

DIGNITY

DESIGN AND IMPLEMENTATION GUIDELINES FOR CREMATORIA



Prepared by
Jana Urban Space Foundation



Jana Urban Space works towards transforming the quality of life in urban India through the streams of urban planning and design, across both policy and practice. Placing community and environmental sustainability at the heart of design, Jana Urban Space works on policies on land titling, spatial reforms, and street design guidelines, as well as regional plans, masterplans, and neighbourhood-level plans. The organization also focuses on the improvement of road infrastructure (Tender S.U.R.E.), rejuvenation of public spaces (markets, bus stands, lakes, parks, heritage and community centres), and the architecture of affordable housing.



DIGNITY

DESIGN AND IMPLEMENTATION GUIDELINES FOR CREMATORIA

2023 ed.

PREFACE

BACKGROUND

// One can see the varied use of [this] cemetery as ‘the right to the city’, a struggle to ‘de-alienate’ urban space through the appropriation of space.

- Henri Lefebvre

French Philosopher

Crematoria are an intrinsic part of our urban fabric – a place reserved for adulation of the dead, or performing the last rites of our loved ones. The value and presence of the place is weaved closely into our lives. This meaning is however lost in the way crematoria are designed, planned, and maintained.

The need for crematoria arose from a public health concern – as a way of disposing the remains of the dead in a systemic manner. This functional need for crematoria has since transformed to accommodate a range of allied spaces celebrating social, cultural, and religious aspects of the population they serve. In addition to an array of functional spaces, it is now accommodated with memorial gardens, and buffer spaces serving the visiting public.

Despite this transformation, a crematorium is rarely addressed as a public space. Taking away this identity as a public space has stark effects on the design and planning of crematoria in general. This Guideline addresses this gap, and makes a case for the recognition of crematoria as an ingrained public space for our cities.

Identifying the need for a better design and planning process for crematoria, the purpose of this Guideline is to equip all relevant stakeholders with appropriate guidance on design and planning principles and standards, that is crucial to the development of new crematoria and restoration of existing ones.

IMPORTANCE OF COMPREHENSIVE CREMATORIUM GUIDELINES

The importance of implementing comprehensive crematorium design guidelines cannot be overstated. These guidelines should go beyond mere dimensions and technical requirements, taking into account the broader elements that contribute to the overall experience and emotional well-being of mourners and the departed. By considering factors such as aesthetics, tranquility, cultural sensitivity, and accessibility, these guidelines can transform crematoria into spaces that truly honour the departed and provide solace to those grieving.

Preserving Peace and Serenity: Crematoria should be designed as spaces where individuals can find solace and tranquility. By providing planning specifications for serene surroundings, the guidelines ensure that mourners have a calm and peaceful environment to reflect upon their loss and seek solace in their grief.

Maintaining Dignity and Respect: A well-designed crematorium respects the dignity of the departed and acknowledges the grief of those left behind. The guidelines should emphasize the creation of spaces that evoke a sense of reverence, fostering an atmosphere of respect for the departed and their loved ones.

Enhancing Accessibility and Inclusivity: Crematorium design guidelines should address the need for accessibility and inclusivity. These spaces should be designed to accommodate people of all abilities and ensure that everyone can participate in the rituals and pay their respects without any hindrances.

Promoting Sustainability: With an increasing focus on sustainable development, crematorium design guidelines should encourage environmentally friendly practices. Incorporating efficient waste management systems and eco-friendly materials not only contribute to the overall well-being of the city but also showcase a commitment to sustainability.

Cultural and Religious Sensitivity: India is a diverse nation with rich cultural and religious traditions. Crematorium design guidelines should consider these nuances and accommodate the specific rituals and customs of various communities, ensuring that the spaces are inclusive and culturally sensitive.

TABLE OF CONTENTS

How to use this guideline?

8

1. Introduction 11

- 1.1. Cremation Process 12
- 1.2. Current conditions of crematoria in India 14
- 1.3. The need for design and implementation guidelines for crematoria 17

2. Planning Principles 19

- 2.1. Spaces in a crematorium 20
- 2.2. Identifying site for development 22
 - 2.2.1. Classification of crematoria 22
 - 2.2.2. Criteria for site selection 28
- 2.3. Surveys and studies 32
 - 2.3.1. Site reconnaissance and user survey 32
 - 2.3.2. Total station survey 32
 - 2.3.3. Geotechnical investigation 33
- 2.4. Stakeholder mapping 34

3. Detailed Design 39

- 3.1. Principles of a Crematorium 40
- 3.2. Flow of Movement in a Crematorium 41
- 3.3. Site Planning 42
- 3.4. Pre-preparation Area 46
 - 3.4.1. Spatial requirements 46
- 3.5. Preparation Area 48
 - 3.5.1. Spatial requirements 48
 - 3.5.2. Services and utilities 50
 - 3.5.3. Sustainable materials palette 52
- 3.6. Ritual Shed 54
 - 3.6.1. Spatial requirements 54
 - 3.6.2. Services and utilities 56
- 3.7. Wood Storage Area 58
 - 3.7.1. Spatial requirements 58
 - 3.7.2. Services and Utilities 60
 - 3.7.3. Sustainable material palette 60
- 3.8. Funeral Shed 62
 - 3.8.1. Spatial requirements 62
 - 3.8.2. Services and Utilities 65
 - 3.8.3. Sustainable material palette 66



3.9.	Waiting Area	70
3.9.1.	Spatial requirements	70
3.9.2.	Sustainable material palette	72
3.10.	Administration Office	74
3.10.1.	Spatial requirements	74
3.10.2.	Services and utilities	75
3.10.3.	Sustainable material palette	76
3.11.	Staff Quarters	78
3.11.1.	Spatial requirements	78
3.11.2.	Services and utilities	79
3.12.	Restrooms	80
3.12.1.	Spatial requirements	80
3.12.2.	Services and utilities	81
3.13.	Memorial planting garden	82
3.13.1.	Spatial requirements	82

4. Additional details 85

4.1.	Universal Accessibility	86
4.1.1.	Ramps	86
4.1.2.	Access	86
4.1.3.	Parking	87
4.1.4.	Utilities - Toilets	89
4.2.	Signage	90
4.2.1.	Accessibility considerations for signages	92
4.3.	Utility Planning	94
4.3.1.	Solid Waste Management	94
4.3.2.	Waste Water Management	96
4.4.	Sustainable Materials	98
4.4.1.	Circulation spaces	98
4.5.	Landscape Palette	100
4.6.	Sample Design	104

5. Annexure 109

5.1.	Working Drawings	110
5.2.	Case Study 1	138
5.3.	Case Study 2	140

<i>List of Figures</i>	142
------------------------	------------

<i>List of Tables</i>	143
-----------------------	------------

How to use this guideline?

Who is this document for?

I will use this document to formulate an implementation plan based on the planning principles.

- Municipal Commissioner | Government

The detailed design provided in these guidelines will be useful during project execution.

- Contractor

These guidelines will help me design and build better crematoria.

- Architect/ Government Engineer |
Technical Expert

This guideline will help us engage with experts during the construction of a crematorium in my neighbourhood.

- Local resident | Community

Navigation

Use these markers on the spread to navigate the sections of the document.

1

Introduction

Understand the cremation process, existing conditions of crematoria in India, the challenges that they face, and identify the gaps in their planning and design.

3

Detailed Design

Spaces required for within a crematorium are detailed with special area requirements, services, utilities and material specifications.

2

Planning Principles

Identify the different groups of people using crematoria, spaces required, possible configurations of site planning, and site selection.

Navigating Section 3

Each space is provided with a detailed description and design under the following sub-sections:

- Introduction
- Special area requirement
- Services and Utilities
- Sustainable Materials

Icons for Navigating Section 3



Pre-preparation area



Preparation area



Ritual shed



Wood storage



Funeral shed



Waiting area



Memorial planting garden



1. Introduction

In today's fast-paced and rapidly evolving world, the concept of a liveable city extends beyond the mere provision of basic amenities. Quality of life is now measured by a city's ability to cater to the diverse needs of its inhabitants, ensuring that they can live, eat, move, work, and play within a harmonious environment. A holistic approach to urban design recognizes the importance of creating spaces that foster a sense of well-being, tranquillity, and dignity, even in the face of life's inevitable transitions. This includes the design of crematoria, which play a vital role in honouring the departed and providing solace to their loved ones.

Today, crematoria across India often fall short of fulfilling these fundamental needs. While there are existing guidelines set forth by the Ministry, they primarily focus on dimensions and technical specifications, lacking consideration for the holistic aspects of the design. As a result, many crematoria in the country fail to provide the quietude and peaceful atmosphere necessary for contemplation and healing.



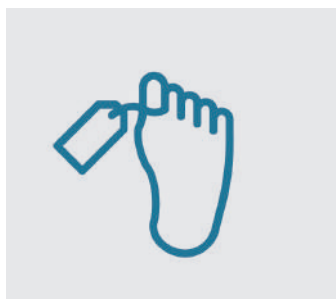
1.1. Cremation Process

The *Antyesti*⁷ ceremonial process varies across the spectrum of Indian society. Some of the popular rituals followed in Vedic religions after the death of a human being, for his or her peace and ascent to heaven are as follows.

The last rites are usually completed within a day of death. While practices vary among sects, generally, the body of the deceased is washed; sandalwood paste and turmeric is applied on the body, and then wrapped in a traditional attire. The big toes are tied together with a string and a Tilak (red, yellow or white mark) is placed on the forehead. A bed is made out of bamboo sticks on which the deceased is taken to the Shamshan. The deceased's body is then carried to the cremation ground by family and friends, and placed on a pyre with feet facing south.

The lead cremator (or lead mourner) then bathes themselves before leading the cremation ceremony. They circumambulate the dry wood pyre with the body, says a eulogy or recites a hymn, places sesame seeds or rice called as pind on the deceased's chest, hand and legs. They sprinkle the body and the pyre with ghee (clarified butter), then draws three lines signifying Yama (deity of the dead), Kala (time, deity of cremation) and the dead. Prior to lighting the pyre, an earthen pot is filled with water, and the lead mourner circles the body with it, before lobbing the pot over their shoulder so it breaks near the head. Once the pyre is ablaze, the lead mourner and the closest relatives may circumambulate the burning pyre one or more times.

01



The deceased is identified and authorization to cremate is obtained

02



The body of the deceased is prepared by removing any jewelry, medical devices. After that it is bathed and placed atop a bier (rectangular wooden frame). A cloth sheet is used to cover the dead body and the bier is decorated with garland and flowers.

03



Remaining rituals if any, are performed.

04



Four people lift the bier on top of their shoulders and the procession is progressed towards the pyre.

05



Body is placed on top of pyre for cremation with mourners practising rituals simultaneously.

06



All those who attend the cremation, and are exposed to the dead body or cremation smoke take a shower as soon as possible after the cremation, as the cremation ritual is considered unclean and polluting.

Figure 1. The cremation process

1.2. Current conditions of crematoria in India

1.1.1. Availability and quality of crematoria

The COVID -19 pandemic has laid bare the status of funeral services in India. But it shouldn't take a pandemic to make us aware of the dire state of crematoria in India.

As per the Union Health Ministry, 8.1 million deaths occurred annually in India before 2020¹, and as per the survey of India, about 65% of people are cremated after death. Thus, an estimated five million people are cremated per year.²

The COVID-19 pandemic that swept in two devastating waves across India between 2020 and 2022 further highlighted the state of crematoria in the country. While these were exceptional circumstances, the gaps in capacity, planning and management of crematoria were clearly visible when several cities had to convert parks and parking lots³ into make-shift sites to perform cremations due to the sheer number of deaths taking place daily. These spatial constraints also exacerbated other conditions – such as waste management and extreme air and water pollution from the open cremations. Other significant issues were related to operation and management of the crematoria themselves, such as poor hygiene, lack of infrastructure planning and maintenance and water supply and disposal.

1 Vital Statistics of India based on the Civil Registration System, 2020

2 Contribution of wood-based crematoria in Carbon dioxide emission, Lokesh Chandra Dube, FTE

3 As India's crematoriums overflow with Covid victims, pyres burn through the night

1.2.1. Environmental concerns based on current usage patterns

AIR POLLUTION

The cremation process results in significant air pollution since it is practiced in open air. Traditional wood burning crematoriums do not have any mechanism to control emission of pollutants and gases, which consist of 40% of carbon dioxide, 32% carbon monoxide, 20% of particulates, and 50% of highly carcinogenic poly-aromatic hydrocarbons. These gases contribute to the greenhouse effect, due to which global warming is the major problem. In a 2022 report by the National Green Tribunal, it directed all states and union territories to adopt environment friendly methods of cremation due to air pollution caused by wood-based cremations.¹ Moreover, these cremations require over 500kgs of wood per cremation, the requirement for which comes through degradation of forest area. However, wood based cremation has a widespread practice in India



Figure 2. Existing crematorium shed in Bhubaneswar, Odisha

¹ Compliance Report in Original Application No. 333/2021 M/s Real Anchors Developers Pvt. Ltd Versus U.P. State Pollution Control Board & Ors



due to religious beliefs. In this context, it is imperative to design solutions that capture the ill-effects of wood based crematoria partially.

WATER POLLUTION

Cremations also lead to water pollution, since ashes left after cremations are disposed into water bodies, along with materials used in rituals such as garlands, pot shreds and other waste. In cases where body washing is done in the crematorium premises, the liquid waste containing hazardous chemicals from mortal remains is directly discharged into the city sewage system.

WASTE MANAGEMENT

Due to the nature of work done in a crematorium, maintaining hygiene is of utmost importance, not just for the staff working there but also for visitors and other people utilizing the facility. A significant amount of solid and liquid waste is generated at crematoria, which are of hazardous and non-hazardous nature. Therefore it is important to have a solid waste and liquid waste management plan/ system in place to help maintain a clean and safe working environment at the crematorium for staff and visitors.

1.3. The need for design and implementation guidelines for crematoria

A dignified environment is imperative to the design of a crematoria. But it also needs to address larger implications on environmental sustainability through water and air pollution and waste management.

In the policy landscape, India currently has the Model Crematoria Designs developed under the National Mission for Clean Ganga by the Ministry of Water Resources, River Development & Ganga Rejuvenation, Government of India – which provides conventional and improved designs of utilitarian spaces in a crematoria along with their respective costing. However, the aforementioned issues have not been mentioned in these guidelines. There is also the lack of information on planning a city-level and/or neighbourhood-level crematoria network to meet the current and future demand of these facilities.

This guideline aims to formalise the planning and design of crematoria at the neighbourhood-level and address the aforementioned gaps while also integrating crematoria into the city fabric as a public space.

The standards provided in this document pertain to a **traditional wood-based crematorium** at the **neighbourhood level, serving a population of 75 - 100 people**.



2. Planning Principles



2.1. Spaces in a crematorium

Currently in India, most crematoria are designed to facilitate only the cremation of bodies within their premises. These facilities neither have designated spaces that account for rituals/ procedures carried out before the cremation, nor spaces that might offer respite to the grieving.

This guideline recommends the following areas to be provided across different classification of crematoria to help provide a perceptive environment for those grieving and a comprehensive space for the staff working there.



1. Pre-preparation area - A space which will allow families to respectfully wait in when the crematorium is functioning at capacity.



2. Preparation area - A space to prepare the body for the last rites process will be provided within the crematorium premises.



3. Ritual shed - The necessary cultural and religious rituals associated with cremation across communities can be performed in this allotted area in the crematorium.



4. Wood storage - Since the facility will cater to a neighbourhood population, a room to store wood to ensure a continuous and reliable fuel source for cremations must be provided.

5. Funeral shed - A designated shed, away from other spaces in the site to ensure a safe environment for staff and visitors, will be used to perform the cremations.



6. Waiting area - Designed with natural elements to create a welcoming and tranquil atmosphere, this space will provide privacy and a comfortable resting environment for those who are grieving.



7. Memorial planting garden - A memorial planting garden has been included in recommended spaces in a crematorium to help grieving families honour the departed, using the ashes from the cremation to plant a tree in their memory.



8. Administrative office - A designated workspace for the manager of the facility will be provided to ensure smooth management of a crematorium's operations.



9. Staff quarters - designated residential quarters to provide a comfortable living environment for the crematorium's caretaker.



10. Restrooms - The restroom block will be designed to cater to 50-75 users in the facility.



2.2. Identifying site for development

2.2.1. Classification of crematoria

The first requirement to plan and develop crematoria is to assess the settlement size and population it serves. This is crucial for planning an equitable distribution of crematorium services viz. the population size. This guideline adheres to URDPFI classification for urban settlements, as elaborated:

- » Housing cluster/ neighbourhood – with a population size of 5000.
- » Neighbourhood – with a population range of 5000-15,000
- » Community – with a maximum population of 100,000.

The scope of this document is limited at the community scale – serving a population of maximum 100,000.

**CDR = total number
of deaths in a calendar
year per 1,000 midyear
estimated population**

The calculations pertaining to determining the size of a crematorium is dependent upon the total number of deaths in a given geography. To derive a standardised classification for crematoria, the average crude death rate for India was taken, against the maximum population for each planning unit given in *Table 1 on page 23*.

This gave us an average estimate of number of deaths in each planning units, as elaborated.

Sr. No.	PLANNING UNIT	POPULATION	ESTIMATED TOTAL DEATHS
1	Housing cluster/ neighbourhood	5000	1 death every 7-8 th day
2	Neighbourhood	5000 - 15,000	1 death every 2-3 rd day
3	Community	Up to 100,000	25 deaths per day

Table 1. Population as per planning unit

The estimated number of deaths in each planning unit give an understanding of the number of pyres and additional services required. Based upon this information, this guidelines illustrates three classes of crematoria (refer *Table 2 on page 23*). The classes presented here also factor in contingencies for emergency situations when number of deaths could exceed the planned estimates.

Sr. No.	PLANNING UNIT	CREMATORIA CLASSIFICATION	APPROXIMATE AREA
1	Housing cluster/ neighbourhood	Small – 1 pyre	3600 sqm
2	Neighbourhood	Medium – 2 pyres	4200 sqm
3	Community	Large – 5 pyres	6400 sqm

Table 2. Crematoria classification as per planning unit

SMALL

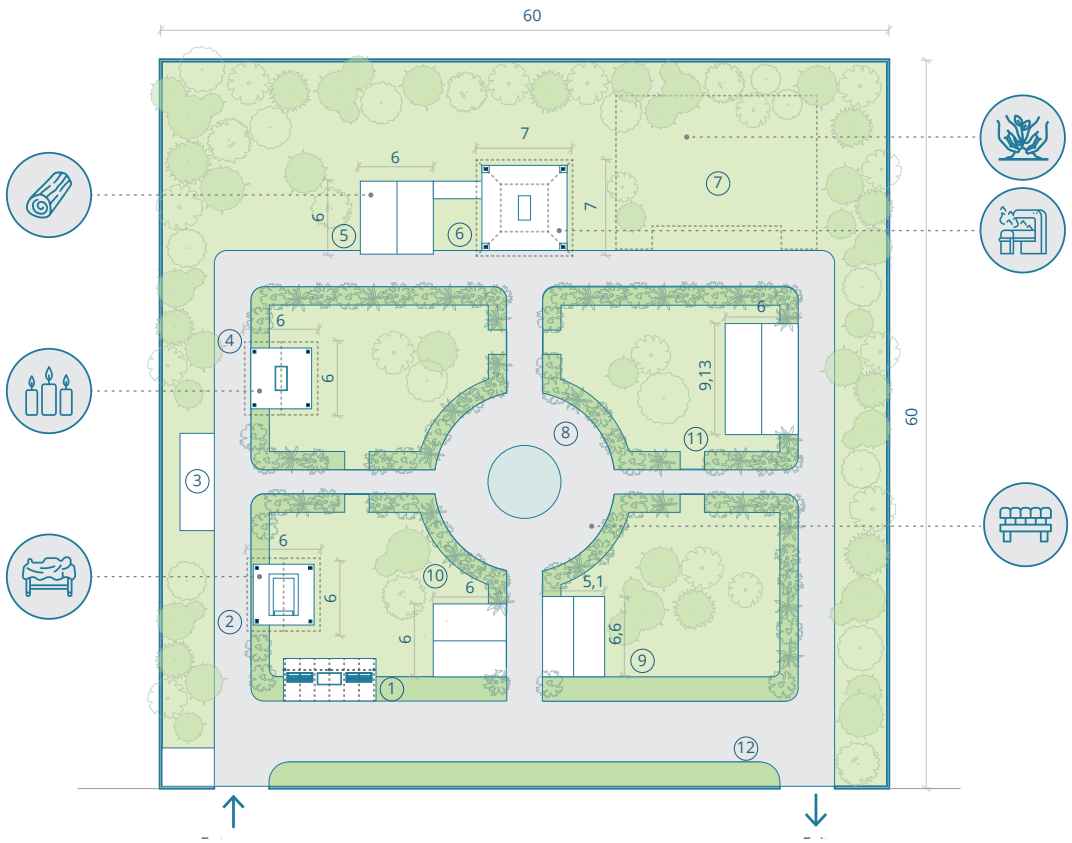


Figure 3. Small size crematorium

Legend

1. Pre-preparation Area
2. Preparation Area
3. Handwash Area
4. Ritual Area
5. Wood Storage
6. Burying Shed
7. Memorial Planting
8. Waiting Area
9. Caretaker's Room
10. Admin Office
11. Restrooms
12. Parking Area

Small size crematoria accommodated one pyre – serving a relatively smaller neighbourhood or housing cluster of upto 5000 people. The average total deaths in such areas are infrequent, with approximately one death occurring per week.

