



**AN ROINN TALMHAÍOCHTA, BIA AGUS MARA**  
**DEPARTMENT OF AGRICULTURE, FOOD AND THE MARINE**

**Minimum Specification For Milking Premises And Dairies**

**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, Food and the Marine.

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, Food and the Marine’s Website ([www.agriculture.gov.ie](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.

This specification covers the construction of

- a) Dairy
- b) Milking Parlour
- c) Other milking premises (cow byre etc.) where cows are milked where housed.

## **1. SAFETY**

### **1.1 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. Applicants are advised of the need to acquaint themselves with the provisions of the Safety, Health and Welfare at Work Act 2005 and the regulations made hereunder, in particular the Safety Health and Welfare at Work (Construction) Regulations 2013. General guides to this Act and regulations, prepared by the Health and Safety Authority, are available at [www.hsa.ie](http://www.hsa.ie).

### **1.2 SAFETY DURING CONSTRUCTION**

**Farmer/Applicant Responsibility:** Please note that neither the Minister nor any official of the Department shall 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. Famer/Applicant’s are reminded that under the Safety Health and Welfare at Work (Construction) Regulations 2013 and under Section 17 of the Safety, Health and Welfare at Work Act 2005 that they have significant responsibilities in relation to any construction works that they are planning or undertaking. It is the farmer/applicant’s responsibility to appoint, in writing, a competent Project Supervisor for the Design Process (PSDP) before design work starts, and to appoint, in writing, a competent Project Supervisor for the Construction Stage (PSCS) before construction begins.

**Dangers:** Where the applicant/farmer is undertaking any part of the above work, it is his/her responsibility to seek competent advice and to undertake all temporary work required to ensure the stability of excavations, superstructure, stanchion foundations, wall foundations, to guard against



possible wind damage and to avoid any other foreseeable risk. It is also his/her responsibility to ensure that any drains, springs or surface water are diverted away from the works.

**Power lines:** Due to the complex criteria involved, where buildings are proposed within 35 metres of the centre of any overhead power line, the landowner shall contact ESB Networks in advance to ascertain the specific minimum building clearance requirement. It is a requirement on landowners under The Electricity Supply Acts to notify ESB Networks, at least, two months before commencement of any construction works near overhead lines. As a guide, table 1 below sets out the usual minimum clearance distances required, however, ESB Networks shall be contacted and their advice followed for any structure within 35m of the centre line of an overhead power line. ESB will provide landowners with written confirmation of the required clearances. Landowners can contact ESB through phone numbers provided on their electricity bills.

Where building work is undertaken near power lines there is also a safety issue regarding Machinery, Tipper Trucks and Elevators operating without proper safety measures in place. When landowners contact ESB they will be provided with relevant safety literature.

**Table 1:** In general the following clearances apply to various voltage levels.

<b>Voltage</b>	<b>Clearance</b>
Low Voltage	0.5 to 3 Metres
Medium Voltage	3 to 6 Metres
38KV Lines	10 to 17 Metres
110kv Lines	23 Metres
220KV Lines	30 Metres
400KV Lines	35 Metres

**Note:**

- ESB overhead lines consist of lines at various voltage levels and require specific safety clearances from buildings depending on voltage level and construction type.
- Clearances are specific to the line voltage, building height, location in line span and ground levels.

**Danger to children:** It is the applicants responsibility to prevent children from playing or spending time in the vicinity of any construction work.

**Roof work:** When working on any roof, it is essential to assume that the roof is fragile, unless confirmed otherwise by a competent person.

The HSA Code of Practice for Safety in Roofwork shall be consulted prior to any work being undertaken on a roof. All advice in the code of practice shall be followed.

The HSA code of practice gives recommendations and practical guidance on how to work safely on roofs, including the safe maintenance of roof mounted plant and services, and how to design and plan for safe working. It offers guidance on the design and construction of roofs on new buildings and the maintenance, cleaning and demolition of existing roofs. All work at height poses a risk and a risk assessment should be carried out to assess those risks and put appropriate controls in place.

It is strongly recommended that all agricultural roofs have a safety sign warning that the roof is fragile. While roofs are non-fragile when installed, they may become fragile over the lifetime of the roof. Figure 1 shows an example of a typical fragile roof warning sign.



