that sidewall shall also apply to the sliding doors. Therefore if, for example, ventilated side cladding is present, then the doors shall also incorporate this form of cladding.

7.2 Outlet Ventilation

Outlet ventilation shall be provided to at least half the inlet area with a minimum 0.05m^2 of unobstructed ventilation per adult animal but would strongly recommend 0.075m^2 per adult animal. Outlet ventilation should be at least 0.5m higher than the inlets and may consist of continuous open ridge along the full length of the apex of the building 600mm of unobstructed width and may be fitted with a ridge cap to prevent the ingress of rain. Spaced sheeting or spaced boarding may also be used as a form of outlet ventilation. Please refer to the Departments specification S101 - Minimum Specifications for the Structure of Agricultural Building for details of fitting of spaced sheeting and construction of ridge cap.

Permanent open ventilation of not less than 0.075m^2 /milking goat shall be provided to the milking parlour. Ventilation ope of 0.2m^2 shall be provided in the dairy and shall be covered with a fly screen.

8. WATER SUPPLY

An adequate clean water supply shall be provided. Trunk and distribution pipes shall be lagged with vermin proof moisture resistant material. Adequate drinking bowls, at least one per 30 goats shall be provided in loose housing. Water trough shall be placed at a minimum height of 1.2m where a step shall be installed below the trough to enable the animal to reach the trough and thus avoiding faecal contamination. In a standard bay (4.8m) width and 7m-pen depth shed for loose housing it is recommended to have a water trough installed at each stanchion at the feed barrier.

9. FEED BARRIERS, TROUGHS AND RACKS

In general, in the design of feed barriers, troughs and racks, consideration for animal comfort and ease of use shall be of the utmost importance. Secondly to this, consideration shall be taken regarding reduction of spoilage and spillage of food.

9.1 Feed Barriers

Where meals are fed in the loose house, diagonal tubular steel barrier (Figure 1), keyhole yokes (Figure 2) or adjustable horizontal tubular steel barriers (Figure 3) as shown on drawing shall be provided. Keyhole yokes shall be of 18mm W.B.P. plywood fixed to 50 x 50 mm timber framing.

Galvanised tubular steel shall be 21.3 x 2.65mm or 26.9 x 2.65mm medium gauge. These types of feed barriers may be adjustable to accommodate the size/age of the animals that will be using it.

Table 1 - Space requirements at the feed barrier

Animal	Weight kg	Feeding Space
	Kg	Linear mm/animal
Doe	35	350
Doe	50	400
Doe	70	450
Kid		250
Buck		500

