

**AN ROINN TALMHAÍOCHTA, IASCAIGH AGUS BIA
DEPARTMENT OF AGRICULTURE, FISHERIES AND FOOD
MINIMUM SPECIFICATION FOR BULL HOUSING**

S 160 June 2008

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 and Food.

This is a minimum specification. Where the word “SHALL” is used, then that standard (at least) **must** be followed in grant-aided bull housing. 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 (<http://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.

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.

MAINTENANCE

All farm buildings require regular maintenance to ensure the health and safety of personnel and animals. After each winter-season buildings should be thoroughly washed and cleaned out. Fittings such as slats, electrical fittings, drinking arrangements, etc., should be periodically checked, and all defective items replaced

2. General

Bull houses must be strong durable structures, which allow management with minimal risk to workers. The basic requirements are:

- a) Protection from the weather
- b) Exercise area. An open exercise area is recommended where a bull is permanently housed
- c) Arrangements for feeding and watering without entering the bull enclosure
- d) Arrangements for safe house cleaning while the bull is housed
- e) Suitable design and structures to prevent the bull escaping
- f) Convenient and safe arrangements for the serving of cows.

Note: Where a bull is running with cows for most of the year, a covered pen without an exercise area is adequate.

3. Site

The site for bull housing shall be dry, not subject to flooding and convenient to buildings housing the cow herd. It is recommended that housing is located where the bull can see normal farmyard activities, particularly if he can see the cows pass daily to and from the milking premises in dairy herds.

4. Accommodation

Where a bull is permanently housed, the total enclosed area, pen and exercise yard shall be approximately 50m². Where a bull is not permanently housed the floor area of the pen shall be approximately 20m².

Suitable housing arrangements are shown on layout plans 1, 2 and 3. Each plan includes a feed stand where it shall be possible to retain the bull by a tying yoke and a drop gate. Plan 1 provides a cubicle standing and plan 2 provides a loose-house arrangement. Where a bull is not housed permanently loose housing as shown in plan 3 is adequate.

5. Concrete Specification

5.1 Certificates

Concrete shall be produced in a plant audited to I.S. EN 206:1; 2002 by a certified body accepted by The Department of Agriculture, Fisheries & Food (e.g. N.S.A.I., B.S.I., Q.S.R.M.C). Concrete shall not be produced on site.

A numbered certificate, signed and stamped, shall be required for all concrete delivered to site. The certificate, the "Concrete Manufacturers' Specification Certificate", is produced in triplicate. **The top certificate, printed on light blue paper, shall be retained by the applicant** and given to and retained by the local AES Office of the Department of Agriculture for inspection upon completion of the works.

5.2 Concrete

For the purpose of construction of bull housing facilities, concrete shall be purchased on the basis of a characteristic 28 day crushing strength of 35N/mm^2 . Minimum cement content shall be 300 kg/m^3 . Slump of unplasticised concrete shall not exceed 90mm, and maximum aggregate size shall be 20mm.

The concrete shall be ordered by requesting '35N concrete to be certified to the grant-aid standard of the Department of Agriculture and Food'.

If the Concrete Supplier requires further information the following shall be quoted to them:

- The concrete is to be to I.S. EN 206-1:2002: Strength Class: C28/35, 300 kg cement, maximum water cement ratio of 0.60, Exposure classes: XC4, XF3, XA1 (20 year life), Slump class: S2 (unplasticised), maximum aggregate size 20mm.

If plasticised concrete is desired, the slump class shall not exceed S3.

Polypropylene fibres may be incorporated into the concrete mix to improve the properties of concrete. Only fibres which have been tested and approved by National or European approval authorities may be used. The use of fibres helps to reduce plastic cracking and improve surface durability but they are not a substitute for structural reinforcement (Section 8). Fibres shall be used in strict compliance with manufacturer's instructions and shall only be added at the concrete manufacturing plant. The concrete certificate (Clause 5.1), shall clearly show the amount and type of fibre added. The mix design, compacting, and curing of fibre concrete is the same as concrete without fibre.

