

## CHAPTER 9 - EQUIPMENT, INFRASTRUCTURE, CLOTHING AND DEFENCE ACCOMMODATION STORES

0901. **Works Services.** Works services can be defined as the construction, enlargement or modification of a building or fixed facility. Works services are divided into two categories:

- a. Major Capital Projects (Core Works).
- b. Minor New Works (Core Services).

There are no hard financial limits which distinguish when a project is considered to be Core Works, or Core Service. A risk based judgement by the delivery organisation (Defence Estates) will be made based on complexity of the project, capability, capacity and competence of DE and its supply chain.

0902. **Works Services Overview.** This chapter will give an overview of the flow of a works service project, minor works services, the key personalities involved and their relationship, if any, with catering staff. Maintenance and repair may constitute a works service although the funding and frequency will normally be decided at unit/stn/base level. The following references should be used in conjunction with this chapter:

- a. JSP 435 – Ministry of Defence Works Projects.
- b. JSP 434 – Ministry of Defence Property Management.

0903. **Project Flow.** The chart at Annex A shows the flow of a project from identification through to financial completion. Unit/establishment catering staff will have input to these projects through the relevant staff, particularly during the early period of the Project Identification stages. The DE PTS (Building Standards Catering Technical Services (BSCTS)) staff, as the Kitchen Design and Equipment Authority (KDEA), should be informed at the earliest opportunity so that sound specialist direction can be given from the outset of the project. Whilst it is noted that there is constant contact between interested parties involved in a project, unit, establishment and area catering staff should not deal directly with project staff after the consultation with DE PTS (BSCTS) has begun. All requests for amendments and changes to catering facilities should be directed to the relevant DE PTS (BSCTS) project manager who will advise both catering and project staff as to the viability of the request.

0904. **Key Personnel.** The following is a list of personnel who may be involved in a works project and an outline of their role:

- a. **User.** The user of a facility whose operation is the driving force behind a contract. The user may be a budget holder from unit/establishment through to Top Level Budget (TLB) holder.
- b. **Project Staff Officer.** A member of the budget holder's staff who handles daily project business until a Project Manager is appointed.
- c. **Budget Manager.** A member of the budget manager's staff, responsible for the co-ordination of expenditure profiles and fiscal advice to the budget holder.
- d. **Site Establishment Representative (SER).** A MoD official appointed by the Commanding Officer/Head of Establishment responsible for normal daily property management issues.

- e. **Project Manager.** A professional construction industry project manager, appointed by the delivery organisation, responsible to Defence Estates for overseeing the design and construction process and to manage the daily business of the project.
- f. **Defence Estates Project Manager (DE PM).** A member of Defence Estates (DE) responsible for co-ordination of all DE provided services to the project.
- g. **Contracts Officer.** A member of the Defence Contracts Organisation, responsible for all non construction, contractual aspects of the project.
- h. **Regional Prime Contractor (RPC).** The commercial company, contracted to Defence Estates, and responsible for the construction work and through life maintenance.
- i. **Defence Estates PTS Building Standards-Catering Technical Services (BSCTS)** is the Kitchen Design & Equipment Authority (KDEA).

0905. **Obtaining Approval.** Although each Service has a slightly different form for initiating this procedure the process for obtaining approval, shown at Figure 2, follows the same basic format. Advice should be sought from the property management team as to the procedures to be adopted. At all stages of the process scrutiny by Subject Matter Experts (SMEs) should be sought. The staff at DE PTS (BSCTS), if involved at the earliest stages, will be available to give clear advice to all members of the approval system and may be able to save a great deal of time and effort.

0906. **Planned Maintenance.** Beyond the standard warranty period Planned Maintenance will be undertaken by DE RPC. At the initiation of any catering equipment project the Project Staff Officer/Budget Manager should, in consultation with the DE Project Manager, consider through life cost of the equipment and life cycle replacement. This funding line should be secured from the Budget Manager and transferred to DE for ongoing maintenance.

0907. **User Maintenance.** As users of the equipment, catering staff have a responsibility in ensuring that the regular maintenance checks are carried out. All equipment procured through the correct channels will have a clearly defined user manual which, as well as showing how to operate the equipment effectively, will contain a section on user maintenance. This section should be read and adhered to thereby extending the useful life of the equipment. Standard areas of responsibility may include:

- a. Cleaning procedures.
- b. Deep cleaning requirements.
- c. Replacement of filters.
- d. Use of lubricants.
- e. Safety procedures.
- f. Water softener arrangements.

0908. **Regular Maintenance.** As well as the standard user maintenance most equipment will require regular maintenance from a qualified engineer or maintainer. Although there is no defined requirement for units to carry out regular maintenance on the catering equipment,

other than safety checks, the benefits should outweigh any financial costs of a regular maintenance contract. Catering and property managers are strongly advised to seek financial authority for maintenance contracts.

0909. **Repairs.** All Requests for repairs should be reported to the DE RPC helpdesk. The helpdesk will log the request and respond according to the operational urgency of the fault and the response criteria of the contract.