**Figure 1:** Typical fragile roof warning sign.

### 1.3 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. SITE

- a) The site shall be at least 10m distant and as far as reasonably possible from uncovered slurry/manure stores. Slatted tanks in holding yards are allowed, subject to Section 6 but the door of the dairy shall be as far as possible from such tanks. The site should also be as far as possible from any other source of contamination, (silage store, diesel store, pig housing, poultry housing etc.)
- b) The site shall be convenient to the animal routes, proposed or existing housing, shall be readily accessible to farm roads and the public road with ample space for vehicle turning. The access to public road requirement may be relaxed where the public road to the property is not adequate for milk tanker truck or where the farmer is constrained by a narrow right of way over land owned by others and the farmer must transport milk by mobile tanker to a collection point on a trunk or secondary road.
- c) The site shall be developed so that cows en route to and from the milking premises will not pass by the dairy entrance/milk collection area.
- d) The site shall not be less than 10m from surface waters in the case of an existing farmyard and 50m in the case of a new farmyard. It shall not be less than 50m from a public water supply source and up to 200m in vulnerable locations. It shall where possible be on a higher level than other adjacent effluent producing structures (raised by suitable consolidated hard fill if necessary) and shall facilitate the provision of an integrated system of effluent, soiled and wash water disposal. Rain water shall be disposed of separately to clean water outfall.
- e) The milking premises and dairy shall be adequately separated from all sources of contamination and shall not share a common wall with silage or ensiled material, or a diesel store, or any stored contaminant, or a pig or poultry house. There shall be no risk to contamination by silage effluent or any contaminating liquid or any likely airborne contaminant such as dust from an intensive source.
- f) Milking premises shall be separated from areas where cows are loose housed, (cubicle or straw bed) by doors or by gates with entry to milking premises only at milking time.



- g) Where possible the site shall be sheltered, be down wind of the farm dwelling and upwind of other livestock facilities.

### 3. DAIRY

The dairy shall be a hygienic “Food Standard” type premises, which can be readily washed, cleaned and disinfected. **The size of the dairy is dictated by the dimensions of the bulk tank**, which vary according to the type of cooling system and the number of stored milkings. The dairy shall be adequate to accommodate the following equipment and to provide adequate work and circulation space: -

- a) A fixed bulk tank to hold at least 5 milkings at peak production. Where milk collection is at less frequent intervals or where less frequent collections are likely in future, the area requirement for the bulk tank shall be increased accordingly.
- b) Mobile tankers shall have the equivalent storage capacity as the fixed bulk tank as set out in (a) and shall be located in the dairy. A facility shall be provided for external washing of the tank prior to return to dairy.
- c) Allow for a clear space of at least 600mm all around the bulk tank to facilitate cleaning. This space is exclusive of space required for other equipment.
- d) A double trough washing/rinsing unit with a minimum 900mm space to work at trough (this space may include 600mm around the bulk tank). Each trough shall have a capacity of 14 litres (3 gals) per milking unit. Where an auto-washer is installed to wash the milking machine, a single trough may be used in place of the double trough.
- e) A wash hand basin, preferably of stainless steel, hot and cold water supply, paper towel dispenser and soap dispenser.
- f) A stainless steel topped table/shelf minimum size 1.0m x 0.5m with a minimum 900mm space to work at table.
- g) A washable enclosed non-corrosive and lockable cabinet for chemicals and medicine (where there is not a separate room for these items) and a brush rack.
- h) Other washable items of equipment as follows which are an integral part of the milking/dairy plant and which cannot be located elsewhere.
  1. Immersion cooler for herds up to 10 cows.
  2. Milk pump driven by a sealed motor.
- i) Water heating equipment, if not located elsewhere within the building.
  1. Water treatment equipment where necessary (softener/filter/chlorinator etc.) if not located elsewhere.

#### 3.1 No Common Airspace

There shall be no common airspace with any other building.

#### 3.2 Ventilation

Permanent external ventilation of 0.2m<sup>2</sup> area shall be provided.

#### 3.3 Vermin Proof

Constructional details shall ensure that there is no possibility of entry of vermin from any source, external or from adjacent buildings. Doors on all entrances, including entrance from milking



premises shall be vermin proof. All ventilation openings shall be fitted with fly screens. Drain outlets shall be trapped with a water seal and have PVC or metal, rodent-proof, grid covers.

### 3.4 Dairy to Cowbyre

A cowbyre shall not communicate directly with a dairy: access shall preferably be by a covered ventilated space, or by other external entrance.

### 3.5 Ceiling

A ceiling shall be provided to the dairy as specified in Clause 8.6 - **Ceiling to Dairy.**

### 3.6 Washable Surfaces

Walls, floors, ceilings, fittings, doors and equipment, mechanical and electrical, shall have hose-proof surfaces, easy to wash, clean, and disinfect.

### 3.7 Opening for Installation of Bulk Tank

An opening of sufficient width, not less than 1.8m wide x 2.1m high to facilitate the installation of the appropriate bulk tank shall be provided.

### 3.8 Natural Lighting

Natural Lighting shall be provided within the roof or walls; lights (windows or translucent sheets) shall be non-opening with a minimum area of 0.5m<sup>2</sup>. Roof lights (translucent sheets) shall be properly integrated with ceiling materials. Windows shall be installed flush with the inner surface.

## 4. PLANT ROOM

The motor/pump shall be housed in a room separated from the dairy by a solid concrete block wall and with a separate door entrance either external or from the milking premises. The floor area shall be adequate for the installation and subsequent maintenance of the equipment. Permanent external ventilation of 0.1m<sup>2</sup> shall be provided.