MEDIUM

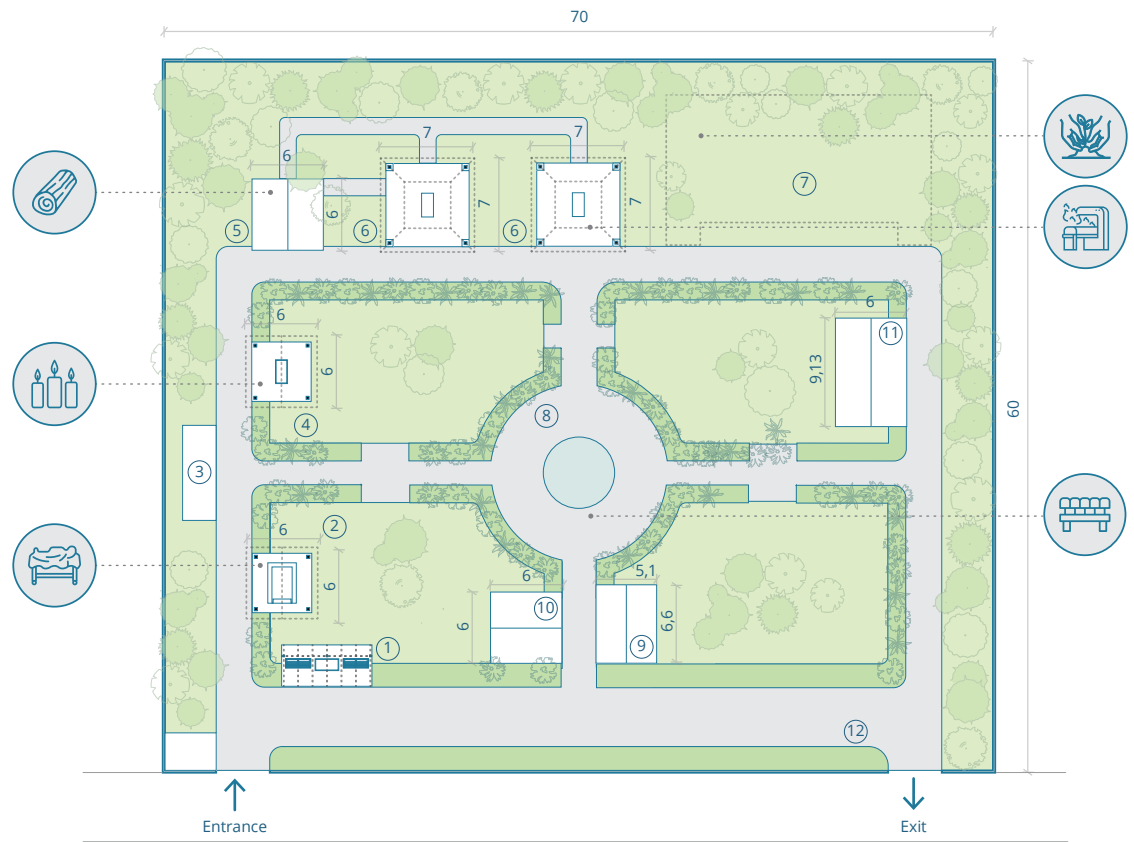


Figure 4. Medium size crematorium

Legend

- 1. Pre-preparation Area
- 2. Preparation Area
- 3. Handwash Area
- 4. Ritual Area
- 5. Wood Storage
- 6. Buring Shed
- 7. Memorial Planting
- 8. Waiting Area
- 9. Caretaker's Room
- 10. Admin Office
- 11. Restrooms
- 12. Parking Area

Larger neighbourhood with up to 15,000 people have an average death of 1 person every 2-3 days. However, there is a need to plan for contingencies in this case. Medium sized crematoria accommodated 2 pyres, in addition to the other standard services.

LARGE

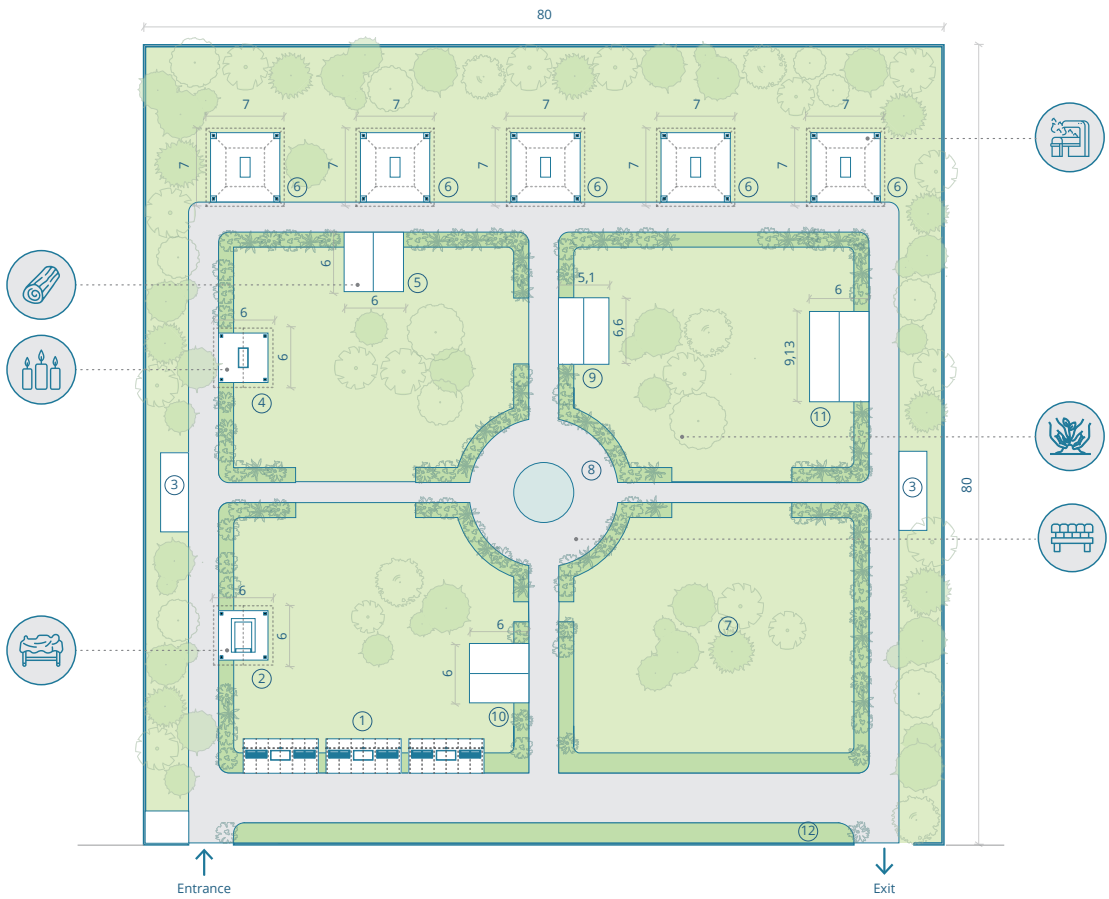


Figure 5. Large size crematorium

Legend

1. Pre-preparation Area
2. Preparation Area
3. Handwash Area
4. Ritual Area
5. Wood Storage
6. Buring Shed
7. Memorial Planting
8. Waiting Area
9. Caretaker's Room
10. Admin Office
11. Restrooms
12. Parking Area

A community, housing a populace of nearly 100,000 people needs considerably large crematorium spaces. Such areas face approximately 25 deaths per day. The large crematorium accommodates 5 pyres to cater to this demand.

With a proper contextual assessment, more large size crematoria can be proposed within a community on a need basis.



2.2.2. Criteria for site selection

Historically, the predominant criterion for selection of crematorium land was the availability of a water body in its vicinity – for ease of rituals such as discharging the ashes into the water after cremation.

With rapid urbanization and cities sprawling in areas with little to no proximity to water bodies, sites for present-day crematoriums are largely based on availability of government land. Consideration to other aspects of site selection are mostly not heeded.

This guidelines proposes a comprehensive criteria for site selection that can be grouped under three areas:

- » **Spatial requirements:** This criteria caters to land use and context surrounding the site, in addition to the availability of land and existing basic infrastructure.
- » **Environmental requirements:** Given that a crematoria generates toxic compounds in the process of cremation, it is imperative to ensure that the site chosen is attuned to these conditions and do not pollute the surrounding areas.
- » **Socio-cultural requirements:** The site selected for a crematorium development should be attuned to the needs of the population it serves, such as accessibility and integration with other socio-cultural facilities.

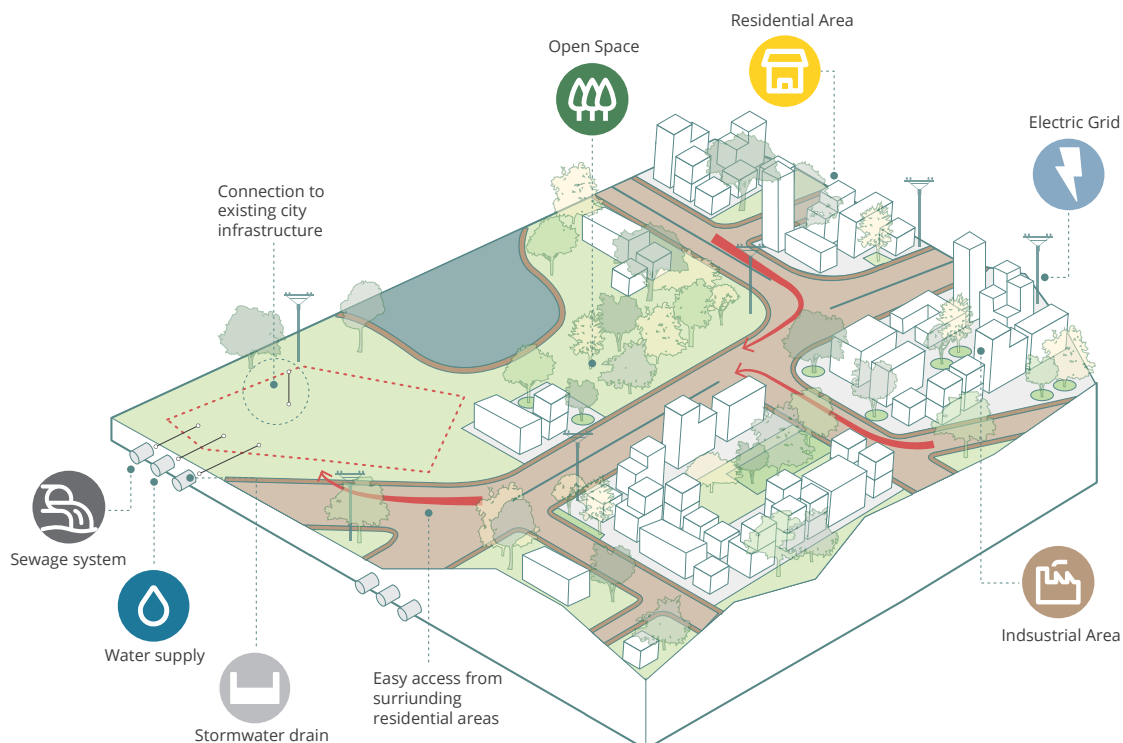


Figure 6. Spatial criteria for site selection

INDICATOR	CONSIDERATIONS	DATA COLLECTION METHOD
SPATIAL CRITERIA		
Land availability	The area of land required depends on the class identification as provided in Section xx. Based on the identified type of crematorium, the minimum required area of land should be available.	Cadastral maps, land ownership maps
Existing land use character of surrounding area	The crematorium should be located away from highways, railways, industrial land use etc. emitting excessive noise – to maintain the tranquility of the space. Proximity to residential land use is preferred.	Planning documents
Availability of existing infrastructure	Investment cost and time taken to implement and start operations is significantly reduced when site chosen is connected to existing services and infrastructure such as the city's sewage and water supply network, and electric grid.	Topographic survey Plans from relevant government agencies
Accessibility	Easy access to the site from surrounding residential areas is key to aid the process of bereavement. This also reduces cost viz. development of new roads.	

Table 3. Spatial criteria for site selection

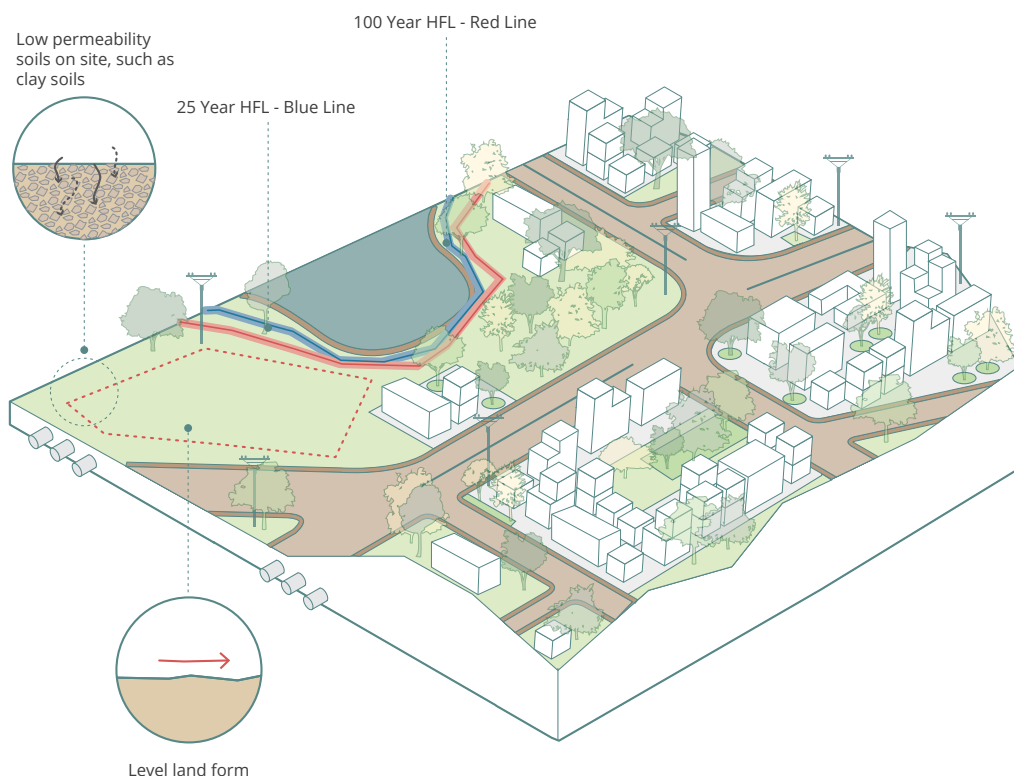


Figure 7. Environmental criteria for site selection

INDICATOR	CONSIDERATIONS	DATA COLLECTION METHOD
ENVIRONMENTAL CRITERIA		
Flood risk of the site and surroundings	The selected site should be at considerably lower risk of inundation. A site that is inundated frequently poses logistical constraints to the cremation process and adds on to public health hazard of water pollution and contamination wherein solid and liquid waste from the cremation area could enter the surrounding areas.	Hyrdological survey – 25 and 100 year HFL maps
Geotechnical aspects	Low permeability soil is preferred in a crematorium site to reduce pollution migration of toxic compounds.	Geotechnical survey
Land relief	The site chosen for crematorium development should be considerably levelled to reduce cost of construction and maintenance. In case of proximity to water, sufficient measures must be taken to ensure toxic compounds from the site do not enter the water stream.	Topographic survey – elevation profile

Table 4. Environmental criteria for site selection

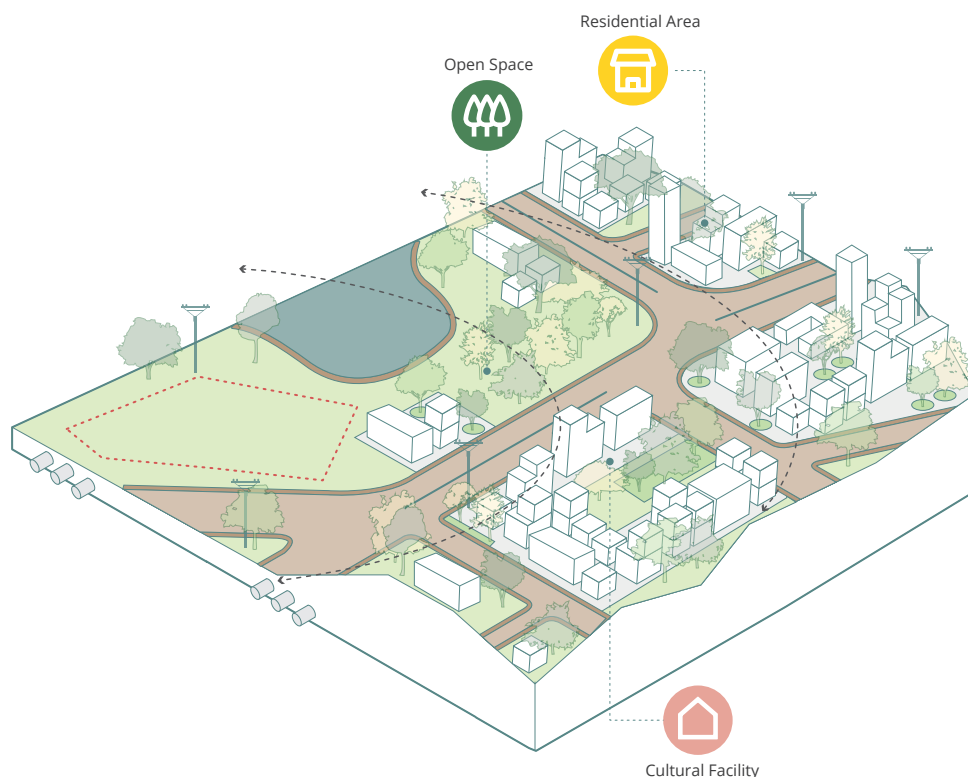


Figure 8. Socio-cultural criteria for site selection

INDICATOR	CONSIDERATIONS	DATA COLLECTION METHOD
SOCIO-CULTURAL CRITERIA		
Proximity to settlement	The site should be accessible to the community it serves, but not hinder other forms of development	Site reconnaissance survey
Proximity to religious/cultural facilities	The site should ideally be located near religious/cultural institutions serving the population – to integrate the cultural needs of the population it serves.	Site reconnaissance survey

Table 5. Socio-cultural criteria for site selection

2.3. Surveys and studies

Post identification of a site, it is necessary to carry out a range of studies and surveys to establish the baseline conditions of the site, and capture features and details required for a comprehensive design development.

2.3.1. Site reconnaissance and user survey

A site reconnaissance study helps identify the challenges and potentials of the site - viz. topography, surrounding context, connection to socio-cultural facilities, and user requirements of the community it serves.

Time required	1-2 days
Format of survey details	Visual analysis via photographs; tabulated data of footfalls; temporal activity charts.

DATA REQUIRED	
01	Landscape and built context
02	Proximity of socio-cultural facilities
03	Parking study
04	Shade study
05	Social survey - types of user groups and associated activities

Table 6. Data collected site and user survey

2.3.2. Total station survey

Total station surveys are a requisite to accurately document the existing site condition prior to the construction of a crematorium. The surveys are conducted to document the cartesian location and nature of all physical features on the site.

Once the surveys are verified with an on-ground cross-checking, they can be used as the base for the design development and the final construction drawings issued to site.

