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A facilities management system for the maintenance of government hospitals in South Africa

Abstract

The current state of maintenance in government hospital facilities in South Africa is reviewed. Certain factors that contributed to the current state of hospital facilities are identified. A system for hospital maintenance management is proposed. Several immediate as well as long-term benefits of the proposed system are indicated. It is suggested that the proposed maintenance system be further enhanced by means of a facilities management approach.

Keywords: Maintenance, hospital facilities, facilities management, maintenance management, asset register, priority schedules, maintenance resources

'N FASILITEITSBESTUURSTELSEL VIR DIE INSTANDHOUDING VAN STAATSHOSPITALE IN SUID-AFRIKA

'n Oorsig van die huidige toestand van instandhouding van fasiliteite in staatshospitale in Suid-Afrika word gebied. Sekere faktore wat bygedra het tot die huidige toestand van hospitaalfasiliteite word geïdentifiseer en 'n stelsel vir die bestuur van hospitaalinstandhouding word voorgestel. Verskeie kort- sowel as langtermyn-voordele van die voorgestelde stelsel word aangedui en daar word gesuggereer dat verdere waarde toegevoeg word aan die voorgestelde stelsel, deur gebruik te maak van 'n fasiliteitsbestuursbenadering.

Sleutelwoorde: Instandhouding, hospitaalfasiliteite, fasiliteitsbestuur, instandhoudingsbestuur, batebestuur, prioriteitskedules, instandhoudingshulpbronne.

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1. Introduction

1.1 New challenges facing the public health sector

Since the inception of a new democratic South Africa in 1994, the public health sector has been confronted with several new challenges:

- Emphasis on primary health care (Burger, 1999: 2)
- Serving all communities and geographical areas on an equitable basis (South Africa, Ministry of Health, 1997, chapter 3)
- Reduced per capita health expenditure in real terms (Barron, 1998: 33)
- A change in emphasis from expensive to more cost-effective levels of care
- A move towards measuring cost-effectiveness
- Producing measurable results
- Enhancing income (South Africa, Ministry of Health 1997, chapter 3.5.1)
- Providing free health care services to pregnant mothers and children under the age of six years (Burger, 1999: 2)
- The increasing strain on hospital facilities due to the Aids pandemic.

1.2 The condition of health facilities

In addition to the new challenges, the existing hospital facilities are in a poor condition (SA Ministry of Health 1997, chapter 17). Buildings and building services have deteriorated due to a lack of proper maintenance and proper maintenance management.

The general state of neglect of these buildings can impact on several issues, for example:

- The ability to provide health services can be hampered by the condition of the health facilities
- A greater portion of the available budget may have to be spent on maintenance and the upgrading of projects, rather than on the provision of services
- Full-paying patients, i.e. patients with medical aid or an adequate disposable income, may prefer well-maintained private hospitals.

It must be noted that the maintenance problems with respect to government hospitals in South Africa are not unique. Similar problems are evident in other parts of the world (Seeley, 1987; Al-Zubaidi, 1997) as well as in other South African government departments (Mazibuko, 1997; Potgieter, 1999).

1.3 Total fixed investment

The previous statements must be viewed in context with the total fixed investment regarding government hospitals. According to the results of the *National Health Facilities Audit* (N H FA) (Barron, 1998: 127), the cost of health facilities can be summarised as follows:

- Replacement cost of current health estate: R24 billion
- Reinstatement of existing health estate to acceptable condition: R8 billion
- Ongoing replacement of outdated stock: R480 million per year.

The health estate refers to 434 public sector hospitals and 103 health centres.

1.4 Reasons for the poor state of government hospitals

The reasons for the present state of affairs are wide and varied, including:

1.4.1 A lack of vision and accountability

In the past, sufficient funding was available to make select hospitals appear good (Barron, 1997: 74), despite improper maintenance management. In addition, due to the relatively newer hospital portfolio, maintenance problems were less apparent. There was a lack of vision regarding the maintenance, of hospitals, and its long-term effects. Maintenance in several instances did not occur, resulting in the huge current backlog. This can partly be ascribed to a lack of accountability and a lack of maintenance systems.

1.4.2 Government structures

Several studies (Barron, 1997: 35) refer to the structure of the government health system as not being conducive to efficient management and transformation. Part of this problem stems from the fact that various national and provincial departments are responsible for the health estate. For example, in Gauteng Province, maintenance of hospitals and clinics resorts under the Department of Transport.