Condensing unit (other than small washable condensing unit mounted on bulk tank) shall be housed outside the dairy. It shall preferably be placed externally, fitted with a proprietary cowl adequate to protect the equipment from the weather, or in a lean-to structure, approx. 2m high at eaves and with roofed area adequate to protect the equipment from the weather. If a condensing unit is located in a plant room, the room shall be fitted with a thermostatically controlled extraction fan to an external wall.

A condensing unit should not be located more than 900mm above ground (internal floor) level. If the condensing unit is more 900mm above ground (floor) level, a full platform and access ladder shall be provided. This is to provide a safe working area for the maintenance and repair of the condensing unit. Condensing units need regular checking, so they shall be located such that they are easily accessible.

Ice builders, if used shall be located in the plant room.

If the electrical distribution board is located in the plant room it shall be kept clear of obstructions and be readily accessible.

## 5. DAIRY STORE ROOM/OFFICE

It is recommended that a secure lockable store room/office should be provided, particularly with large herds, to provide for storage of chemicals, medicines etc. and to facilitate record keeping. Entrance



to the store room/office shall be either external or from the milking premises. With small herds the store/office may be part of the plant room.

## 6. MILKING PREMISES

The milking premises shall be a building, which can be readily washed, cleaned and disinfected. Hence the same general standards shall apply as in the dairy except that a ceiling is not required. Rough surfaces to the underside of the roof, ledges or other dust traps shall be avoided. Feed hoppers shall be covered to exclude dust and birds.

Steps at entry and exit to the milking premises should be avoided where possible. Where steps must be provided they shall be of uniform size and slip proof. In milking cowbyres there shall be at least 2m between the end of cow standings and the back wall of the byre.

There shall be at least 1m of concrete between a milking parlour pit and the edge of the nearest slatted tank, in collecting yards.

For robotic milking machines the slurry / soiled water / effluent outlet under the machine shall be through a horizontal drain pipe at least 1.0m long with a minimum diameter of 150mm. The drain pipe shall be fitted with a water trap directly under the robot where the slurry / soiled water / effluent enter the drain pipe, to minimise potential odour at the milking point. The outlet shall not be directly under the robot into a slatted tank. The general standard of the milking premises for a robotic machine shall be the same as for all other milking machines. No slats shall be within one metre of the cow standing area of a robotic milking machine.

Natural lighting shall be provided where possible, preferably lights to the roof. Adequate through-ventilation shall be provided in the milking premises.

A paper towel dispenser shall be fitted.

## 7. CONCRETE WORK

### 7.1 Certificates

Concrete shall be produced in an audited plant only: It 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. In addition, a copy of the concrete manufacturer's EN206 Certification Certificate shall be supplied to the Department along with the Concrete Manufacturers' Specification Certificate.

### 7.2 Curing of Concrete

**Concrete produced and supplied is fit for purpose ONLY IF proper curing procedures are adhered to and the structure is not put into service until an adequate curing time (usually a minimum of 28 days) has elapsed.** The curing regime shall take account of best practice appropriate to the concrete binder composition and prevailing climatic conditions at time of placing.

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.

For further information on curing, see the website of the Irish Concrete Society.



### 7.3 Concrete

All concrete for milking parlours and dairies shall be purchased on the basis of a characteristic 28 day cube crushing strength of 37N/mm<sup>2</sup> (strength class C30/37). Minimum cement content shall be 310 kg/m<sup>3</sup>. The maximum water to cement ratio will be 0.55. The specified slump class shall be S2 or S3. The maximum aggregate size shall be 20mm.

**The concrete shall be ordered using the appended form for ‘S.100 Mix B’ or by requesting ‘37N concrete with 310kg cement minimum, 0.55 water cement ratio maximum, and slump class S2 or S3, certified to IS EN 206, for use to Specification S.100’.**

In the case of exposed yard slabs where freeze/thaw action is a concern, ‘S.100 Mix B’ shall be used with 3.5% minimum air entrainment. Alternatively ‘S.100 Mix A’ may be used.

**Note:** Where silage effluent is allowed into a slurry tank the effluent shall discharge via a pipe at least 300mm from the inner face of the tank wall.

### 7.4 Fibres

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. 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 7.1) 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.

### 7.5 Self-Compacting Concrete

Self-compacting concrete (SCC) may be used in vertical elements only. SCC must comply with all requirements of this specification, except for the slump class which must meet slump flow class SF2. SCC shall be produced by a manufacturer with experience in producing SCC and should be placed by a contractor with experience using SCC.

If it is proposed to use SCC, additional guidance shall be sought by the contractor undertaking the works. Particular care must be taken in the use of fully sealed formwork, designed to withstand the higher hydrostatic pressure exerted by SCC. Guidance can be obtained from the Irish Concrete Society website ([www.concrete.ie](http://www.concrete.ie)).

