Ministry for Primary Industries
Manatū Ahu Matua

Industry Agreed Standard 2 –

Design and Construction

Last Amendment Date: 24 March 1997

Contents

1. Introduction

Scope

This industry standard applies to all aspects of design and construction of premises licensed in terms of the Meat Act 1981 and its pursuant regulations, and approved premises that fall within the jurisdiction of MAF RA (M&S), excluding fish packing houses, limited processing fishing vessels and whole fish processing premises.

New Zealand Standard

IS 2 is the New Zealand Standard. It must be read in conjunction with the Meat Act 1981 and its pursuant regulations. It describes the desired outcomes, and the general and specific principles to be applied to the design and construction of premises.

Importing Countries Standards

Requirements of importing countries can be found in Manual 12: *Overseas Requirements and Certification*. Any applicable country standards must be complied with in addition to the New Zealand standard when establishing export markets.

Cross References

Cross references to other MAF RA (M&S) Manuals, as well as to other sections within IS 2, have been provided where appropriate.

Seafood Premises

The design and construction requirements for premises processing seafood only are not covered by IS 2. The requirements for fish packing houses, limited processing vessels and whole fish processing premises are described in the Fish Export Processing Regulations 1995 and the Fishing Industry Agreed Implementation Standards (IAIS 001).

Export stores which only hold fish and fish products, and byproducts works which only process fish, are covered by IS 2.

Base Elements of Design and Construction

IS 2 establishes the fundamental principles of designing, constructing and equipping a food manufacturing premises in the context of the base elements required of any food premises, so as to provide a sanitary environment which supports good manufacturing practice and the development of HACCP plans for product and process. These base elements are detailed in Sections 2-6. The following sections cover common premises facilities, but not all are applicable to every category of premises.

Additional Regulatory Requirements

This industry standard only covers those aspects of design and construction relevant to compliance with the requirements of the Meat Act 1981 and its pursuant regulations. Premises design and construction will also need to comply with the relevant requirements of local territorial authorities, the Resource Management Act 1991, the Building Act 1992, the Health and Safety in Employment Act 1992 and any other applicable statutory requirements.

1.1 Outcome

A sanitary environment shall be provided to facilitate the hygienic holding, slaughter and dressing of animals and the processing, packing, storing and transport of food and byproducts, the minimisation of food safety hazards of concern and compliance to regulatory requirements.

1.2 Definitions

Unless otherwise noted, terms will have the same meaning as described in the Meat Act 1981 and its pursuant regulations or the Shorter Oxford Dictionary.

Amenities include personnel changing, drying, ablution, dining and personal storage facilities.

Approved premises are those categories of premises that are either exempt from, or fall outside, the licensing provisions of the Meat Act 1981. Approval is granted by MAF RA (M&S) to facilitate market access through branding and certification to markets requiring official government certification.

Bakery product is a ready-to-eat flour-based product.

Building services include ventilation, water, drainage, lighting, process air and other gases, and associated pipes and fittings.

Byproduct Premises (BP) are approved premises used for the collection, processing and/or storage and transport of byproducts.

Byproducts Biological Premises (BBP) are licensed premises used for processing, packing, storage and transport of byproducts intended for biological purposes.

Chillers are rooms where food or byproducts are reduced in temperature and stored in a chilled preservation state.

Clean water is water that is fit for the purpose for which it is to be used. Clean water may be potable water.

Cold stores are rooms where frozen foods or byproducts are stored in storage at the preservation temperature.

Contaminant is any biological agent, chemical agent, foreign matter or other substance not intentionally added to food, or byproduct, which may compromise food safety or suitability for purpose.

Contaminated means that a contaminant on any product, byproduct, piece of equipment or article, including protective clothing, has exceeded any standard or, in the absence of a standard, the accepted level for that contaminant on the product or byproduct being produced at the time.

Continuous towel dispenser provides each user with an area of cloth to be used once only, as it remains after its use in a separate part of the dispenser which is inaccessible to the users. The towel, once entirely used, can be laundered and reused.

Dead ends within a pipe system are unused pipe ends which are not routinely flushed within a potable water reticulation system.

Detain is the secure holding of food or byproduct that is under the supervision of an Inspector.

Dry food is that which has a low water activity (a_w), being less than the minimum growth water activity of the spoilage micro-organisms of significance for the particular food.

Equipment is any device (machinery, appliance, implement, tool, receptacle, vessel, container, etc.) used for performing a task in food or byproduct production.

Food is any substance, including additives, whether processed, semi-processed or raw, which is intended for human consumption. The definition of food includes "product" as defined in the Meat Act 1981.

Food area is an area where animals are slaughtered or dressed, or unprotected or wrapped food is processed, packed, stored or transported.

Food support facility is any facility:

- through which unprotected food, packaging, protective clothing, or processing equipment may pass; or
- where unprotected or wrapped ingredients, packaging, chemicals, protective clothing, or processing equipment may be held and/or prepared; or
- where processing equipment is cleaned and/or sterilised prior to reuse.

Freezers are rooms or equipment used to initially freeze food and byproducts. Freezers reduce food or byproduct temperatures to the required preservation temperature.

Green offals are products which are derived from any part of the alimentary tract, not including casings that are inherently contaminated with ingesta or faecal material.

HACCP means hazard analysis critical control point. It is a system which identifies, evaluates and controls hazards which are significant for food safety.

Hazard is a biological, chemical or physical agent in, or conditions of, food with the potential to cause an adverse health effect.

Hermetically sealed means air-tight, completely sealed and impermeable to gas.

Ingredient is any substance, including a food or byproduct additive, used in the manufacture or preparation of a food or byproduct and is present, whether in a modified form or not, in the final food or byproduct.

Input means all consumables, e.g. raw materials and ingredients, and non-consumables, e.g. packaging materials.

MAF RA (M&S) means Ministry of Agriculture Regulatory Authority (Meat and Seafood).

Minimise to have taken all practical steps to substantially reduce the potential hazard of concern.

Non-food is any area, equipment, personnel or thing that does not have direct or indirect contact with any area, equipment, personnel or thing associated with the slaughter and dressing of animals or the processing, packing, storage or transport of unprotected or wrapped food.

Non-food contact surfaces include:

- surfaces not approved for food contact, e.g. walls, structures, fixtures and equipment, such as columns, floors, door jambs, gantries, scaffolding, steps, rise and fall stands, and certain fixed or moveable equipment;
- coatings and materials that are not approved for food contact;
- uncleaned surfaces, e.g. dirty food surfaces, contact points before inspection, contaminated food or personnel, carcasses prior to post-mortem inspection, waste water.

Non-potable water is any water that does not conform to the definition of potable water.

Outer packaging is the final packaging layer that will protect the wrapping of, or the direct contact of, any food or byproduct, equipment, packaging, thing, from the introduction of contaminants.

Positive air pressure is an air pressure greater than the atmospheric pressure. Where this exists within an enclosed environment, it will prevent the possibility of air contaminants being forced into the enclosed environment through door, chute or hatch openings.

Potable water is water that complies with *The Drinking Water Standards for New Zealand 1995*, Ministry of Health (NZDWS95), or later editions or amendments of these standards.

Preserved means food or byproduct which has been subjected to biological, chemical or physical agents that will minimise deterioration during its expected shelf life.

Protected means sufficiently wrapped, packaged or enclosed to prevent the introduction of contaminants.

Ready-to-eat is food that may be eaten with little or no preparation/ cooking.

Retain refers to carcasses held on the slaughter floor that have not passed post-mortem inspection and are under the supervision of an Inspector.

Retort is a pressure vessel designed for heat processing food or byproduct, packed in hermetically sealed containers, either by saturated steam or by heated water with superimposed air pressure.

Roller towel is a continuous loop of cloth rotating around a central axis and which is available for reuse without laundering, for example, a 2 metre loop of towelling over a bar.

Sanitary design means designed and constructed so that an area, conveyance, or equipment:

- meets the requirements appropriate to its use; and

- can be readily maintained, cleaned, sanitised and sterilised where required to ensure that it is free from contaminants and vermin; and
- in relation to any equipment or access way in any food or byproduct area, also means that the equipment or access way;
    - is easily accessible for maintenance, cleaning, operation, checking and inspection; and
    - does not allow contaminants to come in contact with any food or byproducts or other equipment; and
    - precludes the harbouring or accumulation of any contaminants or vermin.

Separate by distance means to separate to such an extent so as to avoid any possible contact, splash, contamination, etc., between specific functions, processes or personnel.

Separate physically means to separate by floor to ceiling solid walls and doors, or to fully protect product/byproduct by pipelines, enclosed vats, etc.

Separate by time means to end one function or process prior to starting a different function or process, with a cleaning operation in between.

Shall expresses a mandatory requirement of this industry standard.

Should/may expresses a recommended provision which when followed may assist in achieving the required outcome of this industry standard.

Store is a facility used for the storing of containers, ingredients, chemicals, and finished shelf-stable or chilled and frozen food or by product, that are protected by outer packaging. A store may be refrigerated or non-refrigerated and may utilise wet or dry cleaning procedures dependent upon construction standards.

Thermal processing is the application of heat that will result in complete or partial preservation of products.

Vermin is any free living animal which is not part of the normal operation of any premises. The term includes, but shall not be restricted to, birds, rodents, mammals and insects.

Water activity (a_w) is the ratio of the water vapour pressure of the food (p) to that of pure water (p_o) at the same temperature:

$a_w = p/p_o$

When a solution becomes more concentrated, vapour pressure decreases and the a_w falls from a maximum value of 1 for pure water.

Water reticulation is the system of water supply throughout the premises from the source to the point of use. It includes the source of supply, means of treatment, storage, temperature modifying devices, distribution pipework, backflow protection devices, etc.

Wrapping is any material that is intended to protect food or byproduct, equipment, packaging or thing and comes into immediate contact with the food or byproduct, equipment, packaging or thing. Wrapping can include rigid materials, such as cartons and containers.

1.3 General Principles

Premises shall be designed and constructed using good sanitary design principles which should support HACCP principles, and shall be fit for purpose.

Licensing of Premises

Premises designed and constructed in accordance with the outcomes and principles outlined in this manual would satisfy MAF RA (M&S) requirements for licensing and approval and for the approval of alterations to licensed and approved premises. Refer also to Manual 1: *Licensing*.

Competent Person

It is strongly recommended that advice on the design of new premises, and alterations to existing premises that substantially alter or affect the sanitary environment of the premises, is obtained from a competent person.

Verification of Compliance

It is the responsibility of the applicant or Licensee to provide appropriate validation of design, construction and installation attributes that will enable effective verification of compliance to standards. This is particularly important where alterations and additions require professional expertise, e.g. refrigeration systems, back flow prevention systems and water treatment systems. The requirements of Manual 8: *Quality Assurance* must be adhered to for any new process technology, new process, etc.

Alternative Principles

Where any outcome required by this industry standard can be achieved using alternative principles to those outlined in this industry standard, then the alternative principles are permitted, provided they are validated and they address all appropriate regulatory outcomes.

1.4 Layout of this Industry Standard

IS 2 is organised into sections, each dealing with a particular element for developing the minimum requirements for the various categories of premises.

Scope

Each section commences with a scope which describes the area of application of the standard.

Four Tier System

Each section is arranged in a four-tier system, i.e., outcome, general principles, specific principles and action guidelines. Each tier progressively expands and guides the user on means to ultimately achieve the required outcome.

Outcome

The top tier is the outcome statement. The outcome describes the overall requirement that must be achieved for the particular element being addressed and provides the basis for determining equivalent alternative general or specific principles with the New Zealand standard.

General Principles

The general principles section establishes the fundamental principles that will achieve the required outcome.

Specific Principles

Specific principles are subsequently detailed to provide an additional guide on common issues which support the general principles.

There are no headings which identify specific principles. However, specific principles will be identified as any major heading (with two-digit numbering and in bold 14 point type face) which occurs in sequence after the general principles.

Action Guidelines

Where described, the final tier is an action guideline. These action guidelines are detailed inside boxes and are not part of the standard, but are intended as a guide that experience has shown will achieve the required outcome.

Sequential Order of this Industry Standard

In using this industry standard, it is important that the whole industry standard and each section is read in the sequential order intended. Sections 2-6 detail the base elements required of any food premises and are the "building blocks" to be incorporated into all subsequent sections. The four-tier system, within each individual section, must also be read and used in the intended order to maximise understanding of the requirements. Information in this industry standard will be of little use if it is extracted from a specific principle without acknowledging the prior general principles and, most importantly, the required outcome.

How to use the whole manual:

To establish the requirements of a whole premises:

The whole of IS 2 must be read in order to determine from the scope of each section what is applicable to the particular premises intended to be established.