1.4.3 The age of the hospital portfolio

The hospital portfolio as a whole is reaching a relatively mature age, with some hospitals dating back to 1898 (Crisp, 1997). Lack of maintenance tends to be more noticeable in ageing facilities due to the accumulation effect, causing consequential damage.

The collapse of one element negatively impacts upon others (Abbott, 1999).

1.4.4 Lack of maintenance management culture

In the past, the focus was on rectification or repairs. Modern maintenance concepts, for example preventative maintenance, life cycle costing, etc, were seldom implemented or practised. Alexandre (1999) refers to the inability of the health and education sectors to apply effective and efficient management practices.

1.5 Maintenance management system

Maintenance of government health facilities cannot be adequately addressed at present due to several structural and other factors as identified previously. Although all the problems need to be addressed in order to provide a long-term solution, the following items must be resolved before long-term strategies can be formulated:

- What must be maintained?
- What is the current condition of the items to be maintained?
- How must it be maintained?
- How must limited resources be allocated to the maintenance process?

Clarity on these issues, in turn, requires certain essential system information tools.

1.6 System information tools

Before a maintenance system for hospitals can be implemented certain essential system information tools are required (Spedding, 1994: 158). These are:

- Asset register
- Condition register
- Space priority schedule
- Service priority schedule
- Space/service priority matrix.

It is recommended that all the information tools be kept and maintained on a computerised database in order to facilitate reporting.

1.6.1 Asset register

The first step in establishing a maintenance management system for health facilities is to determine what must be maintained

(Seeley, 1987: 354). The component asset register is a database of all the items that need to be maintained.

The asset register can be set up during an initial audit of existing facilities whereby all major items are recorded. Detailed information pertaining to sub-components and sub-systems are not required at his stage. However, it is recommended that the asset register be expanded over a period of time to include these items.

Maintenance of the asset register is achieved as follows:

- New projects and improvements: Information is to be recorded from fitted drawings and operating and maintenance manuals
- Missing items: Have to be recorded as they become apparent
- Redundant items: Are to be removed as they become apparent
- Biannual inspections in order to verify data: These inspections can be combined with other necessary inspections.

Minimum requisite components of the asset register include the following:

1) Building services

The item must be classified in terms of the following building services (more services can be utilised if required. However, this is not recommended as it may lead to confusion):

- Buildings and facilities: building envelope including walls, floors, roof and structural components, including roads, walkways and gardens
- Mechanical: all mechanical services including electro-mechanical services and excluding mechanical services associated with other services, e.g. a sewerage pump will be associated with wet services
- Electrical: all electrical and electronic services, excluding electrical items associated with other services e.g. air-conditioning and switchboard
- Wet Services: domestic water, storm water and drainage.

2) Services

All items must be classified with respect to a specific service within a building service. Examples of typical service classifications include:

- Buildings and facilities: roofs, walls, floors, roads
- Mechanical: air-conditioning, medical gas, incinerators, boilers
- Electrical: high voltage and transformers, main low-voltage rooms and reticulation, secondary distribution boards and reticulation

- Wet services: domestic water supply, water storage tanks and storm water.

3) Major components

Items must be classified as major components within a service. The major component classification must be as close as possible to the actual description of each item, for example: air-handling unit, transformer, floor tiles, etc.

4) Unique numbers

Each major component must have a unique number. Ideally this number should have some abbreviated reference to the component. The unique number is to be followed by other numbers referring to the location, building, site, etc. Should other numbers be used, it is crucial that the unique number be written first since maintenance staff tend not to record the last digits accurately. A typical number may be constructed as follows: AHU-24/B2/1/JGH, where AHU-24 refers to air handling unit number 24 (24 being a unique number), located in building number 2 on the first floor of site JGH – Johannesburg General Hospital.

5) Others

Further information is not required at the initial stage. However, in order to fully utilise the asset register as a maintenance management tool, the following typical information should be added over a period of time:

- Make
- Model
- Abbreviated specification: capacity/rating/size
- Serial number
- Supplier information
- Major parts & serial numbers.

1.6.2 Condition register

In order to manage the maintenance process, it is necessary to record the condition of each item in the asset register at certain intervals. It is recommended that the condition register be updated on an annual basis. This can coincide with other inspections where applicable. The aim of the condition register is to record the current condition of the item in terms of serviceability. The purpose of the condition register is as follows:

- To provide a general summary to management of the current condition of facilities

- As a planning tool, it can be used to allow for items that are deteriorating or to allocate resources in order to improve the condition
- As a management tool, it indicates the effectiveness of the maintenance performed.