### 7.6 Materials

Cement and other materials used in the production of concrete shall be in accordance with Department of Agriculture, Food and the Marine specification S.100.

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.

### 7.7 Tests

The Department reserves the right to require that concrete should be tested in accordance with EN 12390 and EN 12504.

### 7.8 Compaction of Concrete

All concrete shall be compacted by either vibrating screed or poker vibrator depending upon the position of the concrete. Poor compaction leads to entrapped air, which will weaken the concrete and may cause premature failure. All concrete can be easily placed and compacted when using a vibrating screed or poker vibrator which helps ensure the concrete achieves its full strength.



## 7.9 Concrete Workmanship.

It is strongly recommended that contractors employed to undertake concrete works on farm structures have completed and passed the “Concrete Ticket” or similar course. This course provides guidance on the correct handling, finishing and curing of concrete on site. It also provides essential information on the properties of concrete and the requirements for ordering and delivery of readymixed concrete.

## 8. STRUCTURAL COMPONENTS

**The following clauses apply to both dairies and milking premises except where noted:**

The superstructure shall conform to the current edition of Department of Agriculture, Food and the Marine Specification S101. The floor to eaves height shall not be less than 2.75m in unlofted structures or to ceiling height in lofted structures. The headroom in the loft shall be a minimum 2.4m over 2/3 of the floor area.

**Foundations** shall be excavated to a depth of 600mm below original ground level or until firm strata is encountered. Footings shall be at least 225mm deep and 600mm wide.

**Note:** All exposed roof timbers in milking premises shall be smooth planed to facilitate cleaning, if a ceiling is not provided.

### 8.1 Walls

External load bearing walls and walls between milking premises and dairy shall be of 150mm mass concrete or 225mm solid concrete block with block-work piers where necessary. Internal partition walls shall be minimum 125mm mass concrete or, 150mm solid concrete block. Walls between steel stanchions shall be minimum 150mm mass concrete. All concrete block walls shall have a DPC at floor level.

All block walls shall be of solid blocks that are certified to a minimum strength of 7.5N/mm<sup>2</sup>, though it is strongly recommend that they be constructed of mass concrete. All blocks used shall be produced in a plant certified to EN 771-3:2011 and shall be CE marked. The use of hollowcore blocks is not permitted.

All Proprietary precast concrete wall panels shall be CE marked and produced in a plant certified by a Notified body (e.g. NSAI or equivalent), to produce precast concrete wall panels to EN 14992:2007 +A1:2012. All Proprietary precast concrete wall panels shall be listed on specification S101A of the Department of Agriculture, Food and the Marine.

Alternative proprietary wall panels shall require prior Departmental acceptance and be listed on specification S101A, and may require certificates of guarantee.

### 8.2 Roof Cladding Materials

Cladding materials shall comply with the current edition of specification S102 and fixed in accordance with manufacturers instructions.

### 8.3 Floors

Floors shall be 100mm concrete on 150mm well compacted hardcore foundation, with non slip finish. This can be achieved by adding 1 kg of carborundum powder or other abrasive material per m<sup>2</sup> before the final trowelling. The parlour floor (cow standings) shall slope between 1 in 60 and 1 in 80. The fall shall preferably be in the same direction as the milk line – this is usually towards the dairy, however, it is permitted to fall towards the collecting yard. Additionally, it is recommended that the parlour floor should fall towards the side walls, away from the operator pit, at a fall of 1 in 40 to allow washings discharge into a 100mm diameter half round channel, covered with a channel grid, laid along the side of the parlour floor.



The dairy and the parlour pit shall have similar slopes towards a trapped gully with a PVC or metal rodent-proof grid cover.

**Note:** Before concrete floors are laid to the milking premises, equipotential bonding conductors shall be laid and graded out into the collection yard, to comply with Annex 705 A of the National Rules for Electrical Installation IS 10101 (see section 12). This requires that a minimum of A142 steel reinforcing mesh (6mm bars at 200mm x 200mm) shall be laid in the floor within 40-50mm of the surface. The mesh shall be laid in the cow standings, in front of and behind the pit and in the floor of the pit. The mesh shall be extended as far as possible into the yard to eliminate possible shocks as the cows move into the parlour. The mesh shall be turned down into the ground at 45 degrees in the form of a ramp for about 1.8m at its extremities near the entrance and exit of the parlour. All sheets of mesh shall be welded together at several points and welded to all uprights and pipes fixed into the floor.