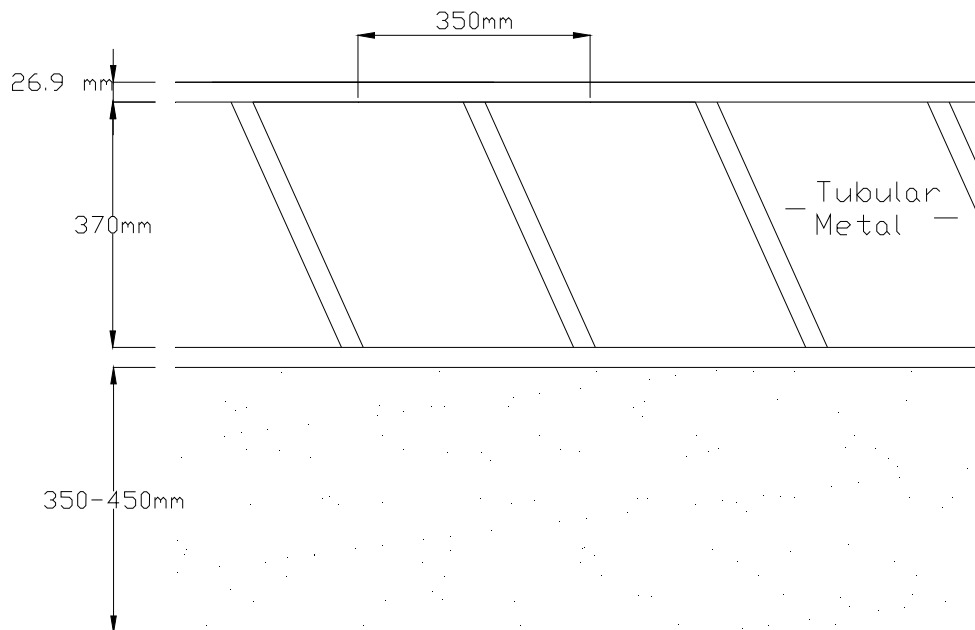


Figure 1 – Diagonal Feed Barriers

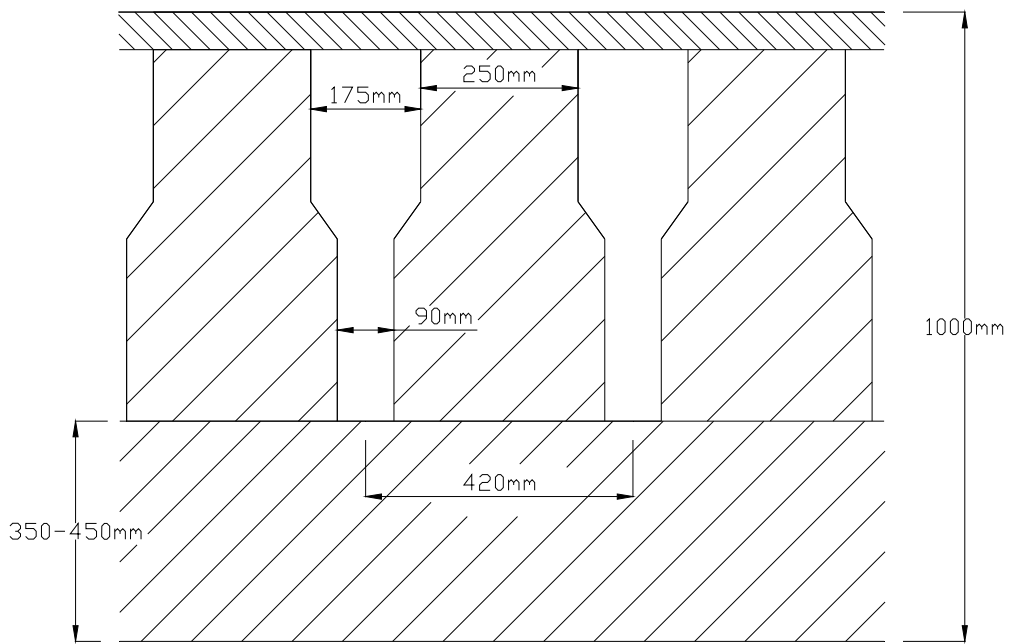


Figure 2 - Keyhole Yoke Fed Barrier

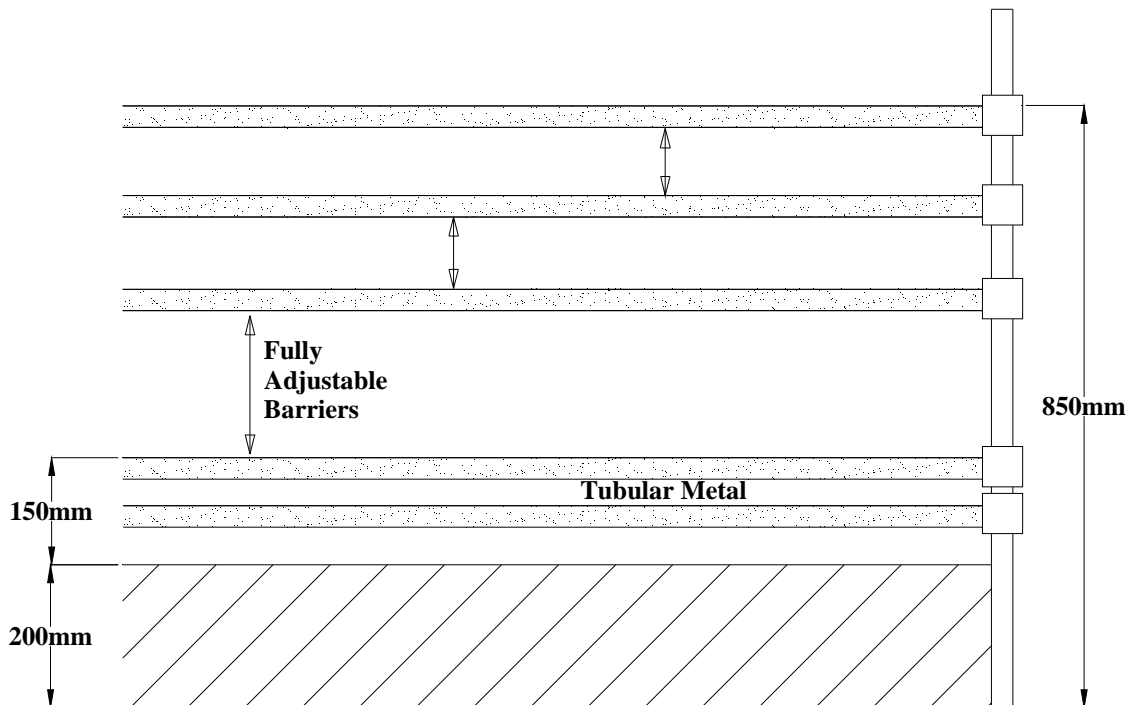


Figure 3 - Horizontal adjustable Feed Barriers

9.2 Troughs

Milking goats are normally fed meals during milking and feeding troughs are not usually required within housing.

Feed troughs shall be trapezoidal or semi-cylindrical. The feed trough depth shall be 180mm to 250mm with a width of 300mm and it shall be raised off the ground at least 150mm.

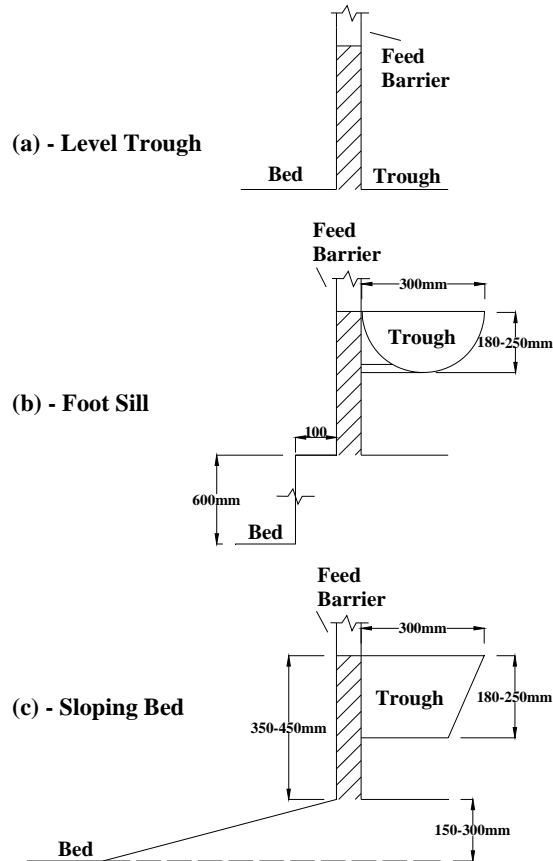


Figure 4 – Basic Design of Trough, feed barrier and bed

9.3 Hay Racks

