AN ROINN TALMHAÍOCHTA, BIA AGUS MARA

DEPARTMENT OF AGRICULTURE, FOOD AND THE MARINE

MINIMUM SPECIFICATION FOR THE UPGRADING OF EXISTING DAIRIES AND MILKING PREMISES

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) 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 **upgrading** of an existing:-

a) dairy

b) milking parlour, or other milking premises (cow byre etc.) where cows are milked where housed.

NOTE: where a **new** dairy, or milking premises, is being constructed, specification S106 shall be used.

1. SAFETY

1.1 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.

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. It is the applicant's responsibility to provide a construction stage project supervisor.

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.

Voltage	**Clearance**
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.

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. GENERAL REQUIREMENTS

a) The site shall not be subject to flooding, and shall not prevent the proper disposal of effluent, soiled and wash water. All rain water shall be disposed of separately. Seriously defective sites shall require that new dairy and/or milking premises be built in a suitable location.

b) It is strongly recommended that the route for cows to and from the milking premises will not pass by the dairy entrance milk collection area, but if it is not practicable to change that route, then the area shall be concreted and a hose point shall be fitted for cleaning.

c) The dairy and milking premises shall be an adequate distance (preferably 5m or more), from any uncovered slurry/manure store, and a minimum of 5m from any septic tank. Any such store too close to the dairy or milking premises shall either be covered or removed. Slatted tanks in holding yards are permitted, but slatted tanks shall not form part of the milk collection area outside the dairy.

d) The milking premises and dairy shall also be adequately separated from all sources of stored contamination (diesel, etc.), and shall not share a common wall with a pig or poultry house. There shall be no risk of contamination by silage effluent or any contaminating liquid or any likely airborne contaminant such as dust from an intensive source. Any common wall with a silage store shall be structurally sound, show no sign of effluent seepage through the wall, and show no weakness that might allow such seepage.

e) 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.

3. DAIRY

The dairy shall be a hygienic 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 or mobile bulk tank of fully sufficient capacity for the current collection system.

b) Immersion or plate cooler (where used).

c) An **unobstructed** space, of at least 600mm, shall be provided around an existing or new bulk tank, on at least three sides, to facilitate cleaning. In new dairies the unobstructed space shall be provide all round the tank.

d) A double trough washing/rinsing unit with at least a cold-water tap and a minimum 600mm space to work at trough. Each trough shall have a capacity of 14 Litres (3 gals) per milking unit. For bucket plants, a single trough will suffice.

e) Hand-washing facilities, preferably a wash-hand basin of stainless steel, with at least a cold water supply on tap, and a soap holder or liquid soap dispenser, shall be fitted either in the dairy, or in or beside the milking premises.

f) An impervious table, minimum size 1.0m x 0.5m, or a fitted impervious shelf, minimum 1.0m x 0.3m, with recommended minimum 600mm space to work at table. (If a bucket plant or round-the-byre pipeline is used, a table is mandatory.)

g) Suitable storage for dairy chemicals and dairy medicines where these items are stored in the dairy. All dairy medicines shall be kept in a washable enclosed non-corrosive cabinet. Dairy chemicals shall preferably be stored in the same or an equivalent cabinet, but may be placed on a concrete platform or non-corrosive frame at least 300mm from the floor.

h) Racks or shelves for the storage of brushes and filters and, where necessary, for milking equipment.

i) Other items of equipment **which are already sited in the dairy** as follows:-

existing pumps, compressors, or ice-builders, to a proper manufactured standard, and in such working order that they are capable of being easily maintained in a clean condition. [Machines not to this standard **shall be relocated elsewhere**] Machines in the dairy shall have a proper working space on at least two sides for cleaning and maintenance.

j) Water heating equipment, if not located elsewhere adjacent to the dairy.

k) 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 at least **0.5m^2** area shall be provided. Where possible, there shall be an inlet placed low on an external wall or door, and an outlet placed high on a different external wall. Where there is a compressor in a dairy, an **additional** ventilation opening shall be provided at least as big as the compressor inlet. This opening shall preferably be unscreened, with a complete seal between the compressor and the opening on all edges.

