HOSPITAL DESIGN FOR HOUSEKEEPING SERVICE

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This is a Standard NOUS document, part of Hospital Commissioning Services, prepared for a basic Hospital Housekeeping Service Structure in NOUS Hospitals, to provide standardised Environmental Cleaning and Decontamination. It has been updated for COVID-19 pandemic. Since verified data is not available for COVID-19 pandemic, please use your judgment for customisation of various processes and procedure.

(COVID-19 is a disease, caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), a Novel Coronavirus, which emerged in the city of Wuhan, Hubei, China, in early December 2019 and which is transmitted as a Droplet Infection and has spread worldwide as a pandemic. Genetic sequencing of the virus suggests that SARS-CoV-2 is a betacoronavirus closely linked to the SARS virus.)

INTRODUCTION

NOUS believes that effectiveness of the Hospital Housekeeping Services impacts the Patient Outcomes. No environment requires more cleanliness than that of a Hospital. Provision of Housekeeping Services is an integral part of provision of Healthcare Services in a Hospital. Members of Hospital Housekeeping Services Team must always be considered part of Healthcare Provider Team and provided with adequate offices and work areas.

This document is based on the review of best practices used in various Hospital Systems across the globe for Hospital Cleaning, Disinfection, Isolation, etc. Some Statutory Hospital Cleaning Guidelines, in fact, are primarily, Infection Control Guidelines and need to be applied to selected areas in the Hospital. In USA, these Housekeeping services are designated as Environmental Management Services. The stated design parameters in this document are related to our earlier documents, Functional Analysis and Systems plan for availability of spaces and requisite MEP services of respective Hospitals.

The document “Best Practices for Cleaning, Disinfection and Sterilization of Medical Equipment/Devices” published by Public Health Department, Ontario, USA for its Hospitals to improve their quality of care being delivered in Clean Areas and its impact of Hospital design, has also been reviewed and corroborated in design.

NOUS Design Principal for Housekeeping Services: Practice of Targeted and Frequent Cleaning coupled to once daily disinfection, can reduce Bioburden in the Hospital Environment and make them safe.

IMPORTANT

The Hospital(s) has the Legal Duty and Direct Liability to provide Housekeeping Services of a standard where Safe Healthcare can be delivered, and as per a schedule, which meets the requirements of the Hospital Infection Control Committee. This applies, whether the Housekeeping Services are provided in-house or the provision of Housekeeping Services is contracted to an external provider. Therefore, when Housekeeping Services are contracted to an external provider, a Statement of Cleanliness and Disinfection requirements and a Hospital approved schedule of Housekeeping Services, must be included in the contract agreement with the external provider.

CLASSIFICATION OF PATIENT CARE AREAS

Patient Care Areas generally means all areas of the Hospital where direct patient care is delivered and diagnostic or treatment procedures are performed. It includes spaces within a Healthcare facility wherein patients are intended to be examined or treated like IPD wards, OPD rooms and all patient stations where diagnostic or treatment procedures are carried out.

(For this report, following definitions as in NFPA 99, Health Care Facilities Code and reiterated by Article 517 in NFPA 70: National Electric Code (NEC) have been adopted, used and related as under.)

NOUS adds, a Hospital is a defend-in-place facility, and the ward corridor should always be considered a patient care space, especially for Environmental Hygiene and for Life & Fire Safety provisions.

At the same time, a Hospital is always subject to remodelling, to adopt and integrate newly developed Healthcare Technologies, therefore this standardisation should be implemented as it provides the basis for all future changes. These definitions help the Hospital Architects to structure the physical facility into segments related to Environmental Hygiene and for Life & Fire Safety provisions parameters, which in turn impact the Electrical Design, Communication Systems and Interiors.

It is reiterated here, that the parameters as listed in this report, provide minimum requirements to control nosocomial infections, protect Health & Life Safety of Patients and the Hospital Staff and the Hospital Visitors. These do not necessarily include all the specifications of the respective Project Engineers or requirements of the statutory authority or authorities, that may be more stringent, & which will be met.

Patient Care Vicinity: It is a space, within a location intended for the examination and treatment of patients, extending 1.8 m (6 ft) (on all sides) beyond the normal location of the patient bed, chair, table, examination table, or other device that supports the patient during examination and treatment and extending vertically to 2.3 m (7 ft, 6 in) above the floor. (NFPA 99)

So, in simple terms, the patient vicinity is the area within the wingspan of the patient.

In some cases, like Operating Rooms, ICU beds, Labour Rooms, it will be extended to include the area occupied by Healthcare Providers but that will be **Patient Care Vicinity Plus**.

The said Areas **Patient Care Vicinity** and **Patient Care Vicinity Plus** require special attention for Environmental Hygiene and must always remain Clean.

The practices for Diagnosis and Treatment of Tuberculosis has standardised the layout, zoning, inter bed distances, barrier nursing, Hand hygiene and waste management in Hospitals all over the world. These principals have become Universal and are effective for all kinds of diseases, especially when disease process impacts the immunity status of the patient, because they are aimed at preventing disease transmission not only between patients but also from patients to Healthcare Providers. These, coupled to specific clinical Healthcare delivery requirements, and the immunity status of the patients determines the Category of the Patient Care Area.

Patient Care Areas in a Hospital are categorised as under for Housekeeping Services.

1 Intramural Areas

(Areas located within all Hospital Buildings on campus, where Healthcare is delivered including the connecting corridors of such building blocks)

1.1 SPECIAL CLEAN AREAS

1.1.1 Special Clean Areas are where invasive patient services are provided. (Operating Rooms, Obstetric Suites, ICUs, ED Services, Dialysis Suites, Imaging Suites, Laboratories, Blood Bank, etc.). These are NFPA 99 Critical Care Space (Category 1): An area where failure of equipment or a system is likely to cause major injury or death to patients, staff, or visitors.

1.1.2 For provisioning of Housekeeping Services, these areas require frequent (more than twice a day) cleaning as well as disinfecting services.

1.2 CLEAN AREAS

1.2.1 Clean Areas are where non-invasive patient services are provided. (OPDs, HDUs, General Wards, Physiotherapy Rooms, Relative Waiting Areas in Wards, all Primary Corridors, etc.) These are NFPA 99 General Care Space (Category 2): An area where failure of equipment or a system is likely to cause minor injury to patients, staff, or visitors.

1.2.2 For provisioning of Housekeeping Services, these areas require frequent (minimum twice a day) cleaning as well as disinfecting services.

1.3 GENERAL AREAS

1.3.1 General Areas are where non-patient services are provided. (Offices, Stores, Classrooms, Engineering Service Areas, Generic Clinical Support Spaces, Facilities Management Areas, all Secondary and Tertiary Corridors, etc.) These are NFPA 99 Basic Care Space (Category 3): An area where failure of equipment or a system isn't likely to cause injury to the patients, staff, or visitors, but can cause patient discomfort.

1.3.2 For provisioning of Housekeeping Services, these areas require minimum once a day cleaning services and disinfecting services on demand.

1.4 PUBLIC AREAS

1.4.1 Public Areas are which provide un-restricted public access and only non-patient services are provided. (General Waiting Areas, all Lifts, all Staircases, Dining Rooms, Basement Parking Zones,

etc.) These are NFPA 99 Support Space (Category 4): An area where failure of equipment or a system isn't likely to have a physical impact on patient care.

1.4.2 For provisioning of Housekeeping Services, these areas require minimum once a day cleaning services and disinfecting services on demand.

1.4.3 All Public Toilets shall be cleaned frequently, as per Hospital policy, and will be disinfected at least once every day.

1.5 All **NOUS** Hospitals will have a written policy for cleaning and disinfection of critical and non-critical Medical Equipment and allied Equipment, Fittings and Fixtures in all Hospital Areas. This policy must always be approved by the Hospital Infection Committee to cover the Hospital Liability. The said policy must provide a detailed schedule of Housekeeping Services to be provided. This shall be always reviewed, before any substantial changes are made in technology deployed for Housekeeping Services or whenever any repair or re-modelling works are carried out in the Intra Mural Areas of the Hospital, for any reason, whatsoever.

1.6 It is recommended to apply the Spaulding classification for cleaning and disinfection for all Healthcare Equipment.

2 Extramural Areas

(Areas within all Hospital Buildings & other buildings on campus where Healthcare is not delivered but from where requisite support services including MEP services, Centralised Engineering Services, Residential Services, etc. are delivered to Intramural Areas)

2.1 Areas outside the Hospital Buildings but including the areas in the following on-campus buildings; Staff Hostels, Staff Residences, Guest House, Patient Relatives Inn, Surface parking zones, Multi-level parking blocks, Building Blocks for any MEP Service or Medical Gas Pipelines Systems, etc.

2.2 **All Open Areas** on the campus including porches, landscaped parks, utility areas, aprons, etc. These may be double cleaned by the Hospital gardening staff therefor coordinate the services but surfaces that require cleaning, deep cleaning, polishing and repairs must be attended by Housekeeping Staff. All waste other than the waste which can be composted, will be removed and disposed off by Housekeeping Staff.

2.3 For provisioning of Housekeeping Services, these areas require minimum once a day cleaning services and disinfecting services on demand.

2.4 All Public Toilets in Extramural areas shall be cleaned frequently, as per Hospital policy and will be disinfected at least once every day.

3 Notified Areas that require specified Housekeeping Services

3.1 All Rooms and its associated areas where Barrier Nursing or High-level Barrier Nursing is being practiced. Always include the attached or detached toilets for these rooms.

3.2 All designated Isolation Rooms, AIIR Rooms and PE Rooms.

3.3 All areas where Blood, Body Fluids, Vomitus or Stool has been spilled or where it is likely to be spilled like the Treatment Rooms, procedure Rooms, etc.

3.4 These above listed areas need to follow Extra Precautions when rendering Housekeeping services

3.4.1 All such areas shall be clearly sign posted at the point of entry.

3.4.2 All Housekeeping Staff including Housekeeping Supervisors shall don personal protective equipment; a Gown, Gloves, Shoes or Shoe Covers, Caps, Eye Protection, etc. as appropriate.

3.4.3 Housekeeping Staff must be trained for Hand Hygiene Routine and perform it before entering the area and after leaving the area.

3.4.4 Housekeeping Staff must wear a Surgical Mask or a N95 Respirator, for protection from Droplet infection

3.4.5 Housekeeping Staff must wear a N95 Respirator for protection from Airborne infection

4 Areas Under Repair

4.1 All areas in the Hospital, where any construction or re-modelling is proposed to be carried out, must be protected to contain or minimise dispersal of dust and associated dispersal of molds.

4.2 These areas, based on nature of re-modelling works proposed to be carried out, are categorised as under.

4.2.1 **Type A: Areas with no Dust Generation**: Inspection and non-Invasive Activities which do not generate dust or require cutting of walls or access to ceilings other than for visual inspection e.g. Removal of ceiling tiles for visual inspection, painting but not sanding, electrical work, minor plumbing that disrupt water supply to localized patient care area

4.2.2 **Type B: Areas with Minimal Dust Generation**: Short duration activities which create minimal dust e.g. Activities that require

access to duct spaces, cutting of walls, ceilings, sanding of walls for painting, plumbing that requires disruption to water supply for less than 30 minutes and which are completed within a single work shift.

4.2.3 **Type C: Areas for Minor Repairs**: Any activity that cannot be completed within a single work shift and is usually associated with moderate generation of dust.

4.2.4 **Type D: Areas for Major Repairs**: Any activity that requires the current activity to be stopped or shifted to an alternate area.

5 Areas Associated with Food Preparation

5.1 This includes all intramural and extramural areas associated with preparation and distribution of food, including Kitchens, all Pantries; all Dining Rooms including those in Patient Rooms and offices; all areas used for cleaning of Utensils, Crockery, Cutleries, Food Trollies; all areas used for Food Storage; all areas used for Water Coolers, Automated Dispensers, Cold Rooms for Food Storage, etc.