**Note:** The Minor New Works (Core Service) Approval flow diagram can be found at Annex B.

0910. **Catering Facilities.** The design of catering facilities is a specialist area in which almost every caterer considers himself or herself an expert. Although unit staff including the multi-activity contractor (MAC) should have input into the design of any facility which they are to manage, to ensure a standard of size and quality is maintained across the MoD estate, key decisions and final authorisation is the remit of the DE PTS (BSCTS). This chapter will give a basic overview of the principles involved in:

- a. Calculating the spatial standards of catering facilities.
- b. Calculating scales of equipment.
- c. Catering Facility Design.

0911. **Publications.** In addition to the SMEs at DE PTS (BSCTS) a number of publications are used to assist in the calculation of scales and allowances for each building, specifications for equipment and guidance for design. They are:

- a. Food Safety Act 1990.
- b. Food Hygiene (England) Regulations 2006.<sup>1</sup>
- c. JSP 308 Defence Accommodation Stores.
- d. JSP 315 Services Accommodation Code (Edition 2).
- e. JSP 375 UK MoD Health and Safety Handbook.
- f. JSP 384 - Defence Accommodation Stores Policy and Procedures.
- g. JSP 418 MoD Environmental Protection Measures.
- h. Defence Estates Specification No 42 – Catering Equipment Specification.
- i. Defence Estates Design and Maintenance Guide No 18 – Design of Catering Facilities.

These publications should be held within each unit library or may be found on:  
<http://www.mod.uk/DefenceInternet/Microsite/DES/OurPublications/cateringPublications/> &  
<http://defenceintranet.diiweb.r.mil.uk/DefenceIntranet/DefenceEstates/DefenceEstates.htm>  
and should be utilised during the early stages of identifying a potential project.

---

<sup>1</sup> And equivalent regulations in Scotland, Wales and Northern Ireland.

0912. **JSP 315 Services Accommodation Code (Edition 2).** JSP 315 is the basis for all accommodation requirements within the Services. The most important Scales to caterers are Scales 39 and 52, but this should be read in conjunction with other scales as shown below:

Scale Number	Mess	Remarks
Scale 1	Main Introductory Notes	
Scale 9	Civilian Staff Catering Facilities	
Scale 29	Messes, Offrs'	Public Rooms
Scale 30	Messes, Offrs'	Single Sleeping Quarters
Scale 32	Messes, Offr Cdts'	Single Sleeping Quarters
Scale 34	Messes, WOs'/SNCOs'	Public Rooms
Scale 35	Messes, SNCOs'	Single Quarters
Scale 39	Kitchen and Service Catering Facilities	Dining Room, Kitchen and Servery
Scale 40	Changing and Locker Rooms	
Scale 42	NAAFI Families Shop and Messing Store (overseas except Germany)	
Scale 43	NAAFI Families Shop and messing Store (Germany)  Social Clubs, NAAFI	
Scale 45	Offices	
Scale 47	Staff Rest Rooms	
Scale 52	Amenity (catering, retail and leisure) Facilities for Junior Ranks in Great Britain	Replaces Scale 51, Social Clubs and incorporates 4 into 1

0913. **Scale 39.** The contents of Scale 39 are:

- a. Part 1 – Introduction.

- b. Part 2 – Kitchen and Ancillary Accommodation Area Scales.
- c. Part 3a – Junior Ranks Dining Rooms, Serveries and Ancillary Accommodation Area Scales.
- d. Part 3b – Officers' and SNCO' Mess Serveries and Pantries Area Scales.
- e. Part 4 - Scale of equipment for all kitchens.
- f. Part 4a - Junior Ranks Dining Rooms, Serveries and Ancillary Accommodation Scale of Equipment.
- g. Part 4b – Officers' and SNCO' Mess Serveries and Pantries Scale of Equipment.
- h. Part 5 – Staff Facilities Area Scales.
- i. Part 6 – Catering Control Area Scales and Scale of Equipment.
- j. Part 7 – Cook Chill facilities.
- k. Part 8 – Satellite kitchens supported by a Junior Ranks' Mess (not cook chill)

**Scale 52.** The contents of Scale 52 are:

- a. Part 1 – Introduction.
- b. Part 2 – M & E Requirements.
- c. Part 3 – Accommodation for Trained Units.
- d. Part 4 – Accommodation for Phase 1 and 2 Training Establishments.
- e. Part 5 – Staff Facilities.
- f. Annex A – Establishment Kitchen Area Scales-Trained Units.
- g. Annex B – Scale of Equipment for Kitchens-Trained Units
- h. Annex C – Establishment Kitchen Area Scales-Phase 1 & 2 Training Units
- i. Annex D – Scale of Equipment for Kitchen-Phase 1 & 2 Training Units

These publications are a simple guide which, when used carefully by an experienced Project Advisor, will aid both the catering and project management team of any unit involved in a refurbishment or rebuild.

0914. **Scale of Provision Calculation.** To ensure that the correct scale can be calculated, it is essential that unit staff are aware of the information required so that a fair assessment can be made. The most important figure is that of the unit's actual personnel establishment (complement) and not the feeding strength. In the case of Scale 39, this figure will be utilised as the basis for the calculation of the Numbers To Be Fed (NTBF) upon which the spatial standards and equipment scales will be calculated. NTBF will be shown as a percentage of the unit establishment as shown at Figure 3. In the case of Scale 52, the

Establishment figure will be used directly to determine the spatial standards and equipment scales for both the kitchen and front of house facilities.