TOTAL STATION SURVEY	
01	Station points geo-located and in meters
02	Contours
03	Permanent structures – buildings/ verandah (plinth)/ shed
04	Fences
05	Retaining walls/ embankment walls
06	Compound walls
07	Footpaths
08	Location of manholes
09	Trees – type and diameter of trunk
10	Location of light poles
11	Location of electric poles
12	Location of sub-stations
13	Location of high tension lines
14	Road – ROW

Time required	5-7 days
Format of survey details	AUTOCAD drawing

Table 7. Data collected from total station survey

2.3.3. Geotechnical investigation

The basic geotechnical investigation is to be done at the discretion of the engineer based on soil type, nature, and seismic zone, since the structures will not be high-rise.

GEOTECHNICAL INVESTIGATION	
01	Soil type
02	Strength parameters
03	Settlement characteristics
03	Soil bearing capacity

Time required	5-7 days
Format of survey details	Report detailing soil type and characteristics + dwg with bore hole locations

Table 8. Data collected from geotechnical investigation

2.4. Stakeholder mapping

Involving all relevant stakeholders in the planning process is crucial to any project's success. Stakeholders are integral part of the planning, design, and implementing crematoria.

This guideline discusses the process of identifying relevant stakeholders, and maps out the level of participation required for each identified stakeholder.

MAPPING THE STAKEHOLDER NETWORK

The stakeholder network for a sustainable crematorium can be grouped under four primary categories:

- 1. Government agencies** - this comprises of national/ state agencies and urban local bodies involved in the planning and management of crematoria.
- 2. Technical experts** - this includes architects, engineers, and subject matter experts such as environmentalists, psychologists etc., involved in the design and implementation of crematoria.
- 3. Third sector organizations** - this category comprises of NGOs, civic groups etc. involved in advocacy and research related to crematoria.
- 4. Local communities** - this includes residents and community groups directly associated or impacted by adjacent crematoria.

LEVEL OF PARTICIPATION

Each stakeholder in the network has a decided degree of influence and interest that informs their level of participation. This guideline adapts the Spectrum of Public Participation (Internal Association for Public Participation, 2018), to derive a matrix for stakeholder participation for designing and building crematoria – as detailed in *Table 9 on page 35*.

STAKEHOLDER PARTICIPATION			
		NATURE OF PARTICIPATION	
Types of participation	Inform	Inform relevant stakeholders of project specific information that is relevant to the objective and solutions provided	
	Consult	Engage stakeholders to obtain active feedback on subject matter expertise relevant to the project	
	Collaborate	Work directly with stakeholders on various aspects of the projects – from planning to implementation and maintenance	
	Empower	Engage stakeholders in the decision making process in relevant stages of the project from planning to implementation	

Table 9. Types of stakeholder participation

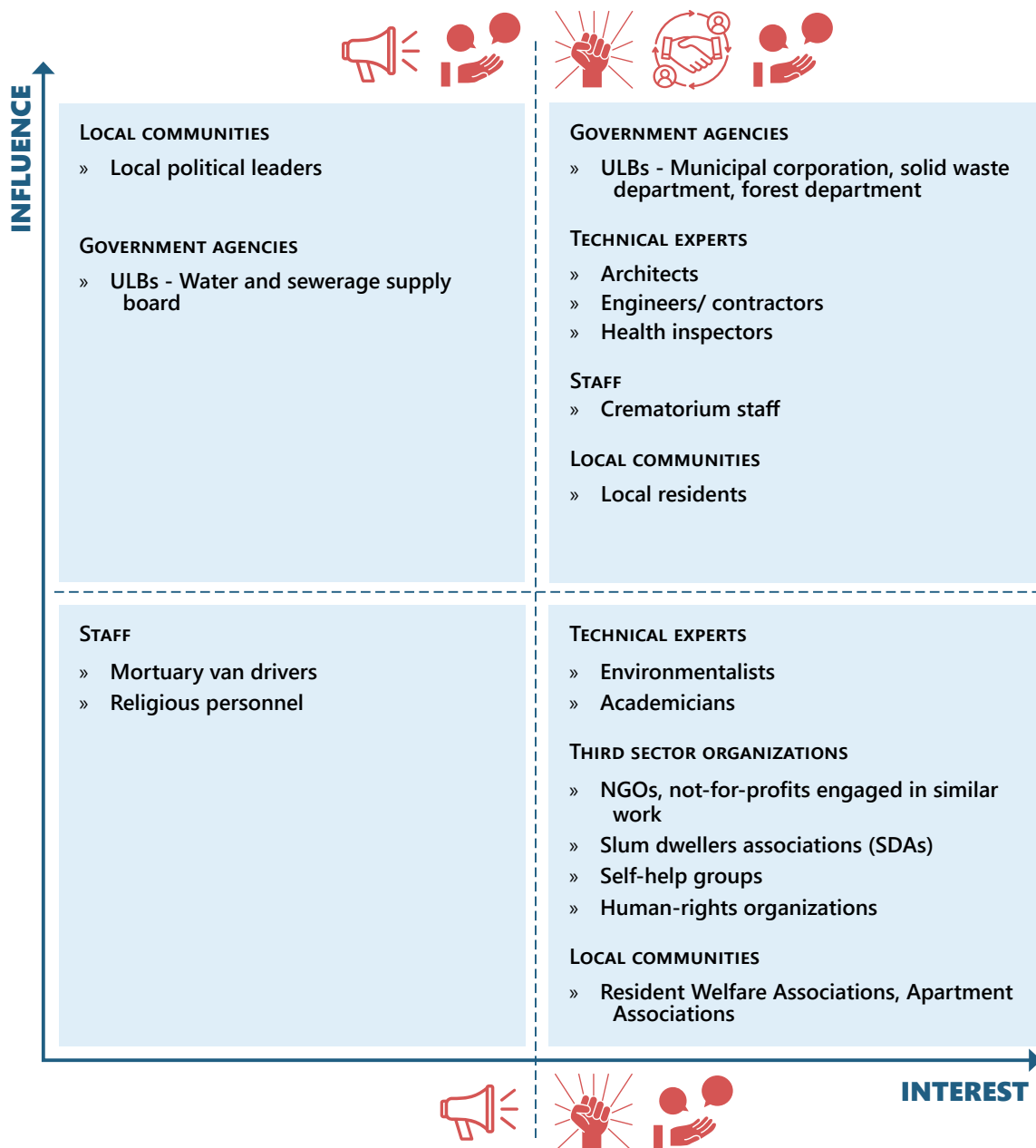
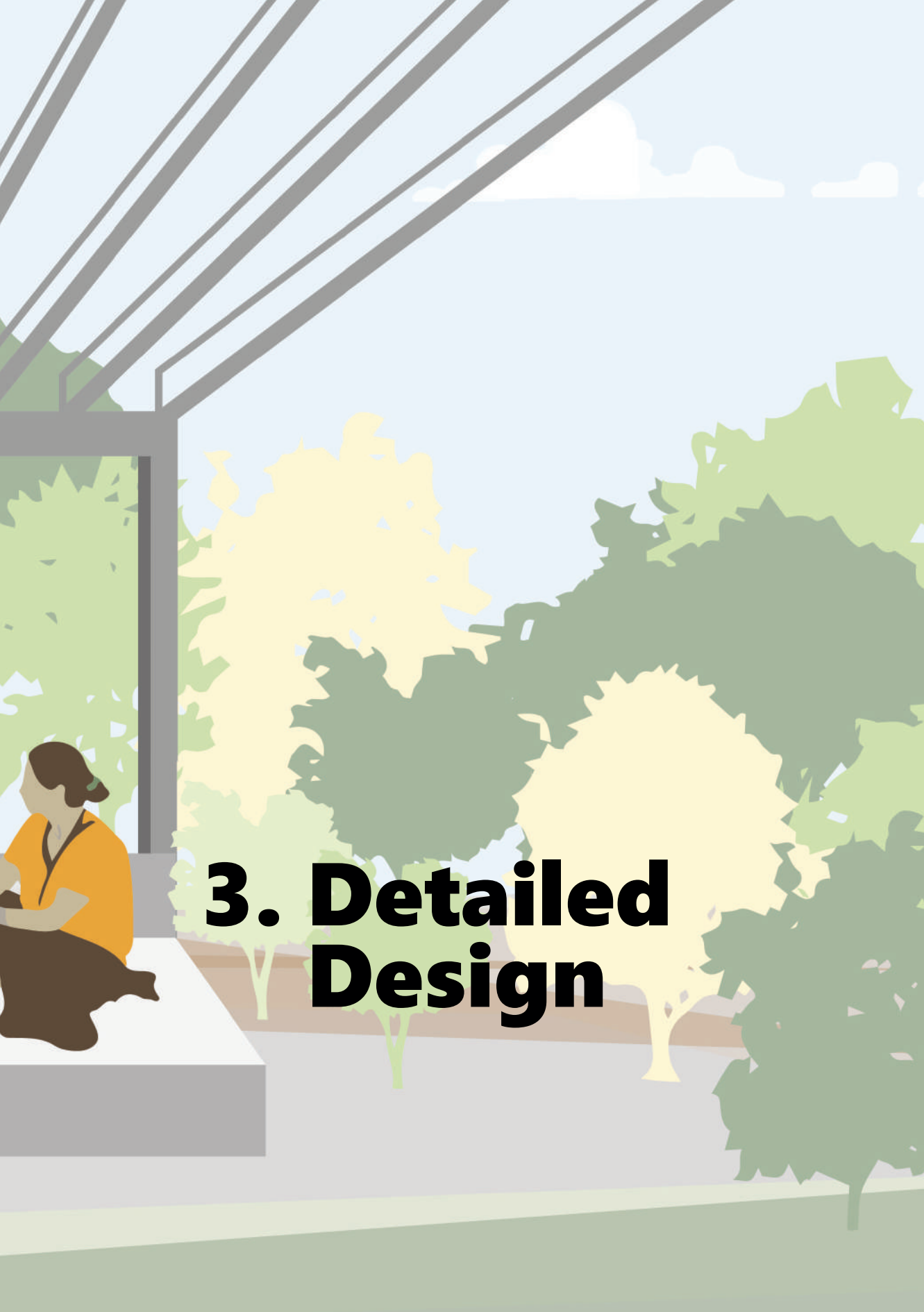


Figure 9. Influence vs. Interest matrix of stakeholders

The nature of participation of each stakeholder can be further mapped in quadrants against their degree of influence and interest.

- » Stakeholders projecting a high level of influence and interest can be engaged through consultations, collaborations, and empowered.
- » On the opposite end of the spectrum, engagement with stakeholders with a low degree of influence and low interest can be limited to presenting timely information of ongoing project objectives and activities.
- » Engaging with stakeholders with a high degree of influence but low interest can be done in two manners – informing them of the project objectives and activities, and consulting them on relevant expertise.
- » For stakeholders displaying a high interest and low influence, such as academic groups and think tanks, it is beneficial to consult with them on relevant expertise. Local community groups such as Residential Welfare Association, Apartment Associations etc., should be empowered to engaged in the decision making process related to design and implementation of projects.



An illustration of a person with dark hair, wearing an orange shirt, sitting on a white bench. They are positioned under a dark grey canopy structure with several diagonal support beams. The background features a variety of stylized trees in shades of green and yellow, set against a light blue sky with a few white clouds. The overall style is flat and modern.

3. Detailed Design

3.1. Principles of a Crematorium

This guideline document recommends the design of crematoria and its spaces based on the principles of Environment, Empath and Equity, which form the 4E framework.



Environment - Crematoria should provide a peaceful and dignified environment that reflects the solemnity of the occasion and helps families to mourn their loved ones.

Empathy - Crematoria should reflect the cultural and religious beliefs of the communities they serve, incorporating elements such as temples, meditation rooms, and memorial gardens.

Equity - Crematoria should be accessible by all to provide the bereaved a dignified place to perform the last rite rituals and ceremony.

Engagement - Crematoria should be designed and planned through extensive engagement with the user groups and stakeholders they serve.

3.2. Flow of Movement in a Crematorium

Circulation is crucial to a well-designed crematorium. The flow caters to four primary user groups:

1. **The bereaved:** the immediate kin of the deceased
2. **The mourners:** friends and acquaintances of the deceased
3. **Staff:** crematorium workers involved in the cremation process
4. **Admin:** workers involved in administration and documentation pertaining to the last rites

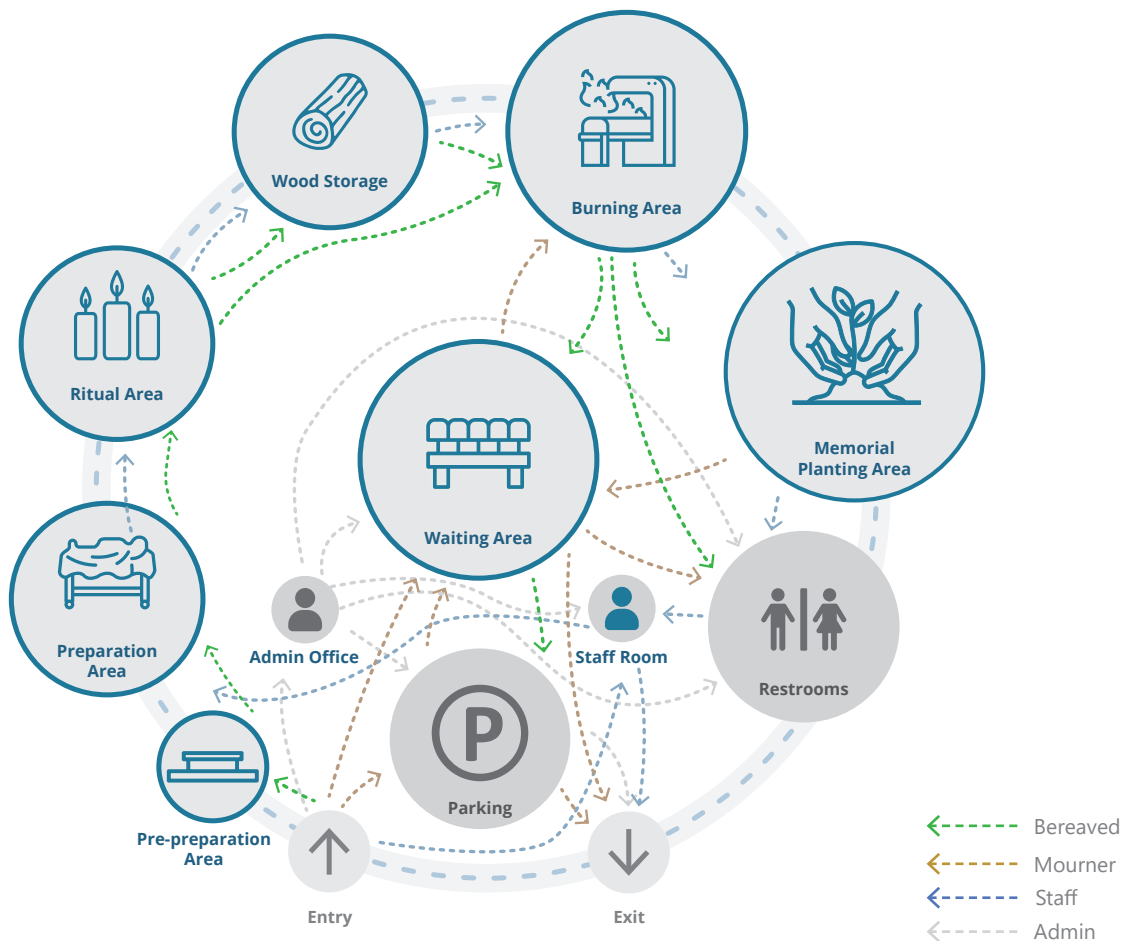
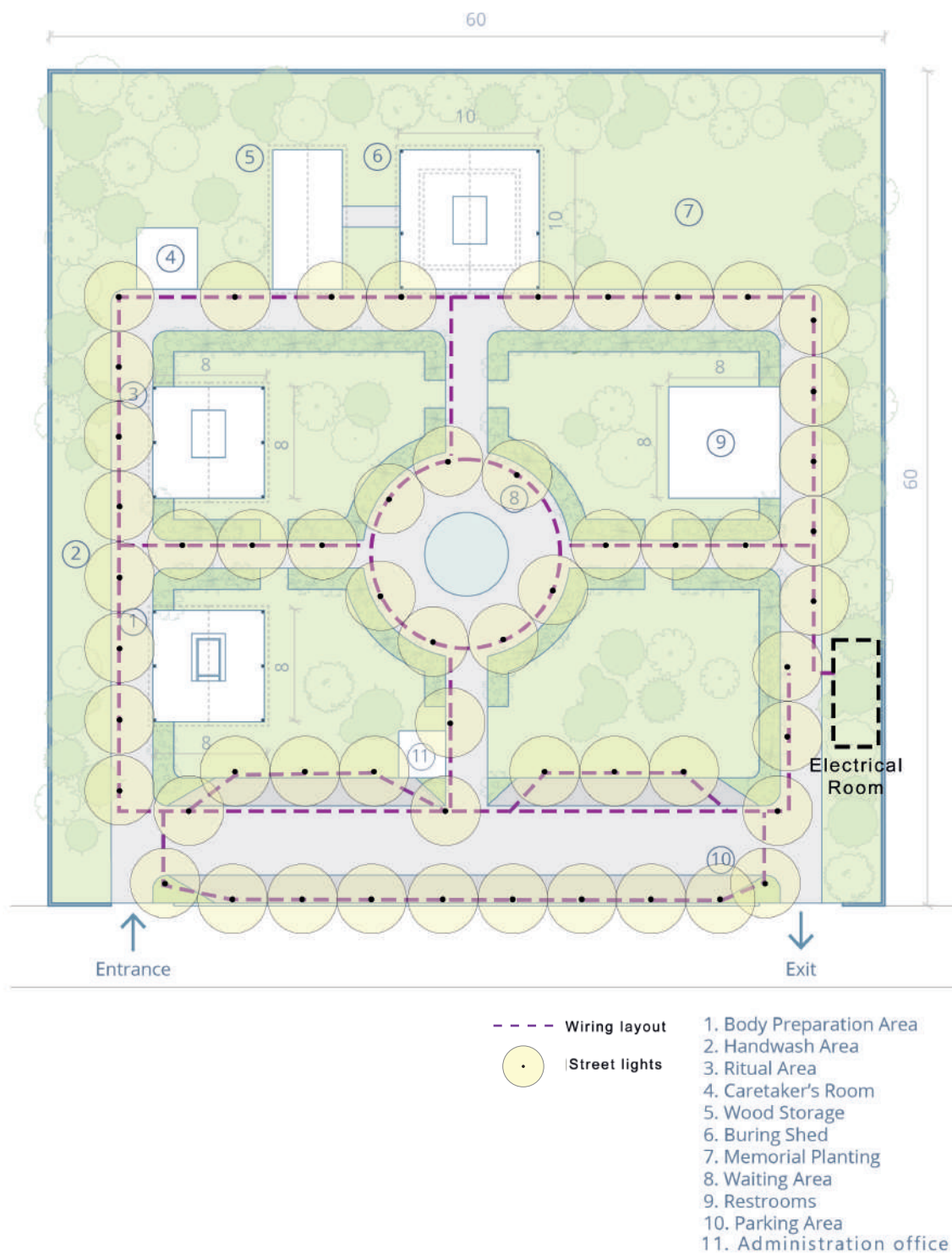


Figure 10. Crematorium circulation and user movement

3.3. Site Planning

Certain site level considerations are required to support the zoning of functions and access of all user groups inside a crematorium. These considerations include, but are not limited to:

- » Site boundary - The crematorium must have defined site edges with designated entry and exit gates as well as a compound wall around the total length of the site. The compound wall may be designed in a way that allows visual access into the site.
- » Parking - Parking should be provided within the crematorium premises. It should be provided not just for vehicles of the staff working at the crematorium, but also visitors and mortuary vans.
- » Lighting - Streetlights must be provided within the site for ease of access after sunset.
- » Universal accessibility - Design considerations to create a universally accessible crematorium have been provided in Section 4.1.
- » Signage - Wayfinding elements help users navigate public spaces. The types of signage and their layout have been described in Section 4.2.
- » Utility planning - These guidelines recommend solid waste and waste water management to mitigate the risk of contamination from the waste generated in crematoria. These recommendations can be referred in Section 4.3.
- » Landscape - Landscaping within crematoria sites can help create a peaceful environment for those performing last rite rituals. A landscape palette with recommendations for trees, shrubs and flowering plants has been provided in Section 4.5.