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 other than fully sealed compressor openings shall be fitted with fly screens, made from material that will allow adequate airflow. Drain outlets shall have PVC or metal, rodent-proof, grid covers. If drains are piped directly to a slurry tank they shall be fitted with a water seal trap.

3.4 Ceiling

A ceiling **shall be provided** to the dairy as specified in Clause 8.9, unless the existing roof surface/structure is smooth, easy to clean, and easy to reach for cleaning.

3.5 Washable surfaces

Walls, floors, ceilings or roofs, fittings, doors, and milking equipment, shall be easy to wash, clean, and disinfect.

3.6 Ope for Installation of Bulk Tank

An ope of sufficient width, not less than 1.8m wide x 2.1m high to facilitate the installation of the appropriate bulk tank is very strongly recommended, but is not mandatory.

3.7 Day Lighting

Day lighting shall, if practicable, be provided within roof or walls or doors; windows or roof lights shall be non-opening with a minimum area of $0.5m^2$. Roof lights shall be properly integrated with ceiling materials, and windows shall be installed flush with the inner surface. Existing opening windows shall be screwed shut, or shall be fitted with a hinged fixable fly-screen.

NOTE: Many dairies are very seriously undersized for the range of equipment noted above. A preferred option would be the removal of existing pumps and compressors, but consideration could also be given to the option of retaining the existing dairy as a pump room/work room and constructing a new dairy alongside.

4. PLANT ROOM

The motor/pump may be retained in the dairy (subject to Clause 3.1 (i), but shall preferably be housed in a plant room separated from the dairy by a solid concrete block wall. An outside door is recommended: an interconnecting door with the dairy shall be as specified in Clause 8.11. The floor area shall be adequate for the installation and subsequent maintenance of the equipment. Permanent ventilation of $0.1m^2$ shall be provided. Condensing unit (other than small washable condensing unit mounted on bulk tank) shall be housed outside the dairy unless it can be cleaned as in Clause 3.1 (i). It shall preferably be placed externally, fitted with a proprietary cowl, or in a lean-to structure, approx. 2m high at eaves and with roofed area adequate to protect equipment from the weather.

5. DAIRY STORE ROOM/OFFICE

It is suggested that a separate store room/office might be provided, particularly with large herds, to provide for storage of chemicals, medicines etc. and to facilitate record keeping. With small herds the store/office might be part of a 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. Rough surfaces to the underside of the roof, ledges or other dust traps shall be avoided. Feed hoppers shall be fitted with rigid covers.

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 an adequate working space between the end of cow standings and the back wall of the byre.

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

7. CONCRETE WORK

7.1 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, Food and the Marine (e.g. N.S.A.I., B.S.I., Q.S.R.M.C). 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.

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^2 (strength class C30/37). Minimum cement content shall be 310 kg/m^3. 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 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.

7.5 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.

7.6 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).

7.7 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.

7.8 Tests

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

8. STRUCTURE OF MILKING PREMISES AND DAIRY

8.1 Adequacy of existing Structure

Buildings shall be considered suitable for upgrading **only** when the main structure [floors, walls, roof structure and cladding] are basically sound, or can be brought to specification with a reasonable degree of repair work. An upgraded building is expected to have a full working life of at least twenty years. Seriously inadequate structures should either be demolished or abandoned, and new facilities built instead.

8.2 Structural Repairs

All necessary repairs shall be to standards specified below in clauses 8.3 to 8.12.

NOTE: Elements in **BOLD** noted below must be carried out whether other repair work is being done or not.

8.3 Foundation

Foundation 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 as wide as the wall to be carried plus 225mm on each side.

In cases where fill is purchased for use under concrete, it shall be certified to EN 13242:2013 and meet the requirements of Annex E of S.R. 21: 2015. This material shall also be used as the top 300mm of any backfill around stanchion foundations.