Racks for hay shall be provided fixed to walls about 1.2m above the bedded area. Racks may also be positioned on dividing walls between pens as shown in Figure 5 below or on the back wall of the pen. The rack frame shall be made of wood or mild steel and closed at both ends. The lattices may be timber. These racks shall be fixed securely to the end wall and top of the dividing wall with 3 x 16 mm bolts.

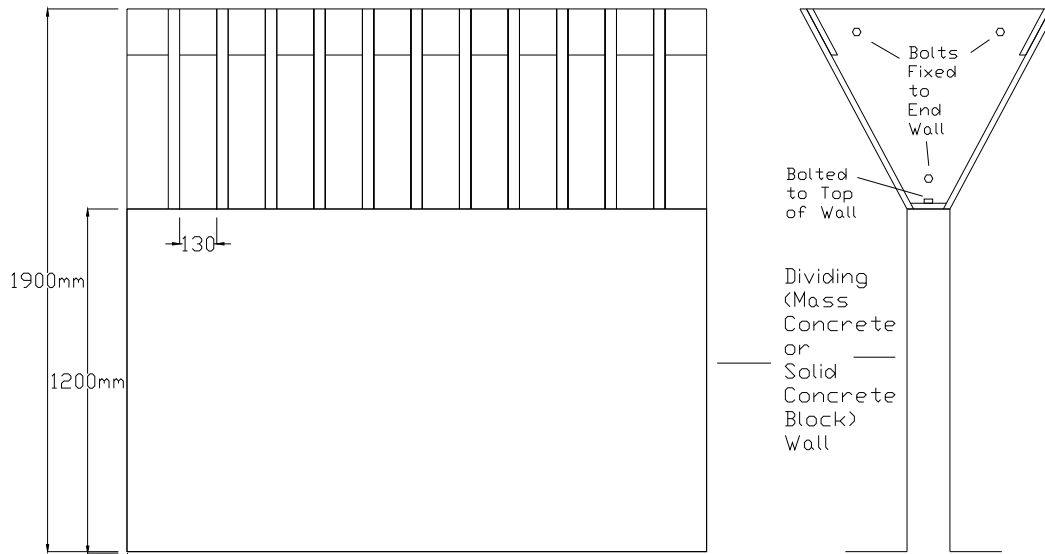


Figure 5 – Pen Division Hay Rack

10. LIGHTING

10.1 Artificial Lighting

A minimum lighting level of 50-lux shall be provided to housing and 200-lux to milking premises and dairy. All lighting and electrical works shall be carried out in accordance with the Department’s specification S101.