#### **8.4 Loft (not grant-aided)**

Lofts over milking parlours are not recommended and lofts for meal / feed storage shall not be constructed over dairies. Feed bins for meal storage should be provided rather than lofts. A loft if included should be designed for a loading of not less than 4.8 KN/m<sup>2</sup>. It is strongly recommended that construction be of precast structural concrete slabs. Alternatively a timber loft may be constructed of 250mm x 50mm W.D. joists at 300mm centres with 2 rows of 250mm x 50mm bridging at 700mm each side of centre span and covered with 22mm T & G boarding fixed with flooring brads (2 brads at each joist). All timbers shall be treated with wood preservative. To exclude dust penetration and to prevent rodent access, a layer of 0.5mm metal sheeting (close jointed) shall be fixed over boarding with 18mm flat head nails at 150mm centres along edges of sheets. A plaster fillet extending 25mm over the floor shall be formed at the junction of the floor with loft walls. Access stairs shall be external and shall be of substantial steel, concrete, or timber construction, riser 180mm, tread 225mm, and minimum 750mm wide. The steps shall be non slip with the top step forming a landing at the same level as the loft floor and be a minimum of 750mm x 750mm. Stairs shall be fitted with handrails and landing protected by guard rail. A vermin-proof access door shall be provided to the loft, and the entire lofted area shall be so constructed as to prevent entry of vermin from any source.

#### **8.5 Wall Finishes**

All internal walls to milking premises and dairy to the full height shall be rendered 2 coat, 12mm and 6mm respectively with 3:1 sand:cement rendering incorporating plasticiser or 1/4 part lime, to a smooth steel trowel finish. Internal walls to plant-room or storeroom may either be rendered to a smooth plaster finish, 12mm thick, or be of blockwork neatly pointed.

External walls shall be rendered, 12mm thick, to a smooth plaster finish.

Wall tiles are allowed over part or all of the internal walls to the dairy and milking premises: they shall be fully vitrified and acid-resistant and grouted with acid-resistant grout.

Smooth blemish free mass concrete walls are not required to be plastered.

#### **8.6 Ceiling to Dairy**

The underside of concrete loft floors shall be to steel trowel finish as for walls. Smooth blemish free mass concrete slabs are not required to be plastered, however all joints between slabs shall be sealed and plastered to a steel trowel finish. All other ceilings shall be dust-tight and of an approved impervious, durable, washable, dust-proof material preferably of light colour, fixed in accordance with manufacturers' instructions. Roof insulation, which is recommended, shall be either of rigid



sheet insulation, or insulation in approved sandwich sheeting to a smooth finish. Fibreglass shall not be used.

**Note:** Wood-based fibreboard or plywood are not accepted ceiling materials.

## 8.7 Ceiling to Milking Premises

Ceilings shall be provided to lofted milking premises. Ceilings in other milking premises are optional but where provided shall be as for dairy.

## 8.8 Doors to Dairy

Doors shall be tight fitting, vermin proof and washable. Two entrances are normally allowed to the dairy; external and to the milking premises. The external ope may be fitted either with a sliding door, or roller shutter door, or with a demountable panel within which is fitted a 2.0m x 0.75m hung door. The external door shall preferably be at least 3m from the nearest entrance to any animal house. A sliding door or an infill panel and door shall have flush finish internally.

Door between dairy and milking premises shall be flush finish on the dairy side. It is strongly recommended that all doors (other than roller shutter type) shall be self closing.

A third door may open from the dairy to a lobby or corridor only.

## 8.9 Other Doors

Doors shall be 50mm thick timber, framed braced and sheeted, or steel framed and galvanised-iron clad hung within an ex 100 x 75mm timber frames. Any door wider than 1.2m shall be sliding.

# 9. DRAINAGE

## 9.1 Clean Water Drains

All water from roofs and open yards, not subject to fouling, shall be piped, minimum 100mm diameter PVC, to existing storm water drains or direct to watercourse through gully traps, AJs, or manholes as necessary.

## 9.2 Soiled Water Drains

All soiled water and effluent shall be disposed to an adequately sized holding tank in accordance with the requirements of S.I. 605 of 2017 European Communities (Good Agricultural Practice for Protection of Waters) Regulations and any subsequent amendments to the regulations. Drainage entry in dairy and milking premises shall be through trapped gullies with water seals and with PVC or metal rodent-proof grid covers. If the drainage from the dairy discharges into the parlour pit then the exit pipe shall have a gridded cover.

Drainage from pit of the herringbone type milking parlour shall, where possible, be by gravity. If this is not possible it is recommended that the soiled water is piped to a sump constructed outside the building and transferred to store by pump.

Drainage shall be provided from the plant room to connect to the soiled water system.

Soiled water extraction points and slurry agitation points shall not be within a roofed collecting yard.

**Note:** The requirements for the capacities of slurry, effluent, and soiled water stores which are defined in S.I. 605 of 2017 Regulations shall be followed. The regulations require that an additional freeboard of 200mm must be provided for all covered tanks and 300mm for all uncovered tanks. A tank covered by slats only is not considered to be covered in respect of allowances for rainfall and freeboard.



## 10. WATER SUPPLY

An adequate water supply complying with the requirements of EU Directive 92/46 shall be provided. Wells and water tanks must be properly covered and protected from contamination by a suitable rigid covering material. Cold water supply to dairy and milking premises shall be taken from the rising main, where practicable.