5.2 Cleaning and drying of all Food contact surfaces such as those of sinks, tables, equipment, utensils, thermometers, carts, is done by the Kitchen Staff. But all spills, deep cleaning, stain removals, etc. is done by Housekeeping services.

5.3 In addition, Housekeeping Services will ensure;

5.3.1 All Areas Associated with Food Preparation will have Hand Washing Stations

5.3.2 Specified pest control services are provided.

5.3.3 All toilets meant for use by staff deployed in Hospital Kitchen and Food Distribution Services are cleaned once every 2 Hours during working Hours

5.3.4 Once a month, all these areas must be cleared of all its equipment etc. and deep cleaned and sanitised.

6 Areas Associated with Linen Service

6.1 The Linen includes Patient Clothing, Bed Linen, Towels and Surgical Drapes, etc. In some Hospitals, Staff Uniforms are also included.

6.2 The Areas include the Laundry Rooms, Laundry Stores, Laundry Rooms in departments, Clean Utility Rooms and Dirty Utility Rooms.

6.3 All **NOUS** Hospitals will have a written policy detailing various procedures for sluicing, collection, transport, handling, washing of soiled linen, drying, mending, pressing and sterilisation (when required). The policy will include procedures for Hand Hygiene and

protection of Linen Service Staff. This policy must always be approved by the Hospital Infection Committee to cover the Hospital Liability.

6.4 Routine Cleaning of Linen Service Area is done by the Laundry Staff, but all spills, deep cleaning, stain removals, etc. is done by the Housekeeping Services.

6.5 In addition, Housekeeping Services will ensure;

6.5.1 All Areas Associated with Linen Service will have Hand Washing Stations

6.5.2 Specified pest control services are provided.

6.5.3 All Areas must be well ventilated and subjected to deep cleaning once a week. and must be dry all the time. The Ventilation Filters need to be cleaned of all lint particles once every day

6.5.4 The back of all laundry machines are cleaned and sanitised, once every day.

6.5.5 The Laundry Room drain, and its sump is cleaned once every day.

6.5.6 All storage racks in functional units need to be emptied, cleaned sanitised and refilled once a week.

7 Areas Flooded (Environmental Cleaning After Flood)

7.1 Flooding may be localised to some areas and occur as a result of malfunctioning of machines or drainage or accidents, etc. or it may happen as a result of some disaster.

7.2 Flood waters can be Clear Water, Gray Water (water from sinks, showers, tubs, and washers), or Black Water (water contaminated with waste from humans and animals).

7.3 The post-flood cleaning and disinfection processes are contingent upon the type of flood water and the material to be cleaned. So, no general policy is recommended.

NOUS RECOMMENDATION FOR TEMPORARY HEALTHCARE FACILITIES

Isolation separates sick people with a contagious disease, Quarantine separates and restricts the movement of people who were exposed to a contagious disease to see if they become sick.

Unless specifically built as infectious diseases Hospitals, Hospitals provide very few rooms for Patient Isolation or none for Quarantine.

Hospitals typically provide about 2 to 16 rooms for isolation or reverse isolation.

Airborne Infection Isolation Room (AIIR) is a single occupancy, negative pressure, patient-care room, used to isolate persons with a suspected or confirmed airborne infectious disease, from people who are not sick, including Healthcare Providers.

Protective Environment Isolation Room (PE) is a single occupancy, positive pressure, patient-care room, used to isolate persons (reverse isolation) with immuno compromised condition (Post Transplant Patients), from all other persons, including Healthcare Providers.

So, when required, the large number of beds provided as Quarantine Ward or Isolation Ward, or Quarantine and/or Isolation facility Centres, are specially created. The standard codes, including various guidelines for provision of Human Resources and Medical Equipment, as applicable to Hospitals are generally not applicable to these Quarantine Wards or Isolation Wards, or Temporary Hospitals. Depending on the Clinical Status of Quarantine Person or Isolated Person and on recommendation of Medical Staff, these persons shall be admitted to Intensive Care Unit (ICU) or a Biocontainment Patient Care Units (BPCU) in a regular Hospital.

Even though, these are Healthcare Facilities, the facilities which specifically provide Quarantine Wards or Isolation Wards should not be called Hospitals but Healthcare Centres. When existing Hospitals are remodelled, as a whole or in part, these shall be re-designated as Centres. It is recommended that in an existing Hospital Block, convert at least one floor (or more but complete floors) and designate minimum one core (Lift and Staircase) to serve that floor as a Centre, which provides Quarantine Wards or Isolation Wards. Hospitals must issue suitable Hospital Notification/Orders.

This is to cover Hospital Liability under Tort.

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COMPONENTS OF HOSPITAL HOUSEKEEPING SERVICES

Always remember, the requirement of Hospital Cleaning and disinfection is inversely proportional to its Area SFT per Bed. Higher the SFT per bed, better is the distancing between the patients, more area is available to Healthcare Staff for delivering services, less are the frequency and requirement for cleaning & disinfection services.

Hospital Housekeeping Services provide general cleaning tasks like routine cleaning services for dust and dirt removal; waste disposal; cleaning of windows and surfaces; and disinfection of specified areas and equipment with germicides.

The services are provided on a routine, consistent basis to maintain a clean, safe, sanitary environment for Healthcare delivery.

Some of the services are provided by the Housekeeping Services Department by itself while some are provided to support or augment the Housekeeping services provided by trained persons in functional departments, Like the Surgical suite, Catering services, laundry services, etc. In such cases the Housekeeping Services Department areas like the janitor Room will remain under Housekeeping Services Department control

Management of waste including Biomedical Waste generated anywhere in the Hospital will always be the responsibility of the Housekeeping Services Department.

The frequency of cleaning and disinfecting a room or area and its fittings and furniture depends on the following.

1 The type of activity taking place in the area and the risk of infection associated with it.

2 The vulnerability of the patients (Immune Status)

3 The probability of contamination of surfaces with droplets or body fluid or by contact or Air Transmission.

4 Whether the surfaces are high-touch or low-touch

It is also determined by General Risk assessment and in these days of pandemic, the frequency will increase.

Initially, Hospital Housekeeping Services were assigned to Nursing Staff, with or without deployment of Nurse Aids but over the years, it is now a standard practice to have Hospital Housekeeping Services Department with delineated responsibilities.

Generally, Hospital Housekeeping Services Department perform the following routine activities.

1 Basic Services

These are part of Hospital Housekeeping Services in all Hospitals

1.1 Cleaning and Sanitation Services

1.1.1 Dusting and Cleaning to ensure that the Floors, Walls, Ceilings and Doors, Bed Frames, Bedside cabinets, etc., in a room or area, are free of stains, visible dust, spills and streaks. Appliances are free of dust, soiling and stains.

1.1.2 All horizontal surfaces of Furniture, Window Ledges, Overhead Lights, Phones, Picture Frames, Carpets, etc., in a room or area, are free of visible dust or streaks.

1.1.3 Bathroom fixtures including Toilets, Sinks, Tubs and Showers are free of streaks, soil, stains and soap scum.

1.1.4 Mirrors and Windows are free of dust and streaks.

1.1.5 Dispensers are free of dust, soiling and residue and replaced/replenished when empty.

1.1.6 All Dust Bins and Waste Collection Bins are emptied, cleaned, sanitised, at least once every day on 24 x 7 basis.

1.2 Disinfection Services

1.2.1 Disinfection or Sanitisation or Decontamination, after cleaning is done to protect the patients, employees and visitors from spreading disease-causing organisms.

1.2.2 Disinfection processes must employ only Hospital approved germicidal disinfectant. Hospitals must have a SOP to determine patients allergy profile to limit the use of germicidal disinfectant. This is required to cover Hospital liability under Tort.

1.3 Replacing Items that are broken, torn, cracked or malfunctioning.

1.4 Collection, Treatment, Transport and Disposal of all types of Liquid and solid Waste, appropriately.

1.5 Making the Bed and changing bed linen, room linen, etc., as per Hospital policy.

1.6 Maintenance of all interior and exterior signage, including cleaning, minor repair, repainting, etc.

1.7 Cleaning and maintenance of all Housekeeping Equipment and Machinery on daily basis.

1.8 Daily issue, retrieval, cleaning of Uniform, Personal Protective Equipment, for Hospital Housekeeping Services Staff.

2 Extended Services

These are part of Hospital Housekeeping Services in some Hospitals

2.1 Hospital Laundry Operations all over the Hospital

2.1.1 Sluicing, Washing, Mending and Pressing of Specified Laundry

2.1.2 Laundry Distribution of Clean Linen and its shelving in linen closets & clean utility rooms.

2.1.3 Collection of Soiled Linen and Linen after its sluicing in the Ward

2.1.4 Linen Management Services which manages the ward linen inventory, re-stocking and the Hospital linen inventory on a daily basis.

2.2 Patient Assistance Services

2.2.1 It involves preparation of the inventory, storage and re-issue of a patient's personal effects while the patient is Hospitalized and operating the Hospital Cloak Room or Patient Locker Room.

2.2.2 It also includes providing clothing, shoes and personal hygiene items to indigent patients.

2.2.3 It includes provision of Barber Services for routine Hair Cutting or for surgical site preparation services.

2.3 Building Maintenance Services

2.3.1 Repair Services for Fittings, and Fixed & Moveable Furniture, Signage, etc.

2.3.2 Painting Services

2.3.3 Integrated Pest Management (Optional)

3 Additional Housekeeping Services

3.1 Additional Hospital Housekeeping Services include deep cleaning services which are not performed daily but less frequently.

3.2 It specifically includes area disinfection services.

3.3 It also includes minor engineering maintenance services.

Sometimes Hospital Engineering Services including Building Management Services, are also assigned to Hospital Housekeeping Services Department, but Hospital Engineering Services are technical services, best performed by especially skilled persons. Only minor repairs may be assigned to Housekeeping Services Department.

4 Management of Housekeeping Services

4.1 Co-ordination of Housekeeping Services

4.2 Monitoring of Housekeeping Services

4.3 Incident Reporting and Follow up of incidents during performance of Housekeeping Services

4.4 Follow up of incidents, as reported to Hospital Call Centre or Night Report Book

4.5 Documentation

4.6 Budgeting

4.7 Management of Housekeeping Staff

4.8 Training & Re-training of Housekeeping Staff

4.9 Selecting appropriate cleaning procedures, controls and monitors to ensure that all sanitation requirements are properly and efficiently addressed.

4.10 All maintenance activities (other than performed as daily maintenance) for Housekeeping Equipment and machines.

4.11 Arranging all maintenance and repairs other than minor maintenance and repairs.

5 Assessment of Quality of Cleanliness

5.1 There shall always be a defined process in place, to measure the quality of cleaning in the Hospital. All aspects of environmental cleaning must be checked. It shall be carried out using one or more of following systems

5.1.1 Conventional system of direct and indirect observation

5.1.2 Monitoring residual bioburden using specified environmental culture techniques.

5.1.3 Environmental Surrogate Marking System

5.1.4 Provision of Marking Charts in all intramural areas.

PRINCIPALS OF HOSPITAL HOUSEKEEPING

The objective for Hospital Housekeeping is to reduce the risk of infection to patients and staff.

THE BASIC PRINCIPALS OF CLEANING

1 Basic Principals of Cleaning

1.1 Work from the highest point in the room to the lowest point in the room. For example, environmental cleaning should start by cleaning any ceiling lights and fans, then move down to the objects closest to the floor.

1.2 Work from the outside walls of the room to the centre of the room. For example, clean all the wall attached objects first before the horizontal objects such as counters and sinks. Then, finish up with items that come in contact with clients like chairs and exam tables.