**NTBF Percentages (JSP 315 Scale 39)**

Type of Unit	Officers and SNCOs (%)	JRs (%)
Student facilities at a Training Unit	80	90
Normal Units and Permanent Staff facilities at a Training Unit	50	60
Unaccompanied Units Overseas	100	100

0915. **Other Information.** Other information that will be essential to ensure the facilities can be designed to encapsulate the unit's requirement will include:

- a. Average Feeding Strength.
- b. Average Official Casual Feeders.
- c. Meal duration and/or Number of Sittings.
- d. Service density and Peak Periods.
- e. Average Container Meals.
- f. Average Packed Meals.
- g. Type of Food Delivery (Central or Standard).
- h. Number of catering staff and gender separation.
- i. Any special requirements or commitments.

These and others areas are included in the Catering Questionnaire, which forms part of the output specification for the catering facility. Once the total number of users is determined, Scale 39 and Scale 52 of JSP 315 are used to calculate both the special and equipment requirements.

0916. **Factors in Determining Spatial Entitlement.** In addition to the basic kitchen and dining spatial standards JSP 315 Scales 39 and 52 contain the scales required for stores, toilets, offices, queue space, cloakrooms and staff facilities. Finally the designer has an area addition percentage for each room that allows for circulation, internal walls, stairs etc, these additions are not an entitlement.

0917. **Primary Catering Equipment.** JSP 315 Scales 39 and 52 contain the scale of equipment required within catering facilities. As with the spatial standards the scale is based

upon the NTBF and Establishment numbers accordingly. The list is not a rigid entitlement and deductions and additions may be negotiated.

0918. **Specification of Equipment.** In addition to calculating scales, extra care must be taken to ensure the correct quality of equipment is procured. On far too many occasions the incorrect quality of equipment has been procured leading to additional expense and lowering of efficiency standards. Although 'buying solutions' produce a price list of equipment available from industry 'frameworks', not all of this equipment will meet the stringent standards laid out in DE Spec 42. Only equipment that is compliant with DE Spec 42 should be purchased and installed in MOD catering facilities. If there is any doubt as to suitability of the equipment advice must be sought from DE PTS (BSCTS).

0919. **Light Catering Equipment and Other Furnishings.** The guide for scales of small catering equipment, furniture and soft furnishings may be found in:

- a. JSP 307 – Scaling for DAS items.
- b. JSP 308 – Defence Accommodation Stores. This publication lists the scales for furniture and light catering utensils.
- c. JSP 384 – Defence Accommodation Stores Policy and Procedures. This publication lists the scales and supply procedures for soft furnishings such as carpets, rugs, curtains and loose covers.

0920. **Catering Facilities – General.** All catering facilities must comply with local building, fire, safety and hygiene legislation (overseas the UK standard should be adopted where it is higher than those accepted under local regulations). Plans must be viewed and discussed by experts who will have useful input and ensure the building is safe, efficient and provides value for money. The key experts for a catering facility will include:

- a. Health & Safety Executive (HSE)/Environmental Health Officers (EHO).
- b. Fire Officers.
- c. Property Managers.
- d. Budget Holders.
- e. Kitchen Design and Equipment Authority (KDEA) for shore based projects.
- f. DES Ships Fleet Wide Equipment Maritime Equipment Support Utilities for sea based projects.
- g. Unit Health and Safety Officer.
- h. The End User.

The use of these experts at the earliest stage of a project will have a positive effect and could potentially save both time and costs.

0921. **General Principles.** Catering facilities must be designed to reduce risks to personnel and the product, and a well designed facility will have three main characteristics:

- a. Clearly identified and separated flows for personnel, food, equipment and waste.

- b. Well defined areas that are designed specifically for their task.
- c. Economic use of space.

0922. **Design Principles.** With these characteristics in mind the following design principles should be adopted:

- a. A linear workflow to eliminate potential risks to staff, food and equipment.
- b. A progressive workflow from raw material to meal service.
- c. The functional relationship of areas and equipment to workflow.
- d. Travelling distances for food, utensils and personnel to be kept as short as possible.
- e. Installation of humidity, ventilation and climate control systems to ensure a comfortable and safe environment for food, staff and customers.
- f. Separation of 'clean' and 'dirty' processes to reduce risk of cross contamination.
- g. Incorporation of adequate hand washing facilities into each preparation and production area.
- h. Designing out potential 'dirt traps' such as tight corners.
- i. Denying access to dirt and vermin.
- j. Installation of easily cleaned and impervious surfaces.
- k. Provision of adequate drainage to aid cleaning processes.
- l. Provision of safe food storage areas.
- m. Provision of mechanically ventilated refrigeration areas.
- n. Provision of office space for the end users.
- o. Provision of staff facilities, to include:
  - (1) Gender segregated toilets and showers.
  - (2) Changing rooms.
  - (3) A centralised restroom.
  - (4) A ladies' restroom.

0923. **Design and Maintenance Guide 18 (DMG 18).** More detailed principles and specifications may be found in the project year specific DMG 18 although advice should be sought from DE PTS (BSCTS) at the earliest opportunity.