Example 1: To establish the requirements of an export cold store (S) —

Commence by reading through the base elements detailed in Sections 2-6. Sections 2 and 3 will inform the user where to site the facility and how to design it in a sanitary manner. Reading Sections 4-6 will establish the exclusion of the cold store from the normal building construction, services and equipment standards, with the exception of Section 4.10: Vermin Proofing, Section 4.7.3: Plastic strips as doors, Section 5.3.1: Ventilation to amenities and Section 5.8.5: Illumination levels to amenities and stores. Then the user must read Section 13: Stores, which lays down construction requirements, services and equipment standards. As the intended premises is to be a cold store, the user must also read Section 10: Refrigeration Facilities, which details specific requirements for refrigeration facilities. Other sections listed in the Contents that may be relevant to the establishment of a cold store must be read. For example, the scope of Section 7: Amenities establishes that the stated requirements for amenities are applicable to a cold store.

Example 2: To establish the requirements of a CKP —

Commence by reading through the base elements detailed in Sections 2-6. Sections 2 and 3 will inform the user where to site the facility and how to design it in a sanitary manner. Section 4 will detail the requirements for construction materials and structures. Sections 5 and 6 will establish that a CKP is excluded from the normal services and equipment requirements with the exception of Section 6.3: Hygiene Equipment. Other sections listed in the contents that may be relevant to the establishment of a CKP must be read (for example, amenities, animal holding facilities, slaughter and dressing facilities, etc.). The scope of each additional section must be read to establish if the requirements of that section are applicable to a CKP. Finally, the user must read Section 14: Custom Killing Premises and Rural Slaughter Houses, which will inform the user of specific requirements in addition to the requirements already outlined in other sections as being applicable to a CKP. Section 14 will inform the user about the requirements for services, equipment, animal holding facilities, slaughter and dressing facilities, and amenities.

To establish the requirements of a facility within an established premises:

Generally, only the base element sections (2-6) and any applicable specific section needs to be read.

Example 3: To establish the requirements of a slaughter and dressing facility —

Commence by reading through the base elements detailed in Sections 2-6. This will inform the user where to site the facility, how to design it in relation to the whole premises, requirements for construction materials and structures, and any requirements that services and equipment must meet. Finally, the user must read

Section 9: Slaughter and Dressing Facilities, which will detail any additional requirements that are specific to this kind of facility.

How to use one section within the manual:

Example 4: To establish the requirements of a floor —

Commence by reading Section 4: Building Construction. Establish if the intended floor fits into the scope of this section. If so, the user must read the outcome required, then the general principles which detail the requirements of any building material, and finally the specific principle, Section 4.3: Floors, which details any additional specific requirements that, specifically, a floor must meet. Within Section 4.3, there are boxed action guidelines which may be taken into account if desired.

1.5 Abbreviations

AB	abattoir
APH	animal packing house
AWAC	Animal Welfare Advisory Committee
BBP	byproducts biological premises
BP	byproduct premises
BPW	byproduct works
CIP	clean in place
CKP	custom killing premises
CMVO	Chief Meat Veterinary Officer
DSP	deer slaughter premises

GD	game depot
GIP	game inspection premises
HACCP	hazard analysis critical control point
ME	meat export slaughter house
PF	pet food factory
PH	packing house
PPH	poultry packing house
RSH	rural slaughter house
S	export store

1.6 References

Animal Welfare Advisory Committee (AWAC). *Code of Recommendations and Minimum Standards for the Welfare of Animals at the Time of Slaughter at Licensed and Approved Premises*. Code of Animal Welfare No.10. July 1994.

Australian Standard AS 3500.1 *National Plumbing and Drainage Code.* Part 1: Water Supply.

Building Act 1991.

Building Regulations 1992.

Codex Alimentarius Commission, CAC/RCP 1-1969, Rev. 2 (1985) *Recommended International Code of Practice General Principles of Food Hygiene.*

Drinking Water Standard for New Zealand 1995 (NZDWS95).

Food Act 1981.

Game Regulations 1975.

Health and Safety in Employment Act 1992

Manuals 1, 3, 4, IS 5, IAS 5, 6, 8, 9, 12, 14, 15

Meat Act 1981.

Meat Regulations 1969.

New Zealand Building Code (First Schedule to the Building Regulations 1992).

New Zealand Standard 5807: 1980. *Industrial Identification by Colour, Wording or Other Coding*.

New Zealand Standard 6703: 1984. *Code of Practice for Interior Lighting Design*.

Resource Management Act 1992.

Slaughter of Stock, Game and Poultry Regulations 1969.

Water Supplies Protection Regulations 1961.

US Code of Federal Regulations Title 21 parts 170-199.

2. Site

Scope

This section applies to the selection of sites for all categories of premises.

2.1 Outcome

Premises shall be located in a suitable environment, free as far as possible from any hazards (such as odours, smoke, ash, dust, vermin and flooding) that could jeopardise the hygienic holding, slaughter and dressing of animals and the processing, packing, storage and transport of food or byproducts.

Premises shall be sited to ensure availability of adequate and sufficient resources for the holding slaughter and dressing of animals and the processing, packing, storage and transport of food or byproducts.

2.2 General Principles

2.2.1 Layout

The layout of the site shall be suitable for the intended operations of the premises.

2.2.2 Essential services

Where appropriate, premises shall be provided with adequate:

2.2.2.1	potable water to ensure all activities can be carried out efficiently;
2.2.2.2	energy supply to ensure requisite operations can be carried out efficiently;
2.2.2.3	waste and effluent disposal systems to handle and, where necessary, treat all liquid and solid waste;
2.2.2.4	transport access ways, constructed and maintained so that they drain surface water and do not create dust and other environmental contamination.

Separate access routes should be provided to separate food transport vehicles from vehicles transporting byproducts, stock and fuel.

2.2.3 Statutory requirements

The premises' location, construction and functions shall comply with all applicable statutory requirements.

2.3 Site Considerations

Factors that shall be considered and addressed in site selection include:

2.3.1	fuel storage and handling facilities;
2.3.2	staff access and amenities;
2.3.3	prevailing winds;
2.3.4	future possible expansion;
2.3.5	flood planes;
2.3.6	neighbouring industries and facilities;
2.3.7	ventilation and process air intakes.

3. Sanitary Design

Scope

This section contains the principles of sanitary design for building all categories of premises.

3.1 Outcome

Premises shall be located, designed, constructed, adapted and maintained in accordance with good sanitary design principles to suit the functions carried out within them and to protect food and byproducts from contamination or deterioration.

3.2 General Principles

3.2.1	The design and construction of premises shall not jeopardise the hygienic holding, slaughter and dressing of animals and the processing, packing, storing and transport of food and byproducts, by making the premises a source of contamination, inhibiting hygienic production, not protecting food or byproduct from contamination, preventing effective cleaning, etc. The control of such hazards must be inherent in the design and construction of the premises.

HACCP is a powerful tool which can ensure that the "best" design is accomplished and should be used both for the production as well as the cleaning and sanitation aspects of design.

3.2.2 Working space

Adequate working space shall be provided to allow for the hygienic performance of all operations, for access by personnel, for the installation of equipment and for the storage and access of materials.

3.2.3 Access for cleaning

The design shall permit ready access for cleaning, and allow for the effective supervision of food or byproduct production.

3.2.4 Environmental hazards

Buildings and facilities shall be designed and constructed to minimise the entrance and harbourage of vermin and the entry of environmental contaminants such as smoke, dust, odours, ash, etc.

3.2.5 Cross contamination

Buildings and facilities shall be designed in such a way that operations which might give rise to cross contamination of one food or material by another shall be separated physically or by time. Other effective means may be considered by the CMVO. Incompatible functions shall be physically separated.

3.2.5.1	There shall be physical separation between food and byproduct, slaughter and dressing of animals, processing and packing functions and unprotected food and byproduct storing and transporting.
3.2.5.2	Process layouts shall be designed so that unprotected cooked and finished food or byproduct does not cross raw production lines.
3.2.5.3	The layout of premises shall separate, as appropriate, microbiologically high and low risk materials, processes and personnel working within them.
	High risk processes may deal with ready-to-eat food that will not receive any additional form of microbiological kill step before the food is consumed. Low risk processes may deal with pre-packaged food that will not be exposed to the environment.
3.2.5.4	Outer packaging shall be discarded prior to entry into food areas and food support areas unless separation is maintained by distance or time so as to minimise cross contamination.

3.2.6 Process flows

Buildings and facilities shall be designed to facilitate hygienic operations by means of a regulated process flow from the arrival of the raw material at the premises to the finished food or byproduct, and shall provide for appropriate temperature conditions for the process and the food. Premises shall be designed, wherever possible, so that the principle of one-way-flow of food or byproducts can be implemented.

To adhere to good sanitary design principles, buildings, services and equipment should be designed around the process flow path. While inadequate process flows can often be controlled through managed solutions, without good sanitary design at the onset, food safety and sanitation programmes can become significantly more costly. In addition, the effectiveness of these programmes is reduced, and problems such as food poisoning, spoilage, insect infestations and injurious foreign material contaminations are more likely to occur.

3.2.7 Personnel flows

Where appropriate, premises shall be designed so that personnel flows and access can be controlled to prevent cross contamination.

There may be many ways that assist in controlling cross contamination. For example, personnel access between byproducts facilities and food areas and food support facilities should not be possible without facilities to provide for clean protective clothing, hand washing and either a change of footwear or going through a sanitising foot bath.

4. Building Construction

Scope

This section outlines the requirements for the construction of any food area and food support area in the following categories of premises:

AB, ME, PH, DSP, GIP, GD, PPH, APH, CKP, RSH.

Section 4.7.3: Plastic strips also applies to Section 7: Amenities and Section 13: Stores.

Section 4.10: Vermin Proofing also applies to Section 7: Amenities, Section 13: Stores and Section 16: Byproduct Facilities.

4.1 Outcome

Premises shall be constructed in accordance with good sanitary design principles, using materials that are suitable for the conditions of use, to facilitate the hygienic slaughter and dressing of animals and the processing, packing, storage and transport of food.

4.2 General Principles

4.2.1 Construction material approval

Construction materials complying with the requirements of this section can be used in premises licensed in terms of the Meat Act 1981 and approved premises. In addition, a current list of building materials that have been validated as meeting the requirements of this section and have been approved by MAF RA (M&S) for use in licensed and approved premises can be found in Manual 15: *Approvals*; "Building Materials and Equipment".

4.2.2	Interior finishes (walls, floors, ceilings, doors, windows and any other associated installation or fitting) shall be selected and installed on the basis of good sanitary design principles and fitness for purpose.
4.2.3	General principles of sanitary design for construction materials are described in the following Sections 4.2.4-4.2.11.

4.2.4 Cleanability

Materials shall be:

4.2.4.1	able to be adequately cleaned by normal procedures (for that area of the premises) without damage to the surface;
4.2.4.2	smooth and non-porous, and free from cracks, crevices, recesses, dead-ends and gaps, so as to eliminate areas where contaminants can collect;
4.2.4.3	readily accessible for inspection except where it can be shown that cleaning procedures eliminate the possibility of contamination.

4.2.5 Durability

Materials shall be:

4.2.5.1	resistant to chipping, flaking or delamination;
4.2.5.2	able to withstand exposure to extremes of moisture that may occur under normal operating conditions;
4.2.5.3	resistant to abrasion;
4.2.5.4	able to withstand machinery vibration;
4.2.5.5	able to withstand regular cleaning and sanitising programmes;
4.2.5.6	resistant to, or protected from, an impact of a magnitude likely to be encountered during normal conditions of use.

4.2.6 Corrosion resistance

Materials shall be corrosion-resistant under the prolonged influence of corrosive agents encountered during the normal conditions of use, including water, water vapour, food ingredients and chemicals.

4.2.7 Inertness

Materials used in exposed product areas shall be inert to the food and cleaning materials encountered during normal conditions of use.

4.2.8 Thermal properties

Materials shall be capable of maintaining their original properties when subjected to temperature extremes that may occur during normal conditions of use. The thermal movement of materials shall be consistent with fixings, jointing systems and backing materials.

4.2.9 Colour

Surface finishes shall be of a colour which does not disguise contaminants.

White or light coloured material has been found to be satisfactory.

4.2.10 Resistance to discoloration

Materials should not stain when splashed with food components handled in the premises, acids or alkaline solutions, or other chemicals normally found in the premises.

4.2.11 Ease of repair and maintenance

Materials shall remain fit for purpose following repair and maintenance.

Materials should be easy to maintain and repair without damage to surface areas or the integrity of the material. Manufacturers' specifications should be adhered to.

4.3 Floors

4.3.1 Floors shall be constructed to be fit for purpose.

Commonly used acceptable materials are concrete, floor tiles, vinyl and synthetic materials. Concrete or mortar floors which incorporate an approved latex or synthetic resin finish have better than ordinary resistance to meat, fats and acids. As a safety precaution, excessively smooth floors should be avoided in areas subject to wet cleaning.