1.3 Work from the cleanest surfaces in the room to the dirtiest surfaces in the room. For example, when cleaning a bathroom start cleaning the mirrors and lights switches, and then move onto cleaning the sink and finish up by cleaning the toilet and then the floor.

2 Cleaning with water, detergents and mechanical action leads to removal of dust, soil, and organic material that may include blood, secretions and microorganisms. Cleaning is achieved by use of friction to remove microorganisms and debris.

3 Dry mopping is always done before damp mopping.

4 Cleaning physically removes, rather than kills, microorganisms, thereby reducing the microorganism burden on a surface. Routine Cleaning is sufficient in Hospitals to achieve this reduction in Bioburden. Based on the risk of infection assessment, more frequent Cleaning may be required in some areas.

5 In Hospitals, the practice of ‘topping up’ liquid soap containers is not acceptable as it can result in contamination of infections.

6 Cleaning Solutions will not be sprayed onto a surface to prevent aerosolization of cleaning chemicals. Spray directly onto cleaning cloth instead.

7 Disinfection

7.1 All surfaces that need to be disinfected must be cleaned first. Most disinfectants lose their effectiveness rapidly in the presence of organic matter.

7.2 Disinfectants must always be used in prescribed dilutions and retained on surfaces for the recommended contact time to be effective.

7.3 Disinfection will kill most disease-causing microorganisms but may not kill all bacterial spores.

7.4 Surface Disinfection should be done infrequently, on the advice of functional unit head and as part of hospital SOP.

7.5 It should always be done after a spilling accident of body fluids.

7.6 Routine Disinfection of Equipment to be used on patients should always be done by the primary caregiver at the point of care. Disinfection of Equipment between patients should always be done when the same Equipment is used on multiple patients.

8 Sterilisation

8.1 Sterilisation will kill all forms of microorganisms.

8.2 Sterilisation is a special process and it must result in asepsis. Therefore this process shall not be done by Housekeeping Staff.

9 Frequency of Routine Cleaning

9.1 The frequency of cleaning and disinfecting individual items or surfaces in any area depends on

9.1.1 Whether surfaces are high-touch or low-touch

9.1.2 The type of activity taking place in the area

9.1.3 the risk of infection (e.g. examining room vs. meeting room)

9.1.4 The vulnerability (immunity status) of patients seen in the area

9.1.5 If there is an outbreak in the facility or the surrounding community

9.1.6 The amount of body fluid contamination surfaces in the area.

10 Special Precautions for Infection Control in Type C & Type D Repair/Construction Works to protect Working areas.

10.1 To protect the working of Hospital's high-risk areas (Spaulding's critical Cleaning Level) from commensal infections, during above listed works, all adjacent areas of areas under repair will observe the following.

10.1.1 The areas under repair shall be completely sealed off and dust comprehensive control measures be implemented before construction begins. Seal holes, pipes, conduits and punctures appropriately. Construct barriers and airlocks for access of any type.

10.1.2 Isolate HVAC system and Ventilation Systems in area where work is being done to prevent contamination of duct system.

10.1.3 Use tacky mats

10.1.4 Vacuum work area with filtered vacuum cleaner

10.1.5 Seal all accesses except one or two, to high risk areas and provide air showers.

10.1.6 Wet-mop access to high risk areas with detergent during works

10.1.7 Contain construction waste before transport in tightly covered and sealed containers

When designing the Hospital, review detailed cleaning SOPs of the Hospital, if available. It facilitates requirements of physical facilities required and their design.

FREQUENCY OF HOUSEKEEPING SERVICES AT THE MINIMUM

S No	Area	Basic Cleaning	Disinfection	Collection Of Waste	Additional Deep Cleaning
1	**Intramural Areas**				
2	Special Clean Areas	Twice in every shift: 6 times a day	Twice in every shift: 6 times a day	Twice in every shift: 6 times a day	Once a week
3	Clean Areas	Once in every shift: 3 times a day	Once in every shift: 3 times a day	Once in every shift: 3 times a day	Once a week
4	General Areas	Twice a day	Twice a day	Twice a day	Once a month
5	Public Areas	Once a day	Once a day	Once a day	On Demand
6	Public Toilets	Twice a day	Once a day	Twice a day	On Demand
7	**Extramural Areas**				
8	Building Blocks other than Hospital Building Blocks	Twice a day	On Demand	Once a day	On Demand
9	Open Areas on the campus	Once a day	On Demand	Once a day	
10	Public Toilets	Once a day	Once a day	Once a day	On Demand
11	**Notified Areas**	Twice in every shift: 6 times a day	Twice in every shift: 6 times a day	Twice in every shift: 6 times a day	On Demand
12	**Areas Under Repair**				
13	Type A: Areas with no Dust Generation	On Demand	On Demand	On Demand	
14	Type B: Areas with Minimal Dust Generation	On Demand	On Demand	On Demand	
15	Type C: Areas for Minor Repairs	Twice a day	On Demand	Once a day	
16	Type D: Areas for Major Repairs	To be done by works contractor			
17	**Areas Food Preparation**	Twice in every shift: 6 times a day	Twice in every shift: 6 times a day	Twice in every shift: 6 times a day	
18	**Areas Linen Service**	Once in every shift: 3 times a day	Once in every shift: 3 times a day	Once in every shift: 3 times a day	
19	**Areas Flooded**	On Demand	On Demand	On Demand	On Demand

ORGANISATION OF HOUSEKEEPING SERVICE DEPARTMENT

PLANNING ASSUMPTIONS

Typically, a Janitor Room is required for every 1500 SQM floor area in a Hospital Floor. It serves to accommodate a General Ward (Spaulding's non-critical Cleaning Level or Light Contamination ward) with 36 Beds (maximum 48 Beds as a Nightingale ward) or a HDU with 24 Beds or an ICU with 16 Beds. It includes respective support and service areas. It requires minimum one Housekeeper per shift, preferably 2 Housekeepers in the morning shift. It requires deep cleaning once, every week.

All unoccupied rooms in the Hospital will be cleaned and ventilated every day unless they are closed and sealed off as a fire zone. Part fire zones shall not be treated as unoccupied area.

All Hospital Housekeepers, including executives, must be trained to use Personal Protective Equipment which is required when entering notified Barrier Nursing Areas.

Although the sluicing activities are performed by the Nursing Staff, all Hospital Housekeepers, including executives, must be trained for performing the sluicing activities.

All Housekeeping routines, training schedules, training attendance sheets, Duty Rosters, Housekeeping Equipment Logs shall be preserved for a minimum period of 3 years and their summaries after 3 years for a further period of 7 years. This data is used as corroborating evidence for defending Hospital Liability.

The following are **NOUS** recommendations for a Housekeeping Services Department in a typical secondary cum tertiary care, multi-speciality, public, 500 Bedded Hospital. This Housekeeping Services Department Organisation Structure will be used to generate the physical facility to be created in a given Hospital.

(It may be scaled as per number of Compliment Beds that Hospital has. It may be modified as per services expected to be performed, nature of ownership of Hospital and other parameters including financial resources allocated.)

Earlier the Housekeeping Services Department was part of the Hospital Organisation Structure, but currently, in most of the medium to large Hospitals, Housekeeping Services are contracted out.

NOUS recommends creating a Hierarchical Organisational Structure for Housekeeping Services Department, using different levels of authority and a vertical chain of command to effectively perform the required services. In hierarchies, the authority, responsibility and job function are clearly defined. It can easily organise people into teams, to perform teamwork. Communications, as well as Feedbacks, which influence the performance of services, are clear and reported in real time.

The Hierarchical Organisational Structure is considered most appropriate in Hospitals. where the dual authority is the norm for Healthcare Delivery. For Housekeeping Services, this Hierarchical Structure integrates the administrative authority with all the inputs from Healthcare Providers in the Standard Operating Procedures (SOP). It provides for dual supervision by the Housekeeping Department and supervision by the functional authority like the Nurses in Wards, Technicians in support areas, etc. at the service performance level.

This also facilitates contracting out the services to a third party. A smaller supervisory organisation must be retained by the Hospital to exercise the supervisory authority, when the services are contracted out.

The designations as listed, hereunder, are Standard, as being used in upmarket Public Hospitals. These may be changed.

1 Director of Housekeeping Services (Manager Housekeeping Services or Executive Housekeeper)

1.1 The Director of Housekeeping Services reports to the Medical Superintendent of the Hospital and acts as his/her advisor for Housekeeping Services. He/she generates all needed management reports.

1.2 He/she is responsible for the overall cleanliness and aesthetic upkeep of the Hospital and for all the housekeeping employees. He/she is also responsible for preparing the departmental budget and maintaining departmental inventories. His/her duties are;

1.2.1 Organise, supervise and coordinate the work of Housekeeping staff on day- to day basis to ensure sanitation, safety, comfort and aesthetics for Hospital Patients and Staff.

1.2.2 Conduct regular meetings with the Housekeeping Staff

1.2.3 Recruit the Housekeeping staff and train them.

1.2.4 Establish and maintain Stores for Housekeeping Services

1.2.5 Establish and maintain the Functional Manual of the department and SOPs. (NABH Requirement)

1.2.6 Develop and implement Housekeeping systems and procedures

1.2.7 Incorporate all new technologies in Housekeeping systems and procedures

2 Deputy Director of Housekeeping Services (Assistant Manager Housekeeping Services)

2.1 The Deputy Director of Housekeeping Services reports to the Director of Housekeeping Services. He/she takes charge of Housekeeping Department in absence of Director of Housekeeping Services.

2.2 He/she assists the Director by;

2.2.1 Forecasting and budgeting for Operating and Capital Expenditure.

2.2.2 Providing necessary information for staff evaluation, disciplining, termination and promotion.

2.2.3 If the Housekeeping Services are contracted out, He/she is the principle co-ordinator.

2.3 His/her duties are;

2.3.1 Make a daily round of the Hospital to ensure implementation of the Functional Manual of the department and SOPs.

2.3.2 Attend the Medical Superintendent Rounds of the Hospital.

2.3.3 Conduct daily meeting with all managers/supervisors under him.

2.3.4 Prepare the staff schedules and duty rosters.

2.3.5 Stockpiling of essential Housekeeping supplies.

2.3.6 Implement the Housekeeping training programs.

2.3.7 Liaison with Hospital Engineering Service Department and with all vendors including all service providers related to Housekeeping

3 Housekeeping Managers

3.1 The Housekeeping Managers report to the Deputy Director of Housekeeping Services. Senior most Housekeeping Manager officiates as Deputy Director in his/her absence.

3.2 Depending upon the responsibilities of the Housekeeping Department, there shall be at least one Housekeeping Manager for each of the following functions. They shall be rotated every 6 – 9 months between the sub-departments.

3.2.1 Senior Manager Housekeeping Services

3.2.2 Manager Basic Housekeeping Services

3.2.3 Manager Extended Housekeeping Services

3.2.4 Manager Additional Housekeeping Services

3.2.5 Manager Quality Assurance Housekeeping Services

3.3 His/her duties are;

3.3.1 Be responsible for efficient and orderly management of cleaning, servicing and disinfection of Patient Rooms, Patient Stations, other areas under their charge, etc. It includes inspection of the waste management system and replace all un-serviceable Equipment. It specifically includes ensuring proper cleaning and disinfection of surfaces (Floors, Walls, Tabletops, all accessible flat surfaces including cills, lintels, frames, etc. and all touch zones in all clinical areas under his/her charge.

3.3.2 Maintain Stock Levels of Linen, Uniforms, Housekeeping Supplies, Housekeeping Equipment at user level like Ward nurse Station, Floor Manager Store, etc. as appropriate.