1) Repeatability & measurability

In order to keep the condition register effective and useful, the conditions must be repeatable and measurable by unqualified staff.

Repeatability. The system must allow for two distinct assessments to show the same results, should other factors not change.

Measurability. The system must allow for the condition to be measured by unqualified staff. Subsequent measurements carried out by various staff members must produce the same result, should other factors be of a consistent nature.

2) Conditions

In order to ensure repeatability and measurability, the possible conditions need to be kept very simple.

Condition 3. Good: Item is in a very good running condition.
Condition 2. Reasonable: Item is in a running condition but requires attention. Maintenance or minor repairs are required.
Condition 1. Bad: Item is not operational or operational with severe defects. Immediate attention is required.

1.6.3 Space priority schedule

In order to make maintenance decisions, hospital spaces and services should be prioritised.

1) Schedule

A typical hospital space priority schedule comprises the following:

Spaces. The listing of all the spaces in the health facility: Emergency routes should always be defined as a space, although they may form part of a corridor or other route.

Priority. The allocation of priority to the various spaces based on functionality with respect to the core business and importance of client service and functionality: Emergency routes will normally have the highest priority whereas storage spaces will normally have a very low priority.

2) Usage

The space priority schedule is an important aspect of every maintenance system as it forms part of a structured approach to maintenance decision-making in the light of limited resources. This schedule will indicate to the user that functional spaces (e.g. hospital theatres) have a much higher maintenance priority than non-functional areas (e.g. store rooms).

1.6.4 Service priority schedule

The service priority schedule is very similar to the space priority schedule except that it lists services rather than spaces. The services should not be confused with the area being served and are listed in accordance with their functionality with respect to the core service i.e. heath care.

1) Schedule

A typical service priority schedule comprises the following:

Services. The listing of all the services to be carried out in the facility.

Priority. The allocation of priority to the various services should be based on functionality with respect to the core business and importance of client service and functionality. Services essential to patient safety, e.g. fire services and medical gas, will normally have a high priority whereas comfort services, e.g. ventilation to staff ablution facilities, will normally have a low priority.

2) Usage

The service priority schedule is an equally important aspect of every maintenance system as it forms part of a structured approach to maintenance decision-making in the light of limited resources. This schedule will indicate to the user that essential services (e.g. medical gas and electricity) have a much higher maintenance priority than comfort services (e.g. hot water).

1.6.5 Space/service priority matrix

Once the space and service priority schedules have been drawn up, a space/service priority matrix can be set out. This matrix is obtained by combining the space and service priority schedules in a matrix format and multiplying the various priorities with each other. This matrix is used to make maintenance decisions:

- High-priority items will suggest a comprehensive preventative maintenance programme and emergency repairs in the case of a breakdown
- Low-priority items will suggest a low-key maintenance programme, possible only aimed at repairs from time to time. Downtime can be tolerated and repairs will be planned to suit the most cost-effective method
- In case of budget restraints, maintenance to low-priority items can be stopped. This decision can easily be justified to management via the priority matrix
- Essential spares may have to be kept on site for high-priority items.

2. Hospital maintenance strategies

Hospital maintenance personnel often view the development of suitable maintenance strategies as a very complex task, possibly due to the lack of a suitable maintenance system. Maintenance strategies, and budgets in accordance with these strategies, were usually determined on an ad-hoc basis with little resemblance to what is actually required. Developing a suitable maintenance strategy need not to be a daunting task and can be accomplished by utilising the following systematic approach.

2.1 Inputs

The basic inputs required for developing hospital maintenance strategies are the following:

2.2 Information tools (Seeley, 1987; Spedding, 1994)

- *Asset register*. A data-base of all items for maintenance
- *Condition register*. States the condition of all items in the Asset Register to provide the basis for planned repairs and maintenance
- *Priority matrix*. Formal method to determine which items must be maintained to a certain standard.

2.3 Specifications

- *National building regulations*. All requirements of the NBR must be met and maintained. The NBR therefore forms part of the hospital maintenance specifications
- *OHSA*. All requirements of the Occupational Health and Safety Act (Act 85 of 1993) must be complied with. This act therefore forms part of the maintenance specification

- *Relevant SABS codes*
- *Manufacturer's service and maintenance specifications*
- *Design parameters & design redundancy*. Availability of additional capacity or stand-by equipment.