**0924. Catering Design & Equipment On Board HM Ships & Submarines.**

Responsibility for catering and commissariat compartment and equipment design in HM ships and submarines is vested in DES Ships Fleet Wide Equipment Maritime Equipment Support Utilities and Fire Safety Logistics Design Authority (LDA) based at Abbeywood, Bristol. LDA supports the relevant Class & Type IPTs through the provision of planning, and general advice in all areas relating to the fabric, material state and layout of Logistics Department compartments and associated fittings, equipment and spaces in HM Ships, Submarines and Royal Fleet Auxiliaries. This includes New Build and Running ships and submarines, as well as those in upkeep periods. It may also include other MoD owned or operated vessels as required. LDA act as sponsors for DEFSTANs 02-122 (Catering Equipment); 02-125 (NAFFI Compartments) and 02-126 (Stores Compartments).

The key role of LDA is to provide Quality Assurance throughout the CADMID/T cycle, ensuring all compartments and equipments are fit for purpose, legislatively compliant, reflect best practice and maximise operational capability.

**0925. Design Layout and Equipment – HM Ships & Submarines.** These requirements are agreed between LDA and the contractor under the auspices of the lead Class/Type IPT in the case of a new build. This process starts at the User Requirement Document (URD) stage and is finalised when the design is agreed prior to build. LDA then conduct inspections during build and conduct the acceptance inspection on behalf of the IPT.

**0926. Maintenance and Upkeep Periods – HM Ships & Submarines.** In-service vessels undergo maintenance and Upkeep periods. Prior to these periods, LDA will conduct a Pre Upkeep Material Assessment (PUMA) to identify what work is required during the Upkeep period. Incorporated into these periods will be Alterations and Additions (A&A) for which LDA are the sponsors for commissariat areas.

**0927. New Equipment – HM Ships & Submarines.** Introduction of new equipment is conducted by DES Ships Fleet Wide Equipment Maritime Equipment Transformation Fluid Systems Group Domestic Systems, in consultation with platform IPTs and outside contractors. Equipment is identified in the market place and then technically assessed before being trialled on-board suitable ships or submarines. The results of these trials leads to the equipment being introduced either under A&A action for in-service classes, or inserted into new design in the case of future build.

## **ENERGY MANAGEMENT**

**0928. Energy Management in Catering Facilities.** Most energy used today originates from fossil fuels (gas, oil and coal). Burning of these fuels emits pollutants including gases that cause acid rain and carbon dioxide. Using energy more efficiently is one of the most cost effective means of reducing emissions of carbon dioxide, conserving the finite reserves of fossil fuels and help to meet the UK Energy/CO<sub>2</sub> reduction targets.

**0929. Cost Effective Management.** Energy consumption rates tend to be extremely high in food production areas, Energy is wasted by poor utilisation of equipment particularly when switching on ovens, ranges and serveries well ahead of the time required and leaving equipment switched on during times of low usage or closure. Energy is a substantial but controllable cost in running catering establishments; by using simple and cost effective measures, fuel bills can be reduced dramatically. Further savings can be realised in the design of new and refurbished buildings, or when services are replaced, through the improvement of catering facilities and the installation of energy efficient equipment and services.

**0930. Responsibilities.** At unit level, careful management, control and practice can achieve savings in energy usage. There is no substitute for good housekeeping practices.

The end user is responsible for ensuring that the use of energy is not wasted within the catering operation. Catering personnel should be made aware of their responsibilities and the need to economise in the use of energy. Particular attention should be paid to:

- a. Inclusion of 'Energy Management' principles within the new staff induction package.
- b. Ensuring that all staff are trained and fully conversant with the operation of all catering equipment and procedures.
- c. Encouraging feedback on energy conservation principles and working practices.
- d. Providing specific targeted information within the catering environment to display and encourage best practices (ie establish warm up times for individual appliances and label each piece of equipment with the information).

0931. **Energy Publications.** The following publications should give a basic overview of the principles involved in energy management and should be used in conjunction with this chapter:

- a. DETR – Energy use in Ministry of Defence Establishments – Energy Consumption Guide 75.
- b. D of E – Introduction to Energy Efficiency in Catering Establishments.
- c. DETR – Reducing catering costs through energy efficiency Good Practice Guide 222.
- d. DE Technical Bulletin 99/03 – Good Practice Self Audit Checklist.
- e. DE – DMG 18.
- f. DE – Specification 42.

0932. **Energy Monitoring Systems.** To control energy consumption and costs, regular and reliable records of energy use should be maintained. Such records will help to identify changes in energy costs and consumption. Automatic sub-metering for gas, electric and water consumption should be installed specifically for the catering area consumption via digitally pulsed meters complete with an interface unit and 30 minute recording facility linked to the Building Energy Management System (BEMS). Where considered to be viable, the system should be linked to a PC and software package located in the kitchen office, and be capable of interfacing with the BEMS.