3.3.3 Providing necessary information for staff evaluation, disciplining, termination and promotion.

3.3.4 Make a daily round to ensure implementation of the Functional Manual of the department and SOPs.

3.3.5 Attend the Medical Superintendent Rounds of the Hospital.

3.3.6 Conduct daily meeting with all Floor Supervisors under him.

3.3.7 By rotation, they shall provide managerial supervision over whole Hospital, including Intramural and Extramural Areas in Night Shift.

3.3.8 Implement Preventive Housekeeping Services including deep cleaning schedules and all minor repair schedules.

3.3.9 Implement the Housekeeping training programs.

3.3.10 Liaison with Hospital Engineering Service Department and with all vendors including all service providers related to Housekeeping

4 Floor Supervisor

4.1 The number of Floor Supervisors required depends on the size of the Floor Plate. A Floor Supervisor can control one or more floors in a building. A Floor Supervisor is typically assigned for every 2 (maximum 3) Janitors Rooms.

4.2 The Floor Supervisors report to the Housekeeping Managers.

4.3 Floor Supervisors are responsible for making sure all of the staff does what is required of them.

4.4 Floor Supervisors are also specifically designated as under as per Hospital Policy. Their duties are specified as per their designation.

4.4.1 Public Area Supervisor

4.4.2 Night Supervisor

4.4.3 Laundry Supervisor with or without Linen Supervisor

4.4.4 Stores (Housekeeping) Supervisor

4.4.5 Inquiry Desk Supervisor for Housekeeping Services Control in Large Hospitals

4.5 His/her duties are;

4.5.1 Be responsible for efficient and orderly management of cleaning, servicing and disinfection of Patient Rooms, Patient Stations, Nursing Stations, Utility Rooms, attached or detached Toilets, Corridors, Staircases, Floor Pantries, etc., under their charge,

etc. It includes inspection of the waste management system and replace all un-serviceable Equipment. It specifically includes ensuring proper cleaning and disinfection of surfaces (Floors, Walls, Tabletops, all accessible flat surfaces including cills, lintels, frames, etc. and all touch zones in all clinical areas under his/her charge.

4.5.2 Manage Janitor Room Stores.

4.5.3 Manage control of floor keys.

4.5.4 Replenish all Housekeeping Carts, at least once a day, and issue Housekeeping Equipment and Cleaning Materials as required to Housekeepers.

4.5.5 Supervision of all Signage, especially the fire evacuation plans, as posted.

4.5.6 Check Fire Evacuation paths to ensure that they are serviceable.

4.5.7 Check all Fire Escape Signage and Fire Escape Lighting.

4.5.8 Where applicable, it includes supervision of Laundry activities.

4.5.9 Review all reports fort maintenance work on the floors and organise the work required.

4.5.10 Make a daily round to ensure implementation of the Functional Manual of the department and SOPs.

4.5.11 Participate in Preventive Housekeeping Services including deep cleaning schedules and all minor repair schedules.

4.5.12 Participate in the Housekeeping training programs.

5 Housekeepers

5.1 In Hospitals, a Housekeeper must be available 24 x 7 in all patient areas and is considered part of Healthcare Provider Team.

5.2 All Housekeepers report to their Floor Supervisors.

5.3 The number of Housekeepers required depends on the size of the Floor Plate. Typically, 4 Housekeepers are assigned for every Janitors Room. Where Janitors Rooms are shared, the number of Housekeepers should be increased appropriately.

5.4 Benchmark Data to be used for planning. Actual times vary as per level of care being delivered.

5.4.1 Typically, for proper cleaning, a single Housekeeper takes 20 minutes per bed. For a Bedpan call, a single Housekeeper takes 10 minutes per call (Turn round time). For a Spill Cleaning call, a single Housekeeper takes 15 minutes per call (Turn round

time). Studies have shown that the quality of a Housekeeper's ability to clean quickly and efficiently goes down exponentially after cleaning 10 to 12 rooms. They get tired and start overlooking things. Therefore, Housekeepers are assigned workload that can be accomplished in 3 Hours and then they rest for 1 Hour.

5.4.2 Typically, in morning shift, Housekeepers work in pairs and implement team cleaning. In evening and night shift, they pair up, when required, across pair of Janitor Rooms.

5.4.3 Always assign additional Janitor Room Staff to back up any Janitor Room on a Floor Plate or on Floors, immediately above or below.

5.4.4 Targeted response time is 5 minutes for attending any call.

5.4.5 Make and keep ready, at least 2 response Kits, in every Janitor Room.

5.5 High level disinfection will be carried out in all areas categorised as Spaulding's Critical Cleaning Level or Spaulding's Semi-critical Cleaning Level. All procedure carts shall be disinfected and/or sterilised in Hospital's CSSD or TSSU.

5.6 All Hospital Housekeepers must be trained in removing Surgical waste with care and responsibility.

5.7 His/her duties are;

5.7.1 Clean Hospital Patient Rooms or Wards, Toilets, Nurse Stations, Utility Rooms, Duty Rooms, Laboratories, Offices and other areas as have been assigned to the particular Janitor Room.

5.7.2 When required, disinfect all cleaned area.

5.7.3 To assist the Nursing Staff in Change of Bed Linen, making the beds, cleaning all flat surfaces, touch surfaces and in refilling all supplies.

5.7.4 To assist the Nursing Staff in keeping utility and storage rooms in clean and orderly condition.

5.7.5 When patients are discharged, Clean, Sanitise and prepare the patient Bed or Room to receive next patient.

5.7.6 All Janitor Rooms will be cleaned and sanitised at the start of every shift.

5.7.7 All un-occupied Patient Rooms and Beds will be visited at least once a day, every day, in morning shift. These will be cleaned and ventilated (for 10 minutes) once a day, every day.

5.7.8 Evening shift will clean and sanitise all Lifts and Staircases.

5.7.9 The night shift will clean the Sluice Machine; Clean and Sanitise all Bedpans, Urine Pots, etc.

5.7.10 Document and report all their activities and unusual incidents at end of shift, either using a computer or a report book.

5.7.11 Collect, treat and dispose off all waste in the assigned area.

5.7.12 Participate in Preventive Housekeeping Services including deep cleaning schedules and all minor repair schedules.

5.7.13 Participate in the Housekeeping training programs.

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INFRASTRUCTURE FOR HOSPITAL HOUSEKEEPING SERVICES

Classically, Hospitals require a Janitor Room with a Janitor Closet in every functional unit like a ward, ICU, Surgical Suite, etc. This basic unit is described below. In certain functional units, depending on the specific requirement, a Sluice Room with automatic Washer Cum Disinfector machine and other furniture is also provided. In large floor plates, where multiple fire Zones are provided and multiple functional units are located, multiple Janitor Rooms and Sluice Rooms can be provided.

Assuming the Hospital with 500 Beds will have total built area of 50,000 SQM @ 100 SQM per Bed, and will have 7 floors (7 -10 Floors), it needs 34 Janitor Rooms, 4 janitor Rooms per Floor, grouped in 2, total 2 Large Janitor Rooms per Floor.

Its Departments and Bed Distribution is assumed to be as under.

DEPARTMENT		NUMBER OF FUNCTIONAL UNITS	NO. OF JANITOR UNITS
1	In-Patient Department	500 Beds	
2	Intensive Care Wards	4 Units with 64 Beds @ 16 Beds per unit	4
2.1	Neo-natal ICU	1 Unit with 24 Beds	1
2.2	Acute Care Wards	4 Units with 96 Beds @ 24 Beds per unit	4
2.3	Intermediate Care Wards	9 Units with 324 Beds @ 36 Beds per unit	9
3	OPD & Emergency	24 Consulting cum examination Rooms	3
3.1	Clinical Support Areas		
3.2	The Surgical Suite	12 Operating Rooms	1
3.3	The Obstetric Suites	6 Birthing Stations	1
3.4	The Imaging Suite	12 Examination Rooms	1
3.5	Department Of Pathology & Clinical Laboratory	8 Laboratories	1
3.6	The Blood Bank		1
3.7	The Mortuary		1
4	Common Administrative & Engineering Support Areas		
4.1	Central Reception & Administration		1
4.2	Hospital Engineering Services		1

DEPARTMENT		NUMBER OF FUNCTIONAL UNITS	NO. OF JANITOR UNITS
4.3	Bio-medical Engineering Services		1
4.4	Hospital Laundry Services		1
4.5	Hospital Catering Service		1
4.6	Hospital Stores & Supply Service		1
4.7	Hospital Utility Services		1
Total Number of Janitor Rooms			**34**

HUMAN RESOURCES FOR HOSPITAL HOUSEKEEPING SERVICES

Its Housekeeping Department will have the following staff.

DESIGNATION		NUMBER
1	Director Of Hospital Housekeeping Services	1
2	Deputy Director Of Hospital Housekeeping Services	1
3	Housekeeping Mangers	6
4	Floor Supervisors	16
5	Housekeepers	34 x 4 = 136
Total		**160**

PHYSICAL INFRASTRUCTURE FOR HOSPITAL HOUSEKEEPING SERVICE DEPARTMENT

The following areas are required.

AREA		NO. OF UNITS	AREA (SQM)
1	Office for the Director of the Hospital Housekeeping Service Department	1	18
2	Office for the Deputy Director of the Hospital Housekeeping Service Department	1	13.5
3	Office for the Housekeeping Mangers of the Hospital Housekeeping Service Department	3	13.5

	AREA	NO. OF UNITS	AREA (SQM)
4	Office for the Floor Supervisors of the Hospital Housekeeping Service Department	4	13.5
5	Housekeeping Service Store	1	18
6	**Optional:** Housekeeping Third party Contractor Office	1	18
7	Central Cleaners Room cum Locker Room cum Multipurpose Room for Training and Dept office	1	27
8	Janitor Rooms	As Required	9
9	Office for the Floor Supervisors in Functional Areas	5 - 6	9
10	Sluice Rooms	As Required	5
11	Garbage (Waste) Storage Rooms, one on each floor	As Required	9
12	Central Waste Storage, Treatment and Disposal Yard	1	
13	Toilets, As per Architectural Design		

JANITOR ROOM LAYOUT

Traditionally, commercial Housekeepers have been known as Janitors. This term is freely used in Housekeeping Service Industry for Hotels. But now, formal design briefs for Hospitals have incorporated the requirement of a Janitor Room or Janitor Closet in its area programmes.

NOUS has been planning provision of a Janitor Room on every floor plate in its Hospital Buildings, where 240 or more beds are planned. For smaller Hospitals, NOUS plans for a Janitor Closet, which in fact, is a smaller Janitor Room.

Now, most of the Building Codes have standardised the requirement of a Janitor Room or Janitor Closet for Hospital buildings. It has become an integral part of Hospital Cleaning Services and in turn part of the Healthcare Delivery System. A well planned and operated Janitor Room contributes to controlling the Nosocomial Infection Rates of the Hospital.

The following are the generalised design requirements for Hospital Janitorial Systems, Janitorial Supply and Equipment Needs, Accessibility and Equipment Accessories. These requirements must be evaluated to ensure that these do not flout any applicable regulations.

Typically, a Janitor Room is required for every 1500 SQM floor area in a Hospital Floor whereas a Janitor Closet is provided to serve 1000 SQM or less, floor area. Each is intended to serve a Functional Unit, like a ward, a surgical suite, etc., Of the Hospital.

Henceforth, the word Janitor Room has been used to denote a Janitor Room or a Janitor Closet

Design Parameters

1 The standard Janitor Room, typically, serves a General Ward with 36 – 48 Beds or a HDU with 24 Beds or an ICU with 16 Beds, and their respective support and service areas. It provides comprehensive support for Basic Cleaning and Disinfection Service. All Cleaning materials and equipment in daily use are stored in this room. It supports all other Housekeeping Routines also.