2.4 Maintenance strategies

The ideal strategy for each item can be determined by analysing the inputs described above. This process will typically involve the following (Cloete, 199 4):

- *Statutory requirements*. If the item does not meet the relevant requirements of the NBR / OHSA regulations it must be upgraded to conform to these requirements as soon as possible
- *Priority matrix — high priority*. These items require a high level of maintenance. The maintenance plan for these items will involve maximum preventative maintenance by means of high-frequency regular services/inspections, condition monitoring and emergency repairs in the case of breakdown
- *Priority matrix — low priority*. These items require a low level of maintenance. The maintenance plan will typically involve very little preventative maintenance and repair of breakdowns will be scheduled in the most cost-effective manner, usually to coincide with other similar repair work
- *Condition register*. High-priority items must normally be in *Condition 3*. Should these items be in a lower condition the maintenance strategy will normally allow for these items to be upgraded to a higher condition. Normally *Condition 1* items cannot be tolerated within a hospital environment and the maintenance strategy for these items will usually include an upgrade/repair at least to *Condition 2*.

2.5 Examples of maintenance strategies

The following examples may assist in determining suitable maintenance strategies:

Example 1

Building service:	Mechanical
Service:	Medical gas
Item:	VIE Oxygen Generator
Number:	VIE-02/PAH
Condition:	2
Priority:	1
Maintenance strategy:	Maintain *Condition 2* (Back-up from VIE-01) Daily inspection/cleaning Monthly service Emergency repair: <30min Pressure vessel inspection: Month 6 as per OHSA

Example 2

Building service:	Building
Service:	Wet services
Item:	Hand wash-basin
Number:	HWB-184/B4/12/CHM
Condition:	3
Priority:	38
Maintenance strategy:	Repair to *Condition 2* Annual inspection Planned repair if reported

The following can be inferred from the above examples:

- The VIE Oxygen Generator is a life-supporting service which requires a very high level of preventative maintenance. *Condition 3* would normally be required. However, *Condition 2* is acceptable due to the presence of a back-up system
- This hand wash-basin with a low priority is located within the cleaner's restroom (space priority 12 in this case). A hand wash-basin within the theatre scrubbing area will have a very high priority and will require a *Condition 3* with appropriate maintenance strategy.

2.6 Maintenance budgets

Hospital maintenance budgets, like other types of maintenance budgets, are frequently based on the previous year's allocation plus a percentage (Seeley, 1987: 342).

In other cases, maintenance budgets are determined as a percentage of the replacement cost of the relevant service per annum. Typical percentages indicated by various authors include:

- 6% to 10% (Adam, 1997)
- 1% to 2% for buildings and 2% to 3% for plant (Halbwachs, 1997)
- 4% (Abbott, 1999).

Adam (1997) further states: "In facilities that don't have accurate and updated fixed assets registers, the determination of this 6% or 10% is almost impossible and the proper budgeting of maintenance for the equipment is a shot in the dark."

By utilising the proposed maintenance system, budgets can be formalised from a zero-based principle. Budgets can be formulated for each item in accordance with the maintenance strategy:

- Determine tasks and costs for upgrading of condition (if applicable): This can easily be determined by obtaining budget quotations
- Determine the cost for preventative maintenance services and inspections: Budgets can be obtained from quotations
- Allow for repair of major components: This should not be based on an ad-hoc allowance, but on field observations by qualified personnel. These items must be specific in order to monitor the expenses e.g. allow R12 500 material and 12 hours' labour for refurbishment of compressor number 3 on chilled water generator CHWG-08/CHM — Compression ratios deteriorating and noisy bearings
- Allow for breakdowns and failure of components: This should be based on estimates from experienced personnel:
    - This section must allow for typical repairs e.g. unblocking of drains, repair of steam traps, replacement of fan belts, etc.
    - Planned repairs: Each item must be broken down into a material and a labour component
    - Emergency repairs: For items that may require emergency repairs, separate budget items should allow for emergency call-outs and after-hours labour rates if applicable.