0933. **Cooking and Service Equipment.** The installed capacity ratings of cooking and service equipment are extremely high. Energy use in kitchens shows peak demand in the 4–5 hours preceding and during each service period. Although large quantities of energy are consumed, only a small proportion is actually utilised in the cooking of food. Good organisation and control can make significant savings. Key energy saving measures include:

- a. Not switching equipment on until it is required.
- b. Switching equipment off immediately after use. This should include pilot lights.

c. Not pre-heating equipment too early. Warm up times are often overestimated resulting in appliances being turned on too soon. Typical preheat times are shown below:

Equipment	Minutes
Large Convection Oven	10 – 15
Combination Oven	5 – 10
Deep Fat Fryer	10
Salamander/Grill	10
Griddle	15

d. Fully utilising equipment; under-utilised equipment represents high cost in space, energy and cleaning. Use the equipment appropriate to the task.

e. Use a microwave oven rather than a main oven to re-heat small quantities of food.

f. Develop menus, production schedules and working practices with energy efficiencies in mind.

g. Use pans of an appropriate size for the hob. Ensure pans are centred on the heat source and if used on a solid top, maintain good overall contact. Lids should be used to retain heat whenever practical.

h. Ensure a regular cleaning programme is maintained to remove deposits, scale and corrosion that affect heat transfer.

i. Ensure all equipment is correctly maintained.

j. Avoid using catering equipment as space heaters.

0934. **Food Storage and Preparation.** Compared to the high energy consumption of cooking equipment the installed capacity of refrigerators and freezers is relatively low. It is, however, in continuous use and the total amount of energy can be quite significant. Where possible, to achieve efficient energy management:

a. Refrigerators and freezers should be located away from other sources of heat. Adequate ventilation should be provided to remove the heat discharged by the compressors. In larger installations consideration should be given to split or walk-in systems enabling the compressor to be sited remotely.

b. Condenser units should have a good airflow around them and be easily accessible for regular cleaning. Dirty condenser coils reduce refrigeration efficiency and increase energy usage.

c. Refrigerators and freezers should be defrosted regularly; this will improve efficiency and reduce the energy usage.

- d. Refrigerated storage space should be fully utilised.
- e. Warm food should not be placed in refrigerated cabinets. This will increase the temperature of the cabinet and place the condenser under full load for a longer period.
- f. Minimise the frequency of opening refrigerators and freezers. Plan re-stocking and issuing to as few sessions as practicable.
- g. Self-closing doors will minimise heat ingress. Ensure that the mechanisms are maintained.
- h. Door seals and gaskets should be replaced when damaged. Damaged seals will allow heat ingress.
- i. Curtains or air screens should be fitted to doorways to chilled larders and cold rooms to reduce cold loss.
- j. Use of a variable controlled thermostat should ensure comfortable working conditions and reduce energy consumption when used effectively.

0935. **Water Consumption and Ware Washing.** Considerable amounts of energy and water are wasted within catering establishments and the installed capacity ratings are extremely high. Water is an expensive resource both to buy and dispose of; added to which, the cost of heating and maintaining temperature makes it an extremely expensive energy cost. The need for hot water is constant, however, significant savings can be achieved by considering variable thermostat and control settings to suit the peaks and troughs of daily production and service. The following measures should be considered to save water as a resource and energy:

- a. Vegetables and other foodstuffs should not be washed or kept for service under running water.
- b. The practice of defrosting frozen foods under running water is not good practice.
- c. Ensure that taps are not left running when not needed. Consider the installation of automatic cut-off taps and the use of spray head taps for hand-washing facilities.
- d. Dripping taps, leaks and over flowing cisterns should be repaired immediately.
- e. Thermostats and timers should be fitted to water heating equipment.
- f. The temperature of stored domestic hot water should be reduced to 60°C (no lower because of the risk of *Legionella*). Hand wash water need not exceed 40°C.
- g. Dishes and utensils should not be washed under running hot water.
- h. Dishwashers should be run on a full load whenever possible.

- i. When purchasing dishwashers, consider the energy efficiency concepts including insulation, low temperature auto-dosage systems and heat recovery systems.
- j. Ensure that water heating equipment including dishwashers, steamers and water boilers are serviced by appropriately conditioned water.
- k. All hot and cold water pipes, tanks and cylinders should be suitably insulated to protect against heat loss and against frost.

0936. **Heating and Ventilation.** Heating and ventilation account for about 28% of the total energy cost, approximately half of which is lost in the air exhausted through the ventilation canopies. It is essential that good design and air change considerations are made to provide the basis of an energy efficient operation. The following practical measures should be taken to ensure that the system is working efficiently:

- a. Check that time switches are set to the minimum period required for the daily operation.
- b. Ensure that thermostats and radiator controls are on minimum settings commensurate with comfort conditions.
- c. Ensure that only occupied areas are heated and that heating is off or reduced when not in use.
- d. Kitchen extract fans should be switched off when no cooking is taking place. If a timer controls the system then ensure that the timer is set in accordance with daily work procedures.
- e. Where a ventilated ceiling is fitted as part of a balanced supply and extract system, variable controls should be adjusted to meet the comfort requirements.
- f. Doors and windows in cooking and preparation areas should not be wedged open as the balance of air flow/change will be affected. Airflows from adjacent areas should flow towards the kitchen to prevent odours escaping to unwanted areas.
- g. Heat loss may be reduced through doorways and windows by fitting mesh curtains or blinds.
- h. Label all controls to their function and if appropriate mark the settings most suitable for specific conditions.
- i. Establish responsibilities for the setting and adjustment of controls.
- j. Where air conditioning is fitted ensure that heating and cooling are not on at the same time in the same part of the building.
- k. Filters, grills and heating coils must be cleaned regularly to improve efficiency.
- l. Boilers, air handling units and other plant should be regularly serviced under a planned maintenance programme.