2 Locate the Janitor Room so that it is accessed without traversing the Functional Areas, especially in Clean Room Status Functional Unit, directly assessible from service core of the floor. It should be close to Staff Toilets.

3 It shall never be located on stair landings or under stairways.

4 One, Floor Supervisor Office, with minimum 9 SQM Floor Area with a computer workstation will be provided Close to the Janitor Room @ One Office for 6 Janitor Rooms, distributed evenly over multiple floors.

5 Minimum Dimensions for Janitor Room

5.1	Janitor Room	9 SQM
5.2	Janitor Closet	6 SQM

5.3 Increase the Floor Area of the Janitor Room if more than one Floor Cleaning, Scrubbing, Washing machine is to be housed here.

5.4	One Dimension of Room (Required)	1800 mm
5.5	Door Width of the Room	1200 mm

5.6 Door Opening should be away from the room to facilitate emergency exit during emergency calls and for permitting use of interior wall space.

6 One wall shall hold shelves to store the supplies.

7 Other Wall (opposite wall) shall support the Janitor Sink, Mop Holder, Handwashing Sink, etc.

8 Provide coving (150 mm rise on wall) on floor to wall Joints

9 Provide a Floor Drain with basket and adequate slope from walls to the drain.

10 Flooring shall be suitable for machine traffic. It can be PVC, Kotah Stone, Vitrified Tiles.

11 Provide water-resistant, hard, impervious, smooth surface walls. Glossy Enamel paint is considered adequate but requires frequent reapplication.

12 Provide one wall with at least 2 levels of adjustable shelving, with 3 level shelfs, in two sections. The system should be able to carry 30 kg weight on its any section. It will provide a clear space of 250 mm below the lowest shelf.

The uppermost shelf shall be at a height of 1800 mm from the finished floor level.

13 The shelving may be combined with a Stainless-steel cabinet to store all chemicals.

14 A locker may be provided for storing personal belongings.

15 Provide a Stainless Steel, Janitor Sink Unit, 750 mm long x 600 mm wide x 250 mm high. The average water consumption of Standard Janitor Sink is 60 Litres per washing cycle. Provide a suitable service faucet & 3 – 5 Pole wall Holder near the Janitor Sink Unit.

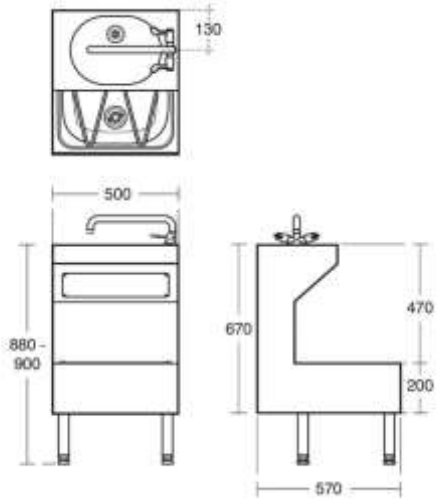
16 The 3-sided (Left Right And Back), Stainless Steel, Splash protection or Wall Guard, will extend minimum 450 mm (preferable 900 mm) above the sink.

3 POLE HOLDER

HOT & COLD MIXER FAUCET

17 An additional handwashing sink should also be provided.

18 Alternatively, a Janitorial Unit conforming to HBN 00-10 HTM64 (JU), incorporating Janitor sink with bucket grating and hand rinse basin, with earthing terminal. Mixer with restricted travel swivel nozzle, and small lever handle may be provided.



DIMENSIONS IN MM

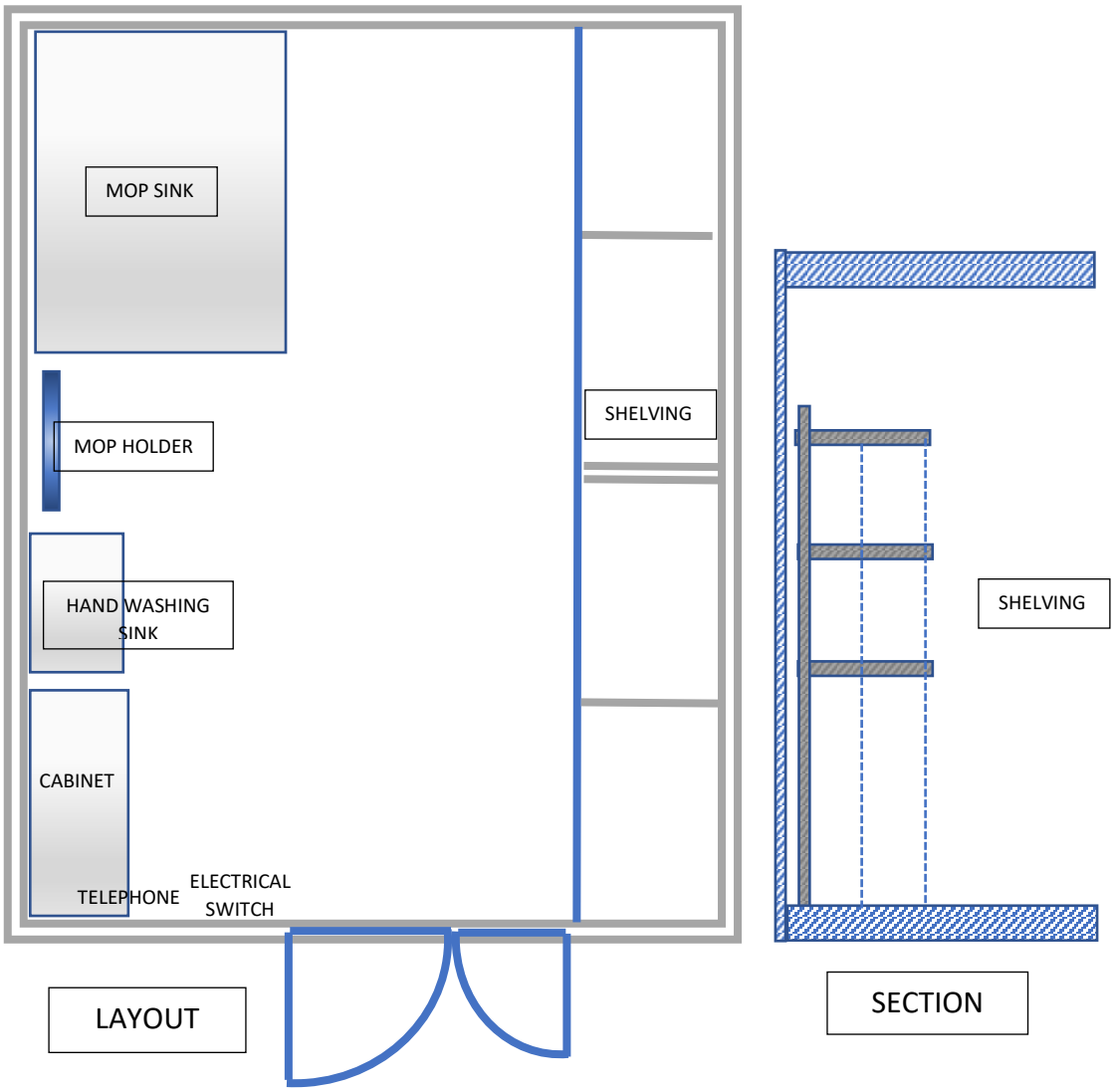
19 Provide IP 54, LED Light Fixture to provide 300 LUX Light, with control switch located at Entry Door Wall.

20 Provide a wall telephone located at Entry Door Wall.

21 Provide one (1) 16 an Electrical Socket at Entry Door Wall.

22 Provide minimum 4 Total Air Changes per Hour.

23 Conceptual Indicative Layout is as under.



24 The following equipment or service lines shall never be located inside the Janitor Room

24.1 Sluice machine (Bedpan Washer Cum Disinfector)

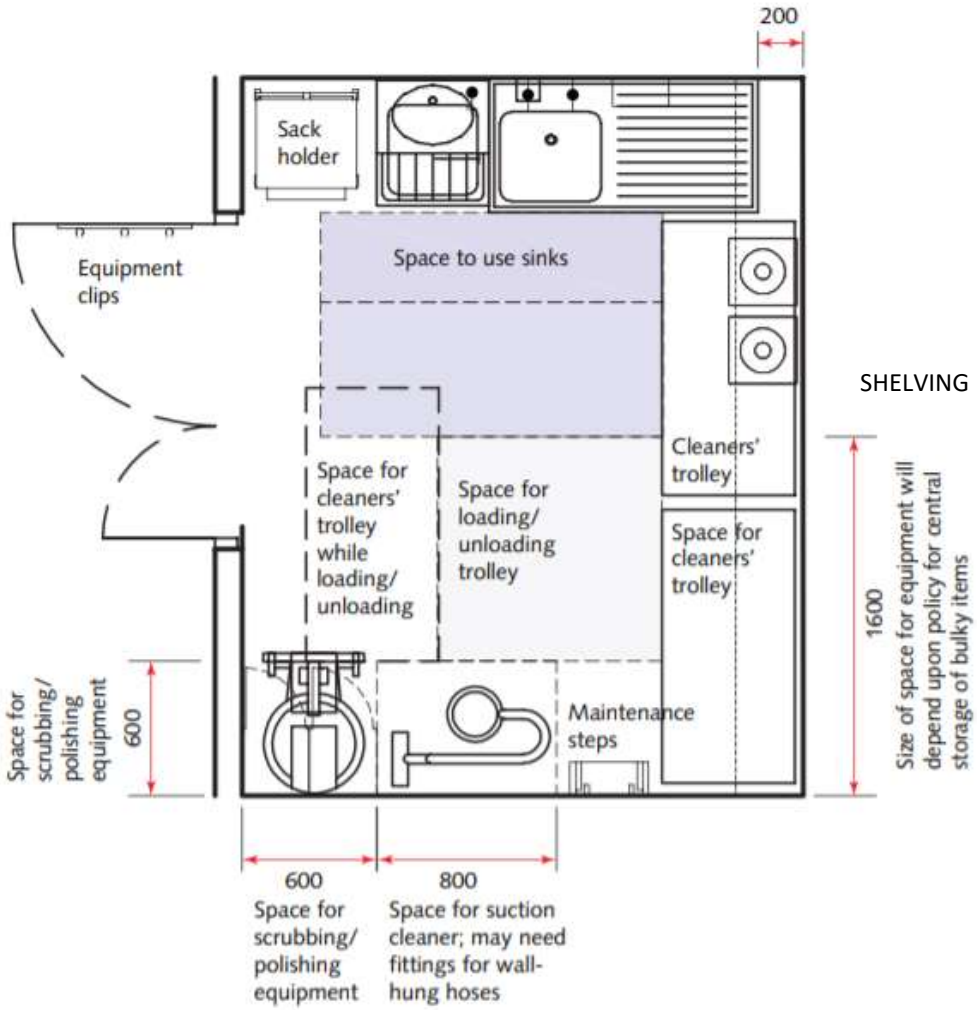
24.2 Any Electrical DBs, Alarm Panels, Switch Boards (other than those required to control circuits within the room), etc.

24.3 Any Type of Water Heaters or Room Heaters

24.4 Any service Equipment like Water Softeners, Water Coolers, etc.

24.5 Any **"pass through the room"**, Exposed, Plumbing Pipes, Drainpipes, Electrical Cables, HVAC Equipment, Risers, Vertical or Horizontal Ductwork, Ventilation Exhaust Pipes, Pneumatic Tube Transport Pipes, Medical Gas Pipelines, etc.