10.2 Natural Lighting

Good use of daylight is important for safe working conditions and for animal health and welfare. The minimum number of translucent sheets on each roof slope or single-sided house shall be as follows:-

Table 2 – Roof light requirements for minimum natural lighting.

Shed Span up to:	Minimum No. of standard 2.6m translucent Sheets per 4.8m bay of shed
4.2m	1
7.5m	2
9.9m	3

11. STORAGE OF WASTES FOR HOUSING

All effluent / solid farmyard manure and soiled water shall be stored in compliance with the current edition of the 'Nitrates Directive' S.I.101: 2009, European Communities (Good Agricultural Practice for Protection of Water Courses) Regulations 2009. All solid farmyard manure storage facilities shall be constructed in accordance with Department of Agriculture, Fisheries & Food specification S108. All effluent tanks shall be in accordance with the Department's specifications S123 and S123Y.

Manure storage of 0.5m³ per goat shall be provided. Soiled water tank with capacity of 0.55m³ per m² of manure pit shall also be provided.

12. MILKING GOATS

The design finish and operation of the whole installation, including wash-up cooling and storage facilities shall be to the same general specification for cows (S106) - Minimum specification of Milking Premises and Dairies. Milking facilities will depend on the herd size. For larger herds which are machine milked, a separate milking premises and dairy shall be provided.

12.1 Milking Parlour

For the small herd, milked by hand, a well ventilated and lighted milking area of not less than 4m² shall be provided. The milking area shall have a milking stand with yoke tying approximately 1.1m long (1.25m high) x 0.4 - 0.5m wide and raised 0.4 - 0.5m off the floor, incorporating a seat if desired. A cold water supply to a sink is recommended.

13. FENCING

Fencing for goats shall be in accordance with the current edition of the Department's specification S148, Minimum Specification for Farm Fencing.

14. CERTIFICATES

The following certificates shall be given to the Department before grant-aid will be paid:

1. "Concrete" Certificate
2. Certificate of Protection of Structural Steel.
3. "Electrical" Certificate

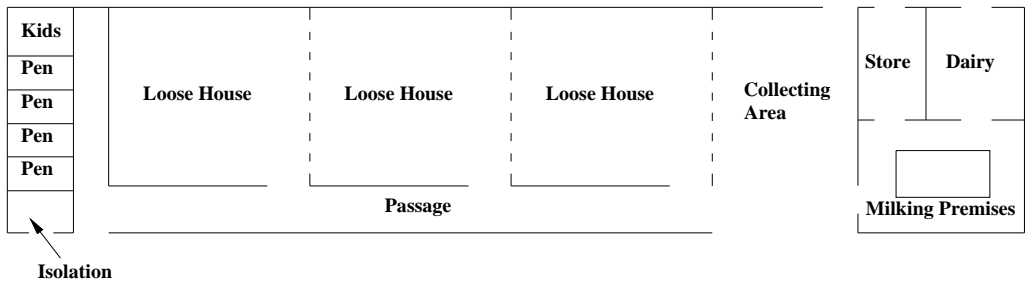


Figure 6 – Larger Unit

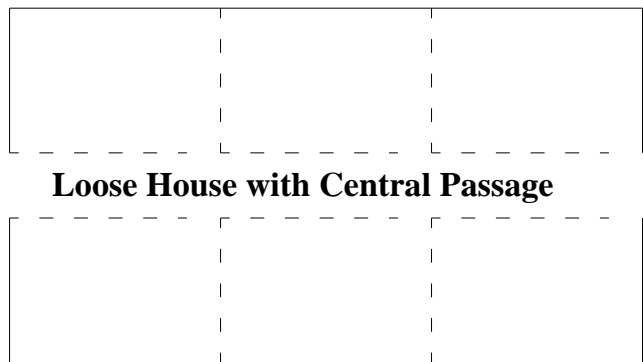


Figure 7 - Loose House with raised Central Passage