3.3.1. Parking

Since these guidelines have been designed to for a neighbourhood-level population, the vehicular parking layout has been prepared for mortuary vans, two-wheelers and, four-wheelers accordingly.

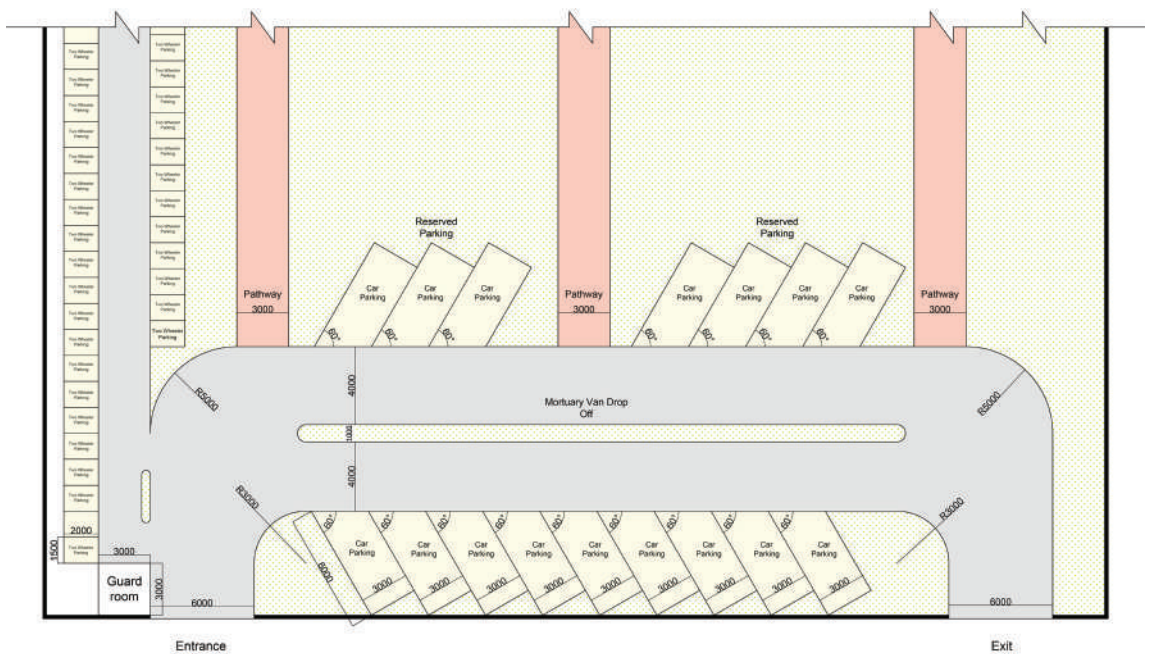


Figure 12. Parking layout

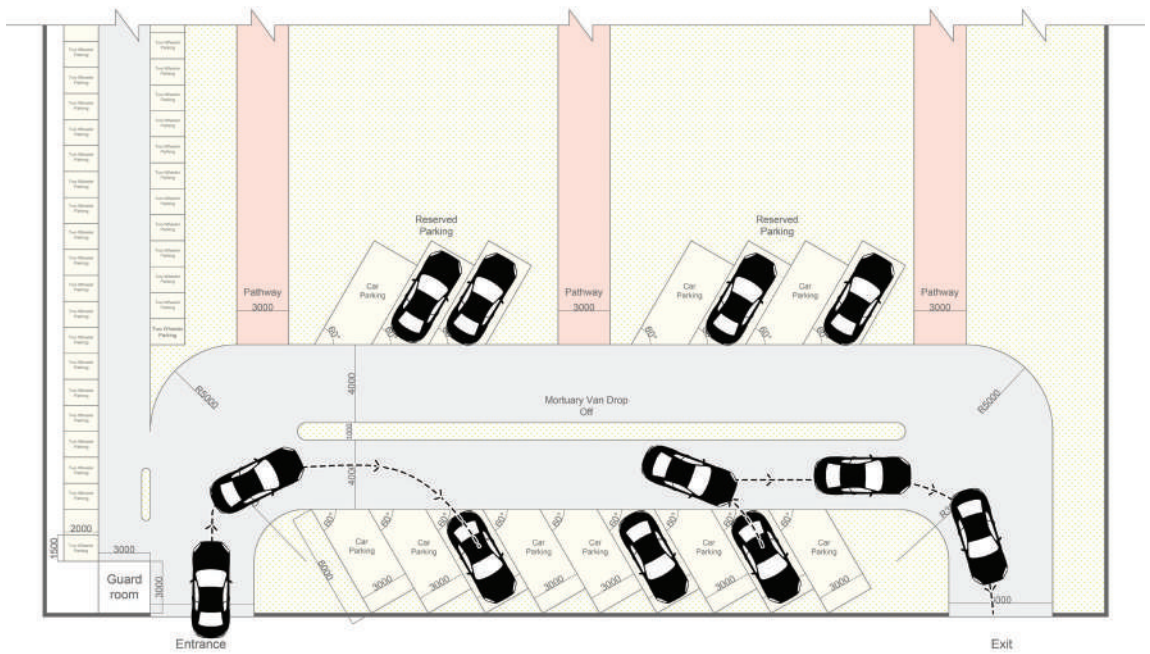
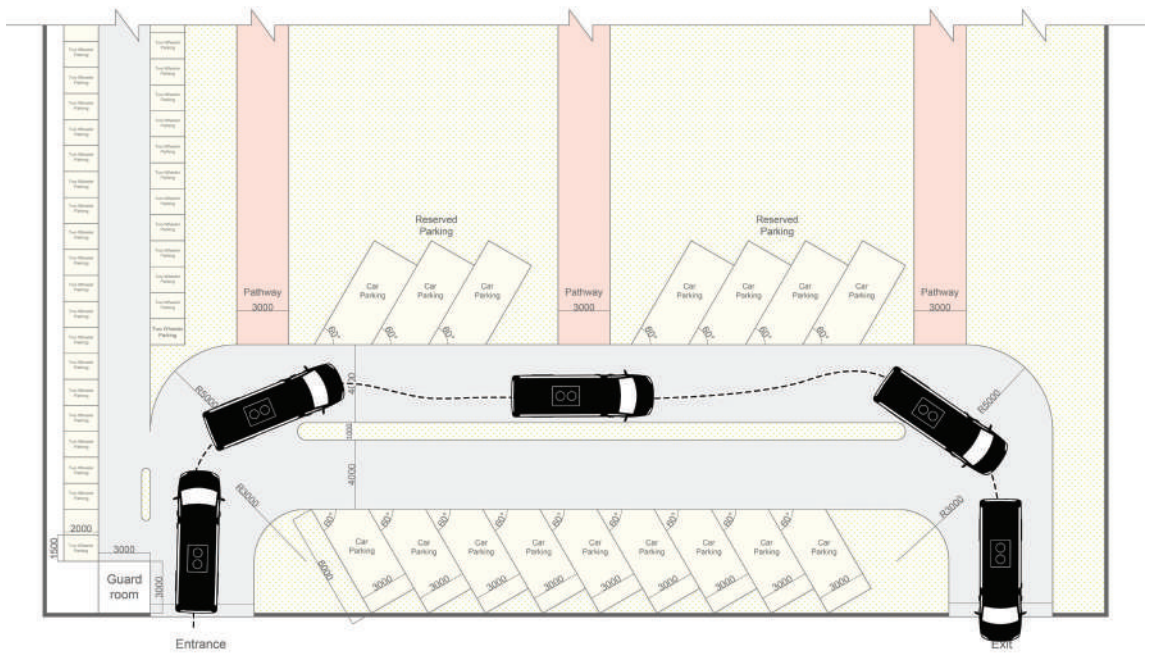
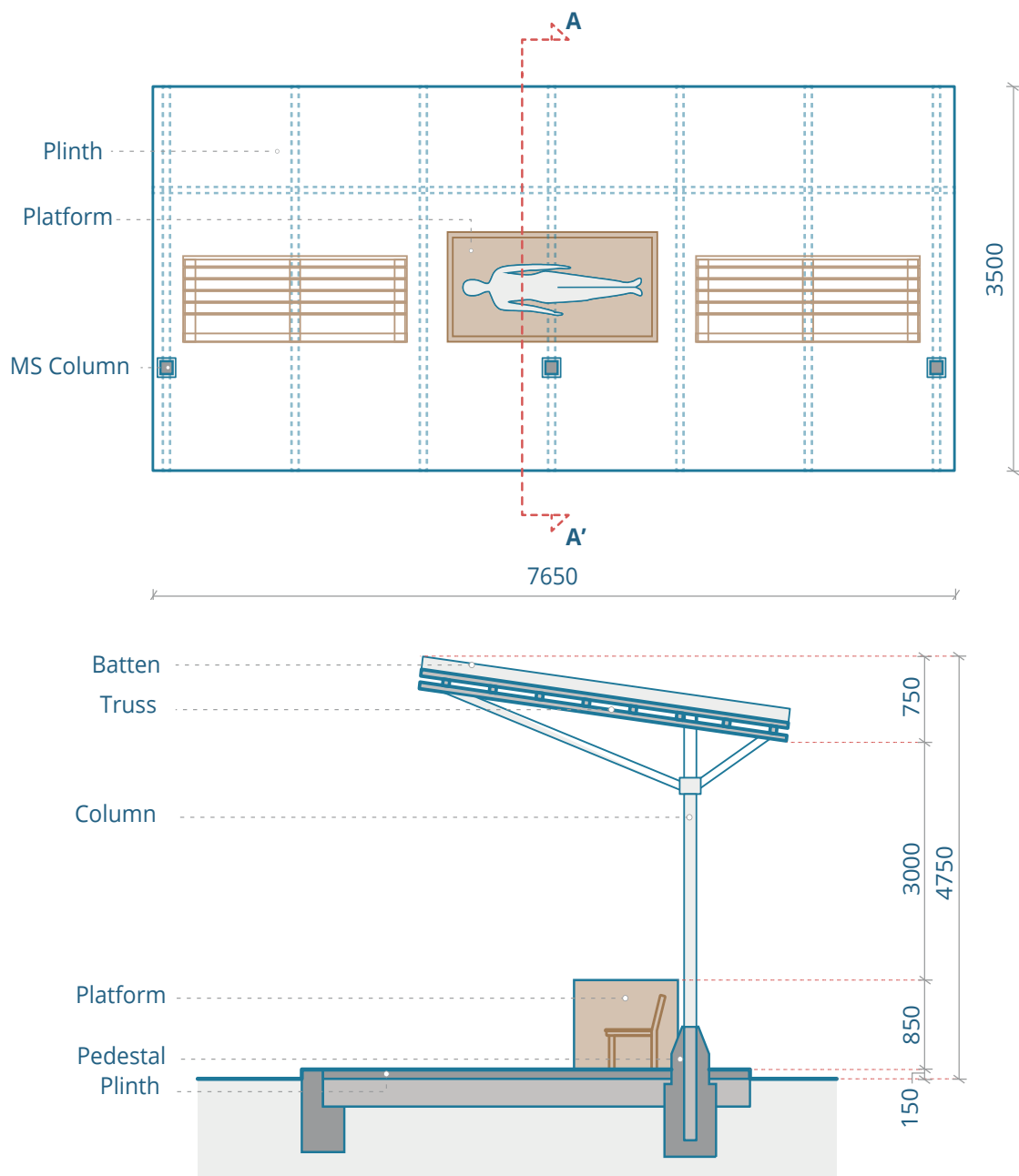


Figure 13. Circulation plan for mortuary van and four-wheelers



Dimensions are in mm unless otherwise specified

Figure 14. Pre-preparation area - plan and section

3.5. Preparation Area

3.5.1. Spatial requirements



The preparation area is the first functional space in the last rites process. The body of the deceased is taken here – either directly post entering the premises, or from the pre-preparation area – to perform necessary procedures such as washing and cleaning the body of the deceased for further rituals.

- » The preparation area requires a **minimum area of 25 sqm** to ensure good circulation, hygiene and privacy.
- » An open shed, a platform to provide a practical surface to support the body washing procedures in a dignified manner, and a table to place belongings and other materials necessary for washing may be designed for this purpose.
- » A platform of area **2x1x0.85m** is place centrally for washing and preparing the deceased bodies.
- » A clear circulation space of **mimimum 1m** is provided around the platform to ensure safe passage for activities.

Function	Spatial requirements
Preparation area	Shed
	Platform

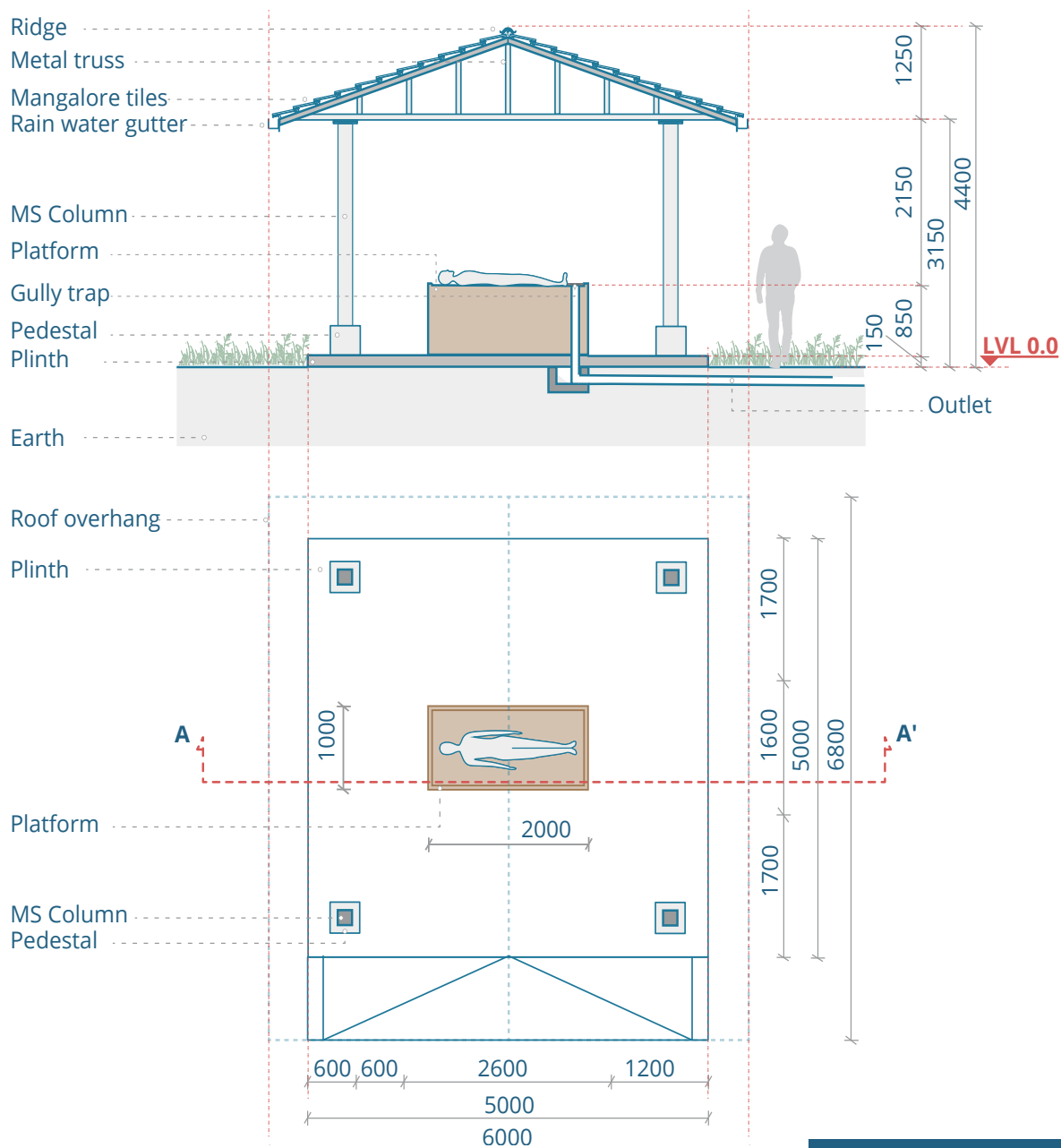


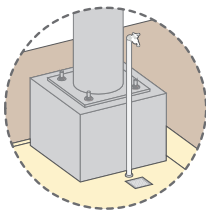
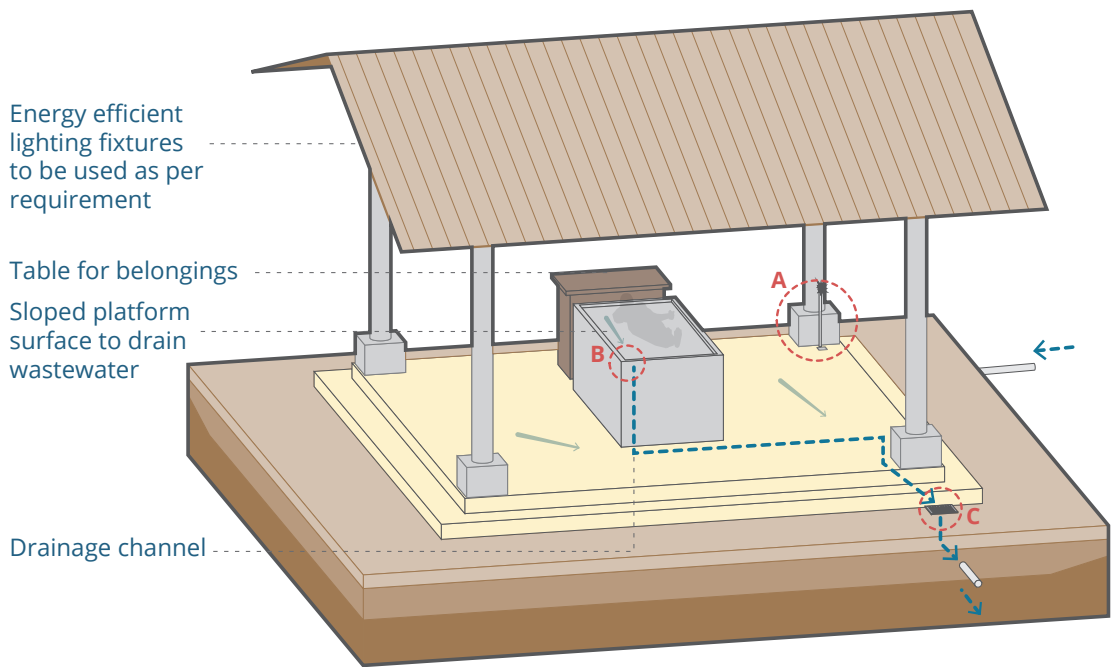
Figure 15. Preparation area - Section

Dimensions are in mm unless otherwise specified

3.5.2. Services and utilities

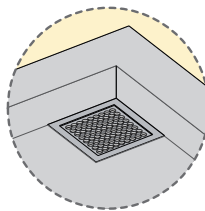
The preparation process includes cleaning the body of the deceased with purified water, mixed in some cases, with organic compounds such as milk, honey, and turmeric. To effectively channel the water and other fluids post the preparation process, it is important to design appropriate drainage features around the platform and the shed.

- » The platform for body washing and the preparation shed should be sloped at 1:50 ratio to adequately drain wastewater.
- » A bib tap should be provided connected to a continuous source of water supply.
- » Water from the body washing platform should be channelized into a floor trap fitted onto the platform – which further connects to a ground trap to direct water towards the crematorium's filtration system.
- » Energy efficient light fixtures must be used as per requirement.



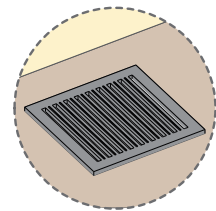
Detail at A

Bib tap for direct water supply to the preparation shed for preparing the body and cleaning the area



Detail at B

Floor trap on the platform to drain water after preparation processes



Detail at C

Ground trap near the preparation shed to direct water towards filtration system

3.5.3. Sustainable materials palette

This section provides details for sustainable materials for all construction elements for the preparation area, waiting area, ritual area, and gazebo – all of which comprise of a shed structure.