Alternative Layout (as in HBN, UK)

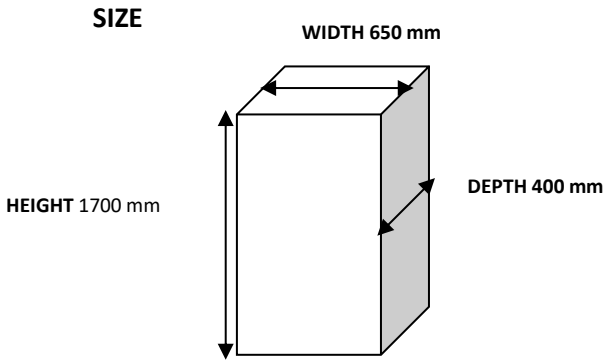


SLUICE ROOM

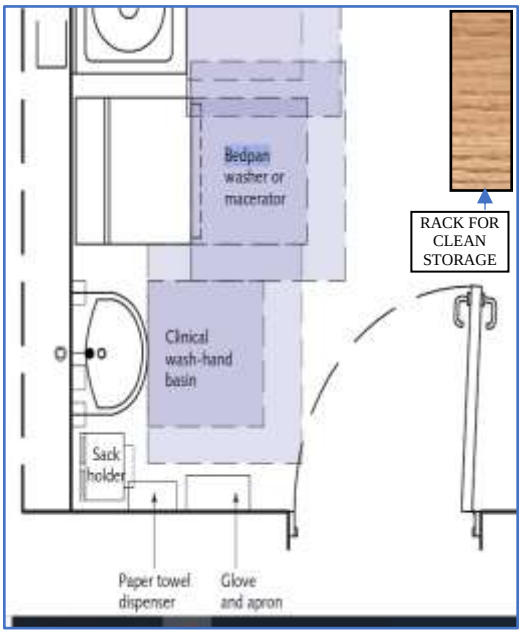
1 All sluice rooms, in designated patient wards, shall be provided with an automatic Bedpan Washer cum Disinfector and a Bedpan & Bottle storage rack, made of Stainless-steel, a Hand washing sink and a Table Top made of Stainless-steel, for receiving and keeping Bedpans and Urine bottles for some time before they are put in the washer.

2 The room will have a floor drain for cleaning the room.

3 The automatic Bedpan Washer cum Disinfector is an automatic machine fabricated from Stainless Steel, which stands on the floor, is foot operated and has an integrated steam generator. It washes and disinfects bedpans and urine bottles at an average temperature of 80 degree C. For installation and service, this requires a clear area of 300 mm all around from walls etc.



Electrical connection	: 2 x 15 A, 230 V, Single phase, 50 Hz
Water Inlet	: ½ inch BSP at 15 – 20 psig pressures
Drain Connection	: 4 inch BSP, for soil waste, located at 16 inches from finished floor level on the wall at rear of the proposed machine location



AUTOMATIC BEDPAN WASHER CUM DISINFECTOR

HOSPITAL WASTE (GARBAGE) MANAGEMENT

To begin with Hospitals used to generate Garbage, which was handled like domestic refuse and disposed off, first to municipality and then in same manner as city waste. Over the years, this Hospital Garbage became Hospital Waste and got categorised into multiple waste types like Bio-medical waste, Radioactive waste, etc., and now there are multiple statues, which govern collection, treatment and disposal of Hospital Waste.

It is very important to note here that only 15 - 20% of Hospital Waste is Bio-medical Waste and the rest 80% - 85% still can be categorised as Domestic Refuse, which is non-hazardous and does not pose any Biological, Chemical, Radioactive or Physical Hazard.

Efficient collection, handling, storage, and transportation of Hospital Waste is a very important component of the safety of the Built Environment of the Hospital; therefore, Hospital Waste Management is a very important part of Hospital Housekeeping Services.

In India, Ministry of Environment and Forests has notified the Bio Medical Waste (Management and Handling) Rules in July 1998, (updated in 2016), which govern Solid Waste Management in Hospitals.

WASTE

1. **Municipal Solid Waste** is defined as any garbage, refuse, or sludge and other discarded material including solid, liquid, semi-solid, or contained gaseous material. All wastes, including non-hazardous waste, need to be properly managed to prevent pollution of the environment.
2. **Hospital Waste** includes, but is not limited to, hazardous and non-hazardous waste, pharmaceutical, regulated medical waste, universal waste, radioactive waste, sewage and wastewater from infectious disease ward and liquid medical waste from Operating Rooms.
3. **Bio-medical Hospital Waste** is Hospital Waste, that is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals. It is always considered as potentially Infective Waste, which has been responsible for Nosocomial infections in the Hospital. It constitutes approximately 15% of the total Hospital Waste.
4. Hospital Waste is broadly categorised as **Solid Waste** and **Liquid Medical Waste**. Handling and disposal of Solid Waste is in the domain of Hospital Housekeeping Services and it must comply with relevant statutory Rules and Regulations in force from time-to-time. Handling and disposal of Liquid Medical Waste is in the domain of Public Health Engineering.
5. 85% of Hospital Waste is considered Municipal Solid Waste and is called Healthcare General Waste and its handling is not specifically regulated.

6 Bio-medical Hospital Waste is further categorised as under by WHO.

6.1 Sharps Waste

6.1.1 Used or unused sharps (e.g. hypodermic, intravenous or other needles; auto-disable syringes; syringes with attached needles; infusion sets; scalpels; pipettes; knives; blades; broken glass)

6.2 Infectious Waste

6.2.1 Waste suspected to contain pathogens and that poses a risk of disease transmission and includes waste contaminated with blood and other body fluids; Laboratory Cultures and Microbiological Stocks; waste including excreta and other materials that have been in contact with patients.

6.3 Pathological Waste

6.3.1 Human tissues, organs or fluids; body parts; foetuses; unused blood products, etc.

6.4 Pharmaceutical Waste

6.4.1 Expired drugs and Pharmaceuticals, etc.

6.5 Cytotoxic Waste

6.5.1 Substances containing genotoxic properties – often used in cancer therapy

6.6 Chemical Waste

6.6.1 Waste containing chemical substances, Laboratory Reagents; Solvents; Batteries; Broken Thermometers, etc.

6.7 Radioactive waste

6.7.1 Waste containing Radioactive Substances, urine and excreta from patients treated or tested with unsealed Radionuclides, etc.

7 Concentrated cultures of pathogens and contaminated sharps (particularly hypodermic needles) represent the most hazardous waste for nosocomial infection. High risk of nosocomial infection is most likely to occur from poorly managed sharps waste and to a lesser extent from Infectious Waste, Chemical and Pharmaceutical Waste, and Radioactive Waste.

8 Whenever possible, minimizing the generation of hazardous Health Waste is the best practice to prevent the occurrence of risks from the waste.

It has been determined by various studies that Indian Hospitals generate 1.5 Kg to 4.25 Kg Hospital Waste per Bed day. Of this 0.75 Kg (average) per Bed day is hazardous waste.

(USA Generates upto 10 Kg Hospital Waste per Bed day)

DESIGN PARAMETERS FOR SOLID WASTE MANAGEMENT

1 The waste produced in Hospitals carries a higher potential for infection and injury than any other type of waste. It is because the domestic waste and biomedical waste gets nixed at the point of origin. Therefore, its handling must be safe and reliable. It requires multisectoral cooperation and interaction at all levels and it should become an integral feature of Health-care Services.

2 It must clearly specify waste handling requirements separately for Non-hazardous & non-regulated Waste, and Bio-medical waste.

3 Hospitals need to formulate a policy for Hospital waste management, treatment technology deployment and disposal. This policy should also protect Health-care workers from exposure, injury and occupational disease.

4 Bio-medical waste is stored in colour coded containers and biodegradable bags based on treatment options and as under.

4.1 **YELLOW** has human anatomical waste, blood and dead tissues

4.2 **RED** has Infected plastics and rubber waste including catheters and syringes

4.3 **WHITE (**Container) has Sharps including blades and needles

4.4 **BLUE** has Glassware, bottles, vials, ampoules

4.5 **BLACK** is for general waste, food waste, paper waste

5 As far as possible, design must separate path for movement of Clean and Dirty Trollies, especially in the Surgical Suite of the Hospital.

6 When the Dirty Trollies have to travel through Clean paths, the Trollies must travel minimal possible distance, be covered, non-leaking and preferably be airtight. If these Dirty Trollies carry waste, the waste should have primary and secondary bagging, primary and secondary closure and this must not be manipulated after primary containment.

7 When designing Hospital Solid Waste Management System, the following parameters are to be evaluated and incorporated.

7.1 Waste Stream Assessment

7.1.1 Waste stream is a term that describes the flow of solid waste from generation to disposal.

7.1.2 Waste stream assessments require the identification of the quantity and composition of the waste stream(s) generated and the evaluation of potential opportunities for reduction of that waste stream.

7.1.3 Waste Stream flow audits are important for upgrading the Waste Management as well as to defend Hospital Liability.

7.2 Waste Minimization Strategies

7.2.1 Various technological and other strategies like Input material change, Recycling of waste components, Reclamation, etc., are being applied to minimise waste generation.

7.2.2 Waste compacting reduces the volume and sometimes the weight of waste but does not reduce the quantity of waste itself.

7.3 Generation, Segregation and Identification of Waste

7.3.1 Identification and segregation of wastes must be performed by the person who generates the waste and not by the Housekeeping Staff.

7.3.2 Hospital Waste shall be segregated at their place of production to reduce the Health risk from the potentially infectious waste.

7.3.3 Once segregated, the identity must be retained using colour coded containers, labels, packaging, etc.

7.3.4 The segregated waste shall be placed in separate colour-coded containers and temporarily stored in Garbage (Waste) Storage Rooms, located within the functional areas.

7.3.5 If a mechanised waste Collection System is provided in the Hospital, the Hoppers feeding the Garbage Chutes should be located inside these Garbage Storage Rooms.

7.4 Collection of Waste

7.4.1 Waste shall not be allowed to accumulate at the point of production or in Garbage Storage Rooms. A routine programme for their bagging and collection shall be established as part of the Healthcare Waste Management Plan.

7.4.2 Hospital Housekeeping Service must clear Garbage Storage Rooms, once a day or more than once a day, to reduce the potential for insect and vermin harbourage, microorganism growth, odour generation, and for aesthetic considerations.

7.4.3 Specifically, Patent Care Waste must not be permitted to accumulate in Patient Care Areas. It must be cleared minimum twice a day.

7.4.4 No bags shall be removed unless they are labelled with their point of production (Hospital and ward or department) and contents.

7.4.5 Nursing and other clinical staff shall ensure that waste bags are tightly closed or sealed when they are about three-quarters full.

7.4.6 Light-gauge bags shall be closed by tying the neck, but heavier-gauge bags probably require a plastic sealing tag of the self-locking type.

7.4.7 Bags shall not be closed by stapling.

7.4.8 The bags or containers shall be replaced immediately with new ones of the same type. A supply of fresh collection bags or containers shall be readily available in the Nursing Station or in the Janitor Room (and never in the Waste Collection Room)

7.4.9 Sealed sharps containers shall be placed in a labelled, yellow infectious Health-care waste bag before removal from the Hospital ward or department.

7.4.10 Cytotoxic waste shall be stored separately from other Health-care waste in a designated secure location.

7.4.11 Radioactive waste shall be stored in containers that prevent dispersion, behind lead shielding. Waste that is to be stored during radioactive decay shall be labelled with the type of radionuclide, the date, and details of required storage conditions. Ideally, spent radioactive waste is best stored in Hot laboratories itself. (AERB Guideline)

7.5 Handling of Bio-medical Waste

7.5.1 Proper Handling of Bio-medical waste is important for worker safety. Appropriate Personal Protective Equipment (PPE) must be provided and worn, when handling this kind of wastes.

7.5.2 Waste from Emergency Triage Area, Emergency Wards and all Procedure Rooms in the Hospital will be categorised as potentially infective to minimize the secondary infections.