4.3.2 Installation

Floors shall be installed and maintained to eliminate all cracks, open joints, depressions or other low areas that would accumulate moisture or harbour contamination.

4.3.3 Grading

Floors subject to wet cleaning shall be adequately graded and drained so that liquids do not accumulate.

Floor falls of 1 in 50 have been found to be satisfactory in wet processing areas. Wash areas normally have a 1 in 25 fall.

4.3.4 Junctions

Floor-to-wall junctions shall be constructed to facilitate easy cleaning and, if subject to wet cleaning, shall be coved to provide a smooth junction.

Coving to a radius of 80 mm has been found to be satisfactory in wet cleaning areas.

4.4 Interior Walls

Interior walls shall be constructed to be fit for purpose.

4.5 Ceilings

Ceilings, including false ceilings, shall be constructed to be fit for purpose. Associated installations, equipment and fittings shall be designed and installed to facilitate effective cleaning.

4.6 Windows

4.6.1	Windows shall be constructed to be fit for purpose.

4.6.2 Window sills

Windows should be flush with the inside surface of the wall. However, if the sill has an inside ledge, this shall be sloped downwards at an angle to prevent the build-up of dust and to facilitate effective cleaning.

A window ledge angled to at least 45° has been found to be satisfactory.

4.6.3 Glass

Glass windows shall not be used where glass could contaminate product if the window broke.

The use of safety glass is a satisfactory alternative.

4.7 Doors

4.7.1 Doors

Door openings and passageways shall be designed and constructed to ensure that unprotected food does not come into contact with the door jambs or walls.

4.7.2 Self-closing doors

All doors opening from the exterior or byproduct areas directly to food areas or food support areas shall be, as far as practicable, self-closing. Alternatively, an ante room providing two doors between the room and the exterior or byproduct area would be an acceptable substitute for a self-closing door.

4.7.3 Plastic strips

4.7.3.1	Plastic strips used in doorways shall be installed with sufficient overlap to provide contiguous coverage.
4.7.3.2	Plastic strips may be used in doorways as the only door to food areas and food support areas provided they are fit for purpose and do not open directly to the exterior or to byproduct or other non-food areas.
4.7.3.3	Plastic strips may be used in doorways as the only door to amenities and stores provided they do not open directly to the exterior or to byproduct areas.
4.7.3.4	Plastic strips shall be installed so that they can be taken down regularly for cleaning.

4.7.4 Air curtains

Air curtains in doorways are not regarded as doors. Air curtains shall not be used in a way which will introduce contamination to unprotected food. Refer also to IS 2: Section 5.9.

4.8 Stairs, Decks and Walkways

4.8.1	Where stairs, decks, walkways or catch trays are located over exposed food or food contact surfaces, they shall be constructed of impervious material with solid treads and closed risers, and curbed to prevent contamination of food by splash or fallout.

Side curbs at least 150 mm high measured at the front edge of the treads have been found to be acceptable.

4.8.2	Where the process is fully enclosed and there is no danger of food being contaminated, open grid type stairs, decks and walkways may be used.
4.8.3	All stairs, decks and walkways shall be constructed to prevent the ponding of water and shall be sloped to drain points.

4.9 Protrusions within the Hygiene Envelope

4.9.1	Where product lines, service lines, ducting and trunking pass through walls, ceilings or floors, they shall be flashed and sealed to eliminate crevices on both the interior and exterior surfaces, to prevent water seepage, harbourage and entry of vermin.
4.9.2	Associated installations, fittings and services that act as protrusions into a room or area shall be constructed to prevent accumulation of contaminants and shall facilitate effective cleaning at the frequency required for the function of the room or area.

4.10 Vermin Proofing

4.10.1	Premises shall be designed and constructed to minimise the entrance and harbourage of vermin.
Opening windows, doorways, drains and other openings that would admit vermin should be equipped with effective vermin exclusion devices.	
4.10.2	The location of any vermin control device shall not jeopardise the safety of food.

5. Building Services

Scope

This section applies to building services supplied to any food area and food support area within the following categories of premises:

AB, ME, PH, DSP, GIP, PPH, APH, RSH.

Section 5.3.1: Ventilation also applies to Section 7: Amenities.

Section 5.8.5: Illumination levels also applies to Section 7: Amenities, Section 8: Animal Holding Facilities and Section 13: Stores.

5.1 Outcome

Premises shall be provided with essential building services of a sanitary standard to ensure the hygienic slaughter and dressing of animals and the processing, packing, storing and transport of food, and building services shall be installed to ensure effective premises cleaning and maintenance.

5.2 General Principles

Principles of good sanitary design for building services are described in the following Sections 5.3-5.9.

5.3 Ventilation

5.3.1	Adequate ventilation shall be provided in all work rooms and amenities to:
5.3.1.1	minimise air-borne contamination of food;
5.3.1.2	control temperatures and humidity by removing excessive heat and water vapour.

5.3.2 Air flow direction

Ventilation systems shall be designed and constructed to ensure that air flows from food areas to byproduct areas, edible areas to inedible areas and cooked or finished food areas to raw areas. Air flow from warm areas to cold areas shall be minimised to avoid condensation problems.

5.3.3 Environmental contaminants

Ventilation systems shall be designed and constructed to minimise the entry of contaminating odours, dust, ash, vapour or smoke.

Ventilation systems should be designed to take into account such factors as the size of the premises, the number of persons working within food areas, heat gain (e.g. from equipment or food load), water emission, relative humidity, condensation and general climatic conditions.

Air intakes should be located and constructed so that contamination from exhaust stacks, roof-deposited debris (e.g. faecal material from birds) or other environmental contamination cannot be taken into the process area.

Air intakes to food areas should be provided with an effective filtration stage. Filters should be capable of withholding particles that have the potential to cause contamination of the food and process environment.

The choice of filter should be in accordance with the conditions of use. This will depend on the nature of the product and process, and the size, nature and concentration of the particulate matter to be removed.

All ventilation air to food processing areas should be filtered through air filters that at least comply with the standard set out in Class EU5, DIN 24-185 Part 2.

Filters should be readily removable for replacement or cleaning.

5.3.4 Slaughter floors

Slaughter floors should be mechanically ventilated to give a positive air pressure within the working areas.

5.3.5 Cooling floors

Cooling floors should be mechanically ventilated with provision for humidity and temperature control if required.

5.4 Potable water

5.4.1	An adequate supply, volume and pressure of potable water with appropriate facilities for its storage, distribution and temperature control shall be available whenever necessary to ensure the safety and suitability of food and the hygienic operation of the premises.

5.4.2 Validation of potability

Before a premises can be licensed, validation that the water supply is potable shall be provided to the Inspector. Regular water testing shall comply with the requirements specified for the surveillance of potable water. Refer also to Manual 3.

5.4.3 Approved sources of potable water:

5.4.3.1	connection to public mains;
5.4.3.2	wells;
5.4.3.3	intakes from rivers and lakes;
5.4.3.4	reservoirs;
5.4.3.5	rainwater.

5.4.4 Back flow and cross connection

The water reticulation system shall be designed, installed and operated to prevent cross connections and back flow that may cause contamination of the water supply.

5.4.4.1 Compliance to legislation

Relevant provisions of the following legislation, manuals and codes shall be adhered to for cross connection control and back flow prevention:

(a) the Water Supplies Protection Regulations 1961;

(b) the Building Act 1991;

(c) the Building Regulations 1992 and the Building Code (First Schedule to the Building Regulations 1992);

(d) Building Industry Authority (BIA) Approved Document G12 Water Supplies, referenced to Australian Standard AS 3500.1:1992 *National Plumbing and Drainage Code*, Part 1, Water Supply as a design method in the Verification Method G12/VM 1.

(e) In addition, the following specific requirements shall apply:

(i) The provisions of AS 3500.1 shall apply to any new premises and alterations to existing premises.

(ii) The provisions of AS 3500.1 shall apply to potable cold, warm and hot water reticulation systems. Devices shall be fit for the purpose intended.

(iii) The approval provisions of Section 27 of the Meat Act 1981 shall be adhered to in respect of alterations (including unapproved "as built" alterations) to potable water reticulation systems of licensed premises.

(iv) The approval provisions of Section 25 of the Meat Act 1981 shall be adhered to in respect of any proposal to establish a licensed premises.

(f) Applications for approval made under Sections 25 and 27 of the Meat Act 1981 shall be validated as satisfying the requirements of this standard by provision of an appropriate building consent or code compliance certificate issued, in terms of the Building Act 1991, by the territorial authority concerned.

5.4.5 Dead ends and unused pipes

The reticulation system shall not have dead ends or unused pipes that may cause contamination of the water supply.

5.4.6 Treatment systems

5.4.6.1	Where water supplied to the premises is found to be non-potable, disinfection or treatment devices shall be installed in the reticulation system to ensure that, at the point of usage, the water is potable.

5.4.6.2 Chlorine disinfection

Where a water supply is treated with chlorine, the chlorination system shall be designed and operated to ensure sufficient residual chlorine is maintained throughout the reticulation system. Refer also to Manual 3 and to Manual 2: Section 6.4.

5.4.6.3 Ultra-violet light disinfection (uv)

(a) If uv treatment is used, the disinfection unit shall be adequate to disinfect the maximum flow for the system it is to serve. Refer also to Manual 3 and to IS 2: Section 6.4.

Since ultra-violet disinfection has no residual sanitising ability and hence uv treated water can be recontaminated immediately after treatment, it is strongly recommended that there should be no holding tanks or reservoirs between the disinfection unit and the point of use.

(b) Ultra-violet treatment is not an acceptable substitute and shall not be used for the treatment of water instead of super chlorination when this action is required in standards for the management of potable water. Refer also to Manual 3.

5.4.7 Potable water use

Potable water shall be used for:

5.4.7.1	contact with food or, if water is used in food areas and food support areas, during the slaughter and dressing of animals and the processing, packing, storing and transport of food;
5.4.7.2	wet cleaning of all rooms, utensils, equipment, and drains in all areas where animals are slaughtered and dressed and food is processed, packed, stored or transported;
5.4.7.3	staff cafeterias, staff amenities, equipment wash rooms and hygiene equipment such as apron washes, boot washes, sterilisers and food area hoses, throughout the premises;
5.4.7.4	washing and cooling of containers used in thermal processing;
5.4.7.5	defrosting refrigeration evaporators.

5.4.8 Hot water supply

5.4.8.1	The premises shall have a supply of hot water that is sufficient to maintain the required hygiene standards in relation to the proposed operations and functions of the premises.

5.4.8.2	Hot water shall be provided at a minimum temperature of 82 ^{0}C at the point of use when it is used for the sterilisation of food processing equipment, floors, walls, gut buggies, etc., that are subject to contamination. Refer also to IS 2: Section 6.4.

The recommended mixed warm water temperature range is 38-44 ^{0}C at the point of use.

5.4.8.3	The use of insulation materials on pipes within food areas and food support areas shall not jeopardise the safety of food. All exposed insulation materials shall be able to be adequately cleaned under the normal conditions of use.

Hot water lines should be insulated and strategically positioned in order to maintain temperature. Mixing of steam and potable water is acceptable for producing hot water.

5.4.9 Steam

5.4.9.1	Steam used in direct contact with food or food contact surfaces shall contain no substances which may be hazardous to human health or may contaminate the food.
5.4.9.2	Steam shall be produced from potable water for the purposes of food processing or when mixed with other potable water.

5.4.9.3 Approved water treatment products

Water treatment products for treating boilers and steam lines, where the steam may come in contact with edible product, which have been approved for use in premises licensed in terms of the Meat Act 1981 are listed in Manual 15: *Approvals;* "Chemicals".

5.5 Non-Potable Water

5.5.1	Every water line conveying non-potable water shall be separate from potable water lines unless the connection is required for fire fighting purposes and the connection is made so as to prevent contamination of the potable water supply.

5.5.2 Non-potable water use

Non-potable water, of a standard satisfactory to the Inspector, may only be used in the following situations:

5.5.2.1	fire fighting;
5.5.2.2	boiler water, except where used for food processing or mixing with other potable water;
5.5.2.3	toilets and urinals;
5.5.2.4	animal washes;
5.5.2.5	wash down for animal holding facilities;
5.5.2.6	paved areas, roadways, truck turning aprons, etc.;
5.5.2.7	wash down in the raw processing side of rendering areas;

5.5.2.8	conveying and washing of condemned material;
5.5.2.9	cooling towers and condensers;
5.5.2.10	washing down save-alls and external drains;
5.5.2.11	wash facilities for animal conveyances;
5.5.2.12	byproduct facilities (require the use of clean water);
5.5.2.13	drinking water for animals in animal holding facilities (requires the use of clean water).

5.6 Pipeline Identification

5.6.1	Every water line conveying water that is non-potable shall be clearly identified at all outlets and any other place where identification is necessary.
5.6.2	The identifying code shall meet NZS 5807: 1980. *Industrial Identification by Colour, Wording or Other Coding*.