5.3 Materials

Cement used in concrete and concrete products shall be certified to IS EN 197-1, and shall bear the Irish Standard Mark, or shall be certified by NSAI to be equivalent to IS EN 197-1. All aggregates shall be to IS 5 1990. Plasticisers and other admixtures shall be to EN 934. All admixtures shall be used in strict accordance with manufacturer's instructions, and shall be added only by the concrete-mix manufacturer.

5.4 Tests

The Department reserves the right to require that concrete should be tested in accordance with B.S.1881.

5.5 Curing of Concrete

All concrete shall be cured by keeping it thoroughly moist for at least seven days. Wetted floor slabs and tank walls shall be protected by polythene sheeting, kept securely in place. Alternatively proprietary curing agents may be used in accordance with manufacturer's instructions. When frost is a danger, straw bales shall be placed over the polythene on slabs. Concrete shall be at least 28 days old before being subjected to full load, or to silage or silage effluent.

6. Structure

6.1 Roof Structure

All roof structures shall comply with Department of Agriculture's specification S101. Alternative proprietary construction systems (e.g. of protected timber) may be used if such

systems have received the prior acceptance of the Department. Gutters and downpipes shall be fitted to all roofs and arranged so as not to discharge onto soiled yards. All metal cladding fixed to timber rails or purlins shall be separated by a layer of DPC.

6.2 Roof and Side Cladding

6.3 Cladding materials and their installation shall conform to the current edition of S102. Slates or tiles may be used, installed according to manufacturer's instructions.

6.4 Foundations

Foundations shall be excavated to a depth of 600mm below original ground level or until firm strata is encountered. Footings shall be 225mm thick and as wide as the wall to be carried plus 225mm on each side.

6.5 Floors

Floors shall be 125mm concrete on 150mm well compacted hardcore. A damp proof course of 1000 gauge polythene shall be laid to the pen floor. The floors shall be laid to drainage falls of 1:60 discharging to trapped gully. The finish shall be rough tamped, not smooth.

6.6 Walls

Walls to the bull pen and to the exercise area shall be 200mm mass concrete. The minimum height from floor to roof of pen shall be 3m and the height of wall to exercise area shall be 1.35m. A tubular steel railing 450mm high, with either 2 or 3 horizontal rails, shall be mounted on top of the exercise area walls. Ramps to service pen, if required, shall be 225mm wide, about 1.4m long, 600mm high at lower end, 900mm at the higher end with the width between ramps 525mm to 600mm.

6.7 Doors

6.8 A sliding door shall be fitted to the feed opening. The door shall be either 50mm thick framed, braced and sheeted or angle iron framed and galvanised iron clad.

6.9 Feed Barrier

The feed barrier shall be 150mm mass concrete wall. 300mm over floor level, with a tubular steel barrier incorporating a tying yoke fixed over the wall. This yoke shall be capable of being operated from outside the building, when the bull is feeding.

6.10 Support for Water Bowl

A solid support of mass concrete shall be provided to the water bowl or trough, which shall be a minimum of 1m over floor level. The water bowl shall be located where it can be cleaned without entering the enclosure.

7. Special Safety Features

An escape barrier, see Figure 1, shall be provided at one of the blind corners in the exercise area in Plans 1 and 2 and in the loose house section in Plan 3. Drop gate referred to in Clause 3, and shown on drawing, see fig 2, shall be raised and lowered from outside the pen by a chord over a pulley as shown on Section A-A.

8. Steelwork

All tubular steelwork shall be carefully manufactured and erected. All gates shall be securely hung and fitted with 2 animal proof and child proof closers, one near the top, and one near the bottom of the gate. Framing to gates shall be of 50mm diameter heavy gauge tubing, with 38mm heavy gauge vertical fill bars not more than 100mm apart. Gate posts shall be 125mm heavy gauge tubular steel or IPE Section 160. Tubular steelwork to service pen shall be 50mm diameter heavy gauge welded to end posts as specified for gates. Alternatively a proprietary tubular crate with side opening and ramps may be provided. Tubular steel railings over exercise yard walls shall be 40mm heavy gauge secured to wall by verticals at 1.8m centres fixed 225mm into the wall. Drop gate shall be framed with 50mm heavy gauge box section steel and shall slide in a steel U channel with 75mm spacing between 50mm lugs. Channels shall be securely fitted to walls.