7.5.3 Bags of Bio-medical waste must be sealed before being removed from the area of collection. Glass fragments and needles must be placed in puncture resistant containers before removal from the work area. Special care must be directed at the proper containment, collection, and transport of medical sharps. Good bag handling techniques ensure the prevention of injury or infection.

7.5.4 All items that need to be reprocessed like surgical instruments, etc., must be separated from Bio-medical waste and packed separately.

7.6 Containment of Bio-medical Waste

7.6.1 Bio-medical waste containers must meet specific requirements for collection. Colour Coded Liners must be placed inside all containers. When required, they must be clearly identifiable.

7.6.2 Containers for the removal of medical sharps must be clearly identified, rigid, impervious, and puncture resistant.

7.6.3 Reusable waste containers must be routinely sanitized with a disinfectant and/or detergent as an integral part of the collection process.

7.6.4 Transport Containers must always be marked and/or tagged.

7.7 Transport of Waste

7.7.1 The waste, as collected in various Garbage Storage Rooms shall be moved to the **Central Waste Storage, Treatment and Disposal Yard** (henceforth called Central Waste Storage Yard) once a day or more frequently, in closed Bins or Trollies.

7.7.2 All transport trollies, vehicles, reusable containers, etc., shall be cleaned and disinfected daily, with an appropriate disinfectant, at the Central Storage Yard.

7.7.3 The distances between the Garbage Storage Room and the Central Waste Storage Yard will determine the feasibility of a motorised transport system. It is generally suited for hospitals with 750 beds or more.

7.8 Storage of Waste

7.8.1 <u>Temporary Storage in Garbage Storage Rooms</u>

7.8.1.1 Garbage Storage Room is a temporary storage area provided for the collection of the segregated waste while awaiting internal transport to the Central Waste Storage Yard.

7.8.1.1 All Garbage Storage Rooms must be secure, access controlled and have water-resistant surfaces. They should be large enough for storing average waste generated in the Functional Unit, for 48 hours.

7.8.1.2 The Garbage Storage Rooms should be accessible from within the Functional Unit for depositing the waste, as well as from outside for removal of waste.

7.8.1.3 Provide, Hand Washing Facilities, Hand Scrubs, Personal Protective Equipment (based on the assessment of risk) and at least one set of Waste Collection Containers in this room.

7.8.1.4 Generally speaking, it requires to store 8 containers, each of 360 Litre (838 mm dia x 660 mm x 1168 mm high) or less (132 or 242 Litres) Capacity in wards. It requires to store 8 containers, each of 240 Litre Capacity in OPDs. It stores 4 containers, each of 770 Litre for transporting the waste to Central Waste Storage Yard.

7.8.1.5 These rooms must be subjected to a daily routine of deep cleaning, decontamination and maintenance.

7.8.1.6 Segregation of wastes and waste streams must always be maintained, in these Garbage Storage Rooms

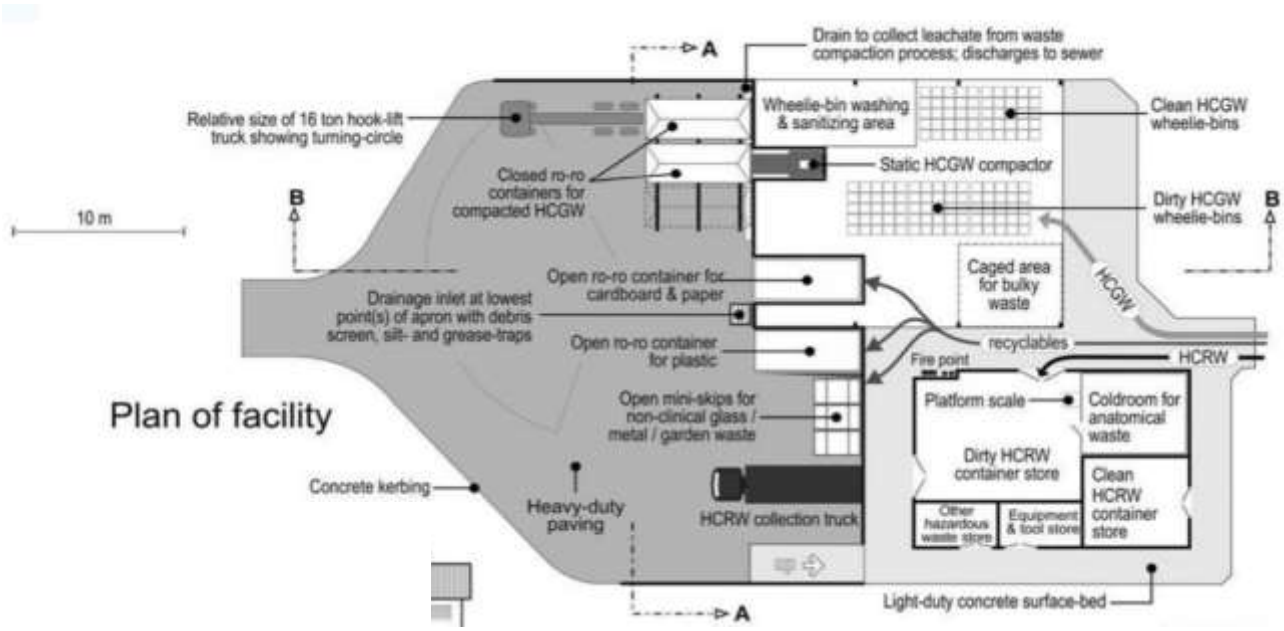
7.8.1.7 Based on the assessment of risk, all Bio-medical infected Waste may be sanitised or sterilised here, after collection from the Functional Unit.

7.8.1.8 Sanitisation Treatments include, but are not limited to:

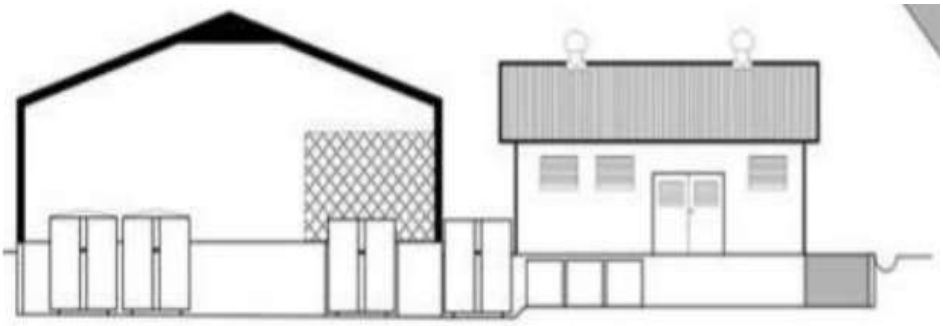
- Steam, dry heat, and/or chemical inactivation for Bio-medical Waste and contaminated Medical Sharps
- Chemical neutralization for Hazardous Chemicals

7.8.1.9 The documentation shall be generated and maintained by the Nursing Station or the administrative office of the Unit

7.8.2 Storage in Central Waste Storage, Treatment and Disposal Yard



CONCEPTUAL LAYOUT



CONCEPTUAL PROFILE (Section A-A)

PROFILE OF CENTRAL WASTE STORAGE, TREATMENT AND DISPOSAL YARD

7.8.2.1 The Central Waste Storage Yard should be located on Ground Level away from publicly accessible areas and areas involved in food preparation and storage. It is preferably located as a separate building block in setback area with a separate road access to and from the yard. It may also be in the Hospital Building itself but must have truck access. In either case, a proper apron is required for truck movement.

7.8.2.2 The location should be adjacent to the 'Dirty' Loading Dock, when available, for easy access by waste collection trucks.

7.8.2.3 The Central Waste Storage Yard must be adequately ventilated and drained.

7.8.2.4 The Central Storage Area(s) shall be secured, fenced, lockable and isolated from patients and the public.

7.8.2.5 The Central Waste Storage Yard must be provided minimum 1 hour rated fire security with a fully alarmed sprinkler system

7.8.2.6 The Central Waste Storage Yard has the following Functional Areas.

- Waste Receiving & Sorting Yard with access for waste trollies or bins
- General dry waste holding area, with attached compactor area, with direct access for removal of compacted waste
- General wet waste holding area with direct access for removal of waste
- Clinical waste holding area where ambient temperature can be controlled, with direct access for removal of waste
- Paper and recyclable materials collection holding area, with direct access for removal of waste
- Optional
    - A waste collection truck weighing and recording station, which includes a floor level digital weighbridge and bar code recorder.
    - An upright freezer to store anatomical waste and tissues, pending dispatch for incineration.
    - Loading yard for Front Loading Bin System

- Designated, washing area, adequately drained, suitable for washing and drying bins & other Housekeeping and waste handling equipment
- Adequately drained, Container, Bin & Equipment washing area
- Store for all supplies, cleaning materials, consumables such as plastic bin liners, containers, etc., for further distribution in the hospital
- One Waste Management Office, with visual control of the Central Waste Storage Yard, with a documentation centre having at least one computer workstation. This will be properly ventilated, dust free and airconditioned.

7.8.2.7 Central Waste Storage Yard must have at least 2 ventilation chimneys or two mechanical ventilation systems with two or more exhaust air systems. It is preferable to have one ventilation system per enclosure.

7.8.2.8 Maximum storage time in Central Storage Yard

7.8.2.8.1	Untreated Bio-medical Waste	48 Hours
7.8.2.8.2	Healthcare General Waste	
7.8.2.8.2.1	Summer	48 Hours
7.8.2.8.2.2	Winter	72 Hours
7.8.2.8.3	All Wastes after onsite treatment	48 Hours

7.8.2.8.4 before treatment or disposal of infectious waste shall not be longer than 72 hours in winter and 48 hours in summer.

7.8.2.8.5 shall be stored for a period of 48 hours only.

7.8.2.9 All Waste Collection Rooms and the Central Waste Storage Area(s) shall be cleaned and disinfected frequently and regularly.

7.8.2.10 There should be a pressurised water supply for cleaning purposes.

7.8.2.11 There should be a proper drain which shall be linked to all areas, with a self-draining slope, connected to collection tank outside. The tank will be connected to a settling tank to remove any debris before this waste water is sent to Hospital STP/ETP.

7.8.2.12 Provide easy access for waste-collection vehicles.

7.9 Reduction of Waste

7.9.1 All reusable items must be segregated, evaluated and condemned by designated authority prior to being discarded.

7.9.2 All other reusable items must be returned for reprocessing.

7.10 Treatment of Waste

7.10.1 Waste treatment is a process whereby materials that represent a hazard to the general public are rendered innocuous prior to removal from the custodial care of the Hospital.

7.10.2 If Hospitals need to conduct waste treatment activities, it must obtain any and all required treatment permits and/or licenses in accordance with local government regulations.

7.10.3 Hospital waste-treatment technologies employ thermal, chemical, irradiative, biological or mechanical processes. The common types of Treatment Technologies are as under:

- Autoclaves
- Integrated or hybrid steam-based Treatment Systems
- Microwave Treatment Technologies
- Dry-heat Treatment Technologies
- Chemical Treatment Technologies
- Incinerators.

7.10.4 These technologies may be supplemented by post-treatment shredders, grinders and compactors.

7.10.5 Provide, Hand Washing Facilities and Personal Protective Equipment (based on the assessment of risk), at all designated points of waste treatment.

7.11 Disposal of Waste

7.11.1 Disposal of non-hazardous and/or non-controlled waste must meet with applicable Municipal regulations.

7.11.2 All hazardous and Bio-medical waste must be identified, adequately contained, and controlled during the disposal process and disposed off as per provisions of the Bio-medical Waste Rules.