All pipe lines should be identified at junctions, valves, outlets, both sides of wall penetrations and at any other place where identification is necessary.

5.7 Drainage

5.7.1	Drainage systems shall effectively remove solid and liquid waste and not jeopardise the hygienic slaughter and dressing of animals and the processing, packing, storing and transport of food.

5.7.2 Aerosols and vapour

Aerosols or vapour emanating from drains shall be minimised where there is potential for contact and/or contamination of exposed food.

5.7.3 Location and size

Drains shall be positioned and of sufficient size and fall to ensure liquid and solid waste is contained, rapidly removed and controlled to minimise the spread of such waste across floors.

For wet processing areas, one drainage outlet should be allowed for each 40 m^2 of floor area; where channel, spoon or similar drains are used, a distance of 5-10 metres between drainage outlets should be allowed. Channel drains should be of sufficient size and suitable fall to allow self draining and ready cleaning.

The drainage system should also be designed to accommodate the possibility of future alterations to room functions and process room layouts.

Drainage lines should not pass through edible processing areas. Floor drainage lines should have a diameter of at least 100 mm.

5.7.4 Prevention of contamination

The design and construction of the drainage system shall prevent odours, vermin, any objectional material or storm water entering the premises, and prevent the accumulation of any waste water or waste material.

5.7.5 Material of construction

All drainage lines within the premises shall be constructed of an impervious material.

5.7.6 Effluent and sewage

5.7.6.1	Effluent and sewage shall be contained and disposed of hygienically and by means that prevent the contamination of potable water supplies and do not jeopardise the safety of foods.
5.7.6.2	The relevant requirements of the Building Act, Building Regulations, Building Codes and Resource Management Act shall be adhered to.

Sewerage lines from toilets and urinals should not be connected with any drainage lines within the establishment and should not discharge into save-alls from which any recovery for further processing is done.

Sewerage lines should either be directed to an adequate septic system located at a safe distance from any processing building, or be discharged into the local sewerage system at a point sufficiently remote from the establishment, so as to preclude the possibility of any sanitary drainage backing up and entering the premises.

5.8 Lighting

5.8.1	Lighting shall be sufficient to enable accuracy of operations, hygienic slaughter and dressing of animals and the processing, packing, storing, transport and inspection of food.

5.8.2 Distortion of colours

Lighting shall be such that the natural colour of the food is not distorted where inspection is carried out.

5.8.3 Breakage

Light bulbs, fixtures, skylights, or other glass shall be of the safety type, or otherwise protected to prevent contamination of food in the event of breakage.

5.8.4 Sanitary design

Light fixtures shall be designed, constructed and installed in accordance with good sanitary design principles.

5.8.5 Illumination levels

Illumination levels should comply with the relevant provisions of New Zealand Standard 6703: 1984. *Code of Practice for Interior Lighting Design*.

The following lighting intensities have proved acceptable in practice:	
Facility	**Lux**
Animal holding facilities, areas where ante-mortem inspection is performed, measured 1 m above the floor	150
Carcass chillers, measured at the level of the front shank of carcass	150
Staff rooms, changing rooms, locker rooms, cleaners' rooms, lavatories, measured at the floor	150
Stores and loading bays with infrequent access, measured for identification of labels	150
Stores with constant operation, breakdown, make-up, despatch, measured at the floor aisles	300
Suspect pens, restraint facilities, measured 1 m above the floor	300
Canteens, cafeterias, dining rooms, measured at the table	300
Processing rooms, measured at working plane	500

Laboratories, measured at the bench	750
Areas where food is inspected and prepared to inspection standards, measured at the working plane	750
Areas where quality control inspection is performed, measured at the working plane	1000

5.9 Process Air and Other Gases

Air and other gases used for direct or indirect food contact shall not introduce contamination to the food. The air and gases shall be odourless and free from lubricating oil, water and solid particles.

Equipment using pressurised air in direct food contact should be fitted with a filter located as near to the use outlet as is feasible. Filters should be capable of withholding particles that have the potential to cause contamination of the food.

The choice of filter should be in accordance with the conditions of use. This will depend on the nature of the product and process and the size, nature and concentration of the particulate matter to be removed.

All process air used in the manufacturing process should be filtered through air filters that at least comply with the standards set out in Class EU 5, DIN 24-185 Part 2.

Filters should be readily removable for replacement or cleaning.

6. Equipment

Scope

This section applies to the design, construction, installation, use and maintenance of equipment in any food area and food support area for any of the following categories of premises:

AB, ME, PH, DSP, GIP, PPH, APH, RSH

Section 6.3: Hygiene Equipment also applies to Section 14: Custom Killing Premises and Rural Slaughter Houses.

Section 6.5.3: Chutes conveying byproducts and Section 6.7: Receptacles also applies to Section 16: Byproducts Facilities.

6.1 Outcome

Equipment shall be designed, constructed and installed to provide for ease of cleaning, maintenance and inspection. Parts of the equipment that come into contact with food shall be capable of being easily cleaned and, if necessary, sterilised. Equipment shall protect the food from contamination, shall not be a source of contamination and shall perform the function for which it is designed.

6.2 General Principles

6.2.1 Equipment approval

Equipment complying with the requirements of this section can be used in premises licensed in terms of the Meat Act 1981 and approved premises. In addition, a current list of equipment that have been validated as meeting the requirements of this section and has been approved by MAF RA (M&S) for use in licensed and approved premises can be found in Manual 15: *Approvals,* "Building Materials and Equipment".

6.2.2 Good sanitary design

The sanitary design of the equipment shall ensure:

6.2.2.1	efficient performance of the intended task, where applicable (this includes monitoring, control and recording of its function or performance);

6.2.2.2	no additional contamination of the food, chemically, physically or microbiologically;
6.2.2.3	maximum protection of the food from external contamination and minimum contamination by the food of other equipment and plant structures.
6.2.3	General principles of sanitary design for equipment are described in the following Sections 6.2.4-6.2.16.

6.2.4 Cleanability

Equipment shall be:

6.2.4.1	able to be adequately cleaned by normal procedures (for that area of the premises) without damage to the material's surface;
6.2.4.2	smooth and non-porous and free from cracks, crevices, recesses, dead-ends and gaps, so as to eliminate contaminant collection areas;
6.2.4.3	readily accessible for inspection except where it can be shown that cleaning procedures eliminate the possibility of contamination.

6.2.5 Clean-in-place (CIP) systems

Sanitation procedures for CIP systems shall be as effective as those for cleaning and sanitising disassembled equipment. Only equipment which meets the following criteria may be cleaned in place:

6.2.5.1	Cleaning solutions, sanitising solutions, and rinse water shall come in contact with all interior surfaces of the equipment in the CIP system.

6.2.5.2	All internal surfaces shall be either designed for self draining or physically disassembled for draining after rinsing.
6.2.5.3	Pipe interiors shall be highly polished stainless steel or some other acceptable, smooth-surfaced material. All interiors shall be easy to inspect.
6.2.5.4	Easily removable elbows with quick disconnect mechanisms shall be placed at each change of direction.
6.2.5.5	All sections of the system shall be capable of being completely disassembled for periodic inspection of all internal surfaces.
	Any equipment or portions of equipment not meeting these requirements shall be disassembled for daily cleaning and inspection.

6.2.6 Durability

Equipment shall be:

6.2.6. 1	resistant to chipping, flaking or delamination;
6.2.6. 2	able to withstand exposure to heat and/or water under normal operating conditions;
6.2.6. 3	resistant to abrasion;

6.2.6. 4	able to withstand machinery vibration;
6.2.6. 5	able to withstand regular cleaning and sanitising programmes.

6.2.7 Corrosion resistance

Equipment shall be corrosion resistant under the prolonged influence of the corrosive agents encountered during normal conditions of use, including water vapour, food ingredients and chemicals.

6.2.8 Inertness

All surfaces in direct contact with food shall be inert to food, cleaning materials and methods of sterilisation which may be employed under normal conditions of use.

6.2.9 Impact resistance

Equipment shall be resistant to or be protected from an impact of the magnitude likely to be encountered during normal conditions of use.

6.2.10 Thermal properties

Equipment shall be capable of maintaining its original properties when subjected to temperature changes that may occur during normal conditions of use.

6.2.11 Operational characteristics

The equipment shall:

6.2.11.1	be installed and operated in accordance with the manufacturers' specifications (alternative uses of the equipment that may jeopardise the hygienic safety of food shall be avoided);
6.2.11.2	be designed to eliminate excessive build-up of food components, waste components and waste water for the normal period of operation;

6.2.11.3	where appropriate, have interior surfaces which come in contact with food arranged so that the equipment is self-emptying, self-draining or designed to be easily evacuated of water;
6.2.11.4	where appropriate, have internal corners or angles with a continuous smooth radius of at least 7 mm (a lesser radius may be used where necessary for proper functioning of parts or to facilitate drainage, provided that such areas can be readily cleaned);
6.2.11.5	be installed and operated so as to protect the food from external contamination while in use;
6.2.11.6	be arranged to ensure an orderly flow and hygienic handling of the food components.

6.2.12 Adulteration of food

6.2.12.1	The design, construction, installation, use and maintenance of equipment shall preclude the adulteration of the food. Adulteration may involve the use of lubrication oils causing toxic effects or odour, colour and flavour taints, abnormal use of equipment causing incidental heating of the food, incidental inclusion of metal or paint flakes, contaminated water and other sources of contamination, etc.
6.2.12.2	A current list of authorised chemical compounds and details of the types of chemical compounds which require specific evaluation and authorisation is available in Manual 15: *Approvals* "Chemicals".

6.2.13 Non-food contact surfaces

Exterior surfaces and non-food contact surfaces shall be arranged to prevent the harbouring of contaminants in and on the equipment, including their contact with other equipment, floors, walls or hanging supports.

6.2.14 Resistance to discolouration

Equipment should not stain when splashed with food components handled in the premises, acids or alkaline solutions, or other chemicals normally found in the premises.

6.2.15 Ease of repair and maintenance

Equipment shall remain fit for purpose following repair and maintenance.

Equipment should be easy to maintain and repair without damage to surface areas or integrity of the equipment. All welding within the food zone should be continuous, smooth, even and relatively flush with adjacent surfaces.

6.2.16 Materials of construction

6.2.16.1	Plastic and synthetic materials and resinous coatings used as food contact materials shall meet the appropriate requirements specified in the current US Code of Federal Regulations Title 21 Parts 170-199.
6.2.16.2	The responsibility for compliance with the specifications for composition of any food contact material rests with the manufacturer or supplier. The Licensee shall obtain a written guarantee from the manufacturer or supplier that the material complies with the above requirements. The guarantee shall contain the following information:

(a) the identity of material, i.e. the distinguishing brand name or code designation appearing on or with the material;

(b) the specific part(s) of Title 21 that are applicable to the material;

(c) the specific conditions of use, such as temperature limits or any other pertinent limits, particularly those which are stipulated by the US regulation;

(d) the signature of an authorised agent for the manufacturer or the supplier;

(e) whether the guarantee is limited to a specific shipment of an article, in which case it may be part of or attached to the invoice covering such a shipment; or

(f) whether the guarantee is generic and continuing; in which case, in its application to an article or other shipment of an article, the guarantee shall be considered to have been given at the date such article was shipped by the person who gives the guarantee.

6.2.16.3	It should be noted that the guarantee provides approval for the composition only of the food contact material, and is not an approval for any constructed piece of equipment. All equipment shall be designed, constructed and installed in accordance with the outcome and all the general principles in IS 2: Section 6.

The most satisfactory material for direct food contact is stainless steel (300 series or better).

Aluminium used as a food contact surface, while acceptable, is not desirable. It has a marked tendency to warp, and is susceptible to oxidation. The oxide tends to discolour foods, and the soft nature of the metal leaves it susceptible to pitting and scratching. Aluminium is also prone to corrosion.

Galvanising is acceptable for non-food contact surfaces but the finish should be of a high quality commercial hot dip or the equivalent.

6.2.16.4	The following materials shall not be used in any equipment that can possibly come into contact with food:

(a) metals such as cadmium, copper, lead and their alloys;

(b) dissimilar metals, if their contact with liquid or other substances may create harmful chemical and electrolytic action;

(c) sponge rubber, stone slab, leather fabrics and any other porous materials;

(d) wood;

(e) galvanised metal, except where used for processing equipment in accordance with the following requirements:

(i) galvanising to the standard of high quality, smooth-finished commercial hot dip, and;

(ii) limited to use for processing of skin-on animals, and;

(iii) limited to equipment which occurs up to, and including, the point of dehairing and/or the associated scraping table.

6.3 Hygiene Equipment

6.3.1 Personnel wash units and sterilisers

6.3.1.1	There shall be sufficient numbers of conveniently located personnel wash and/or equipment sterilising facilities to enable hygiene functions to be carried out in accordance with specified requirements, and enable regular use by the operators as appropriate to the nature of the process.