0937. **Lighting.** Electric lighting accounts for approximately 11% of energy consumed in catering establishments. Levels of illumination in kitchens should be maintained at 500 lux

and should be well distributed to avoid shadow. Significant savings can be made without loss of light quality or a lowering of illumination levels by the use of brighter decoration and improved luminaries. Fluorescent lighting is considered to be the most efficient and, when combined with regular cleaning and life cycle replacement of lamps, should increase lighting efficiency. The following measures should be taken to improve energy efficiency:

- a. Lights should be switched off when not required for use or in unoccupied areas. This message needs continual reinforcement and consideration should be given to the appointment of responsible persons in specific areas.
- b. Light switches should be colour coded to assist in identification. Where possible, switches should be grouped to aid in improvement of efficiency.
- c. Consideration should be given to the use of area lighting controls in the form of time control, presence detectors, daylight detectors or dimmers.
- d. As old style light bulbs fail, consideration should be given to replacing them with more energy efficient alternatives.
- e. Where fluorescent lights are fitted consideration should be given to fitting T8 slim-line fluorescent lamps. These use approximately 8% less electricity than the older T12 lamp.
- f. Replace diffusers with reflectors and reduce the number of tubes if practicable.
- g. Replace tungsten lamps with compact fluorescent lamps or better, with tubular fluorescent lamps.
- h. Make best use of natural daylight by keeping windows and roof lights clean. Figure 5 shows the typical energy consumption of specific lamp types relative to a standard tungsten filament bulb.

**Note:** A typical relative energy consumption table can be found at Annex C.

0938. **Summary.** The conservation of all forms of fuel and water is extremely important, as well as the economic effects, the environmental issues must also be considered. Due to changes in environmental legislation and the tightening up of wasteful practices through the use of taxes and fines; all members of staff are responsible to ensure efficient practices, linked to modern energy efficient equipment and buildings are employed and that good housekeeping practices are used at all times.

0939. **Protective Clothing.** Protective clothing is provided for food handlers in the interests of hygiene in order to prevent cross infection and contamination of food. It is also necessary to protect food handlers from burns, scalds, falls and also contamination from the use of certain cleaning agents. This chapter will give a basic overview of the dress regulations for catering staff. DE PTS (BSCTS) is responsible for ensuring that the policy for protective clothing within the catering and food supply function meets with current legislation and the requirements of food handlers. Protective clothing must be commensurate with the task and environment. The following References should be considered in addition to this Chapter:

- a. JSP 315 - Services Accommodation Code (Edition 3).
- b. JSP 356 - The Joint Service Manual of Travel Instructions.

- c. JSP 437 - Protective Clothing.
- d. AP 830 Clothing Regulations for the RAF.

0940. **Dress Regulations.** Each of the Services has their own specific dress regulations, but all entitled personnel should be issued with the correct clothing to carry out their specific tasks (JSP 437). Details of clothing and personal hygiene issues are detailed in JSP 456 Volume 3 Chapter 3, however, key factors that must be adhered to are as follows:

- a. All personnel working in food preparation areas are required to wear protective clothing, safety footwear and protective headwear.
- b. Clean protective clothing is to be worn at the beginning of each day/shift.
- c. Protective clothing is not to be worn outside of the food production area.
- d. All visitors to food preparation areas are to wear a protective coat and hat.

0941. **Clothing Lockers.** Lockers for the storage of protective and outdoor clothing are provided for within JSP 315.

0942. **Protective Clothing - Entitled Personnel.** The scales and authorities are detailed in the relevant Service regulations. All protective clothing is to be 'demanded' through normal channels and accounted for as unit clothing.

0943. **Laundering.** All items of protective clothing (pool or personal issue) are to be professionally laundered at public expense (excluding contract staff).

0944. **Air Movement Entitlement.** Chefs/food handlers travelling on air trooping flights via RAF or Charter aircraft have an excess weight allowance of 9 Kg. Exercise flights allocate a weight entitlement for passengers and a freight allowance for the unit. Where chefs/food handlers are required to take protective clothing, the weight of the protective clothing should be incorporated into the unit's freight requirements. JSP 356 the Joint Service Manual of Travel Instructions Chapter 4 Para 404 is the authoritative document for this entitlement.

0945. **Cleaning Materials & Catering Consumables.** Caterers must ensure that catering consumables and cleaning materials are used in an efficient way to reduce waste, environmental impact and the risk of a Food Safety related incident. Cleaning materials and catering consumables are a small element of the Defence Accommodation Stores (DAS). Whether working from a disaggregated budget or direct issues from supply units the General Stores IPT (GS IPT) is responsible to the Chief of Defence Materiel, for the management of and policy related to all DAS items. This chapter will give a basic overview of the regulations concerning the use and accounting for catering consumables and cleaning materials, and should be read in conjunction with:

- a. JSP 308 - Defence Accommodation Stores.
- b. JSP 384 - Defence Accommodation Stores Policy and Procedures.