8.4 Walls

External walls and wall between milking premises and dairy shall be 225mm solid concrete block with blockwork piers where necessary, or of mass concrete. Internal partition walls shall be a minimum 150mm. All walls shall have a DPC at floor level. Walls, ceilings, and roof elements shall be sufficiently high to allow normal working in all areas. [Recommended minimum height 2.1m]

All block walls shall be of solid blocks that are certified to a minimum strength of 7.5N/mm², 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.

8.5 Roof Structure

All roof structures shall comply with Department of Agriculture, Food and the Marine specification S. 101: Minimum specification for the Structure of Agricultural Buildings. Alternative proprietary construction systems 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. The use of pre-painted sandwich cladding is permitted in addition to those cladding sheets listed in S.102.

The internal ceiling height of the roof over the interior floor level shall not be less than 2.2m.

8.6 Floors

Floors shall be 125mm 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 $1m^2$ before the final trowelling. The parlour floor shall slope at 1 in 50 from the exit towards the entrance and the dairy, and the parlour pit shall have similar slopes towards a trapped gully with a PVC or metal rodent-proof grid cover. **Existing floors shall be free from cracks, pitting and hollows, and shall have uniform fall.** If they are so badly degraded that repair work is not feasible, then a new floor with equipotential bonding to the above specification shall be laid. Otherwise the following procedure shall be followed:-

8.6.1 Patch Repairs to Concrete Floors

Hammer-test all suspect and defective areas of concrete. Clearly mark all areas that require removal prior to the start of work. The limits of each area shall be cut as a series of straight lines, using a disc-cutter held at right angles to the surface. Cut out and scrabble off all unsound concrete to as constant a depth as possible. The cut-out areas hall be made dust free by air or water jetting, or by rigorous brushing.

Repair filling shall be carried out using a water-based styrene butadene (SBR) polymer-modified cementitious mortar. The cement, sharp sand, chipping, SBR latex and water shall be well-mixed in correct proportions and in the right sequence. Manufacturer's specifications and instructions shall be strictly followed at all stages (including curing).

8.6.2 Thin Screed to Existing Floors

Where the existing surface of an otherwise sound floor is pitted or rough it may be practicable to overlay a polymer-modified cementitious concrete screed, minimum thickness 12mm. Before the screed is laid, dirt and contaminants shall be removed by high-pressure water jetting and/or steam-cleaning/power scrubbing using wax-free detergents if necessary. To ensure uniformity of floor depth, and the necessary falls, temporarily-placed screeding laths shall be placed so that a minimum thickness of 12mm is achieved throughout. The mixing of the screed materials, priming of existing floor, laying and curing of the screed shall be carried out in strict accordance with the manufacturer's instructions.

All repaired floors shall be given a non-slip surface by brushing over the wet finished surface with a bristle broom or by adding carborundum or other abrasive material before final trowelling, as specified for new floors. All repaired floors shall be fully cured as per clause 7.2 above.

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 part 7-705 of the National Rules for Electrical Installation ET 101/2008 (see Clause 12).

8.7 Loft

Any new loft shall be as specified in S106. An existing loft with a tight tongued-and-grooved timber floor in sound structural condition may be retained. A skirting fillet of hard plaster shall be fitted around the perimeter of the floor. To prevent dust penetration and rodent access, a layer of 0.5 mm close-jointed metal sheets shall be nailed completely over other existing sound timber floors, with 18mm flat-head nails at 150mm centres along the edges of the sheet. Doors to lofts shall be vermin-proof, and all work necessary to the loft to exclude rodents, and also to prevent any dust contamination of the dairy or parlour, shall be carried out. **Stairs (internal or external) shall be of safe, sound, construction and shall be fitted with a handrail.** [New stairs shall be to S.106]

8.8 Wall finishes

It is strongly recommended that existing wall-finishes, if not already steel-trowelled, should be replaced, and that 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. However, if the existing plaster is sound but not sufficiently smooth then it may instead be painted with external emulsion or other water-proof paint. (Such paints require frequent renewal). Internal walls to plant-room

or storeroom may either be rendered to a smooth plaster finish, 12mm thick, or be of blockwork neatly pointed. Wall tiles are allowed over part of all of the internal walls to the dairy and milking premises: they shall be fully vitrified and acid-resistant.