ZONE	ELEMENT	MATERIAL	DIMENSIONS (LXWXH)	THERMAL RESISTANCE
PREPARATION AREA, WAITING AREA, RITUAL AREA, GAZEBO	Roof	MS hollow pipe section	50 x 50 x 3mm	NA
		MS hollow pipe section	75 x 75 x 4mm	
		MS truss box	100 x 50mm	
		Mangalore tile	300 x 200 x 20mm	
	Column	MS hollow pipe section	100 x 100 x 4mm	
	Platform	RCC		
	Flooring	Granite		
		Kota stone	"LW- 305 x 305, 305 x 610, 610 x 458, 610 x 610, 610 x 762, 610 x 915mm H- 20-25mm"	
		Vitrified tiles		



POROSITY	ANTI-SKID	EASE OF CLEANING	AESTHETICS
NA	NA	NA	NA
	Recommended use of circular, precast well "rings"	Alluvial as well as hard rock formations	
	Constructed bore is lined with slotted or perforated PVC/MS pipe to prevent the collapse of vertical side and is filled with boulders, gravels, and coarse sand.	Clayey soil	
24%	Consists of a filtration pit and a perforated percolation pipe	Alluvial as well as hard rock formations	Visually pleasing with warm and earthy colour against green landscape
NA	The percolation tanks are mostly earthen dams with masonry structure only for spillway.	Alluvial as well as hard rock formations	NA
12%	Building tiny "L"-shaped bunds inside a stream channel	Alluvial soil	
0.4-1.5%	3 types of ditch patterns: Lateral, Dendritic and Contour	Leads to less siltation. Suitable for most soil types	Reflective surface that can enhance lighting in the space and imparts the feeling of opulence
Low			Muted colour contributes to serene ambience. Can be used in different finishes, such as honed finish for skid resistance but still easy to clean
Low			Lends a modern look

3.6. Ritual Shed

3.6.1. Spatial requirements



Most conventional crematoria do not provide a dedicated space to carry out the array of cultural and religious rituals associated with cremation. This is particularly exclusionary to the urban poor – who lack access to such spaces within the confines of their homes and neighbourhoods.

This guideline proposes the a dedicated space for holding all relevant rituals – from last rites to yearly rituals for the dead. The space for the same is provided under a shed, with similar construction and material requirements to the preparation area. The spatial requirements of such a space are listed below:

Function	Spatial requirements
Ritual area	Shed

- » In order to accommodate a range of cultural and religious rituals associated with cremation across communities, a designated space with a **minimum area of 25 sqm** may be provided.
- » A clear circulation space of **mimimum 1m** is provided around the platform to ensure safe passage for activities.

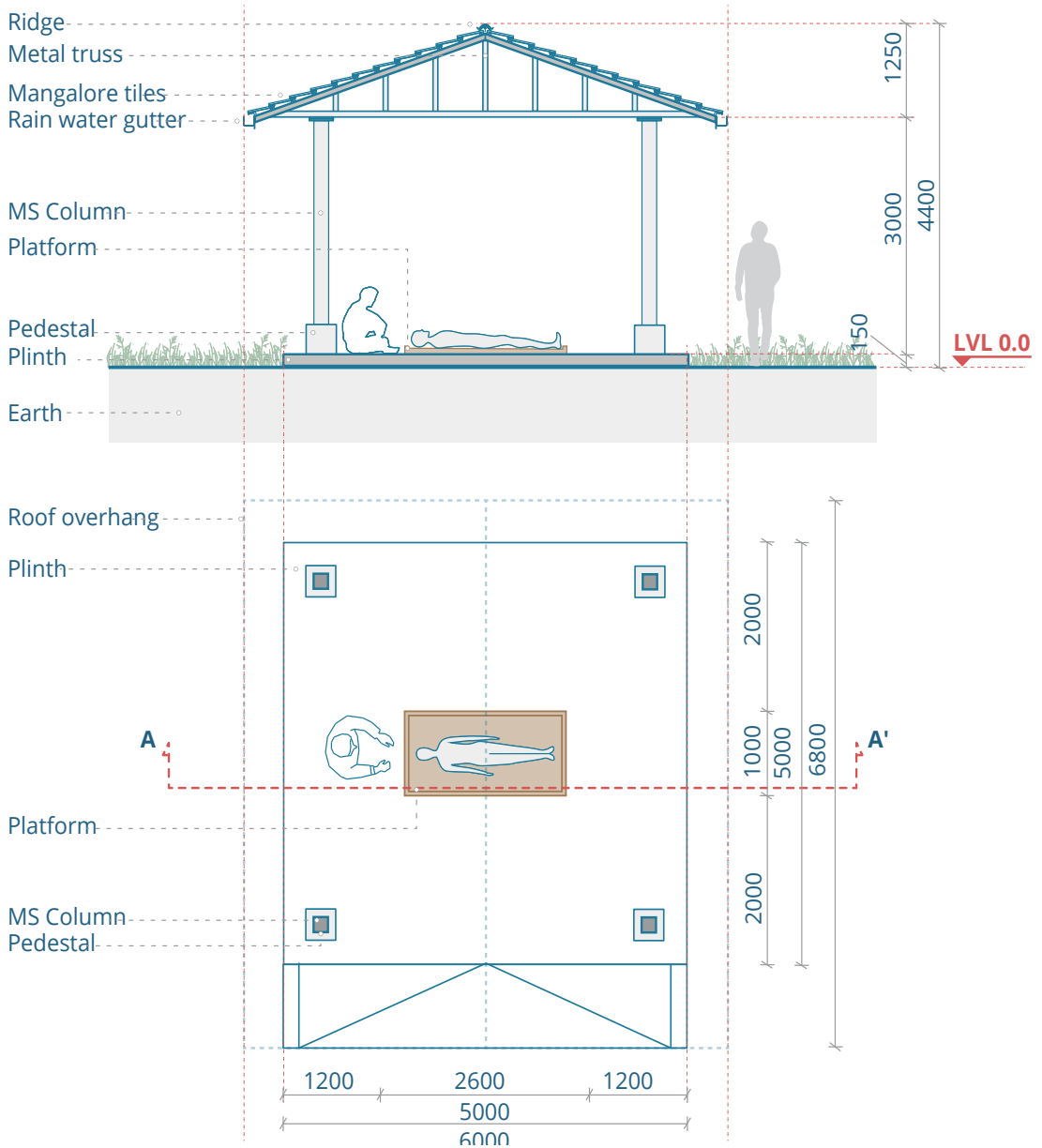


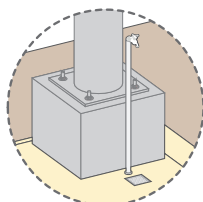
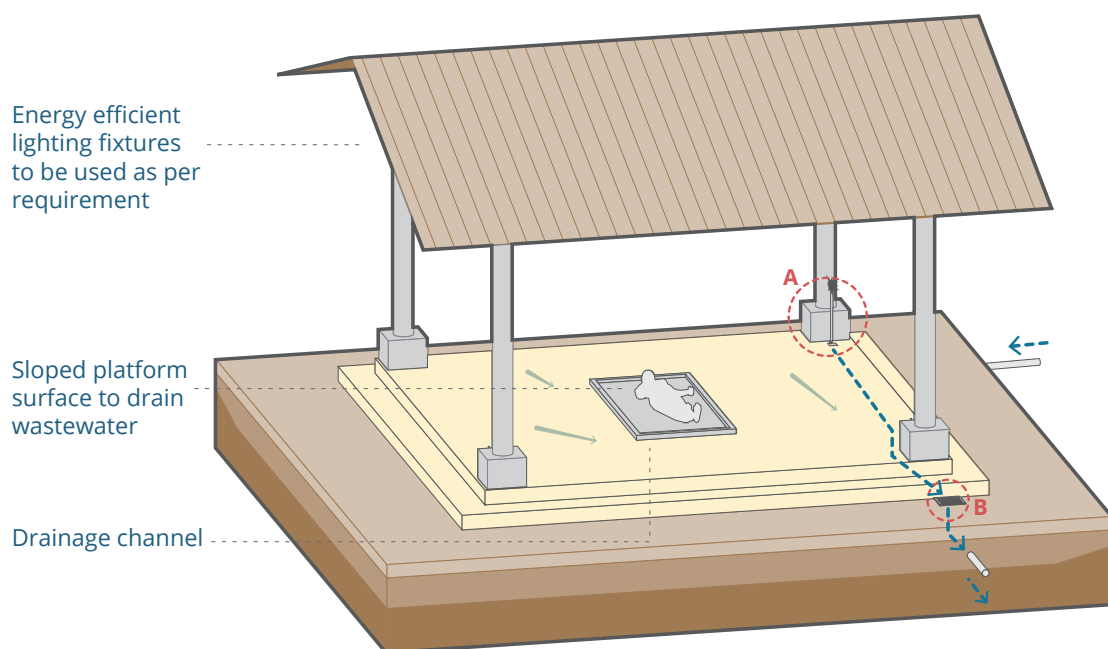
Figure 16. Ritual shed plan and section

Dimensions are in mm unless otherwise specified

3.6.2. Services and utilities

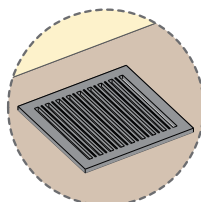
Ritual processes include activities that require water supply and drainage. To effectively channel the water post the rituals, it is important to design appropriate drainage features around the platform and the shed.

- » The platform for hosting rituals should be sloped at 1:50 ratio to adequately drain wastewater.
- » A bib tap should be provided connected to a continuous source of water supply.
- » Water from the ritual space should be channelized into a floor trap fitted onto the platform – which further connects to a ground trap to direct water towards the crematorium's filtration system.
- » Energy efficient light fixtures must be used as per requirement.



Detail at A

Bib tap for direct water supply to the ritual shed for cleaning



Detail at B

Ground trap near the preparation shed to direct water towards filtration system

3.7. Wood Storage Area

3.7.1. Spatial requirements

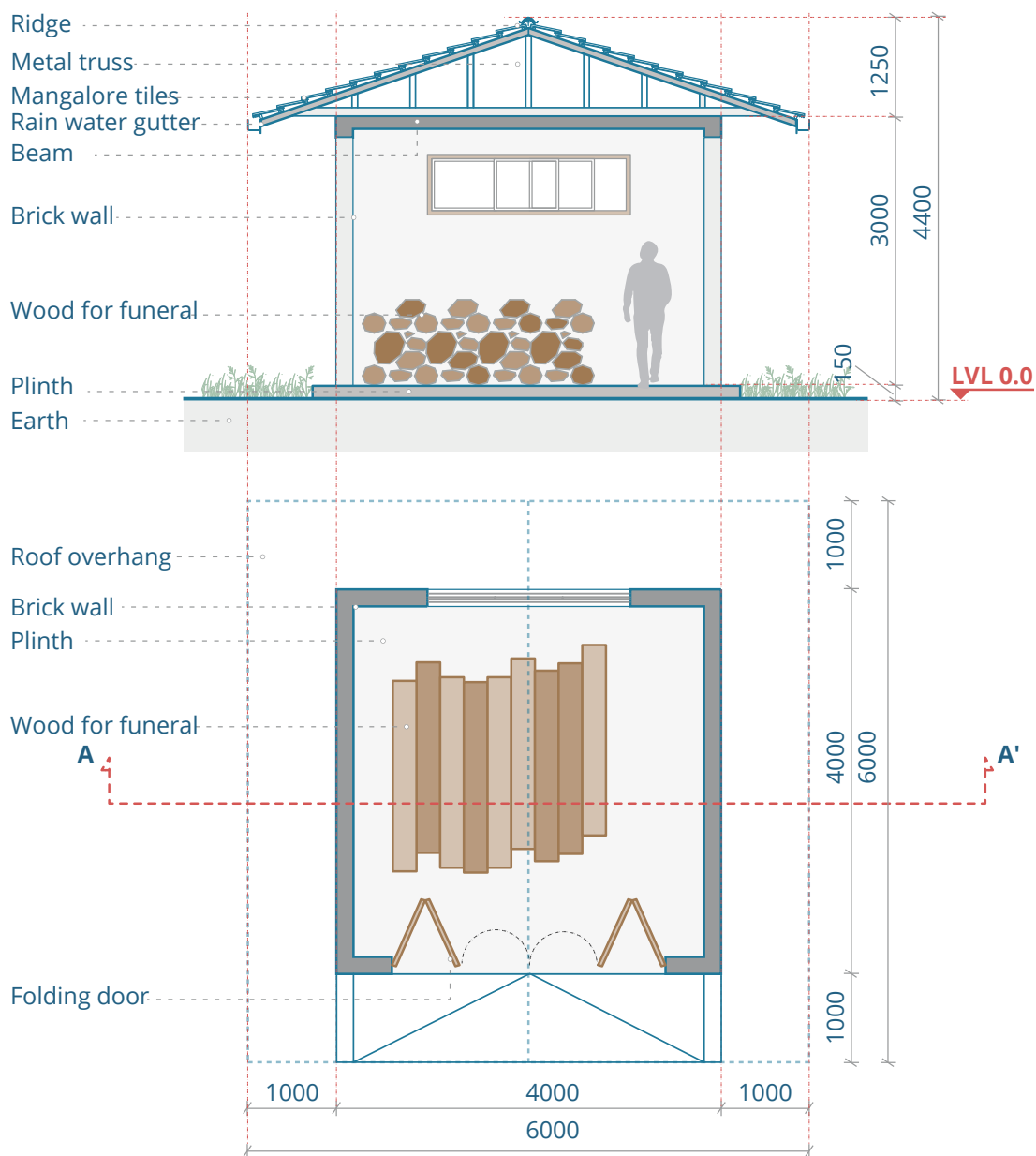


Traditional, wood-based crematoria in India require a constant supply wood at the funeral pyre, for the last rites purpose. In the current scenario, wood is stored on the crematoria grounds without a dedicated space. This guideline proposes a dedicated shed for storing wood to ensure a continuous and reliable fuel source for cremations.

The storage space needs to be enclosed to maintain adequate moisture content for the wood. The spatial requirements of such a space are:

<i>Function</i>	<i>Spatial requirements</i>
Wood storage area	Shed

- » A storage area measuring between 20-25 sqm should be allocated, which would allow for proper organization and storage of wood in the crematorium.
- » Ensure a wide entrance, ideally a folding door, of minimum 2m to enable ease of carrying wood to and from the storage space.



Dimensions are in mm unless otherwise specified

Figure 17. Wood storage plan and section

3.7.2. Services and Utilities

The wood storage area has the following basic requirements for services and utilities

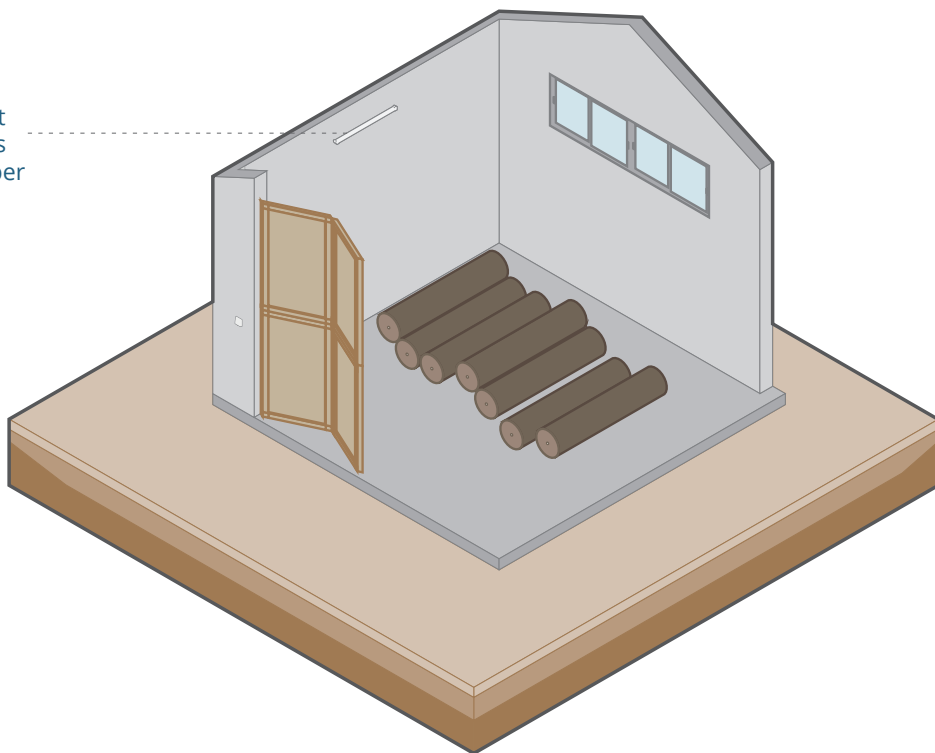
- » The room should have adequate ventilation to ensure proper moisture content in woods, and prevent damping.
- » Energy efficient light fixtures must be used as per requirement.

Figure 18. Wood storage: electrical plan

3.7.3. Sustainable material palette

ZONE	ELEMENT	MATERIAL	DIMENSIONS (LXWXH)	THERMAL RESISTANCE
WOOD STORAGE AREA	Roof	MS hollow pipe section	50 x 50 x 3mm	NA
		Mangalore tile	300 x 200 x 20mm	
		Brick	200 x 100 x 100mm	
		Granite		
	Column	Kota stone	"LW- 305 x 305, 305 x 610, 610 x 458, 610 x 610, 610 x 762, 610 x 915mm H- 20-25mm"	
	Platform	Vitrified tiles		

Energy efficient lighting fixtures to be used as per requirement



POROSITY	ANTI-SKID	EASE OF CLEANING	AESTHETICS
NA	NA	NA	NA
24%			
19-25%			
0.4-1.5%			
Low			
Low			

Table 10. Sustainable material palette for wood storage shed

3.8. Funeral Shed

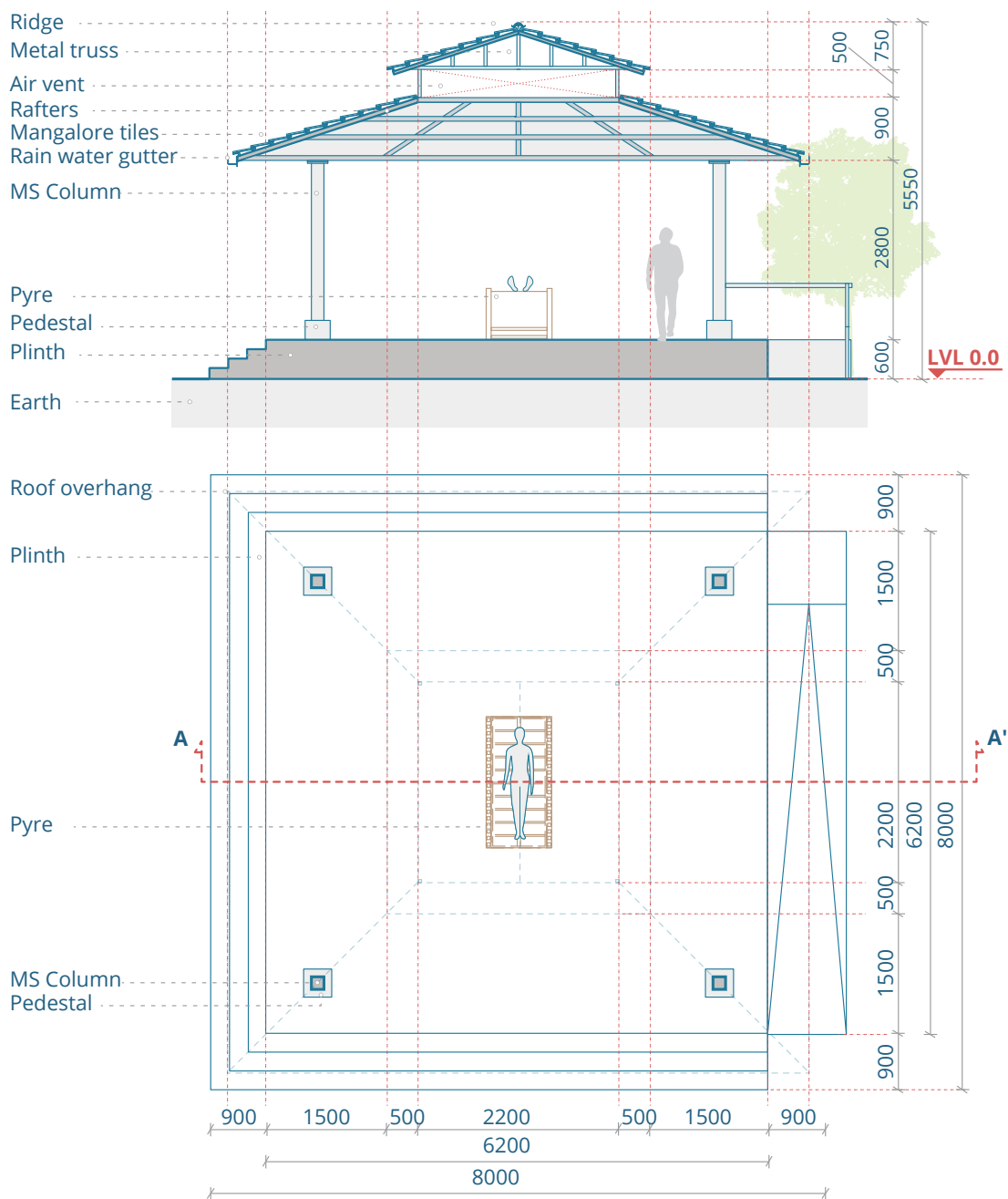
3.8.1. Spatial requirements



Located at the end of the crematorium site is a designated space where cremation can take place over a funeral pyre. A well-designed space would ensure proper ventilation around the pyre and circulation of mourners.