Further notes on maintenance budgets:

- Maintenance budgets cannot, and should not cover all eventualities. The aim is to make provision for the most likely scenario
- A maintenance system will, over a period of time, provide for more accurate budgets as historical breakdown trends can assist in forecasting
- The maintenance budget does not only indicate the value of materials required but also provides an indication of the level of human resources required
- Labour hours must be translated into labour rates and labour cost, including overheads and mark-up, for outsourced activities
- Material cost must include overheads and mark-up for outsourced activities
- Under the current government structures the cost of direct employed labour and administrative support staff cannot be accurately determined. These costs are currently budgeted for at regional office level and do not influence the actual maintenance budget for a specific health facility at present.

2.7 Maintenance resources

After determining what needs to be done, i.e. the maintenance strategies, it is necessary to determine the resources required in order to perform the required maintenance tasks. If the required resources are not available, alternative measures must be taken. This will in turn influence the budget. The final maintenance strategy will be an iterative process involving a maintenance strategy, budgets and resources.

2.8 Human resources

The following can be derived from the maintenance strategies and the maintenance budgets:

- Qualification and expertise required for each task
- Time required for each task
- Additional direct support personnel are required for each task e.g. number of unskilled helpers required, etc.

Should sufficient qualified human resources not be available, alternative strategies (e.g. outsourcing) can be considered.

2.9 Financial resources

The maintenance budget determines the financial resources required. The following items can be added to the budget:

- Tools and special equipment
- Cleaning materials and protective clothing
- Sundry items (must be identified)
- Essential spares.

Should there be insufficient financial resources, as is often the case, decisions must be made as to which maintenance activities should be curtailed. Certain maintenance tasks may be scrapped altogether. These decisions must be based on the formal priority list as determined by space/priority matrix (Seeley, 1987: 11).

2.10 Facilities management approach

Although the proposed system will enhance maintenance and maintenance management, several other structural issues are hampering the maintenance process. In order to comprehensively address health facilities management, a holistic approach is suggested. This approach should result in a facilities management strategy. The following objectives of a facilities management strategy for government hospitals in South Africa are proposed to ensure:

- That Government hospitals in South Africa are properly maintained
- An environment that can guarantee the safety of patients (clients)
- That hospital facilities reflect the best appropriate health care standards in the world
- The process of maintenance and that maintenance management contributes towards the development of SMME's (Small, Medium and Micro Enterprises) and PDIs (previously disadvantaged individuals)
- That the maintenance contributes towards reducing the real cost of health care
- The extension of the economic life span of hospital facilities.

A facilities management strategy may incorporate some of the following concepts:

- Adopting a facilities management approach
- Entering into service level agreements
- Benchmarks and measurement
- Formal facilities maintenance management system

- Outsourcing
- Promoting condition of equipment.

2.11 Benefits of a maintenance system

A properly implemented maintenance system will have the following immediate benefits:

- Strategic maintenance planning
- System for allocating limited resources against priorities
- Formalised maintenance plans and schedules
- Accurate zero-based budgets
- Record of actual maintenance expenditure
- Record of equipment
- Record the condition of the equipment.

In addition, a properly implemented and managed system will entail the following long-term benefits:

- A move from unplanned maintenance to planned maintenance
- Reduction of maintenance expenditure in the long term
- Reduced life cycle cost
- Longer useful economic life of equipment
- Reduced down times.

3. Conclusion

Although there is no proper maintenance system for government hospitals in South Africa, some progress has been made in this field since the *1995/1996 National Health Facilities Audit* (South Africa, 1996). A Building Maintenance Management System (BMMS) is being developed (Abbott, 1999). It is envisaged that the BMMS will be based on the concept system outlined in this article, with some refinements and additions. Should this BMMS be successfully implemented, it is suggested that further development will lead to a fully integrated hospital facilities management system.

TABLE 1: Typical hospital services and classification

This table illustrates typical services that can be expected. A separate list must be drawn up for each hospital as services and usage of services differ from hospital to hospital.