6.3.1.2 Suitability for use

Wash facilities shall be designed, constructed and located to suit the operator, the protective clothing that is worn and the equipment that is used.

6.3.1.3 Waste water containment

All waste water shall be contained and ducted to a drain.

6.3.1.4 *Operation*

Unless the premises is solely packing or storing protected product, the personnel wash facilities shall be operated by foot, knee or another approved method for hand wash, apron wash and implement sterilising units used in food areas, and for hand wash units used in food support areas.

6.3.1.5 Warm water and soap

Hand wash units shall be provided with warm potable water and liquid soap dispensers.

The recommended mixed warm water temperature range is 38-44 ^{0}C at the point of use.

6.3.1.6 Hand drying

Single use towels or other hand drying facilities that do not contaminate washed hands or the surrounding area shall be provided adjacent to hand wash units unless the nature of the processing exempts the requirement (for example, some slaughtering operations.)

Where single use hand drying towels are used, facilities shall be provided for their disposal.

6.3.1.7 Steriliser temperature

Sterilising units shall be provided with potable water at a minimum temperature of 82 ^{0}C.

6.3.1.8 Aerosols and vapour

Aerosols or vapour emanating from hygiene equipment shall be minimised where it may come in contact with and/or contaminate exposed food.

6.3.1.9 Supply valves

Water supply control valves for continuously operating hygiene equipment shall be either out of easy reach from the work station or operable by hand tools only.

6.3.1.10 Combination hand wash / knife steriliser units

(a) The design and/or operation shall preclude the mixing of hand wash waste water and steriliser water where there is the potential to cool the steriliser water temperature to an unacceptable temperature.

All waste water from the hand wash section should be contained within that section of the combination unit and ducted directly to waste, not via the steriliser section to its waste outlet.

(b) The flow of hand wash waste water over the knife, while in the steriliser section, shall not shield the knife from sterilising water.

(c) The volume, pressure and temperature of wash and steriliser water shall be adequate to achieve hygienic requirements.

6.3.2 Hoses

6.3.2.1	Where required, premises shall be equipped with an adequate number of hose connection points to enable effective cleaning.
6.3.2.2	Appropriate facilities shall be provided for the storage of hoses to ensure nozzles are free from contact with the floor.
6.3.2.3	The fabric of the hose shall not jeopardise the safety of food. Hose materials shall be able to be adequately cleaned and maintained under the normal conditions of use.

6.4 Monitoring Equipment

6.4.1 General

Monitoring equipment shall accurately reflect the process being controlled and be suitable for the purpose of use.

6.4.2 Alarm systems

Visual and/or audible alarm systems required in conjunction with monitoring equipment shall be located to ensure immediate corrective action can be taken in the event of failure of the monitoring equipment.

6.4.3 Accuracy

The accuracy of every monitoring or measuring device shall be calibrated against a reference standard. Refer also to Manual 8.

6.4.4 Temperature indicators

Temperature indicators are required at the point of use in all circumstances where a specified temperature shall be achieved.

6.4.4.1 Equipment sterilisers

Permanent temperature indicators for equipment sterilisers are not required if a manual measurement can be taken. Alternatively, the thermometer may be remote from the point of use if it can be proven that temperature loss does not occur, and that the line between the point of use and the thermometer is free from taps or any other variable flow regulating device.

6.4.5 Calibrated automatic temperature recorders (CATRs)

Calibrated automatic temperature recording equipment shall be provided to monitor the temperature of temperature controlled rooms where required. Refer also to IS 2: Section 10.

6.4.6 Water treatment systems

6.4.6.1	Automatic water chlorination systems shall be fitted with alarm devices that indicate when they have ceased to function correctly.
6.4.6.2	Ultra-violet light water disinfection systems shall be fitted with monitoring and alarm systems to automatically shut down the water supply to the uv water treatment unit in the event of:

(a) power failure to the treatment unit;

(b) lamp failure of the treatment unit;

(c) excessive water turbidity.

6.4.7 Electrical stunning equipment

Monitoring equipment shall be provided that indicates electrical stunning equipment is functioning correctly.

6.5 Chutes

6.5.1	Chutes shall be clearly identified and provided with suitably located inspection ports.
6.5.2	Inspection ports shall be sealed to minimise leakage.
6.5.3	Chutes conveying byproducts shall not have any inspection ports or openings in areas producing food, and conversely chutes conveying food shall not have any ports or openings in byproducts areas.

6.6 Conveying Systems

Conveyors, rails, and other food transport systems shall be designed and constructed to minimise contact of food with non-food contact surfaces. Refer also to Manual 3.

6.7 Receptacles

6.7.1 Differentiation between food and byproducts containers

Byproduct containers shall be clearly labelled, except where there is a permanent approved and documented system of differentiating food and byproducts containers which is consistent within all areas of the premises and which has been effectively communicated to all premises personnel.

6.7.2 Receptacles to convey food in byproducts areas

Receptacles used to hold or convey food through byproducts areas, or byproducts through food areas and food support areas, shall be identified, leak-proof and covered to prevent contamination of food.

6.7.3 Byproducts from the slaughterfloor

Receptacles (for example, buckets and wheel barrows) used to collect byproducts from the slaughter floor shall be identified and leak-proof to prevent contamination of product. Receptacles may be required to be covered if the means of conveyance through the slaughter floor will jeopardise the safety or hygienic processing of product.

6.8 Motors, Drives and Pumps

Motors, drives and pumps, including vacuum pumps, shall be enclosed and suitably maintained so that lubricants and smoke do not cause contamination of the food or process. Alternatively, they should be located outside the food area.

6.9 Dry Cleaning Equipment

6.9.1	All equipment used in dry cleaning, such as brushes, scrapers, vacuum systems and pressurised air, shall be designed, constructed, installed and operated in accordance with good sanitary design principles.
6.9.2	In order to reduce airborne dust levels, it may be necessary to install suitable dust extraction systems.
6.9.3	Filters and air handling systems shall be well maintained to prevent them becoming a source of contamination.
6.9.4	Compressed air in direct contact with food contact surfaces shall be filtered or treated in such a manner to remove contaminants. Refer also to IS 2: Section 5.9.

6.9.5 Vacuum Systems

6.9.5.1	Vacuum systems shall be designed, installed and operated in accordance with good sanitary design principles and shall be fit for purpose.

Vacuum systems should be chosen on the recommendation of a supplier of vacuum systems that are specifically designed for the purpose of dry cleaning. Consideration should be given to the desired effectiveness, intended use and the ease of maintenance and cleaning, including accessories, exterior design, dust collector, filters, apparatus surfaces, etc. The cleaning and maintenance programme of the system should include the instructions and recommendations of the supplier.

6.9.5.2	The vacuum system shall be well maintained to prevent it becoming a source of contamination.
6.9.5.3	Vacuum systems shall be equipped with a filter system for outgoing air leaving the system.

The filter system should consist of a coarse filter to trap large dust particles and fine micro-filters upstream from the coarse filter to retain fine particles, including bacteria, yeasts and moulds.

Outgoing air from the vacuum system into food processing areas should be filtered through air filters that comply with at least the standard set out in Class EU5, DIN 24-185 Part 2.

6.9.5.4	Cross contamination shall be avoided by providing two different sets of attachments and tubes, one for food contact surfaces, the other for floors and room surfaces.
6.9.5.5	Vacuum systems and attachments shall be stored in a dry state, free from moisture and food residues.
6.9.6	Refer also to Manual 3.

7. Amenities

Scope

This section applies to amenities used by personnel working in any of the following categories of premises:

AB, ME, PH, DSP, GIP, PPH, APH, S, RSH.

7.1 Outcome

Premises shall be provided with amenities that are designed, constructed, equipped and located fit for the purpose of use and so that they do not provide a source of contamination for food.

7.2 General Principles

7.2.1	Amenities shall be located so as not to jeopardise the hygienic holding, slaughter and dressing of animals and the processing, packing, storage and transport of food.
7.2.2	Amenities shall be designed, constructed and maintained to:
7.2.2.1	provide sufficient space and facilities for employees to consume food, change clothes, store personal belongings, and attend to personal hygiene;
7.2.2.2	facilitate cleanliness and tidiness;
7.2.2.3	preclude direct opening on to any food area.
Physically separate amenities should be provided for food and non-food personnel.	

7.3 Personnel Wash Units

7.3.1	There shall be provision for sufficient numbers of conveniently located personnel wash units adjacent to every toilet.
7.3.2	All waste water shall be contained and ducted to a drain.
7.3.3	Hand wash units shall be operated by foot, knee or another approved method unless the premises is solely packing and storing protected product.
7.3.4	Hand wash units shall be provided with warm potable water, liquid soap dispensers and single use towels or other approved hand drying facilities that do not contaminate washed hands or the surrounding area. Roller towels shall not be used.
7.3.5	Facilities shall be provided for the disposal of used single use towels.

The recommended mixed warm water temperature range is 38-44 ^{0}C at the point of usage. Continuous towel dispensers are acceptable in the amenities of premises.

7.4 Lockers

7.4.1	All lockers provided for the storage of clothing and other personal belongings in the amenities shall be constructed so that the base is a sufficient distance clear of the floor to allow cleaning under them, and so that no material can be stowed on top of the lockers, or set flush with the walls.

7.4.2	Where food area protective clothing/equipment is stored in lockers, there shall be provision for physical separation from all other items.

Lockers with sealed wooden surfaces may be used in amenities.

7.5 Protective Clothing

7.5.1	Where appropriate, exclusive facilities shall be provided for:
7.5.1.1	depositing dirty clothing;
7.5.1.2	storing clean clothing.
7.5.2	Facilities shall be provided for the laundering of dirty protective clothing on the premises or by contract arrangement.

7.6 Inspector Amenities

7.6.1	Where permanent inspection staff are located on premises, the following amenities shall be provided for their use:
7.6.1.1	office facilities;
7.6.1.2	laboratory facilities;

7.6.1.3	dining facilities;
7.6.1.4	changing and drying facilities;
7.6.1.5	personnel hygiene facilities;
7.6.1.6	equipment wash facilities.
7.6.2	Where inspection staff are not permanently located on premises they shall be provided with a lockable cupboard for their use.
7.6.3	Showers are not required in premises packing, storing and transporting protected product.

7.7 Employee Amenities

7.7.1	The following amenities, as appropriate to the premises, shall be provided for employees' use:
7.7.1.1	changing facilities;
7.7.1.2	personnel hygiene facilities;

7.7.1.3	dining facilities.
7.7.2	Showers are not required in premises packing, storing and transporting protected product.

8. Animal Holding Facilities

Scope

This section applies to the live animal holding facilities of the following categories of premises:

AB, ME, DSP, PPH, APH, RSH

8.1 Outcome

Live animal holding facilities shall be designed, constructed and located to ensure compliance with animal welfare requirements, to effectively contain animals, to facilitate ante-mortem inspection and so that hygienic slaughter and dressing of animals and the processing, packing, storing and transport of food is not jeopardised.

8.2 General Principles

8.2.1	Animal holding facilities shall be designed to ensure compliance with animal welfare requirements and to allow for normal mobility and an easy flow of animals from holding facilities to the slaughter facilities.

Experience has shown that the following areas, per head of animal, within animal holding facilities exclusive of races, have proven acceptable:

- 1.7 m^2 for cattle;
- 0.35 m^2 for sheep, calves, goats and pigs;
- 0.25 m^2 for lambs.

8.2.2 AWAC requirements

Animal holding facilities and unloading areas (pens, races, receiving areas), should comply with the Animal Welfare Advisory Committee (AWAC) *Code of Recommendations and Minimum Standards for the Welfare of Animals at the Time of Slaughter at Licensed and Approved Premises*.

8.2.3 Inspection functions

Facilities fit for purpose shall be provided for the required inspection functions to be performed. Refer also to Manual 4.

The provision of catwalks to enable overhead inspection of large stock and deer has proven beneficial.

8.2.4 Animal species

Holding facilities fit for purpose shall be provided for each species of animal intended to be slaughtered.

8.2.5 Construction materials

Structures and construction materials shall be designed to be effectively cleaned and to contain the animals.

Experience has shown that timber posts, railings and partitions generally sustain severe damage in animal holding facilities, and in time become difficult to maintain in an acceptable clean condition and cannot be satisfactorily disinfected in the event of a contagious disease outbreak.

This is a particular problem with horses, given their predisposition to chew wooden surfaces.

8.2.6 Roofing

Roofing shall be provided for the race leading to the stunning area as a minimum requirement.

8.2.7 Floors

The floors of animal holding facilities shall be adequately paved, graded and drained to a drainage system and shall be capable of being cleaned.

8.2.8 Containment of waste

The outer perimeter of animal holding facilities shall be curbed to a height sufficient to contain liquid waste.