9. Water Supply

A piped water supply shall be provided to a drinking bowl or trough erected as specified at clause 5.4. All exposed pipework shall be insulated with waterproof insulation.

10. Waste Disposal

All effluent and washings from the pen and exercise yard shall be channelled to a trapped gully within or directly outside the enclosure and piped to the existing wastewater disposal system in accordance with the EU -Nitrates Directive requirements.

11. Artificial Lighting

Artificial lighting to 50-lux level shall be provided. All electrical fittings shall be installed and provided as per Department of Agriculture, Fisheries & Food specification S101.

12. Protection of Steelwork

For protection of Steelwork refer to Department of Agriculture, Fisheries & Food specification S101.

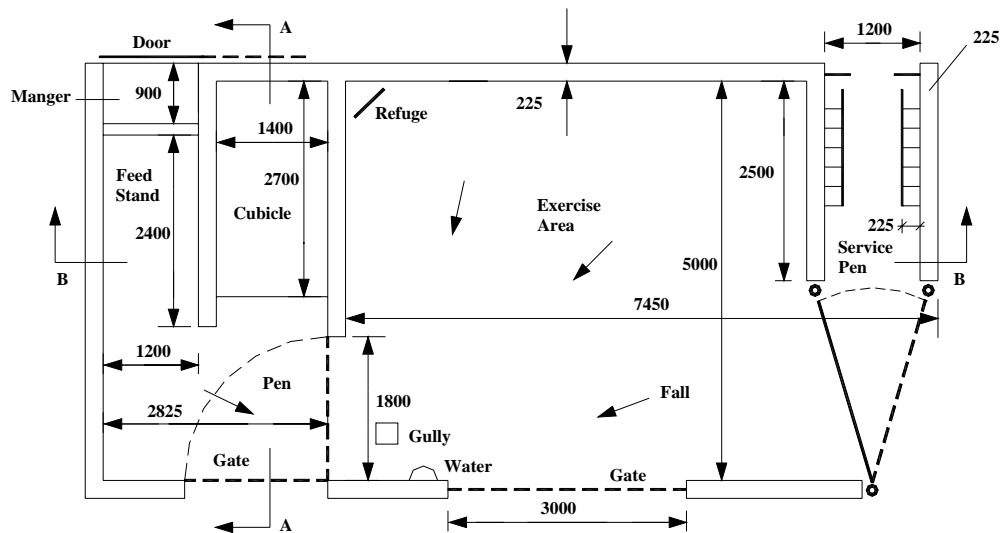


Figure 1 Plan 1

Notes:

1. The location of the different elements within the bull enclosure may be switched around to suit the particular site.
2. A wall 1.8m high may be substituted for wall 1.35m high and railings 0.45m high shown to exercise area in Section B-B.