BUILDING SERVICE	SERVICE
Building & facilities	Building structure
Building & facilities	Fire appliances
Building & facilities	Fire & emergency signage
Building & facilities	Roofs
Building & facilities	Floors
Building & facilities	Doors
Building & facilities	Walls
Building & facilities	Windows
Building & facilities	Ceilings
Building & facilities	Cupboards & enclosures
Building & facilities	Miscellaneous fittings
Building & facilities	General signage
Building & facilities	Paving & roads
Building & facilities	Fences
Building & facilities	Gardens & irrigation
Electrical	Emergency generator & fuel storage
Electrical	Emergency power switchgear & reticulation
Electrical	Main LT/Distribution & switchgear
Electrical	HV/Transformers & switchgear
Electrical	Sub DB's/Reticulation
Electrical	Electrical outlets
Electrical	Light fittings & lamps
Electrical	Nurses call system
Mechanical	Medical gasses system (excl. gas supply)
Mechanical	Gas autoclaves & aeration cabinets (EO) (excl. gas supply)
Mechanical	Medical compressed air & vacuum system
Mechanical	Steam generation & feed water installation (excl. coal supply)
Mechanical	Steam & condensate reticulation system
Mechanical	Steam-heated autoclaves
Mechanical	Laundry equipment
Mechanical	Larger industrial A/C & ventilation plants & ancillary equipment
Mechanical	Kitchen equipment
Mechanical	Cold-, freezer rooms, mortuary cabinets & ice machines

Mechanical	Hot-water generation & central heating
Mechanical	Incinerators
Mechanical	Domestic & industrial loose freezers & fridges
Mechanical	Small split- & window A/C units & vent fans
Wet Services	Main domestic water supply
Wet Services	Plumbing & fittings
Wet Services	Sewerage
Wet Services	Pumps & storage tanks
Wet Services	Storm water

TABLE 2: Typical space priority schedule

AREA	**PRIORITY**
Consulting room	1
Treatment rooms	2
Theatres	3
Intensive care units	4
Sterilising	5
Sluices	6
Specialist treatment	7
Isolation	8
Pharmacy	9
Wards	10
Kitchens	11
Bathrooms and ablution facilities	12
Medical stores	13
Administration	14
Non-medical facilities	15
Site	16

Notes:

1. This is a typical example indicating that separate area priority tables must be drawn up for each facility.
2. The specific functional areas will differ for each facility. Areas will be similar for facilities in similar categories e.g. regional hospital, district hospital, tertiary hospital, etc.
3. The areas should not be confused with medical departments. No differentiation with respect to maintenance is required between different departments.

TABLE 3: Typical service priorities

BUILDING SERVICE	SERVICE	PRIORITY
Building & Facilities	Building structure	1
Building & Facilities	Fire appliances	2
Building & Facilities	Fire & emergency signage	3
Electrical	Emergency generator & fuel storage	4
Electrical	Emergency power switchgear & reticulation	5
Electrical	Main LT/distribution & switchgear	6
Electrical	HV/transformers & switchgear	7
Wet Services	Main domestic water supply	8
Electrical	Sub-distribution boards/ reticulation	9
Electrical	Electrical outlets	10
Wet Services	Plumbing & fittings	11
Wet Services	Sewerage	12
Wet Services	Pumps & storage tanks	13
Mechanical	Medical gasses system (excl. gassupply)	14
Mechanical	Gas autoclaves & aeration cabinets (EO) (excl. gas supply)	15
Mechanical	Medical compressed air & vacuum system	16
Electrical	Light fittings & lamps	17
Mechanical	Steam generation & feed water installation (excl. coal supply)	18
Mechanical	Steam & condensate reticulation system	19
Mechanical	Steam-heated autoclaves	20
Mechanical	Laundry equipment	21
Electrical	Nurses call system	22
Building & Facilities	Roofs	23
Mechanical	Larger industrial A/C & ventilation plants & ancillary equipment	24

Mechanical	Kitchen equipment	25
Mechanical	Cold-, freezer rooms, mortuary cabinets & ice machines	26
Mechanical	Hot-water generation & central heating	27
Mechanical	Incinerators	28
Building & Facilities	Floors	29
Building & Facilities	Doors	30
Building & Facilities	Walls	31
Building & Facilities	Windows	32
Building & Facilities	Ceilings	33
Wet Services	Storm water	34
Mechanical	Domestic & industrial loose freezers & fridges	35
Building & Facilities	Cupboards & enclosures	36
Building & Facilities	Miscellaneous fittings	37
Building & Facilities	General signage	38
Building & Facilities	Paving & roads	39
Mechanical	Small split- & window A/C units & vent fans	40
Building & Facilities	Fences	41
Building & Facilities	Gardens & irrigation	42

Notes:

1. The service priorities will differ from hospital to hospital.
2. The availability of private sector facilities must be considered e.g. incinerator services, food preparation and supply and laundry services, etc. can be outsourced in major centres in the case of an emergency.

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