- » As cremation generates a lot of heat, smoke and harmful particles, it is necessary to **maintain a distance of 5 meters from a burning pyre**, to prioritize safety of individuals attending the cremation ceremony and reduce the risk of accidental burns or injuries caused by falling debris.
- » **A minimum area ranging between 49-55 sqm** should be allocated for the burning/ funeral shed, to accommodate safe distances from the pyre while also facilitating easy circulation without congestion or obstruction for the mourners. It will provide a clear pathway for attendees to pay their respects, offer condolences, and navigate the funeral area without feeling cramped or restricted.
- » **The burning/ funeral shed may have a 5.5-meter height roof** of double hipped design, separated with a 1-meter space between them, to ensures proper ventilation, smoke dispersal, and heat dissipation.

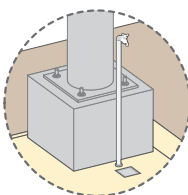
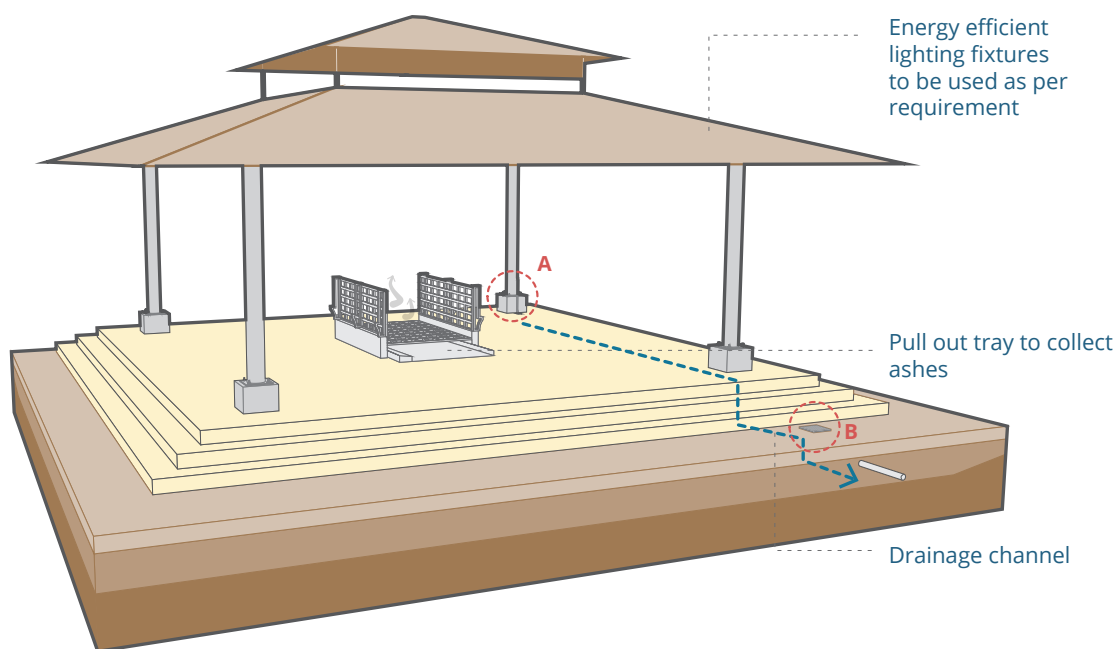
Function	Spatial requirements
Funeral shed	Shed
	Funeral pyre
	Seatings



Dimensions are in mm unless otherwise specified

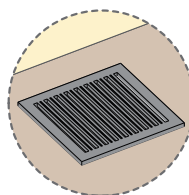
Figure 19. Funeral shed plan and elevation

3.8.2. Services and Utilities



Detail at A

Bib tap for direct water supply to the funeral shed for cleaning



Detail at B

Ground trap near the preparation shed to direct water towards filtration system

Figure 21. Funeral shed service and utilities

3.8.3. Sustainable material palette

Zone	Element	Material	Dimensions (LxWxH)	Thermal Resistance
Funeral Shed	Roof	MS hollow pipe section	50 x 50 x 3mm	
		MS hollow pipe section	75 x 75 x 4mm	
		MS truss box	100 x 50mm	
		Mangalore tile	300 x 200 x 20mm	
	Column	MS hollow pipe section	100 x 100 x 4mm	
	Pyre	Cast iron	2000 x 1000 x 1000mm	
		Stainless steel		
		Mild steel		
		Wood	NA	
	Flooring	Granite		
		Kota stone	"LW- 305 x 305, 305 x 610, 610 x 458, 610 x 610, 610 x 762, 610 x 915mm H- 20-25mm"	
		Vitrified tiles		

Porosity	Anti-skid	Ease of cleaning	Aesthetics
NA	NA		NA
24%		NA	Visually pleasing with warm and earthy colour against green landscape
NA			NA
			NA
			NA
0.4-1.5%			
Low			Muted colour contributes to serene ambiance. Can be used in different finishes, such as honed finish for skid resistance but still easy to clean
Low			Lends a modern look

Table 11. Sustainable material palette for funeral shed

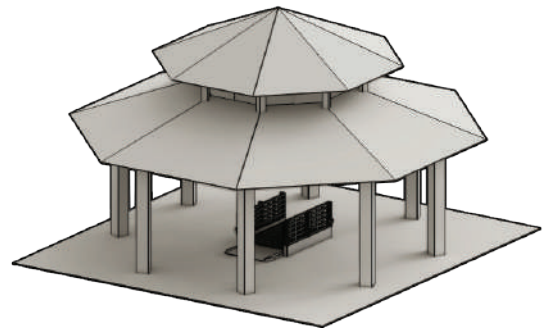
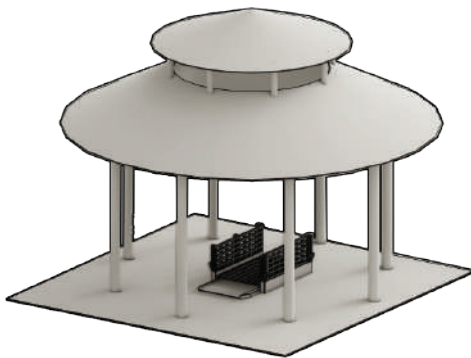
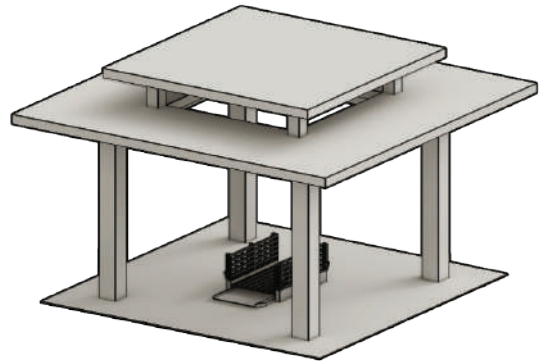
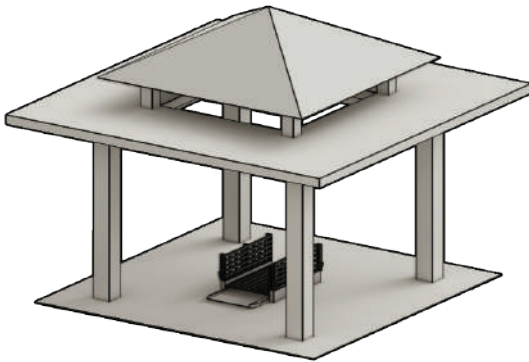
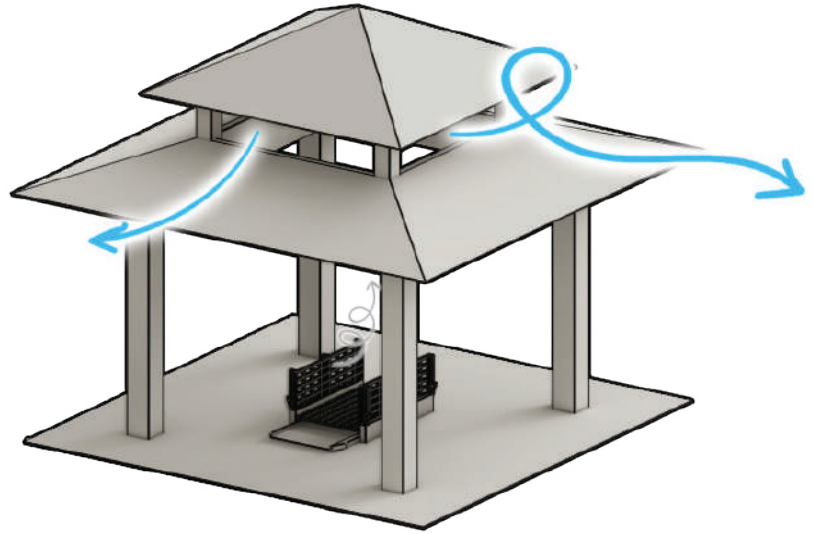


Figure 22. Isometric views of types of funeral shed

FUNERAL PYRE

A typical funeral pyre can range in size from approximately 2 to 4 meters in length and 1 to 2 meters in width. These dimensions can vary depending on factors such as the quantity of wood, combustible materials used or the availability. This design has been adapted from the NMCG Model Crematoria Designs.

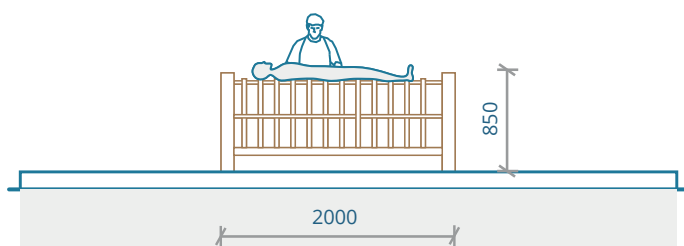
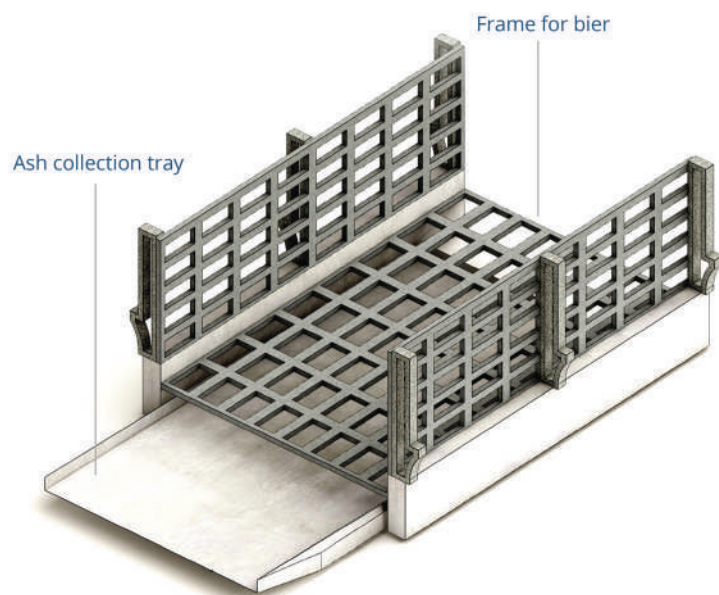


Figure 23. Funeral pyre (Above: Isometric view, Below: Elevation)

Dimensions are in mm unless otherwise specified

3.9. Waiting Area

3.9.1. Spatial requirements



The waiting area should preferably be situated in the middle of the site, with an area of approximately 75-100 sqm, suitable for a neighbourhood level crematorium. The area will allow for sufficient seating arrangements, circulation space, and a comfortable environment for individuals waiting for their turn or gathering before and after cremation ceremonies.

Some key considerations for designing a waiting area in a crematorium:

Functionality: The waiting area should provide sufficient space for families to gather, as well as accommodate wheelchairs, strollers, and other mobility aids. The area should also have comfortable seating, such as chairs or couches, and access to restrooms and refreshments.

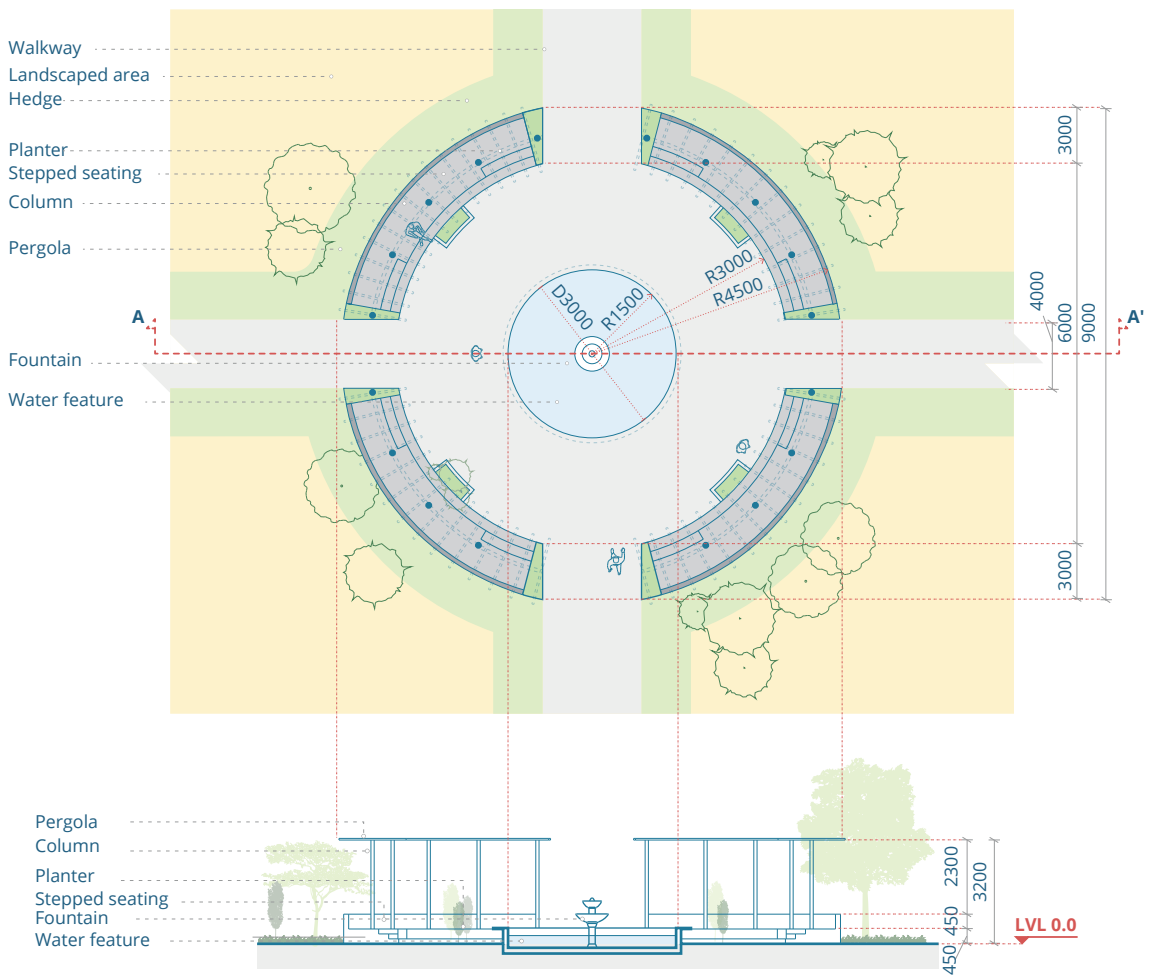
Comfort: The waiting area should be designed to create a peaceful and calming atmosphere, with soft lighting, neutral colors, and natural materials. Features such as plants, artwork, or water features can help to create a relaxing and restful environment.

Privacy: The waiting area should provide a degree of privacy for families, with separate areas for private reflection or contemplation, as well as quiet spaces for family members to speak privately.

Staff access: The waiting area should be designed to allow staff to access the cremation area discreetly and efficiently, without disturbing families.

Natural elements: Incorporating natural elements into the design, such as natural light, plants, and materials like wood or stone, can help to create a welcoming and comforting atmosphere.

Function	Spatial requirements
Waiting area	Gazebo
	Pergolas
	Seatings



Dimensions are in mm unless otherwise specified

Figure 24. Waiting Area

3.9.2. Sustainable material palette

ZONE	ELEMENT	MATERIAL	DIMENSIONS (LXWXH)	THERMAL RESISTANCE
WAITING AREA	Roof	Wooden pallets	As available	NA
		Recycled tires		
		Wooden pallets		
		Bamboo		
	Column	RCC		
	Pyre	Random rubble		
		Plastic lumber		



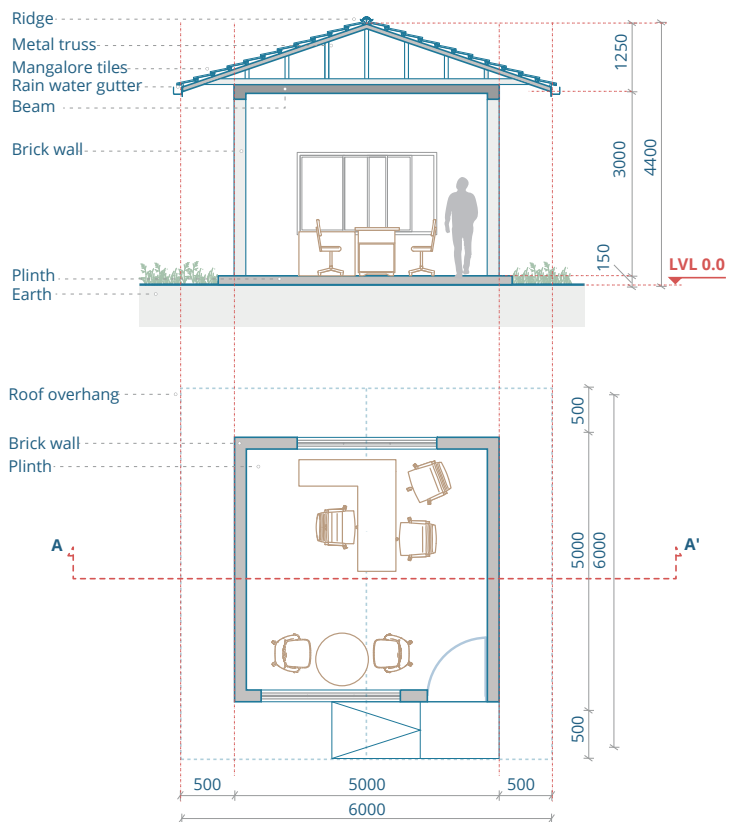
Porosity	Anti-skid	Ease of cleaning	Aesthetics
	NA	NA	Relationship of open spaces with nature to provide areas for gathering, counsel and contemplation. Local/ regional connect to the space with bamboo elements
NA			
12%			