8.2.9 Animal wash facilities

Facilities shall be provided to effectively wash or treat animals to remove external contamination when necessary.

8.2.10 Animal drinking facilities

8.2.10.1	Animal holding facilities shall have adequate clean water drinking facilities to provide animals with ready access to drinking water at all times while being held prior to slaughter.
8.2.10.2	Overhead sprays do not meet this requirement.

8.2.11 Suspect facilities

8.2.11.1	Suspect facilities shall be provided for holding live animals which are unhealthy, or suspected of being unhealthy. Facilities provided for this purpose shall be identified and shall not be used for holding animals for any other purpose.
8.2.11.2	Facilities shall be constructed to*:*

(a) provide adequate roofing for the number of animals likely to be held;

(b) provide physical separation from other animals;

(c) permit effective cleaning and prevent contamination of adjacent animal holding facilities, other animals and surroundings when being used or cleaned;

(d) contain and duct effluent from the facility in a closed drain or covered drain directly to the main drainage system;

(e) provide facilities for the restraint and examination of animals.

A crush in the case of large animals, or squeeze gate or similar in the case of small animals, has proven acceptable.

8.2.12 Facilities for dogs

Suitable facilities shall be provided for restraining dogs while not being used to work animals.

8.3 Sheep, Goats, Calves and Pigs

8.3.1	Holding pens for sheep, goats, calves and pigs shall have an elevated slatted or open mesh metal grating over the underlying floor.

Grating should either be sufficiently high above ground level to allow cleaning underneath, or alternatively, if positioned directly upon or slightly above the ground, be structured in easily raised or removable segments so as to allow cleaning of the underlying floor.

8.3.2	Sufficient roofing shall be provided for sheep, goat, calf and pig holding facilities, to accommodate the maximum number of stock to be held in the yards intended for that day's and/or shift's kill.

8.4 Cattle

Holding pens for cattle shall be provided with facilities for the purpose of washing cattle submitted for slaughter and prior to stunning.

8.5 Possums

Holding facilities for captured and held possums shall be protected from the environment.

9. Slaughter and Dressing Facilities

Scope

This section outlines the specific requirements of facilities where live animals are slaughtered and dressed, and where game is dressed, within any of the following categories of premises:

AB, ME, PH, DSP, GIP, PPH, APH, RSH

9.1 Outcome

Slaughter and dressing facilities shall be designed and constructed to ensure hygienic slaughter and dressing, hygienic product flows, compliance with animal welfare requirements, and facilitation of inspection functions.

9.2 General Principles

9.2.1	The design, construction and installation of slaughter and dressing facilities shall be suitable for the intended operations of the premises and shall ensure compliance with the operational requirements of slaughter and dressing procedures.
	Refer also to Meat Industry Hygiene Council, Industry Standard 5: *Slaughter and Dressing*; and Venison Industry Standards Council, Industry Agreed Standard 5: *Slaughter and Dressing*.

9.2.2 Location

The location of the slaughter and dressing facilities shall provide for ready access of animals from holding facilities.

Provision should be made for access by emergency slaughter animals unable to use the entrance race.

9.2.3 Restraining and stunning facilities

Animal restraining and stunning facilities shall be designed and constructed to ensure compliance with operational requirements relating to animal welfare, humane slaughter and inducement of insensibility.

9.2.4 Stun area as food area or inedible area

The stun area may be considered to be a food area or an inedible area depending on its access to the slaughter facilities and the animal holding facilities.

9.2.4.1	The stun area is classified as an inedible area when it is part of the animal holding facilities and physically separated from the slaughter facilities.
9.2.4.2	The stun area is classified as a food area when it is part of the slaughter facilities and physically separated from the animal holding facilities.
	The stunning operator may move through a door from the slaughter facilities to the lead-up ramp of the animal holding facilities, provided the area is kept clean and not used by personnel working in the animal holding facilities.
	Where access to the lead-up ramp is permitted, the stunning operator shall not enter any other part of the slaughter facility, other than to move to the landing area where animals are shackled, provided this area is walled off to preclude any possible contact, splash, contamination, etc., from the rest of the slaughter facility and access by other slaughter personnel is prohibited.

9.2.5 Bleeding area

The bleeding area shall be designed and constructed to ensure compliance with operational requirements relating to the bleeding of animals and the inducement of permanent insensibility.

9.2.6 Confinement of blood

The bleeding area shall be designed and constructed to confine blood to that area and facilitate its removal without excessive ponding.

Experience has shown that the use of grating over the floor in the bleeding area helps in achieving operational hygiene requirements.

9.2.7 Suspension and transfer of carcasses

9.2.7.1	Facilities shall be provided to suspend carcasses and their parts off the floor prior to sticking. They shall be transferred by a means that will ensure adequate separation of carcasses and their parts so as to preclude contact until they have passed post-mortem inspection.
9.2.7.2	Facilities shall be provided to ensure pig carcasses are separated from the point of dehairing and/or the associated scraping table until the heads, viscera and carcasses have passed inspection.
9.2.7.3	The design and construction of slaughter and dressing facilities for other animals intended to be processed skin-on shall preclude the contamination of carcasses by hair, scurf, splash and condensation after scalding and dehairing operations.
9.2.7.4	Carcass transfer and suspension systems shall be designed and constructed to prevent unprotected carcasses or parts coming in contact with non-food contact surfaces prior to post mortem inspection. Refer also to IS 2: Section 6.6 and to Manual 3.

9.2.8 Moving chain systems

Moving chain dressing systems shall be provided with appropriately located chain stopping devices to facilitate hygienic dressing and inspection.

9.2.9 Retain facilities

9.2.9.1	Adequate clearly identified facilities shall be provided, where necessary, for retaining carcasses or their parts for the purpose of further inspection or treatment.
9.2.9.2	Retain facilities shall be equipped or operated to ensure carcasses or their parts are separated.

Mechanical means of carcass separation has proven more reliable than manual methods.

9.2.9.3	Retain facilities shall be located to permit ready access and supervision by an inspector.

9.2.10 Carcass wash facilities

Facilities provided for carcass washing or for washing and flushing of heads shall be designed and constructed to contain and duct wash water directly to the drainage system and prevent spraying or splashing or aerosol contamination of other product and areas.

9.2.11 Inedible and condemned material facilities

Adequate facilities shall be provided for the handling, collection and disposal of inedible and condemned material so as to prevent contamination of product. Facilities and/or equipment shall be suitably identified.

9.2.12 Non-food contact surfaces

Facilities, or alternatively appropriate procedures, shall be in place for the handling of product that has contacted non-food contact surfaces. Refer also to Manual 3.

Equipment capable of hoisting large animals should be provided where appropriate.

9.2.13 Inspection functions

9.2.13.1	Adequate facilities, equipment and unobstructed working space shall be provided to allow inspection functions to be effectively carried out.
9.2.13.2	Adequate facilities shall be provided to ensure each carcass and its parts are correlated and presented so as to facilitate inspection.

Many operational procedures are routinely monitored. There should be sufficient room for such checks to be performed.

9.2.14 Byproduct facilities

Byproduct facilities adjoining slaughter and dressing facilities shall be physically separated from slaughter facilities, designed and constructed on the basis of good sanitary design in accordance with the requirements for byproducts facilities, and fit for purpose.

Refer also to IS 2: Section 16.

10. Refrigeration Facilities

Scope

This section outlines the specific requirements of refrigeration facilities within any of the following categories of premises:

S, AB, ME, PH, DSP, GIP, PPH, APH, RSH.

10.1 Outcome

Refrigeration facilities shall be designed and constructed to be capable of reducing all parts of the food to the required preservation temperature within the required time, and/or holding and storing the food constantly at or below that temperature, and to minimise the possibility of contamination.

10.2 General Principles

10.2.1 Capacity

Refrigeration facilities shall be designed for the maximum capacity likely to be processed and held on the premises at any one time.

10.2.2 Condensation

The design and construction of refrigeration facilities shall ensure that condensation drip on to carcasses, food or equipment is minimised.

10.2.3 Rails and conveyors

Rails and conveyors on which unprotected carcasses and their parts are transported or held shall be designed and constructed to preclude contact of conveyed product with walls, floors, ceilings, structures, fittings, equipment and other product.

10.2.4 Monitoring

Equipment for the accurate monitoring and display of temperatures shall be provided and shall operate at all times while refrigeration facilities are in use. Refer also to IS 2: Section 6.4.

10.2.5 Temperature sensors

Temperature sensor(s) shall be positioned so they accurately monitor the temperature within a room using a sufficient number to monitor the temperature range in different parts of the room. If only one temperature sensor is used it shall be located in the return air flow to the evaporator unit, as this usually has the highest temperature.

10.2.6 Environmental loading facilities

Environmental loading facilities shall be designed and constructed to protect food from environmental hazards and to ensure maintenance of the temperature of food during load in or load out.

The minimum requirement for protected food loadout facilities is a canopy.

Protection for unprotected food should be provided by means of sealed docking bays or fully enclosed environmental loading facilities.

10.3 Process Rooms

10.3.1	Process rooms shall be designed and constructed to maintain process room atmospheres in accordance with the requirements of Manual 3.
10.3.2	Temperatures of temperature controlled process rooms shall be monitored by calibrated automatic temperature recording equipment. The room temperature shall be recorded at intervals of no greater than 1 hour. Refer also to IS 2: Section 6.4.
10.3.2.1	Process rooms include boning and cutting rooms, carcass cooling floors for overnight holding, conditioning and aging rooms, and thawing rooms.

10.4 Chillers

10.4.1	Facilities for chilling foods shall be designed and constructed to enable the exposed surface or thermal centre of the food, as appropriate, to be reduced to or maintained at the temperature appropriate to the food and process. Refer also to Manual 6.

10.4.2	Chiller temperatures shall be monitored by calibrated automatic temperature recording equipment. The room temperature shall be recorded at intervals of no greater than 1 hour. Refer also to IS 2: Section 6.4.

10.5 Freezers

Facilities for freezing foods shall be designed and constructed to enable food to be reduced to the temperature, within a prescribed time, appropriate to the food and process. Refer also to Manual 6.

10.6 Cold Stores

10.6.1	Cold stores shall be designed, constructed and operated to ensure that frozen food is maintained at -12 ^{0}C or colder during storage and loading.
	Cold stores holding fish and fish products shall ensure that fish and fish products are maintained at -18 ^{0}C or colder during storage and loading.
10.6.2	Cold store temperatures shall be monitored by calibrated automatic temperature recording equipment. The room temperature shall be recorded at intervals of no greater than 4 hours. Refer also to IS 2: Section 6.4.

10.7 Sharing Refrigerated Air

Chillers or freezers using a common refrigerated air supply with cold stores shall comply with the following requirements:

10.7.1	Cold stores shall be physically separated from the chiller or freezer by floor to ceiling walls.
10.7.2	Insulation shall be adequate to minimise heat transfer between the chiller or freezer and the cold store.

10.7.3	Where a chiller or freezer is used to refrigerate unprotected food, the inlet air from the cold store, if used to store packaged food, shall be adequately filtered to remove any dust/contaminants prior to release into the chiller or freezer.
10.7.4	Exhaust air from the chiller or freezer shall not be released directly back into the cold store and shall be dealt with by one of the following techniques:
10.7.4.1	discarded directly to the exterior environment;
10.7.4.2	ducted directly to the air inlet of the evaporator unit in the cold store room;
10.7.4.3	reduced to the temperature of the cold store room via a heat exchanger prior to return to the cold store room.
10.7.5	The refrigeration capacity of the cold store shall be adequate at all times to meet the maximum demands of the cold store and any additional demands placed on it in refrigerating any chillers or freezers.
10.7.6	The design and performance of the refrigeration system shall be validated by an independent refrigeration consultant.

10.8 Detain Facilities

10.8.1	Adequate, clearly identified facilities shall be provided for the secure handling of detained food.

10.8.2	Detain facilities for carcasses which have not passed inspection shall be provided as either a stand-alone chiller or an area in a standard chiller with lockable rails, separate drainage or a drip tray, and be before the defined entrance of the boning room.

10.9 Ice Production

Ice that may come in contact with food directly or indirectly shall be made from potable water. Facilities shall be provided for its storage, handling and transport that will not contaminate the ice.

11. Specific Processing Facilities

Scope

This section outlines the requirements for facilities used for specific food processing and preservation operations within any of the following categories of premises:

AB, ME, PH, PPH, APH.

11.1 Outcome

Processing facilities shall be designed and constructed to facilitate hygienic food processing and prevent post-process contamination.

Processing facilities shall be designed in such a way that operations which might give rise to cross contamination are separated physically or by time. Other effective means may be considered by the CMVO. Wherever possible, facilities should be designed so that the principle of one-way-flow of food can be implemented.

11.2 General Principles

11.2.1	Specific processing facilities identified within this section shall be designed and constructed to meet the specific requirements outlined in this section in addition to the applicable requirements of other sections in IS 2.