0946. **Catering Consumables.** The regulations governing the issue of materials for packed and airborne meal requirements are to be found in JSP 308, Scales JS 57. Demands for these items are to be submitted through the normal supply chain and should be based upon the scales in JSP 308. Other than the materials used for packed meals the

scales are not overly prescriptive and it is therefore left up to the catering management staff to ensure that wastage is kept to a minimum.

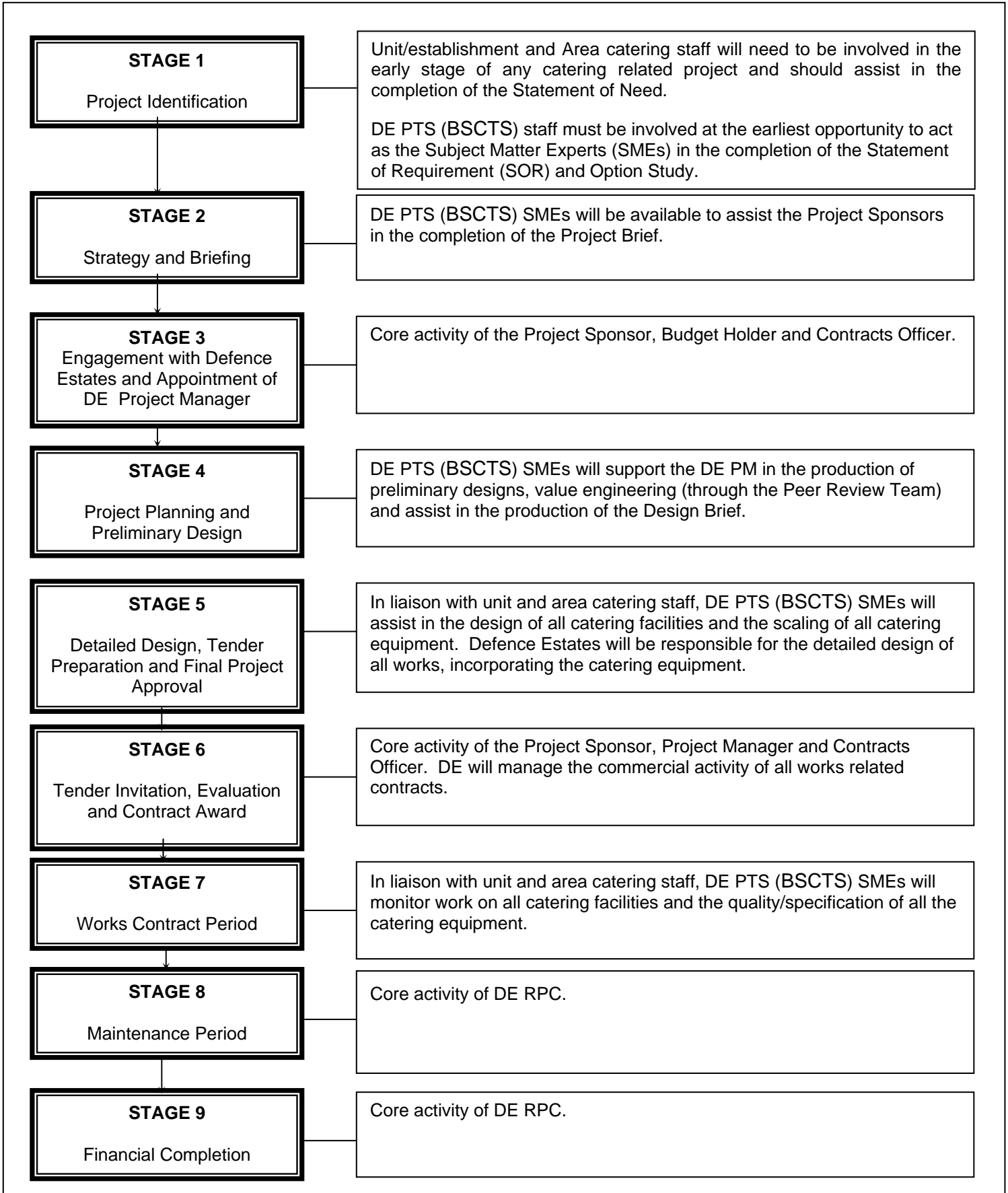
0947. **Cleaning Materials.** Where the procurement of cleaning materials is the responsibility of the unit and not the cleaning/catering contractor the demands should be submitted through the normal supply chain. There is no clearly defined scale for the cleaning materials so once again the catering managers should ensure realistic usage levels are achieved. Special attention needs to be paid to the requirements of dish and utensil washing machinery, water softeners and, where in use, bio-remediation systems.

0948. **Janitorial Equipment.** The regulations and scales governing the issue of janitorial equipment for kitchens and dining rooms are to be found in JSP 308, Scales JS 13, 14, 33, 34, 53 and 54. Where the procurement of cleaning materials is the responsibility of the unit and not the cleaning/catering contractor, demands for these items are to be submitted through the normal supply chain and should be based upon the scales in JSP 308.