Table 12. Sustainable material palette for waiting area

3.10.1. Spatial requirements



<i>Function</i>	<i>Spatial requirements</i>
Administrative area	Furniture



Dimensions are in mm unless otherwise specified

Figure 25. Administration Office plan and section

3.10.2. Services and utilities

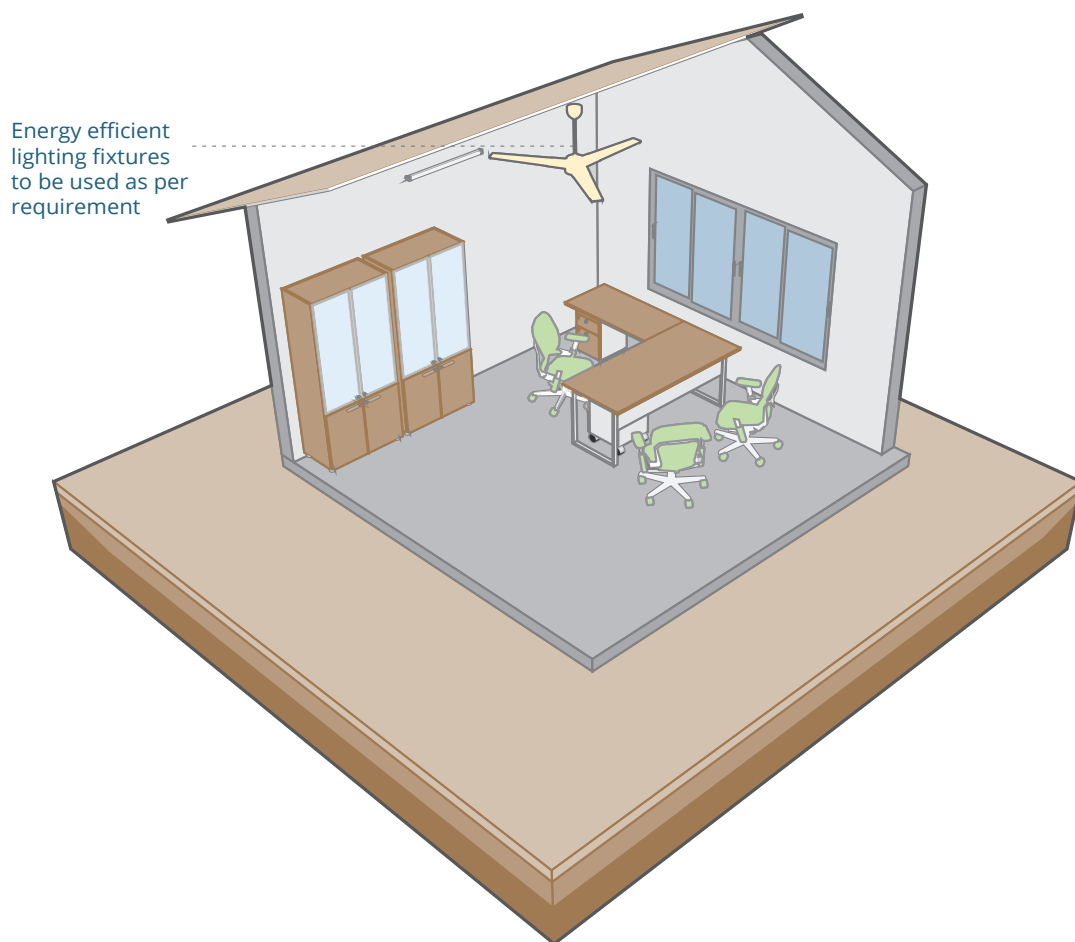


Figure 26. Administration Office electrical layout

3.10.3. Sustainable material palette

Zone	Element	Material	Dimensions (LxWxH)	Thermal Resistance
Restrooms, Administration Office, Staff Quarters	Roof	MS hollow pipe section	50 x 50 x 3mm	NA
		Mangalore tile	300 x 200 x 20mm	
		Brick	200 x 100 x 100mm	
		Vitrified tiles		
	Flooring	Granite		
		Kota stone	"LW- 305 x 305, 305 x 610, 610 x 458, 610 x 610, 610 x 762, 610 x 915mm H- 20-25mm"	
		Vitrified tiles		

POROSITY	ANTI-SKID	EASE OF CLEANING	AESTHETICS
NA	NA	NA	NA
24%			
19-25%			
Low			
0.4-1.5%			
Low			
Low			

Table 13. Sustainable material palette for administration office and staff quarters

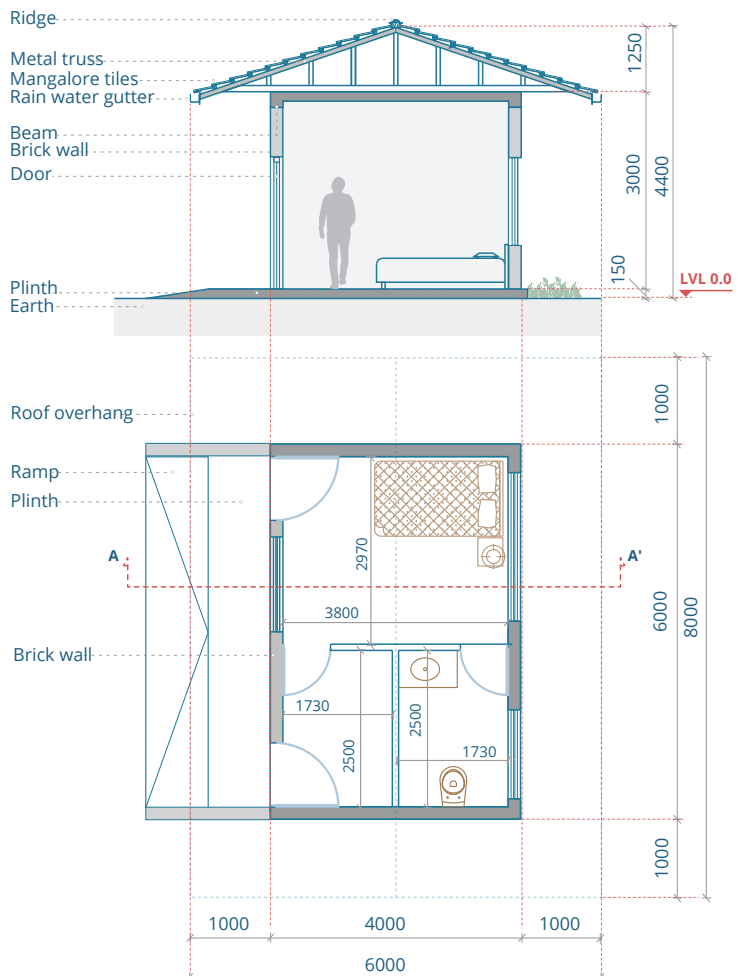
3.11. Staff Quarters

3.11.1. Spatial requirements



Staff quarters ensure a dedicated area to support the well-being and efficiency of the staff, contributing to the overall smooth functioning of the crematorium. The quarters should have a **minimum 25-30 sqm** area to allow for a comfortable living space that includes a bedroom, toilet facility, and storage for necessary tools and personal belongings.

Function	Spatial requirements
Staff quarter	Bedroom
	Toilet



Dimensions are in mm unless otherwise specified

Figure 27. Staff quarters plan and section

3.11.2. Services and utilities

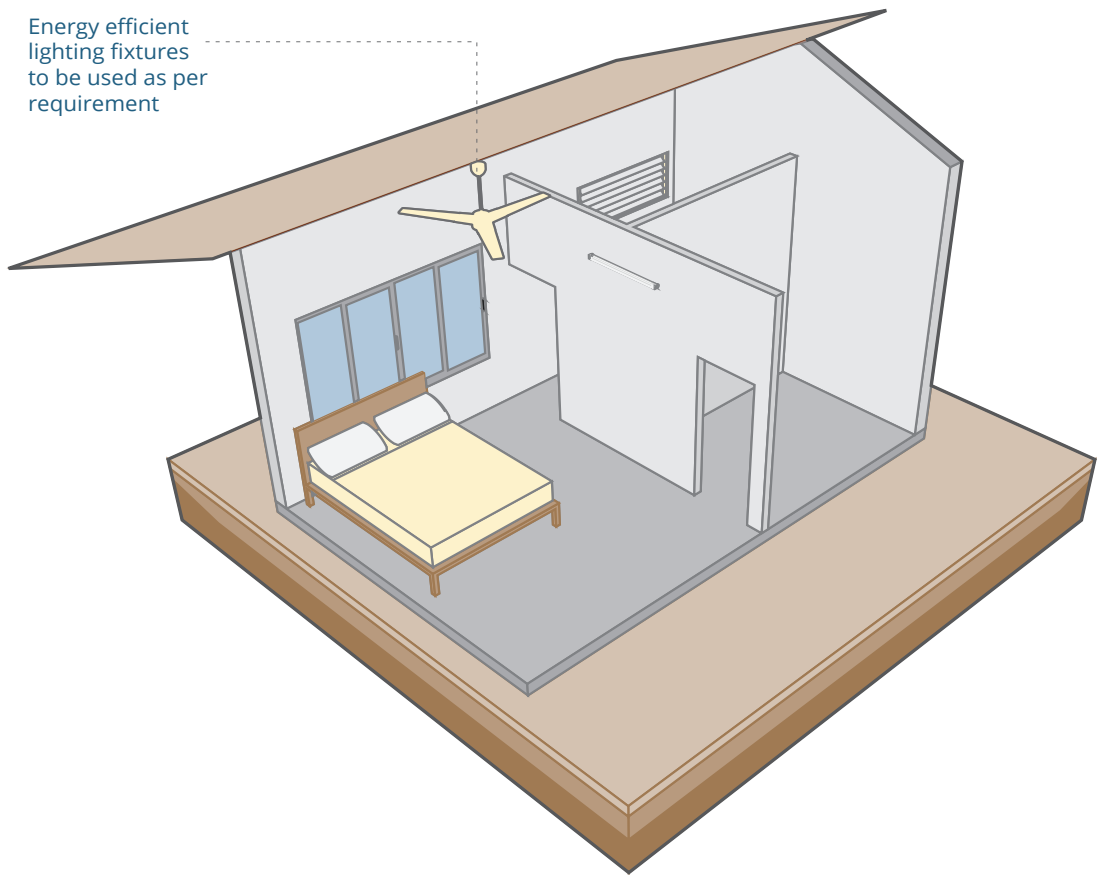
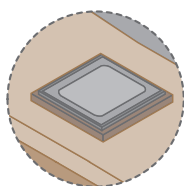
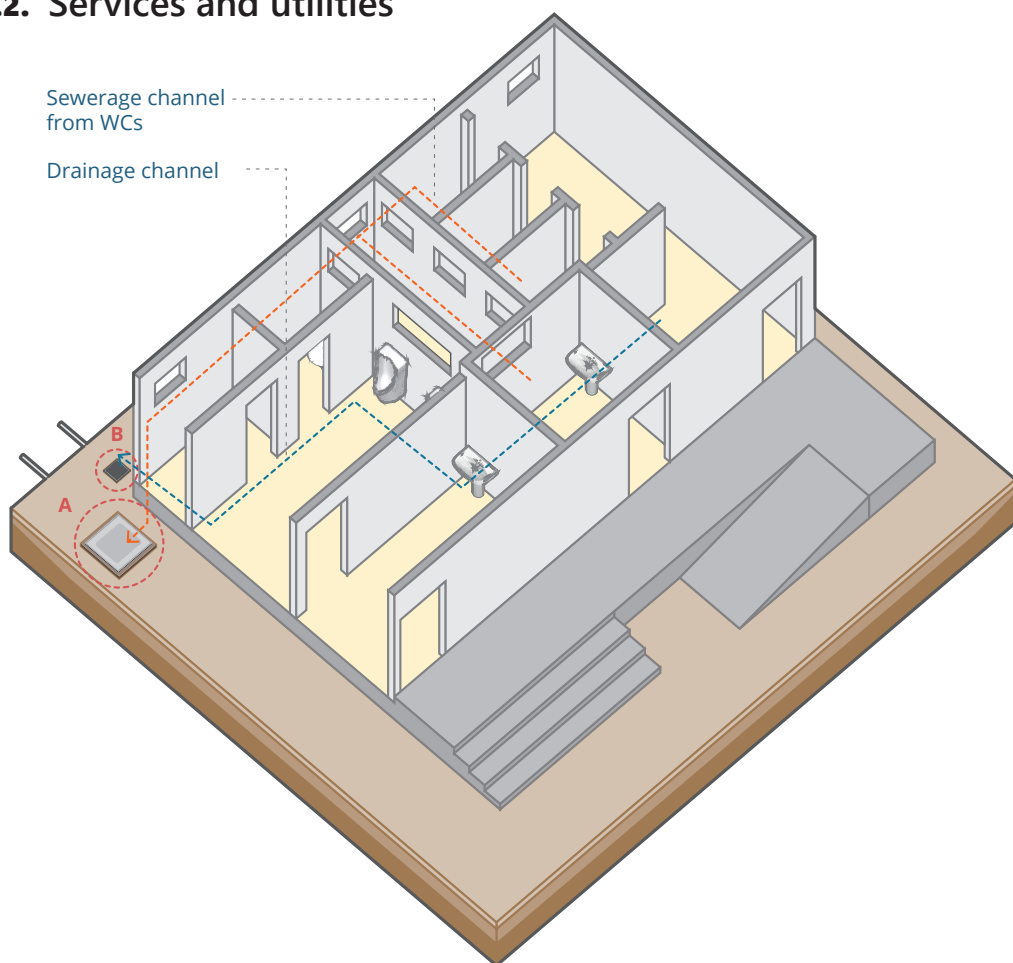


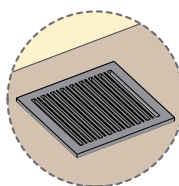
Figure 28. Staff quarters: electrical fixture layout

3.12.2. Services and utilities



Detail at A

Inspection chamber for the toilet block



Detail at B

Ground trap near the preparation shed to direct water towards filtration system

Figure 30. Restroom: drainage plan

3.13. Memorial planting garden

3.13.1. Spatial requirements

<i>Function</i>	<i>Spatial requirements</i>
Memorial garden	Gazebo Seating

A memorial garden can act as a tangible tribute to the departed by their families by dedicating a plant to their memory or sowing a plant with their ashes. Located towards the end of the site to provide privacy to those visiting, the garden may include gazebos and seating to create a comfortable environment.

The indigenous variety of plants from Odisha may be used to landscape the garden and keep for the purpose of memorial planting. This landscape palette is also inclusive of trees and other plants that may be used across the site for the crematorium to landscape it. A short excerpt of this palette can be referred to in *Table 15 on page 101*. The landscape palette with other details can be referred to in the Annexure.

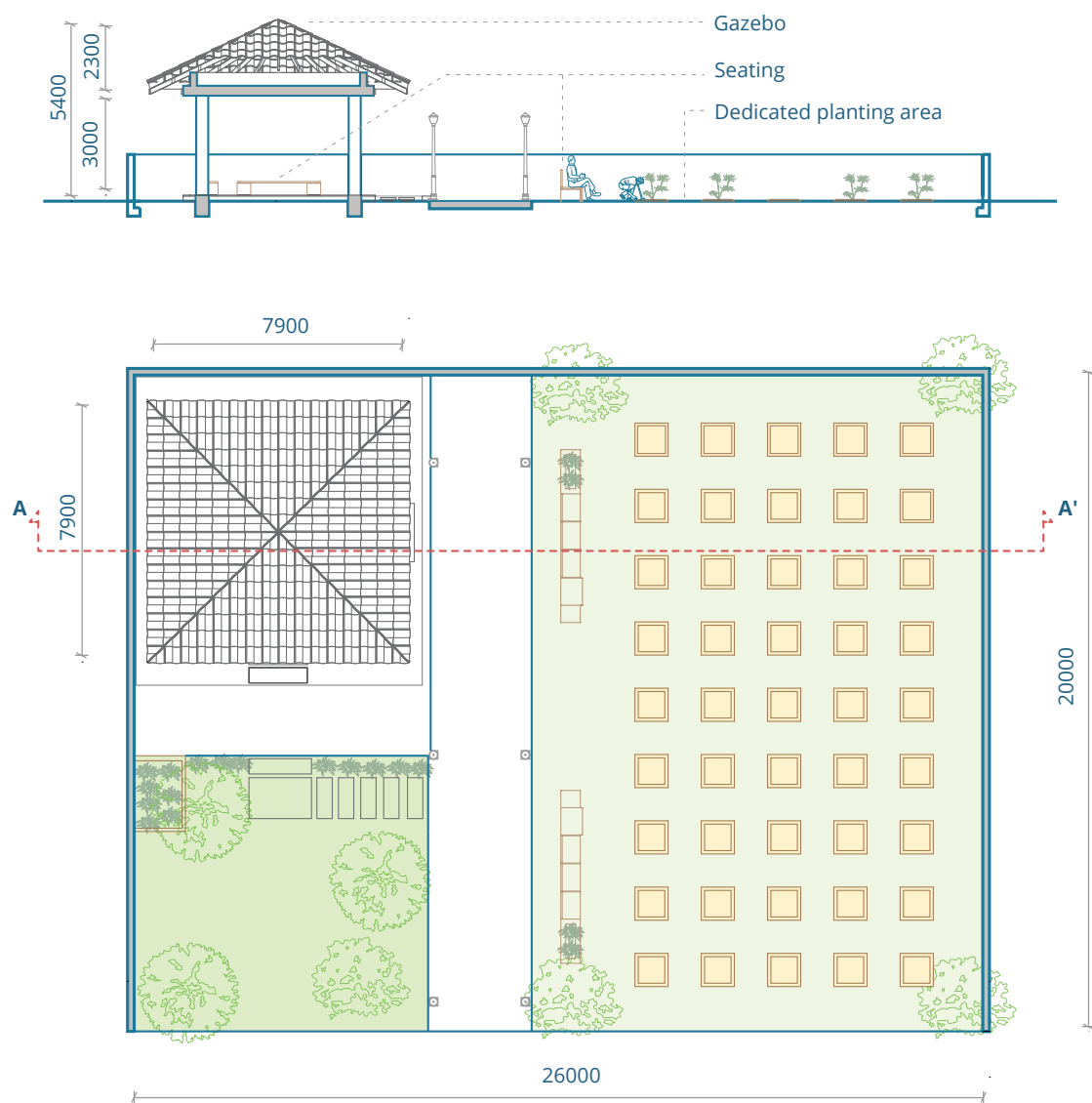


Figure 31. Memorial planting garden

Dimensions are in mm unless otherwise specified



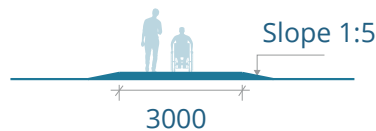
An illustration of a person with dark hair, wearing an orange shirt, sitting on a white bench. They are positioned under a grey canopy structure with several dark grey support poles. The background features a variety of stylized trees in shades of green and yellow, set against a light blue sky with a few white clouds. The overall style is flat and modern.

4. Additional details

4.1. Universal Accessibility

4.1.1. Ramps

- » Ramps at entry exit table tops must have a 1:5 slope, a minimum 1:12 slope for pathways, with $\geq 1.2\text{m}$ clear width.
- » A protective handrail at least 0.40 m high must be placed along the full length of ramps.



Ramp for pathways 1:12 ratio

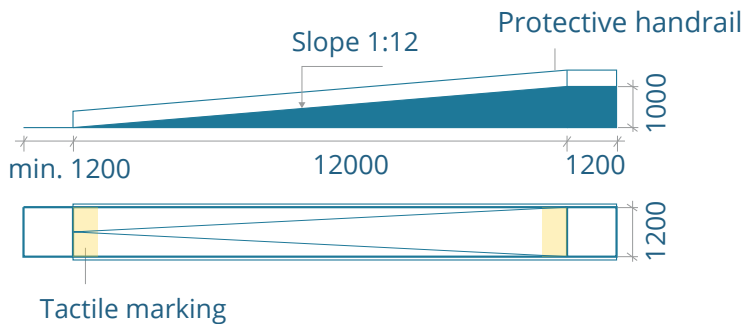


Figure 32. Universally accessible ramps

4.1.2. Access

The minimum range of dimensions for pedestrian pathway should be 1.8-2.5m. The kerb edge may be a maximum of 150mm in height. The edges of the pathway should be beveled wherever changes in level between 6 mm and 13 mm exist between the pathway and the surrounding area.

Guide strips should be laid in a simple and logical manner.

A tactile guiding area, preferably of rubber tiles (2) with minimum dimensions of 0.90 m x 0.90 m, should be constructed in a guide strip at cross pathways where the route branches off.