Trunk and distribution water pipes shall be lagged with vermin proof moisture resistant materials.

Hose points shall be conveniently installed for the washing of cows, milking premises and the dairy. A suitable storage facility shall be provided for the hose. Hot and cold water taps shall be provided to wash troughs in the dairy and to the wash-hand basin.

All cold water pipes shall be manufactured in compliance with IS EN 12201 and be a minimum of PE40. The use of cold water pipe to EN ISO 12003 is permitted within a dairy, however, it is not suitable for other locations. These will either be fully blue or have a blue longitudinal strip. Plastic or composite hot water pipes within the milking parlour and dairy shall be manufactured in compliance with either EN 12201 or ISO EN 12003. The use of copper pipes for either hot or cold water is permitted.

## 11. HOT WATER

A water heater shall be installed in the dairy or preferably in another suitable location to provide an adequate quantity of water at 80°C. The minimum capacity of the heater shall be 45 litres (10 gallons). As a general guide 9 litres (2 gallons) per milking unit are required up to 5 units and an additional 7 litres (1.5 gallons) for each additional unit. Heating may be by electricity, gas or other means. Manufacturer instructions on installation of heaters shall be rigidly complied with. Water heating facility, other than electrical, shall be located outside the dairy.

The use of "on-demand" water heaters are permitted, however, it is necessary to ensure that they are sized to provide sufficient hot-water, for washing the milking machine, in no more than 8 minutes.

## 12. ELECTRICAL INSTALLATION

**12.1 Wiring and fittings** shall be installed, and all work shall be carried out in accordance with the National Rules for Electrical Installations I.S. 10101 (formerly ET 101) specifically Chapter 7, Part 705: Requirements for special installations or locations - Agricultural and horticultural premises and Annex 705A to 705D. Full equipotential bonding is required in all new milking parlours under the cow standing areas. 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. The main electrical distribution board shall not be positioned in the dairy or in the milking premises.

The use of a sub system certificate for the rewiring of an agricultural building will not be accepted for new milking facilities.



**Note:** Electrical installation and certification to the above specification is required for the direct electrical services to the dairy, milking premises and for the direct connection to the main electrical supply.

All dairy farms shall be fitted with a mains isolator change over switch to enable the connection of a back-up generator.

## 12.2 Certificate of installation of mechanical/electrical equipment

The “Certificate of installation of mechanical/electrical equipment” (sample attached in appendix A) may be used during the installation of specialist equipment that is not purely electrical, and whereby it would be impractical to have a registered electrician check the details of all the electrical wiring performed on site. The person performing such installation work shall be trained in the installation of the equipment being installed and certified as such. Examples of the use of this form would be for the installation of milking machine and bulk milk storage facilities.

The power supply for the equipment shall be taken from an isolator that has been installed by a qualified electrician and is of a suitable size for the loading to be placed through it. The “ETCI completion certificate” and the “Supplementary Agricultural Certification Form” shall be completed and signed for the isolator as per clause 12.1 above.

Note that this means that the qualified electrician needs only to certify the electrical installation from the main farm supply, up to and including the isolator to which the installed equipment is connected.

The wording of the certificate shall be as given in the sample certificate attached below, and the certificate shall be on the manufacturer’s headed paper.

**Note:** In all cases where a Certificate of Installation of Mechanical/Electrical Equipment applies, it shall be accompanied by an “ETCI completion certificate” and the “Supplementary Agricultural Certification Form”.

## 13. ARTIFICIAL LIGHTING

All artificial lighting shall be provided by energy efficient lighting systems (i.e.: LED lights) in fittings that are corrosion- proof, water-jet proof, and resistant to impact (polycarbonate diffusers). The lighting level shall be a minimum of 200 lux. Light fittings shall be dispersed evenly over the entire building so that shadows are reduced to a minimum. The use of spotlights is not permitted. The lighting installer shall certify that the 200 lux requirement is achieved.

## 14. MILKING AND DAIRY EQUIPMENT

All milking and dairy equipment shall be constructed and installed in such a manner which ensures that it is capable of being readily and thoroughly washed, cleaned and disinfected internally and externally. All new equipment shall be installed and tested in accordance with industry-established procedures [Regulation 619/93 or equivalent]. **Full certification shall be required in accordance with the IMQCS sample test report. The signed printed IMQCS certificate shall be submitted to the Department before grant-aid can be paid.** The wording of the certificate shall be as given in the sample certificate attached below, and the certificate shall be on the installer’s headed paper.

The following terms apply to all Tams II approvals issued on or after 14<sup>th</sup> May 2020:- for all new milking machines with 7 or more units installed, and for all existing milking machines with an extension of 7 or more units installed, the milking machine milk pumps and vacuum pumps shall be fitted with variable speed drive technology (frequency controllers), so as to reduce their overall power consumption.