11.2.2 Good manufacturing practice

Hygienic food processing is ultimately effected through good manufacturing practice so as to ensure the finished food is safe and suitable for the intended purpose.

The design and construction of processing facilities shall be suitable for the intended operations of the premises and shall ensure compliance with the operational requirements of the applicable processing and sanitation and hygiene procedures. Refer also to Manual 6: *Processing of Edible Product* and Manual 3: *Sanitation and Hygiene*.

11.2.3 Cross contamination

The design of premises shall prevent cross contamination from raw to finished food areas. Where there is potential for cross contamination, finished food shall not enter raw food preparation areas and the movement of personnel shall be controlled so that they do not go directly from a raw material area into a finished exposed food area.

The entry of personnel to finished food areas should not be possible except through facilities which provide for clean protective clothing, hand washing and either a change of footwear or going through a sanitising foot bath.

11.2.4 Physical separation

Physical separation shall be provided between the following functions:

11.2.4.1	handling of unclean and clean raw food where there is a potential for cross contamination;
11.2.4.2	handling of raw and cooked or ready-to-eat food;
11.2.4.3	processing of wet and dry food.

The following examples indicate several means for separation of process functions:

Unclean raw food handling:

Raw unprocessed vegetables that require washing and peeling prior to incorporation into the product mix are stored and washed and peeled in a physically separate facility from the preparation of raw meat or other vegetables suitable for direct incorporation in to the product mix.

Clean raw food handling:

Mincing, cutting and the preparation of raw meat are performed in a physically separate temperature-controlled facility.

Mincing of raw meat is conducted within the same facility as a cooking operation where the facility is not temperature-controlled and the mincing is a single brief operation conducted on an "as required for cooking" basis. The raw meat would otherwise be stored in a suitable temperature-controlled store and only brought into the cook facility as required in production.

Thermal processing:

Cooking of product is conducted in a physically separate dedicated facility according to the specific product requirements.

Product is cooked in the same facility as the cooked product handling operations. Raw prepared food is transferred to this facility for immediate cooking and subsequent handling operations of the cooked product are not jeopardised by the cooking operation.

11.2.5 Process room atmosphere

Process rooms shall be designed and constructed to maintain process room atmospheres in accordance with the requirements of Manual 3.

11.3 Thermal Processing and Ready-To-Eat Products

11.3.1	A specifically designated location shall be provided for personnel handling cooked or ready-to-eat food to hang or place their protective clothing before leaving the area. The use of disposable protective coverings is an acceptable alternative.
11.3.2	Separate facilities shall be provided for the storage of unprotected, raw and cooked or ready-to-eat food.
11.3.3	Equipment used to heat food shall be designed to achieve the required temperatures as rapidly as necessary to achieve food safety objectives. Equipment shall be designed to allow temperatures to be monitored and controlled. Refer also to IS 2: Section 6.4.

11.3.4 Commercial sterilisation

11.3.4.1	Retorting areas shall meet food area construction standards. Where the process itself will ensure that risk of post-process contamination to the product is minimised, alternatives may be approved.
11.3.4.2	Steam supply to the thermal processing system shall be adequate to ensure that sufficient pressure is maintained during thermal processing, regardless of any other demands for steam.

11.3.4.3	The areas or rooms used for mixing and cooking hot fill foods shall be physically separate from a room used for mixing cold fill foods.
11.3.4.4	Provision shall be made, where required, for the washing and sterilising of containers prior to filling, and protecting them against recontamination.
11.3.4.5	Retorts shall be located in a separately curbed and drained area or shall be directly ducted to the drainage system.
11.3.4.6	Suitable facilities shall be provided for container cooling and drying so as to minimise the potential for post-sterilisation contamination.

11.4 Dry and Protected Food

Facilities designated as dry food areas shall be used exclusively for the processing, packing, storage and/or transport of dry foods or protected food.

Where practical, there should be no water or steam lines in dry food processing areas. If such lines are necessary, they shall be kept to a minimum and maintained in good repair so they do not leak or permit the formation of condensate. There should also be a ban on the use of water (for example, hose pipes, foot baths, drains, etc.).

11.5 Bakery Product Processing

11.5.1	The cleaning programme will define the compatible functions of the production area.

Raw dough, pastry and bakery foods may contain water at a level that will exclude the area it is processed in from being defined as a dry processing area. However, the cleaning requirements

	may require a mix of dry and wet cleaning procedures, due to the nature of processing equipment and operations.
11.5.2	Facilities subject to both dry and wet cleaning shall be provided with drainage outlets where required, and be physically separate from other processing areas that may use full wet cleaning or full dry cleaning.
11.5.3	Raw meat preparation areas shall be physically separate from raw dough/pastry preparation areas.

11.6 Smoking

11.6.1	Smoke cabinets or rooms shall be designed, constructed and operated so that smoke is contained within the facility and exhausted to the exterior.
11.6.2	Physically separate, dedicated facilities shall be provided for the storage of materials used to generate smoke and be located so that contamination of food is prevented.

11.7 Boning and Cutting

11.7.1	The design and layout of the boning and cutting rooms shall ensure a smooth and orderly flow of product, packaging and personnel and facilitate inspection of operations.

11.7.2 Suspension and transfer of carcasses

Unprotected carcasses sides and quarters shall be suspended and transferred by a means that will minimise contact with non-food contact surfaces. Refer also to Manual 3.

11.7.3 Pre-trim areas

11.7.3.1	A dedicated pre-trim area shall be provided within the boning room, or in an area adjoining the boning room which is subject to the same temperature control. In the case of hot boning, a non-temperature controlled area is acceptable. Refer also to Manual 6.
11.7.3.2	Facilities shall be provided to contain and dispose of waste material.
11.7.3.3	Ready access to hand wash and steriliser units shall be provided in the pre-trim area.

Where necessary, stands for high and low trimming functions should be provided. They should be large enough to allow inspection personnel to monitor trimming.

11.7.4 Waste removal

Provision shall be made for the removal of waste material (fat and bones) on a continuous or regular basis to a separate facility outside the boning room.

11.7.5 Non-food contact surfaces

Facilities, or alternatively appropriate procedures, shall be in place for the handling of product that has come in contact with non-food contact surfaces. Refer also to Manual 3.

11.7.6 Packaging materials

Facilities for holding packaging materials for immediate use during production in boning and cutting rooms shall be designed, constructed and located to facilitate the hygienic delivery of the materials.

11.8 Casings and Green Offals

11.8.1 Emptying and cleaning

Facilities that are physically separate from other food areas shall be provided asdedicated facilities for the following purposes:

11.8.1.1	Separating, stripping or emptying and cleaning of intestines and green offals.
11.8.1.2	Processing of green casings that have not been fully stripped and cleaned, and green offals that have not been cleaned (emptied only).
Where these processing functions of green casings and green offals are conducted in the same facility, they shall be separated by distance.	

11.8.2 Refining of clean offals

Physically separate, dedicated facilities shall be provided for the refining of clean offals. Alternatively, refining may occur in the same room as cleaning where specialised processing machinery is used that fully encloses the product (e.g. tripes, including omasal tripes) and the finished refined product is discharged into a physically separate room.

11.8.3 Processing of clean casings

Physically separate dedicated facilities shall be provided for any further processing (measuring, classing, salting, etc.), and packing of clean casings.

11.8.4 Processing of clean or refined clean offals

Physically separate, dedicated facilities may be provided for any further processing (cooking, salting, drying, etc.), and packing of clean or refined clean offals. Alternatively, further processing and packing may occur in a food area separated by distance from other products of an equivalent status.

11.8.5 Storage of clean casings casks

Facilities shall be provided for the storage of clean empty casings casks to minimise contamination prior to entering the food area for filling.

11.9 Deer Antler, Pizzles, Tails and Sinews

11.9.1	Processing of deer antler, pizzles, tails or sinews shall be carried out either in:

11.9.1.1	physically separate, dedicated facilities; or
11.9.1.2	A food area separated by time from other processing.
11.9.2	Facilities dedicated to processing deer antler only are exempt from the requirements for room temperature control.

12. Food Support Facilities

Scope

This section outlines the specific requirements for food support facilities within any of the following categories of premises:

AB, ME, PH, DSP, GIP, PPH, APH, CKP, RSH.

12.1 Outcome

Food support facilities shall be designed, constructed and maintained to enable the storage, transport or preparation of materials, ingredients and food to take place in a manner that prevents contamination and shall not jeopardise the hygienic slaughter and dressing of animals and the hygienic processing, packing, storage and transport of food.

12.2 General Principles

Items held and/or prepared within a food support facility shall be of compatible status with other items and the intended purpose of the facility.

12.3 Packaging Material Facilities

12.3.1	Dedicated facilities shall be provided for the storage and/or make-up of packaging materials.
12.3.2	A lockable facility shall be provided for the holding of inspection legend-bearing packaging material.
12.3.3	Packaging material facilities shall be able to store packaging materials off the floor.

12.4 Ingredient Facilities

Dedicated facilities shall be provided for the storage and/or preparation of dry ingredients and/or other shelf-stable packaged ingredients used in the manufacture of food.

12.5 Chemical Facilities

Dedicated facilities shall be provided for the storage of cleaning equipment and dedicated secure facilities shall be provided for the storage and/or preparation of cleaning chemicals.

12.6 Implements and Protective Clothing Facilities

12.6.1	Dedicated facilities shall be provided for the storage of protective clothing and implements when employees are not in processing areas.
12.6.2	Knife-sharpening facilities shall be provided in a facility separated physically or by distance, as appropriate to the process, from the processing area.

A dedicated facility could be a room or simply a cupboard within the appropriate environment, dependent upon the requirements of the premises.

12.7 Cleaning Facilities

12.7.1	Adequate facilities shall be provided, where necessary, for cleaning and/or sterilising equipment, personnel and their protective clothing. Cleaning facilities shall be constructed to ensure effective cleaning, and shall be situated so as not to jeopardise hygienic food processing.
12.7.2	Separate facilities (physically or by distance), as appropriate to the process, shall be provided for the cleaning and/or sterilising of equipment where steam and splash from wash water or cleaning chemicals are a potential source of contamination to food being processed, packed, stored or transported.
12.7.3	Wet cleaning facilities shall have an adequate supply of hot and cold potable water.

12.7.4	Facilities shall be designed and constructed to store cleaned and/or sterilised equipment so as to prevent contamination and to transport cleaned equipment back to the point of use without re-contamination.
12.7.5	Hygiene facilities appropriate to the nature of the process and protective clothing worn shall be provided at personnel entry points to food processing areas (for example, wash hand basins, apron washes, boot washes or boot change facilities, and apron hooks).
A separate ante room with these hygiene facilities should be provided wherever possible.	

13. Stores

Scope

This section outlines the design and construction requirements for facilities storing protected refrigerated and non-refrigerated food or byproducts and other input items within any of the following categories of premises.

S, AB, ME, PH, DSP, GIP, PPH, APH, RSH, CKP, PF, BPW, BBP, BP

13.1 Outcome

Stores shall be designed, constructed and located to suit the conditions of use and shall not compromise the hygienic holding, slaughter and dressing of animals and the processing, packing, storage and transport of food, and/or the maintenance of the integrity of preserved food.

The design and construction of stores shall ensure that protected packaging materials, ingredients, chemicals, and preserved food do not become contaminated and are not a source of contamination.

13.2 General Principles

13.2.1 Separation

Separate compartments or rooms, as appropriate to the stored items, shall be provided for foods and items liable to taint or otherwise contaminate each other.

13.2.2 Floors

Floors shall be constructed of durable, easily cleaned materials fit for the conditions of use and, if subject to wet cleaning, shall be impervious and adequately drained.

Floors shall be constructed and maintained to eliminate cracks, open joints, depressions or other low areas that would accumulate moisture or contaminants.

13.2.3 Walls and Ceilings

Internal walls and ceilings shall be constructed of non-toxic, easily cleaned, corrosion-resistant, durable materials fit for the conditions of use and, if subject to wet cleaning, shall be impervious.

13.2.4 Floor to Wall Junctions

Floor to wall junctions shall be constructed to facilitate easy cleaning.

13.2.5 Equipment

Equipment and fittings shall be designed, constructed and installed to facilitate effective cleaning and in accordance with good sanitary design principles.

The use of racking systems within stores has been found to be advantageous to avoid stack damage to packaging and for the maintenance of the integrity of the food.

13.2.6 Services

Building services shall be provided in accordance with good sanitary design principles for the hygienic operation of the store.

13.3 Secure Facilities

13.3.1 Detain facilities

Clearly identified detain facilities shall be provided for the secure holding of detained refrigerated and non-refrigerated food, where required.

13.3.2 Inspection legend material

A lockable facility shall be provided for the secure holding of inspection legend-bearing material.

13.3.3 Chemical storage

Dedicated secure facilities shall be provided for the storage of chemicals.