7.11.3 Final waste disposal of treated and residual waste should be done in a sanitary landfill, which will be carried out in association with local Municipality.

7.12 Training of Staff

7.12.1 All Housekeeping Staff deployed for waste handling must undergo induction training and retraining in Waste Collection; primary and secondary bagging; primary and secondary closure; use of waste handling trollies; non-trolley transport; compacting and on-site Treatment.

7.12.2 As per requirement, Architects should create sufficient areas in waste stream for bagging, temporary storage, trolley washing, and the Staff Training must familiarise all staff with such areas.

7.12.3 In times of Epidemics and when working in Isolation Wards, all identified Housekeeping staff must be trained, before being assigned to be on duty, and this training must be documented in their personal records.

7.12.4 Training must emphasise “avoid opening containers to manipulate the waste after primary containment.” And “How to carry out primary closure and secondary closure of Waste Carrying Bags.”

7.12.5 Training must be provided on use of appropriate Personal Protective Equipment (PPE) and procedures for handling waste until onsite inactivation or transport away from the hospital for offsite inactivation.

7.13 Maintenance of Waste Management Program Records

7.13.1 All Housekeeping routines, training schedules, training attendance sheets, Duty Rosters, Housekeeping Equipment Logs shall be preserved for a minimum period of 3 years and their summaries after 3 years for a further period of 7 years. This data is used as corroborating evidence for defending Hospital Liability.

7.14 Contingency and Emergency Planning Requirements Related to Waste Programs

7.14.1 Hospital Waste Management must be part of internal and external disaster plans.

7.14.2 Alternative plans must be available for waste collection, transport, storage, and disposal, in advance.

7.14.3 Sharing agreements, contingency contracts, etc., must be current, enforceable and available in advance.

7.15 Quality Assurance

7.15.1 NOUS emphasises implementation of a quality management program and a coordinated quality assurance management program, for Waste Management Service (WMS) of any Hospital, large or small. It goes a long way in reducing the Hospital nosocomial infection rate,

7.15.2 The Hospital Waste Quality Assurance Plan (QAP) must address all Waste Generation Activities, to be implemented by Medical Superintendent of the Hospital and Activities of Waste Management Service to be implemented by Head Housekeeping Services.

7.15.3 Verification of QA is the responsibility of Hospital administration and is a part of NABH evaluation. NABH manual evaluates the WMS policy, identifies QA activities, reviews specific documentation and corrective actions taken.

7.15.4 In addition, Hospitals must identify WMS hazards, plan the work to mitigate those hazards, use appropriate controls while doing the work, assess the staff performance and upgrade the processes.

7.15.5 Quality Assurance Parameters

7.15.5.1 Establish that waste is managed according to all state and local statutory requirements

7.15.5.2 Establish that Hospital has WMS policies and procedures which are periodically reviewed and revised, as necessary. If a third-party contractor is employed, all their staff is trained and is supervised for QA programme.

7.15.5.3 QA must include all WMS activities, waste collection, transportation, storage, labelling, sampling, treatment, consolidation, inventory, compaction, packaging, and shipment, and assures compliance of the stated Hospital Policy.

7.15.5.4 Specialised orientation and in-house training must be provided to assure that personnel, including quality-verification personnel, achieve and maintain suitable proficiency in the activities they perform. On-the-job training, where required and provided, must be documented.

7.15.5.5 Refresher training, once a year, of Waste Generators and Housekeeping Staff must be carried out and documented.

7.15.5.6 QA requires random sampling of incoming waste to verify waste handling parameters.

7.15.5.7 Documents that specify QA requirements or prescribe quality-affecting activities are prepared; reviewed for adequacy, completeness, and correctness; and approved and released for issuance and distribution in accordance with written procedures.

7.15.5.8 QA must ensure all off site activity's Quality and code compliance.

7.16 Safety Data Sheets (SDS)

7.16.1 Hospital's Housekeeping Director must have online access to all relevant Safety Data Sheets which include information such as the properties of each chemical; the physical, health, and environmental health hazards; protective measures; and safety precautions for handling, storing, and transporting the chemical, for all chemicals in use in the WMS. SDS must provide guidance for each specific chemical on things such as:

7.16.1.1 Personal Protective Equipment (PPE)

7.16.1.2 First aid procedures

7.16.1.3 Spill clean-up procedures

All other centralised services including but not limited to the following are technical services, best performed by especially skilled persons.

1 Hospital Laundry Services

2 Patient Assistance Services

3 Building Maintenance Services

4 Deep Cleaning Services

5 Sterilisation Services

6 Building Management Services

These should be organised separately.

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FUNCTIONAL PARAMETERS FOR HOUSEKEEPING SERVICES DESIGN

It has been NOUS experience from its smaller Hospitals like the one in Moradabad to its Large Hospitals like Apollo Hospital and Quaternary Care Hospitals like ILBS that to facilitate cleanliness & cleaning, implement the following.

1. Use finishes that are impervious, smooth and seamless, as far as practicable.
2. Provide enough space for activities to take place and to avoid cross-contamination between adjacent bed spaces.
3. Provide easy-to-clean coving at all floor to wall junctions in Hospitals.
4. Consider hands-free operation of utilities, for example, Sensor Taps, Automatic Lights, etc.
5. Consider integral blinds as an alternative to curtains at internal windows.
6. Discourage clutter. Design-out unnecessary horizontal surfaces like window sills, in order to discourage clutter.
7. Ensure proper segregation and management of waste, including clinical waste and linen, at point of origin. It requires positioning of multiple waste containers.
8. Always provide bedside waste receptacle for patient use.
9. Provide only requisite number of hand wash basins (Neither less nor more) and antimicrobial hand-rub dispensers.
10. Plan for and deliver good separation of clean and dirty activities.
11. Provide sufficient space for storage and preparation of cleaning equipment and materials, in functional units.
12. Provide suitable facilities for cleaning of equipment, trollies, etc.
13. Design for easy cleaning, make cleaning easier, use finishes that are easy to clean. Provide flooring that is seamless, smooth, slip-resistant, easily cleaned and wear-resistant.
14. All types of supply pipework should always be concealed inside functional unit's patient areas.
15. All work surfaces should be impervious, designed for easy cleaning and be free of fissures and unsealed joints. They should be able to withstand effects of regular cleaning with both detergents and disinfectants.
16. There should be adequate training of all Housekeeping Staff (their turnover ratio is pretty high) including the Housekeeping supervisors. It is recommended to provide re-training once every month by training batches on a weekly roster.
17. The span of management for a Housekeeping Manager should not exceed 30.

18 The span of management for a Housekeeping Supervisor should not exceed 20.

19 All Housekeeping staff must meet once every month, interact with Medical Staff and Nursing Staff and Hospital Administration Staff. All levels of Medical Staff and Nursing Staff and Hospital Administration Staff must be represented in these meetings, by rotation. This interaction brings out fine tuning of the sanitation practices. It is very effective to align Housekeeping services to new Healthcare technologies.

20 All deficiencies of Housekeeping Services must be reported to Hospital Call Centre, when available or recorded in the Night Report Book of the Ward.

21 A Hospital Housekeeping Committee comprising of Housekeeping Service representative, Hospital Infection Control Committee representative, Hospital Administration representative should be constituted and tasked with creation of Sanitation Standards. It must formulate the Housekeeping requirements specific to various departments of the Hospital and then ensure continuity of the service by staff scheduling and their training. It must also incorporate new technologies by testing new products, equipment, and technology.

22 The Hospital Housekeeping Committee should obtain, store and deliver all necessary supplies used by Hospital Housekeeping Services.

23 The Hospital Housekeeping Committee shall establish effective staffing for the service.

24 Institute a monthly and yearly “Housekeeper of the Hospital” with adequate monetary reward.

25 Institute a Structured in-house Training Programme with an end of course evaluation and certification.

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ADDITIONAL REQUIREMENTS FOR HOUSEKEEPING SERVICES, FOR HOSPITALS TREATING COVID-19 PATIENTS.

1 Provide COVID-19 awareness to inform all Hospital Employees about the virus, the disease it causes and transmission-based precautions.

2 Provide training on how to protect oneself from COVID-19 infection to all Hospital Employees.

3 Provide Hand Hygiene and Respiratory Etiquette training to all Hospital Employees.

4 Instruct all residents and employees to avoid touching (e.g., shaking hands, hugging, or kissing).

5 All visitors should be screened for signs and symptoms of acute respiratory infection or significant risk for COVID-19, and no one with signs or symptoms should be allowed to enter the premises.

6 Carry out Temperature Screening of all persons visiting the Hospital.

7 Review all areas to be designated for Patient Receiving, Triage, Treatment, etc. and remove all fittings, fixtures, equipment and accessories which are not required.

8 Provide at least one sterile storage area, under positive pressure, where Equipment and supplies shall be stored on trollies with covers. All shelves shall be with a solid bottom shelf and the lowest storage shelf will always be empty to prevent contamination from Floor Cleaning. The Ventilation must prevent condensation on steam sterilised instruments.

9 No sterilisers, including Flash Sterilisers and Little Sisters shall be provided in areas designated for handling COVID -19 cases. All sterilisation shall be done in remote area, after a proper sluicing cycle, under zero contamination conditions to protect the Sterilisation Technicians.

10 Provide at least one 1800 x 1200 mm white board in each room and corridor, to post reminders, Flyers, etc. issue at least two white board markers to all staff in the unit so that these markers are not shared. Sanitise these boards twice a day.

11 Provide IP 54 two-way wireless communication devices for communication and cross consultations.

12 Regularly audit hand hygiene compliance and provide feedback to Hospital Employees including risk associated with non-compliance.

13 Ensure adequate supplies of alcohol-based hand rub (ABHR) (containing at least 60% alcohol) and availability of soap and clean water and place them at all entrances, exits and points of care, in the Hospital.

14 Ensure adequate supplies of tissues for spot hygiene practice.

15 Ensure adequate supplies of waste bins, with a lid, and appropriate disposal of waste collected.

16 Consider designing, re-modelling, all treatment areas with separate entry and exits with 2 door lockers to prevent mixing of in/out traffic of Healthcare Workers.

17 Consider designing, re-modelling, all clean and dirty utility areas by using Human Factors Engineering methods to receive and keep clean supplies, clean. It is fundamental to infection prevention.

18 Consider designing, re-modelling, all areas, like Patient Receiving, Triage, Treatment Areas, with proper ventilation systems that provide appropriate pressure relationships, air-exchange rates, filtration efficiencies, control of temperature and relative humidity, and provision of Virus burn Out Units with Air Dilution.

19 Provide adequate space outside of clinical areas, 30% more than normal, for handling of clean and dirty stores and storage of shipping boxes.

20 Ensure adequate storage on patient units for reusable patient care equipment and a location where these items may be cleaned.

21 Post reminders, posters, flyers around the facility, targeting Hospital Employees, Residents, and Hospital Visitors, to regularly use alcohol-based hand rub or wash hands, in particular at the beginning of the workday, before and after touching other people, after using the toilet, before and after preparing food, and before eating.

22 Educate the Hospital Employees, Residents, and Hospital Visitors, to sneeze or cough into the elbow or to use a tissue and dispose of the tissue immediately in a bin with a lid.

23 Provide annual influenza vaccination and pneumococcal conjugate vaccines to Hospital Employees, according to local policies, as these infections are important contributors to respiratory mortality in older people.

24 For group activities ensure physical distancing, if not feasible - cancel group activities.

25 Stagger meals to ensure physical distance maintained between residents or if not feasible, close dining halls and serve residents individual meals in their rooms.

26 Establish Health Screening (preferably twice daily) for Hospital Employees, especially the among residents, Nurses and Housekeeping Staff.

27 Isolate any Hospital Employees who has any symptoms.

28 Follow up on employees with unexplained absences to determine their Health status.

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