All other fixtures (e.g. barriers and rails) shall be constructed and installed so that they can be readily washed, cleaned and disinfected. The exhaust pipe outlet from vacuum pump shall be located at least 2m from compressor air intake point and shall discharge at ground level into a sump measuring 800mm x 800mm by 600mm deep. Provide a drainage outlet at the bottom to connect with the soiled water system. The sump shall be covered with a steel grid frame 950mm x 950mm of solid or tubular steel construction.

Where plate coolers, or other milk pre-coolers, are installed they shall be fitted with a solenoid valve, or other similar system, to automatically turn off the cooling water flow while the milk pump is not running.

## 15. Bulk Milk Tanks

All bulk milk tanks shall be manufactured in accordance with EN 13732. All bulk milk tanks and ice builders shall have a unique serial number, rated volume in litres (working capacity of tank), tank model and code and the year of construction engraved (or printed on a securely fixed plate or securely fixed metal or plastic sticker) on the tank. The serial numbers shall not be written on to the bulk milk tanks using permanent marker or a similar such system.

The serial number and rated volume shall be located such that it can be easily accessed once the tank is located in the dairy.

### 15.1 Use of external Bulk Milk Silos / Bulk Milk Tanks

An outdoor bulk milk silo / bulk milk tank may be used under the following conditions:-

- Any access hatch that is outside the dairy shall be lockable with a padlock or inbuilt lock and kept locked at all times when not in use.
- The 'working end' of the silo / tank, which includes the point of milk extraction, shall be inside the dairy. The point of entry of the silo / tank to the dairy shall be fully sealed between the dairy wall and sides of the silo / tank.
- Alternatively, where the silo / tank is fully external the milk extraction point and controls for the silo / tank shall be within in a lockable, weather proof, stainless steel cabinet attached to the silo / tank.
- A fence, minimum of 1.2m high and minimum of 900mm from the silo / tank, shall be constructed all round the silo / tank so as to prevent accidental damage occurring to the silo / tank.
- Planning permission or a declaration of exemption is required for all external bulk milk tanks / silos.

## 16. MILK DISPATCH AREA

Milk Dispatch Area where provided, shall have an approach road and hard standing/turning area of construction adequate to support milk collection tanker. A concrete apron minimum 3m x 2m, 150mm thick, shall be provided in every case and be laid at collection point on 150mm of well compacted hardcore. This shall preferably slope away from the dairy: it shall not slope towards it.

## 17. COLLECTION YARD

A collection yard, if provided, shall be sized on the basis of 1.4m<sup>2</sup> per cow. The surface shall have 125mm concrete, on 150mm well compacted hardcore foundation.

Surround may be of 225mm concrete wall, with smooth plaster finish, or tubular steel post and rail fence (68mm OD uprights and 43mm horizontals) at least 1.3m high. Alternatively, the surrounds shall be in accordance with S.137.



Roofed collection yards shall be ventilated in accordance with clause B2 of S.101. There shall be no internal agitation points in roofed collecting yards.

## 18. FINISH

All exposed iron work, shall receive 3 coats of a long life, lead free, rust-prevention paint. Any timber work below wall plate level shall be primed, under-coated and hard gloss coated with lead free paint.

## 19. TOILET FACILITIES

Where dairy and milking premises are away from domestic toilet facilities, a flush toilet and hand wash facilities shall be provided adjacent to, but separate from the milking/dairy premises. Door shall preferably be external and must not open direct from the dairy or the milking premises.

## 20. SEPTIC TANK AND DRAINS

Outfall drains and effluent disposal drains shall be constructed in accordance with specification S129. Septic tanks shall be based on the National Standards Authority of Ireland standard recommended for septic tank systems.

### Appendix I: Date of clause revisions and additions

All changes from the previous version are highlighted in red.

**Version: December 2020** (published 11<sup>th</sup> December 2020)

New Clauses:

Clauses modified: Section 14.