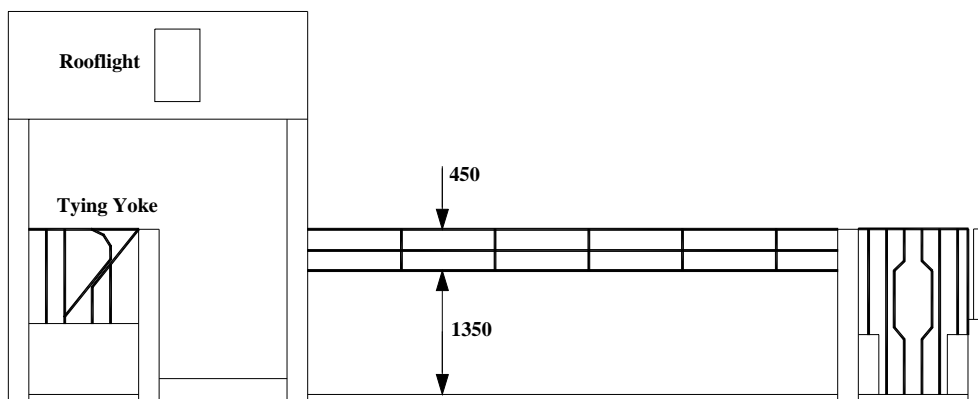


Figure 2 Section B-B

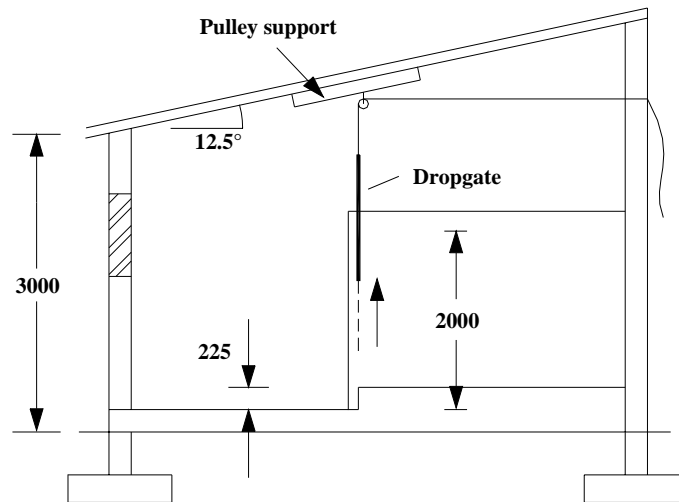


Figure 3 **Section A-A**

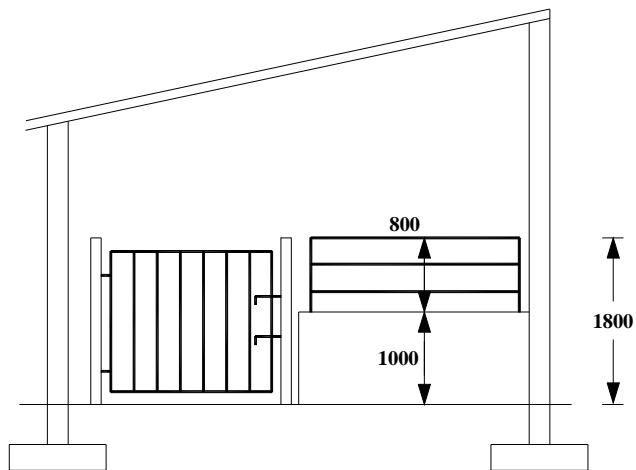


Figure 4 **End Elevation to Plan 1**

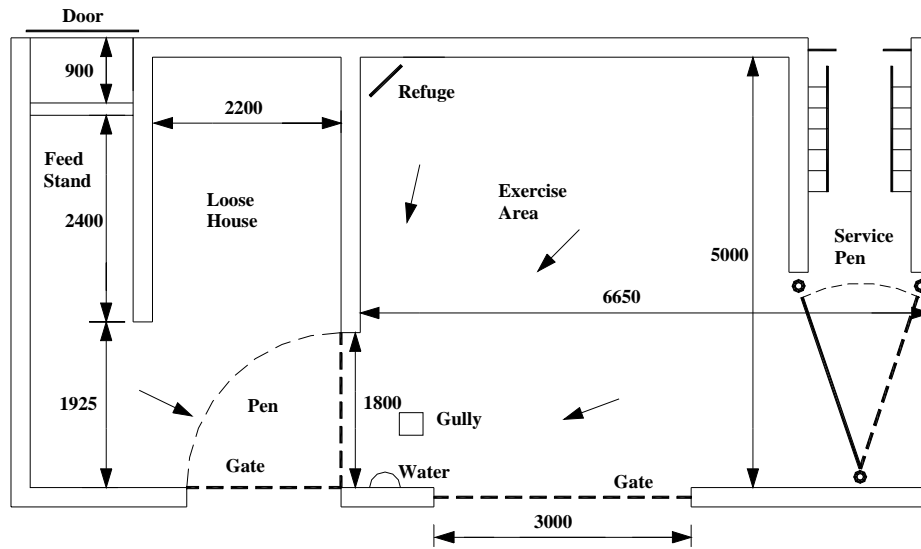


Figure 5 **Plan 2**