8.9 Ceiling to Dairy

Underside of concrete loft floors shall be to steel trowel finish as for walls. Smooth-finished precast slabs require only that joints be finished smooth. All other ceilings where fitted, shall be dust-tight and of an 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, or as sprayed polyurethane foam to a smooth finish. Fibreglass is not suitable.

NOTE: Wood-based fibreboard, chipboard, or plywood are not accepted ceiling materials, and, where fitted, shall be removed.

8.10 Ceiling to Milking Premises

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

8.11 Doors to Dairy

Doors shall be tight fitting, vermin proof and washable. Only two entrances are recommended to the dairy; external and to the milking premises. The external ope may be fitted either with a sliding door, or preferably with a demountable panel within which is fitted a door of minimum size 2.0m x 0.75m. 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 finished on both sides. Existing doorways between the dairy and a pump-room, or store- room, or loft must be fitted with washable, vermin-proof, doors.

8.12 Other Doors

Doors shall be 50mm thick timber, framed braced and sheeted, or steel framed and metal clad. Any single door wider than 1.2m shall be sliding.

9. DRAINAGE

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

All soiled water and effluent shall be disposed to an adequately sized holding tank in accordance with the requirements of S.I. 31 of 2014 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 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. 31 of 2014 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 and S.I. 278 of 2006 shall be provided, i.e. it shall be of potable (drinking water) standard. Wells and water tanks must be properly covered by a suitable rigid covering material, and protected from pollution or contamination. Cold water supply to the dairy and milking premises shall be taken from the rising main, where practicable and in all cases shall be compliant with the requirements of S.I. 278 of 2006.

All water pipes shall be manufactured in compliance with IS EN 12201 and be a minimum of PE40. These will either be fully blue or have a blue longitudinal strip.

Hose points shall be conveniently installed for the washing of cows, milking premises and the dairy, and drop hoses shall be provided in milking parlours. A suitable storage facility shall be provided for the hose(s). Cold water taps (at least) shall be provided to wash troughs in the dairy, and to the wash-hand facilities: hot and cold water taps shall be provided to troughs and basin on farms which have five or more milking units.

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 water supply for the hot water system shall also comply with the requirements of EU Directive 92/46 and S.I. 278 of 2006.

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

12.1.1 **Wiring and fittings** shall be installed, and all work shall be carried out in accordance with the Fourth Edition of the National Rules for Electrical Installations, ET101:2008 specifically Part 7-705: Requirements for special installations or locations - Agricultural and horticultural premises. 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.

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.

13. ARTIFICIAL LIGHTING

Artificial Lighting shall be provided by fluorescent tubes 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.

Energy efficient lighting may be used and shall meet the requirements as for fluorescent tubes.

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.

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 800m 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.

15. Bulk Milk Tanks

All bulk milk tanks and ice builders shall have a unique serial number and working tank capacity 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 maker or a similar such system.

The serial number and working tank capacity 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. COLLECTION YARD

A collection yard, if provided, shall be sized on the general basis of 1.25m^2 per cow. Surface shall have 125mm concrete on 150mm well compacted hard-core 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.

17. FINISH

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

18. 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.

[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: _____

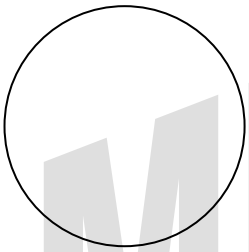
The training was carried out at *(location of training)* on the dates listed and the named person has been issued with a certificate of competency.

Dates of training	

Signed: _____ (Training Instructor)

Date: _____

Company stamp



(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 Manufacturers 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: _____