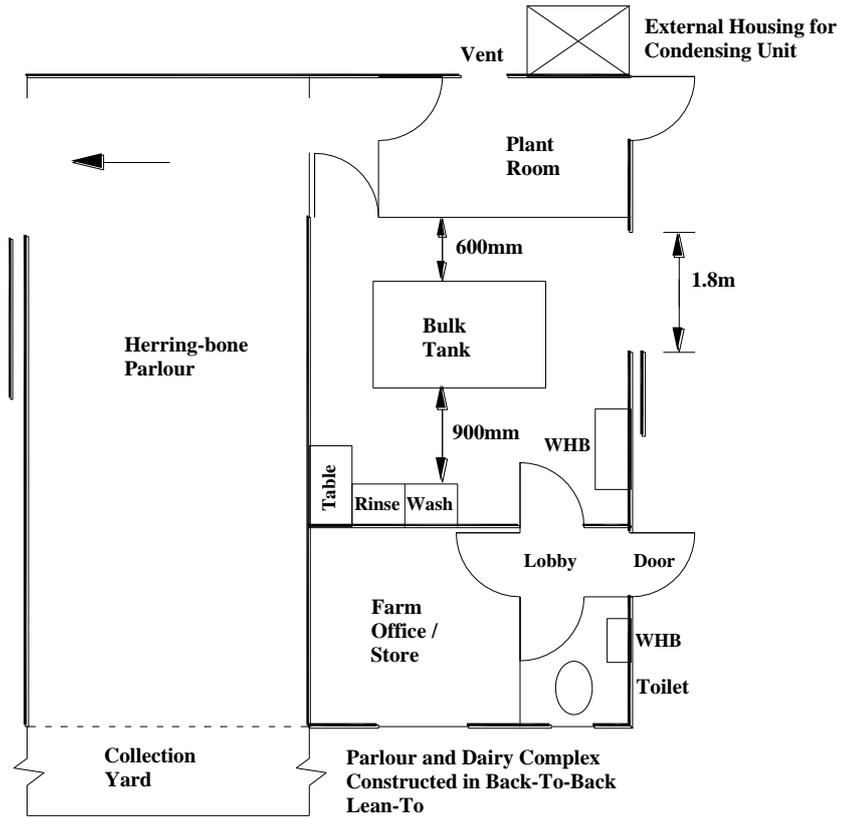


Figure 1

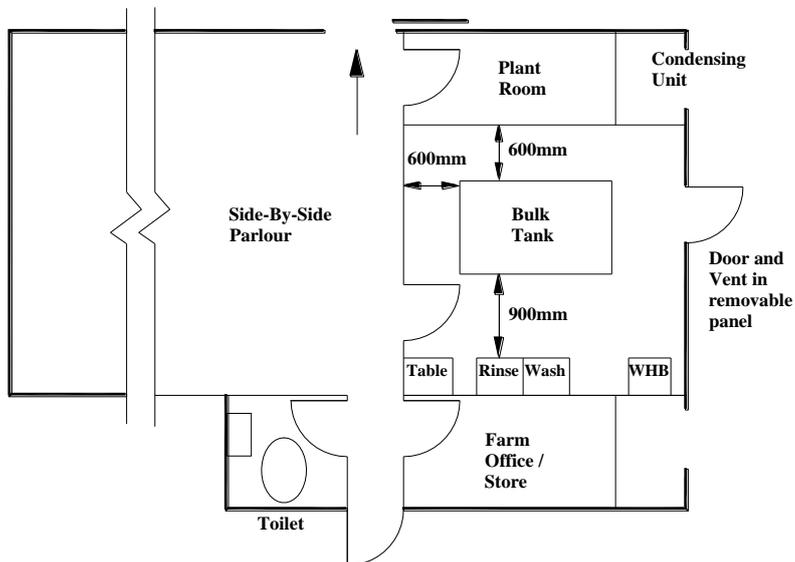


Figure 2

**Note:**

1. These plans are simply two possibilities from a wide range of solutions
2. Toilets (where provided) may be positioned in a separate building

*[Certificate to be typed on Manufacturers Headed Paper]*

**CERTIFICATE OF INSTALLATION OF MECHANICAL/ELECTRICAL EQUIPMENT**

*(This section to be completed by supplier company.)*

We the above named company certify that (name of person carrying out installation) has been trained in the installation of (equipment type) and is hereby certified as competent to install the named equipment.

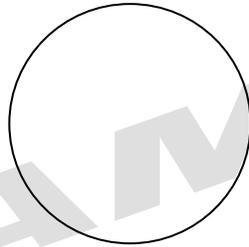
Models: \_\_\_\_\_

The training was carried out at (location of training) on the dates listed and the named person has been issued with a certificate of competency.

Signed: \_\_\_\_\_ (Training Instructor)

Date: \_\_\_\_\_

Company stamp



Dates of training	

*(This section to be completed by person performing installation.)*

Is there an “ETCI completion certificate” and a “Supplementary Agricultural Certification Form” completed for the electrical isolator to which the electrical connection was made during installation of the above equipment?

I confirm that I installed (Manufacturer’s name, product name and model number)

**Name of Client:** \_\_\_\_\_

**Address:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

The installation took place on: \_\_\_\_\_

Signed: \_\_\_\_\_ (Person performing installation, as named above.)

Date: \_\_\_\_\_

*[Certificate to be typed on Installers Headed Paper]*

**CERTIFICATE OF INSTALLATION AND TESTING OF NEW MILKING EQUIPMENT**

I, (name of person carrying out the test) am currently listed on the IMQCS register and my registration number is IMQCS registration number. I confirm that new milking equipment has been installed and tested in accordance with industry-established procedures on the farm of:

**Name of Client:** \_\_\_\_\_

**Address:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I have written the results of the test on an IMQCS test report sheet and the results meet the accepted norms for this particular milking machine. The test took place on date of test and copy of the test report was given to the client.

Signed: \_\_\_\_\_ (Person performing test, as named above.)

Date: \_\_\_\_\_