14. Custom Killing Premises and Rural Slaughter Houses

Scope

This section applies to the following categories of premises:

CKP, RSH.

14.1 Outcome

Custom Killing Premises and Rural Slaughter Houses shall be designed, constructed and located to ensure the hygienic holding, slaughter and dressing of animals and the hygienic processing, packing, storing and transporting of food and inedible materials derived from the premises.

14.2 General Principles

14.2.1	CKPs and RSHs shall meet the specific requirements outlined in this section in addition to those other requirements of Manual 2 for CKPs and RSHs.
14.2.2	Byproduct facilities adjoining slaughter and dressing facilities shall be physically separated, designed and constructed on the basis of good sanitary design in accordance with the requirements for byproducts facilities, and be fit for the purpose of use.
	Refer also to IS 2: Section 16.

14.3 Custom Killing Premises

14.3.1 Stockyards

14.3.1.1	The design and construction of animal holding facilities shall be adequate to contain the species processed and shall facilitate effective cleaning.

14.3.1.2	Sufficient roofed pens shall be provided to accommodate the maximum number of pigs, goats, bobby calves and sheep to be held in the yards at any one time and intended for that day's and/or shift's kill.
14.3.1.3	Sheep pens shall be provided with floor grating.
14.3.1.4	The floors of animal holding facilities shall be adequately drained.
14.3.1.5	Animal holding facilities shall be provided with animal drinking facilities supplied with clean water.

14.3.2 Restraining and stunning

Restraining and stunning equipment should be designed and constructed to ensure compliance with the Animal Welfare Advisory Committee (AWAC) *Code of Recommendations and Minimum Standards for the Welfare of Animals at the Time of Slaughter at Licensed and Approved Premises*.

14.3.3 Slaughter and dressing

Slaughter and dressing facilities shall be suitable for the intended operations of the premises and shall ensure compliance with the operational requirements of slaughter and dressing procedures.

Refer also to the applicable parts of Meat Industry Hygiene Council, Industry Standard 5: *Slaughter and Dressing*; and Venison Industry Standards Council, Industry Agreed Standard 5: *Slaughter and Dressing.*

14.3.4 Ventilation

Ventilation systems shall be effective in the removal of excess heat and vapour and shall minimise the entry of contaminating odours, dust, ash, vapour and smoke.

14.3.5 Lighting

Sufficient lighting shall be provided to enable accuracy of operations and hygienic processing. Artificial lights shall be either shatter-proof or enclosed in shatter-proof enclosures to prevent contamination in the event of breakage.

14.3.6 Potable water

A supply of potable water, with appropriate facilities for its storage, distribution and temperature control, shall be provided in sufficient volume and pressure for the hygienic operation of the premises. Refer also to Manual 3.

14.3.7 Hot water

Hot water shall be provided at a minimum temperature of 82 ^{0}C at the point of use when utilised for the sterilisation of product processing equipment, floors, walls, gut buggies, etc., that are subject to contamination.

14.3.8 Drainage and sewerage system

There shall be a drainage and sewerage system that effectively removes solid and liquid waste and which does not jeopardise the hygienic processing of products.

14.3.9 Equipment

14.3.9.1	All equipment used for product processing shall be easily cleaned, be corrosion-resistant, smooth-surfaced and impervious.
14.3.9.2	Suitable means shall be provided for the cleaning and sanitising of the premises and equipment.
14.3.9.3	Monitoring equipment shall accurately reflect the process being controlled and be suitable for the conditions of use. The accuracy of every monitoring device shall be calibrated against a reference standard. Refer also to Manual 8.

14.3.10 Suspension and transfer of carcasses

Unprotected carcasses, sides and quarters shall be suspended and transferred by a means that will avoid contact with walls, floors, ceilings, stands or other structures, fittings and equipment.

14.3.11 Refrigeration

Adequate refrigeration facilities shall be provided for holding carcasses, sides and quarters, if deemed necessary for the approved process. Refrigerated facilities shall incorporate suitable temperature monitoring devices.

14.3.12 Amenities

Amenities shall be located so as not to jeopardise the hygienic slaughter and dressing of animals and the processing, packing, storage and transport of food. Amenities shall be designed, constructed and maintained so as to:

14.3.12.1	Provide sufficient space and facilities for employees to consume food, change clothes, store personal belongings, and attend to personal hygiene;
14.3.12.2	Facilitate cleanliness and tidiness of the premises;
14.3.12.3	Preclude direct opening on to any food area.

14.4 Rural Slaughter Houses

The relevant provisions of all appropriate parts in IS 2 are applicable, with the exception of the requirements for ante- and post-mortem inspection.

15. Game Depots

Scope

This section applies to Game Depots (GDs).

15.1 Outcome

Game depots shall be designed and constructed to facilitate the hygienic chilling and holding of killed game.

15.2 General Principles

Game Depots shall meet the specific requirements outlined in this section in addition to those other requirements of IS 2 for Game Depots.

15.3 Game Depots

15.3.1 Site

The premises shall be located on a readily drained site with firm and reasonably dust-free ground, away from stock and other animals.

15.3.2 Refrigeration

A refrigerated facility shall be provided, in which carcasses can be chilled and held within the temperature range of 0-3 ^{0}C.

15.3.3 Potable Water

A supply of potable water, with appropriate facilities for its storage, distribution and temperature control, shall be provided in sufficient volume and pressure for the hygienic operation of the premises. Refer also to Manual 3.

15.3.4 Waste Water

All waste water shall be adequately contained and ducted to a drain.

15.3.5 Suspension of carcasses

Carcasses shall be suspended by a means that will avoid contact with walls, floors, ceilings or other structures, fittings and equipment.

15.3.6 Equipment

All equipment used in contact with product shall be designed and constructed to be easily cleaned, corrosion-resistant, smooth-surfaced and impervious to moisture.

15.3.6.1	Suitable means shall be provided for the cleaning and sanitising of the premises, equipment and personnel.
15.3.6.2	An external temperature gauge shall be provided, from which the operating temperature can be monitored.
15.3.6.3	Monitoring equipment shall accurately reflect the process being controlled and be suitable for the conditions of use. The accuracy of every monitoring device shall be calibrated against a reference standard. Refer also to Manual 8.

15.3.7 Amenities

Where dedicated amenities are provided, they shall be located and constructed so as not to jeopardise the hygienic chilling and holding of killed game.

16. Byproduct Facilities

Scope

This section outlines the design and construction requirements for the following categories of premises:

PF, BPW, BBP, BP.

This standard also applies to the design and construction of facilities that are used to process, pack, store or transport byproducts, within any of the following categories of premises:

AB, ME, PH, DSP, GIP, CKP, RSH, PPH, APH.

16.1 Outcome

Byproduct facilities shall be designed and constructed to be fit for purpose, facilitate hygienic operations and ensure byproducts and their treatment do not jeopardise the holding, slaughter and dressing of animals for food and the processing, packing, storing and transport of food.

16.2 General Principles

16.2.1	Processing facilities shall be designed and constructed on the basis of good sanitary design principles and be fit for the purpose of use.
16.2.2	Facilities shall be designed and constructed to minimise the possibility of contamination or deterioration of byproducts under normal operating conditions.

16.2.3 Separation from food areas

Any facilities used for the slaughter and dressing of animals for byproducts and the processing, packing, storing and transport of byproducts, that form part of a food premises, shall be physically separated from food areas and shall be dedicated to byproduct use.

16.2.4 Building construction

16.2.4.1	Floors, walls, ceilings and doors shall be constructed from easily cleanable materials that are fit for purpose.

The interior finishes of construction materials and equipment surfaces which contact byproduct should be of a colour which does not disguise contaminants.

(a) Refer to IS 2: Section 16.6 for specific requirements of Byproducts Premises.

16.2.4.2	Floors subject to wet cleaning shall be adequately graded and drained so that liquids do not accumulate.
16.2.4.3	Floor to wall junctions shall be constructed to facilitate easy cleaning.

16.2.5 Water supply

16.2.5.1	An adequate supply of clean water (hot, warm, cold) at suitably located draw-off points shall be available whenever necessary for the hygienic operation of the facility.
16.2.5.2	Hot water shall be provided at a minimum temperature of 82 ^{0}C at the point of use when utilised for the sterilisation of equipment.

16.2.6 Lighting

16.2.6.1	Lighting shall be sufficient to enable hygienic processing.
16.2.6.2	Light bulbs, fixtures, skylights, or other glass shall be of the safety type, or otherwise protected to prevent contamination of byproduct in the event of breakage.

16.2.7 Equipment

16.2.7.1	Equipment, fittings and services shall be designed, constructed and installed in accordance with good sanitary design principles.
16.2.7.2	Byproduct contact surfaces shall be smooth, impervious, non-toxic, non-absorbent, durable and able to be easily cleaned without damage to the surface.

16.2.8 Preservation

16.2.8.1	Adequate heat treatment or refrigeration facilities shall be provided for preservation of byproducts. Temperature and time monitoring devices shall be provided as appropriate.
16.2.8.2	Monitoring equipment shall accurately reflect the process being controlled and be suitable for the conditions of use. The accuracy of every monitoring device shall be calibrated against a reference standard. Refer also to Manual 8.

16.2.9 Waste collection

Adequate facilities shall be provided for the collection and removal of any waste materials.

16.2.10 Wash facilities

16.2.10. 1	Adequate conveniently located personnel wash facilities shall be provided as appropriate to the type of process and protective clothing worn.
16.2.10. 2	Hand-operable taps are acceptable.

16.2.10. 3	Adequate cleaning and sterilising facilities shall be provided for equipment, process areas and, where used, for re-usable containers.

16.2.11 Byproduct support facilities

Adequate facilities shall be provided for the storing and/or preparation of all packaging materials, brands, labels, ingredients and chemicals.

16.2.12 Amenities

16.2.12.1	Amenities shall be located so as not to jeopardise the hygienic slaughter and dressing of animals for byproducts and the processing, packing, storage and transport of byproducts.

16.2.12.2	Amenities shall be designed, constructed and maintained to:

(a) provide sufficient space and facilities for employees to consume food, change clothes, store personal belongings, and attend to personal hygiene;

(b) facilitate cleanliness and tidiness;

(c) preclude direct opening on to any processing area.

Physically separate amenities should be provided for food and non-food personnel.

16.3 Petfood Factories (PF)

16.3.1	Ventilation systems shall effectively remove excess heat and steam, and minimise the entry of contaminating odours, dust, ash, vapour and smoke.

16.3.2	Hygiene facilities appropriate to the nature of the process and protective clothing worn shall be provided at personnel entry points to processing areas (for example, wash hand basins, apron washes, boot washes or boot change facilities, and apron hooks).

16.3.3 Slaughter facilities

16.3.3.1	Animal holding facilities shall be designed and constructed to be effectively cleaned and to contain the animals.
16.3.3.2	Animal drinking facilities shall be provided in pens where stock or farmed deer are held prior to slaughter.
16.3.3.3	The means of restraint of the animal and equipment to render animals insensible to pain prior to slaughter should comply with the Animal Welfare Advisory Committee (AWAC) *Code of Recommendations and Minimum Standards for the Welfare of Animals at the Time of Slaughter at Licensed and Approved Premises*.

16.4 Byproducts Works (BPW)

16.4.1	Rendering plants shall be equipped with sufficient rendering capacity to ensure byproducts are processed with minimum delay.
16.4.2	Rendering plant and equipment shall be designed, constructed, and operated to ensure physical separation of raw and sterilised or heat-treated byproduct.
16.4.3	Access of personnel from areas likely to provide a means of contamination to the sterilised or heat-treated byproduct shall be avoided. Where movement of personnel is necessary between raw material and sterilised or heat-treated

	byproducts areas of the plant, appropriate personnel hygiene facilities shall be provided.
16.4.4	The area surrounding inedible tallow tanks shall be adequately paved and drained.
16.4.5	Physically separate dedicated amenities shall be provided for personnel handling dead stock.

16.5 Byproducts Biologicals Premises (BBP)

Ventilation systems shall effectively remove excess heat and steam, and shall minimise the entry of contaminating odours, dust, ash, vapour and smoke.

16.6 Byproducts Premises (BP)

16.6.1	Walls and other structures subject to wet cleaning shall be impervious and easily cleaned without damage to the surface.	
16.6.2	The area surrounding inedible tallow or other byproduct tanks shall be adequately paved and drained.	

17. Mobile Premises

Scope

This section outlines the requirements for any premises that is designed and constructed to operate in a number of different locations.

17.1 Outcome

The premises' location, design and construction shall provide a hygienic environment for the holding, slaughter and dressing of animals, and the hygienic processing, packing, storing and transport of food and byproducts, that prevents contamination and complies with regulatory requirements.

17.2 General Principles

Premises shall be located, designed, constructed, equipped and serviced in accordance with the applicable sections of IS 2 so as to provide a standard of operation equivalent in outcome to that required for fixed premises.