0949 – 0999 Reserved.

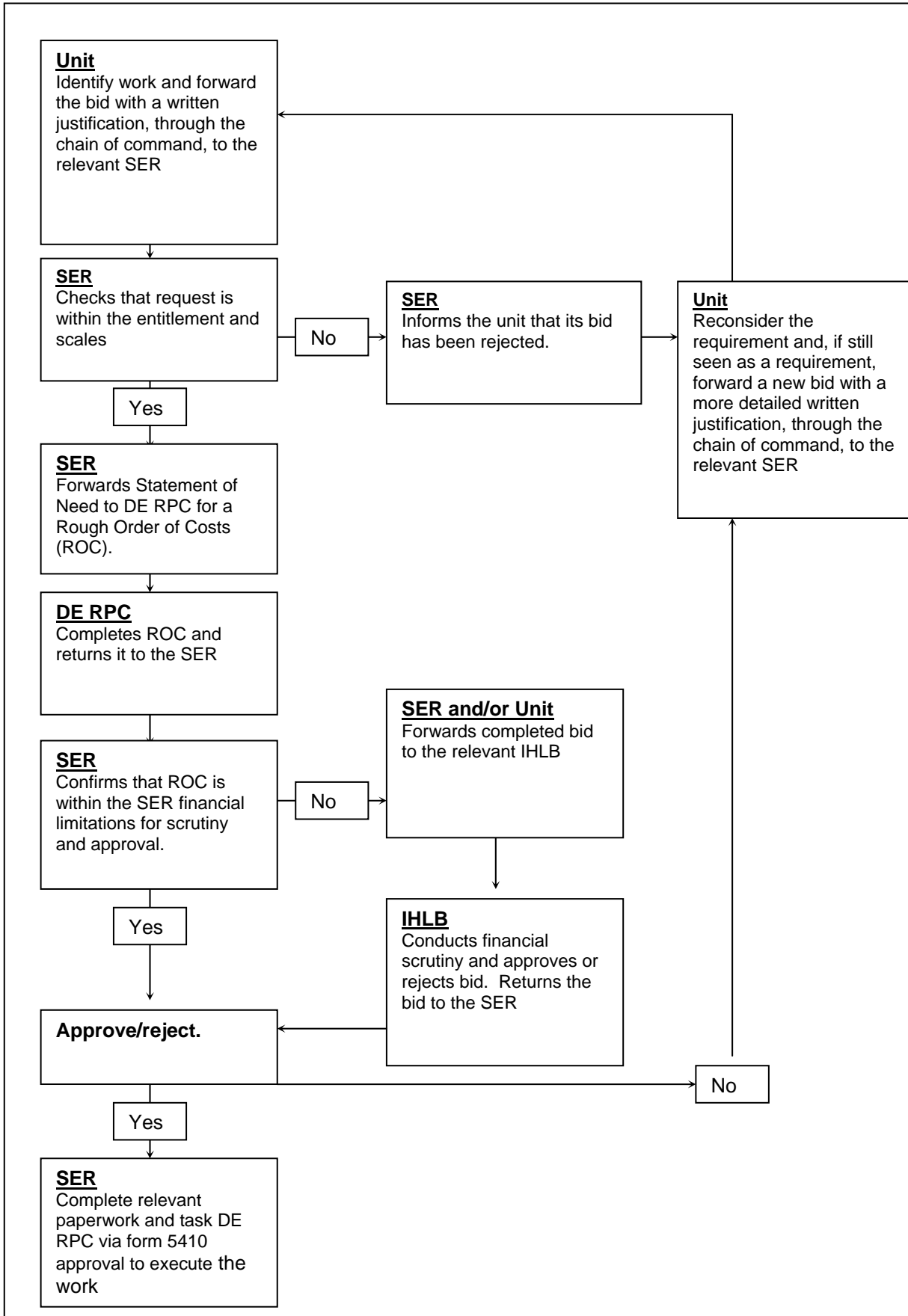


**CHAPTER 9 Annex A – PROJECT FLOW DIAGRAM**



(INTENTIONALLY BLANK)

**CHAPTER 9 Annex B - MINOR NEW WORKS (CORE SERVICE) APPROVAL FLOW DIAGRAM**



(INTENTIONALLY BLANK)

**CHAPTER 9 Annex C – TYPICAL RELATIVE ENERGY CONSUMPTION**

<b>Lamp Type</b>	<b>Typical energy consumption relative to tungsten bulbs for similar levels of lighting. (%)</b>
Tungsten Filament Bulb	100
Tungsten Halogen Spotlight	70
High Pressure Mercury (MBF)	22
Compact fluorescent with electronic ballast	18
Metal Halide (MBI)	15
High Pressure Sodium	11
Low Pressure Sodium	7
Fluorescent tubes:  (i) Choke & starter control gear / 38mm diam tubes.  (ii) As (i), but with 26mm diam high efficiency triphosphor tubes.  (iii) As (ii) but with electronic high frequency control gear.	18  16.5  13

(INTENTIONALLY BLANK)