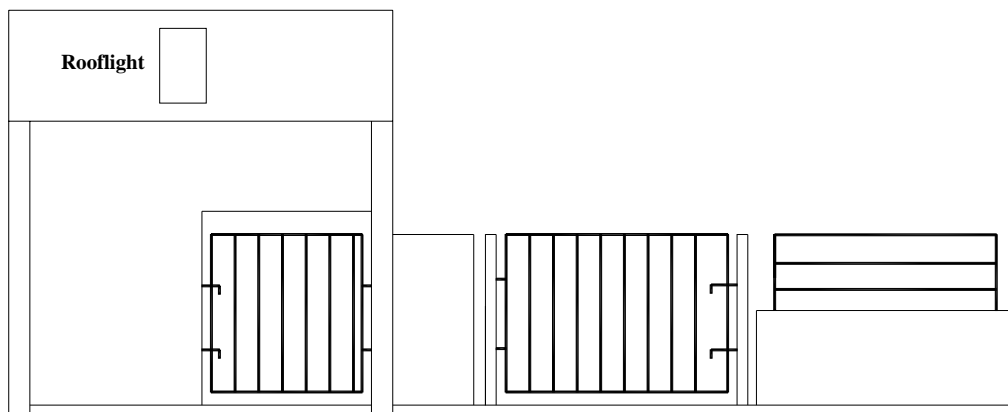


Figure 6 **End Elevation to Plan 2**

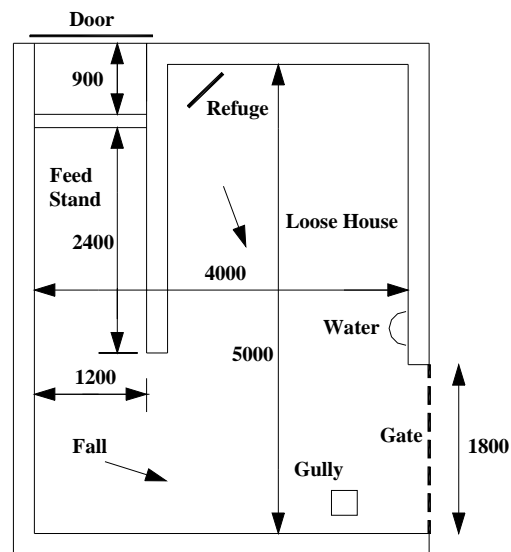


Figure 7 **Plan 3**

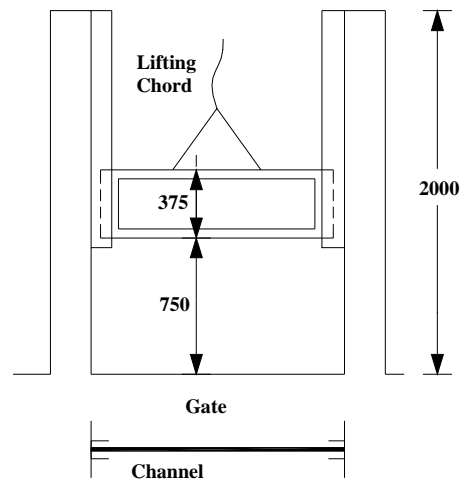


Figure 8 **Dropgate (see Fig. 3)**

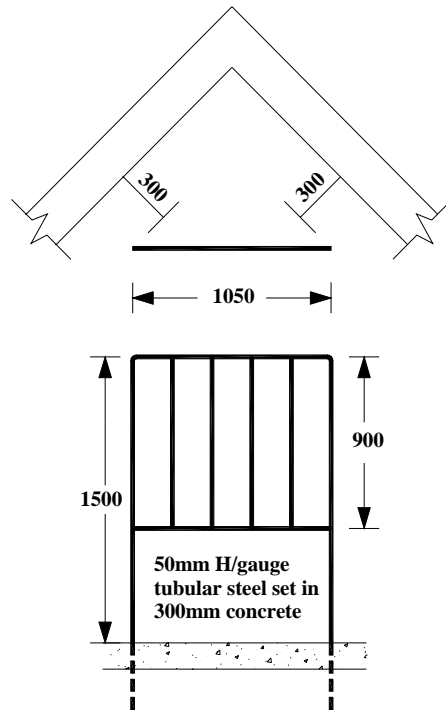


Figure 9 Refuge