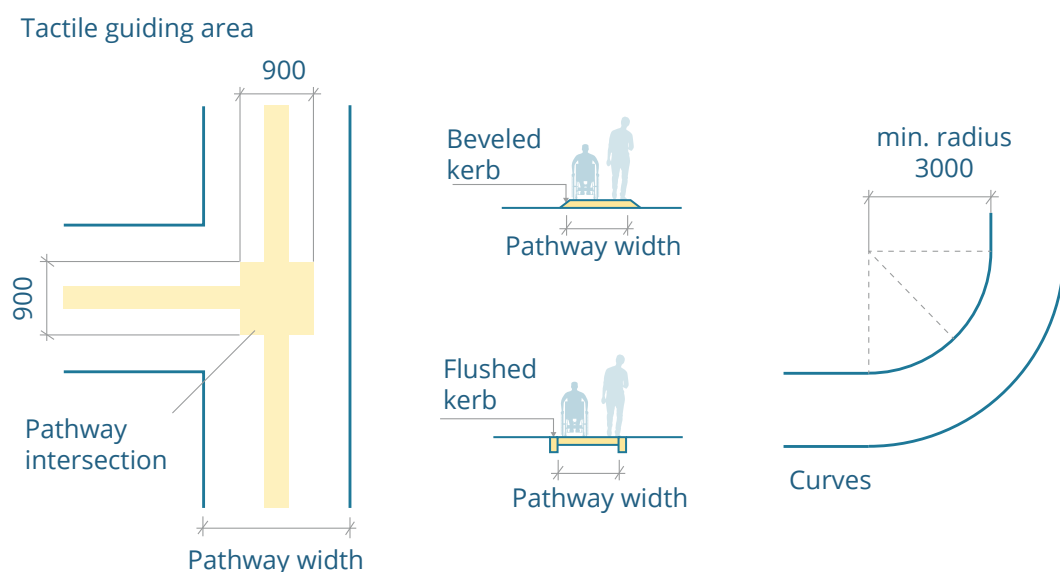


Figure 33. Universally accessible pathway details

4.1.3. Parking

Parking areas shall be broken into sections not to exceed fifty (50) cars per section.

- » Locate differently-abled access parking near the primary circulation route. Reserved parking shall be provided within maximum distance of 30 m from the building entrances.

- » Provide a minimum of 10% reserved parking facilities for differently-abled access with minimum dimensions of 5000 mm × 3600 mm, which is inclusive of 1200 mm wide side transfer zone.
- » A parking space must have a minimum width of 2.7m-2.8m for ambulant differently-abled and minimum 3.0m, preferably 3.3m, for wheel chair users allowing adequate space on one side.

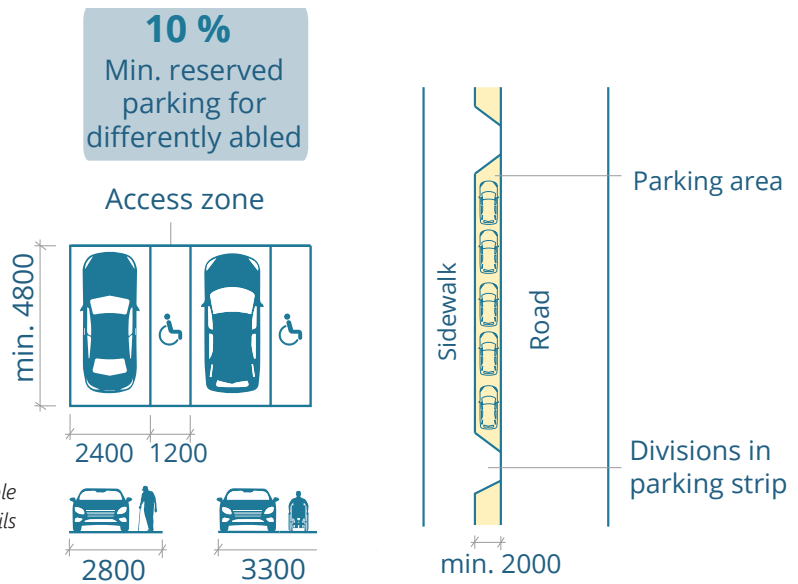


Figure 34. Universally accessible parking details

4.1.4. Utilities - Toilets

Depending on the footfall, one accessible toilet in both male and female toilet groups or one unisex/gender neutral accessible toilet room with independent entrance shall be provided in the restroom block.

The minimum dimensions must be 2200 mm x 2000 mm; with maneuvering space of 1500 mm dia. for wheelchairs, baby strollers, rollers, etc.

The toilet must have hinged doors with two way opening and a lever type of door handle for ease of use.

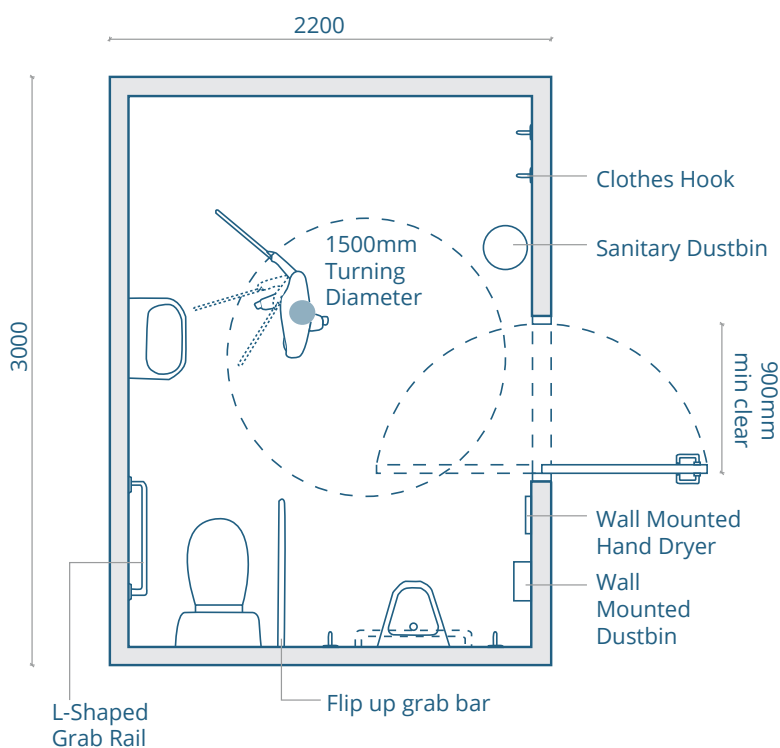


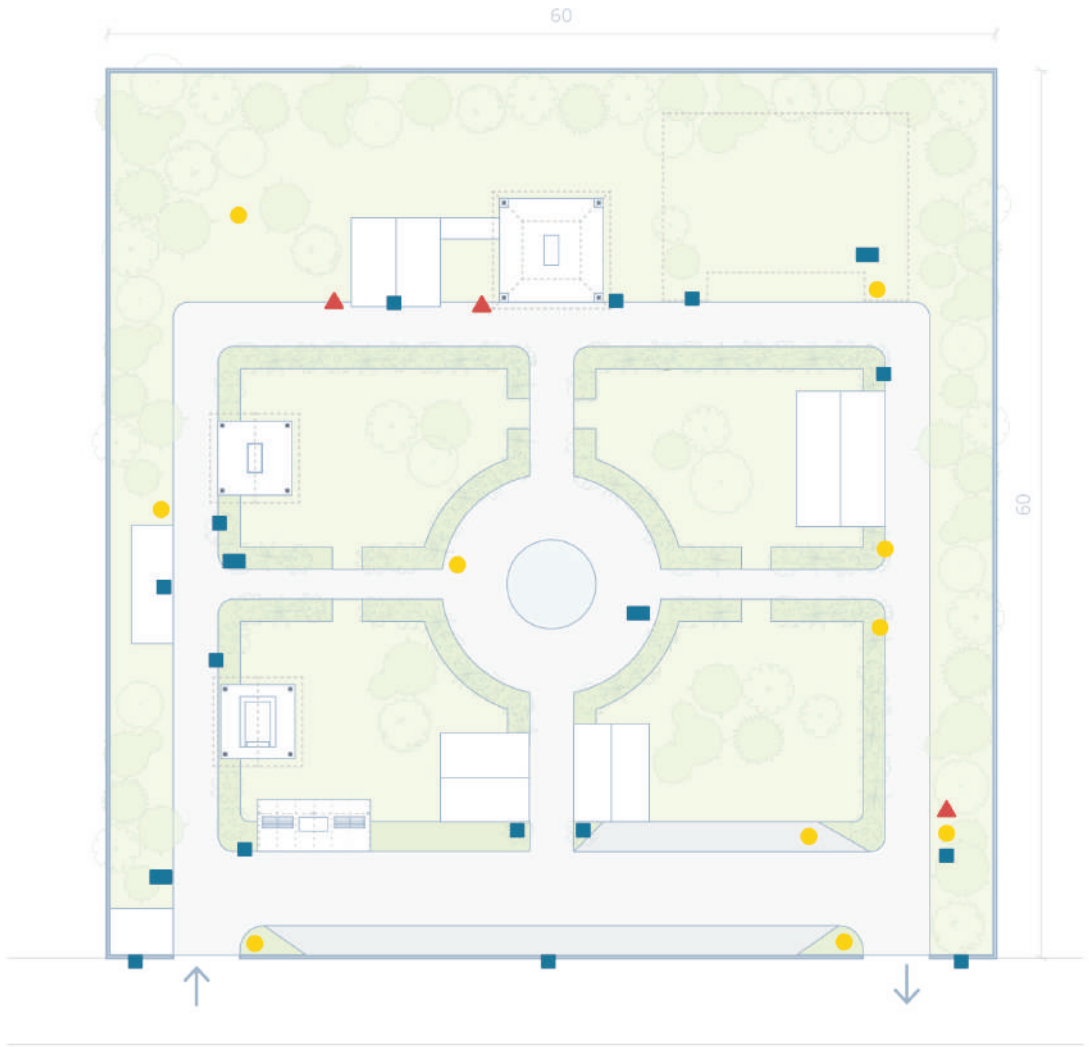
Figure 35. Accessible toilet

4.2. Signage

Signages and wayfinding elements are integral in increasing ease of access in public spaces. These are crucial to enhance user experience while navigating the crematorium, connect people to their surroundings and help them navigate safely.

Different types of signage will indicate the different spaces within a crematorium and must follow certain criteria, such as:

- **Mandatory/ Order signs** provide users information on activities and movement. These must be visible from a minimum of 100m away.
- **Advisory and safety signs** will help locate a hazard and cause awareness. These should be located at both high and low levels, i.e. at 1600-1700mm and at 1000- 1100mm to allow convenient close viewing by wheelchair users.
- **Information signs** will help orient users within the site. These have a white background with black symbols or text.
- **Identification signs** will help users identify the various spaces and their functions. These have a white background with black symbols or text.



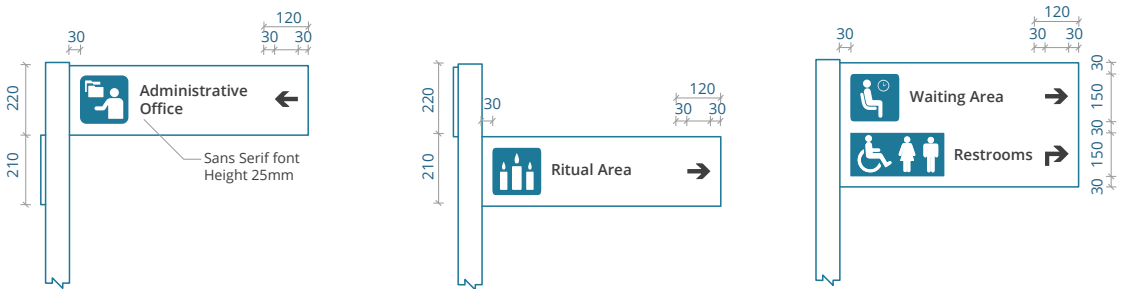
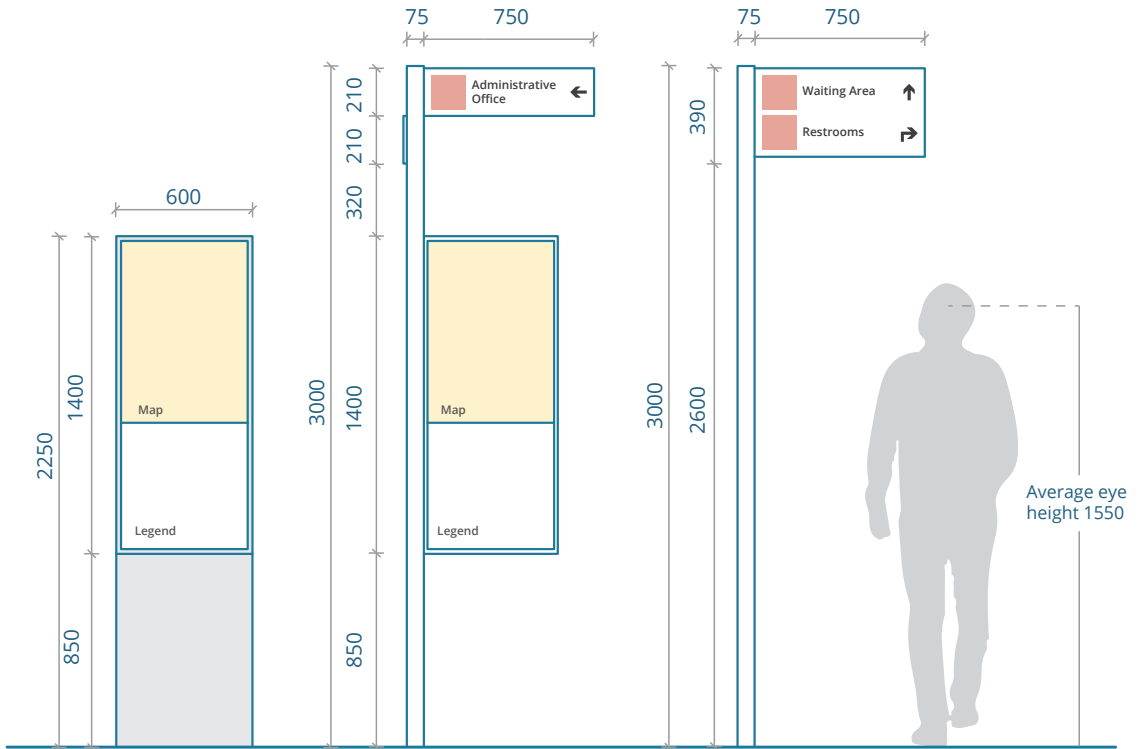
-  Order signage
-  Advisory/ Caution signage
-  Information signage
-  Identity signage

Figure 36. Types of signage

4.2.1. Accessibility considerations for signages

For ease of navigation and user safety, the signages should cater to universal accessibility design considerations, as enumerated –

- » Unusual or decorative fonts like extra bold, italic, etc must be avoided.
- » A mixture of upper and lower case letters should be used. BLOCK CAPITALS must also be avoided.
- » There should be good contrast between the signboard and any mounting or background surface; Signs should have a matte or satin finish.
- » Signs should be evenly illuminated, with a lighting level of 200 lux.
- » Embossed letters should be raised above the surface of the sign by 1 - 1.5mm, and have a stroke width of 1.5 – 2mm. Embossed letters should be between 16mm and 50mm in height.
- » Where braille is provided, it should be positioned below the related text.



Dimensions are in mm unless otherwise specified

Figure 37. Design details for signages

4.3. Utility Planning

4.3.1. Solid Waste Management

To mitigate the risk of contamination, a crematorium should have an enclosed waste collection area within the premises. This enclosed structure acts as a containment system, preventing the escape of any waste material, airborne particles, or harmful contaminants that might be generated during the cremation process. This reduces the risk of cross-contamination with the surrounding environment and minimizes the potential for adverse health effects.

In a crematorium, mainly three types of waste will be generated, namely:

- **Infected waste** - Human anatomical waste, pathological waste, soiled waste, medical chemical waste, clinical lab waste, pharmaceutical waste, etc.
- **Infected plastic waste** - Infected plastics wastes generated from disposable items other than the waste sharps such as tubing, catheters, intravenous sets, plastic syringes, etc.
- **Non-infected waste** - Chemical waste, food, paper, dry leaves, flowers, etc.

Waste materials must be systematically separated and segregated within the enclosed structure, following established protocols and guidelines. This ensures that different types of waste, such as ashes, dental amalgam, or medical implants, are appropriately handled, stored, and disposed of in accordance with regulatory requirements.

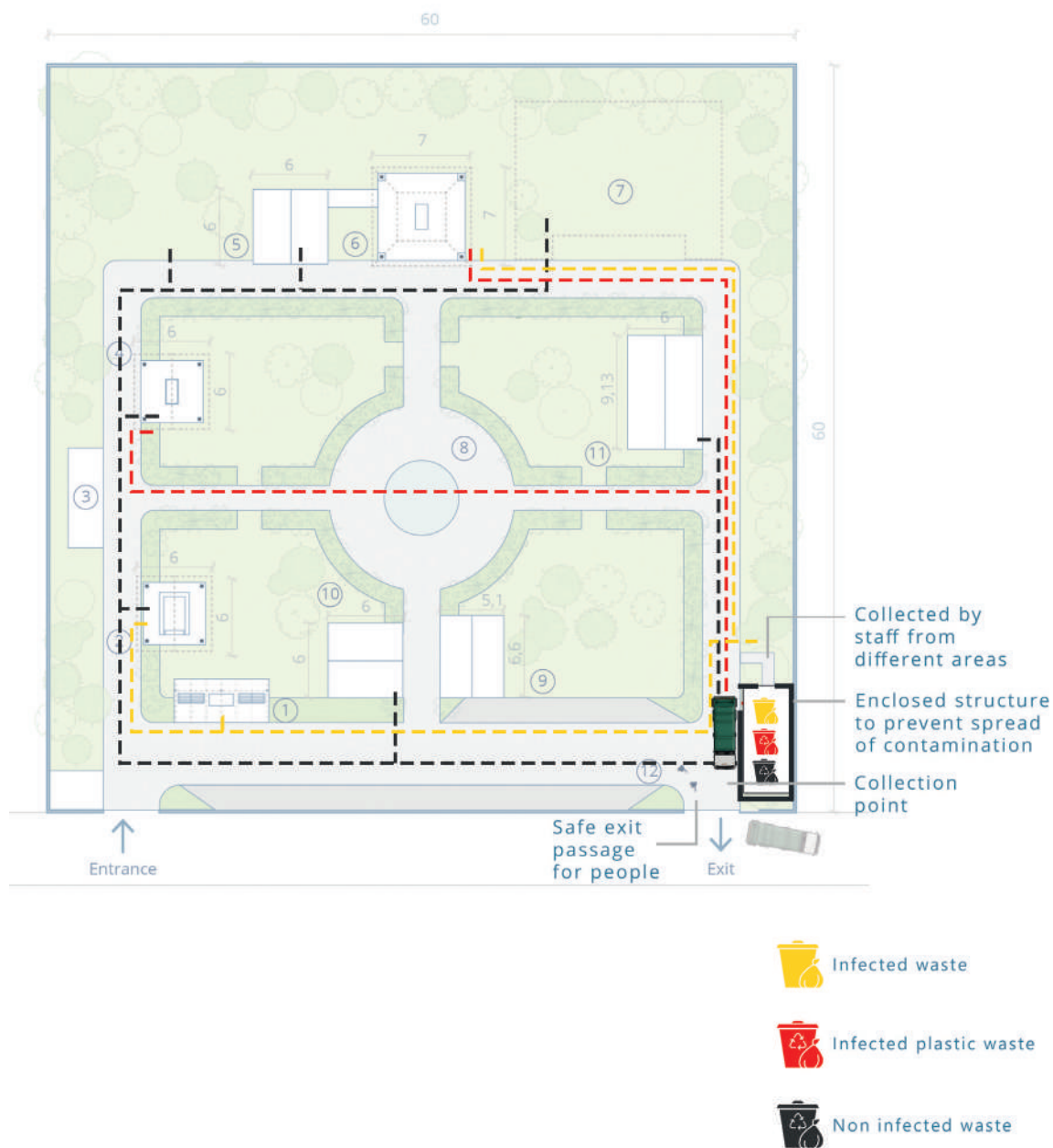


Figure 38. Solid waste management plan

4.3.2. Waste Water Management

Water, an essential part of cremation rituals, will also be required across the site for cleaning and landscaping purposes. Due to the nature of functions being performed across the crematorium, liquid waste from areas such as body washing shed, ritual shed, and funeral shed may be of potentially hazardous nature. As part of these guidelines, the wastewater is recommended to be treated to comply with effluent standards prescribed for healthcare facilities under BMW Rules, 2016.

To mitigate the spread of hazardous liquid waste and treat the same before it is released into the city sewer line, a DEWATS is recommended on site. The effluent is treated at three levels, as enumerated below:

- **Preliminary:** Physical separation of big sized impurities like cloth, plastics, wood logs, paper, etc.
- **Primary:** Removal of floating and settleable materials such as suspended solids and organic matter.
- **Secondary:** To remove, or reduce the concentration of organic and inorganic compounds
- **Tertiary:** Disinfection by removal of remaining inorganic compounds and substances, such as the nitrogen and phosphorus along with bacteria, viruses and parasites to improve wastewater quality before it is reused, recycled or discharged to the environment.

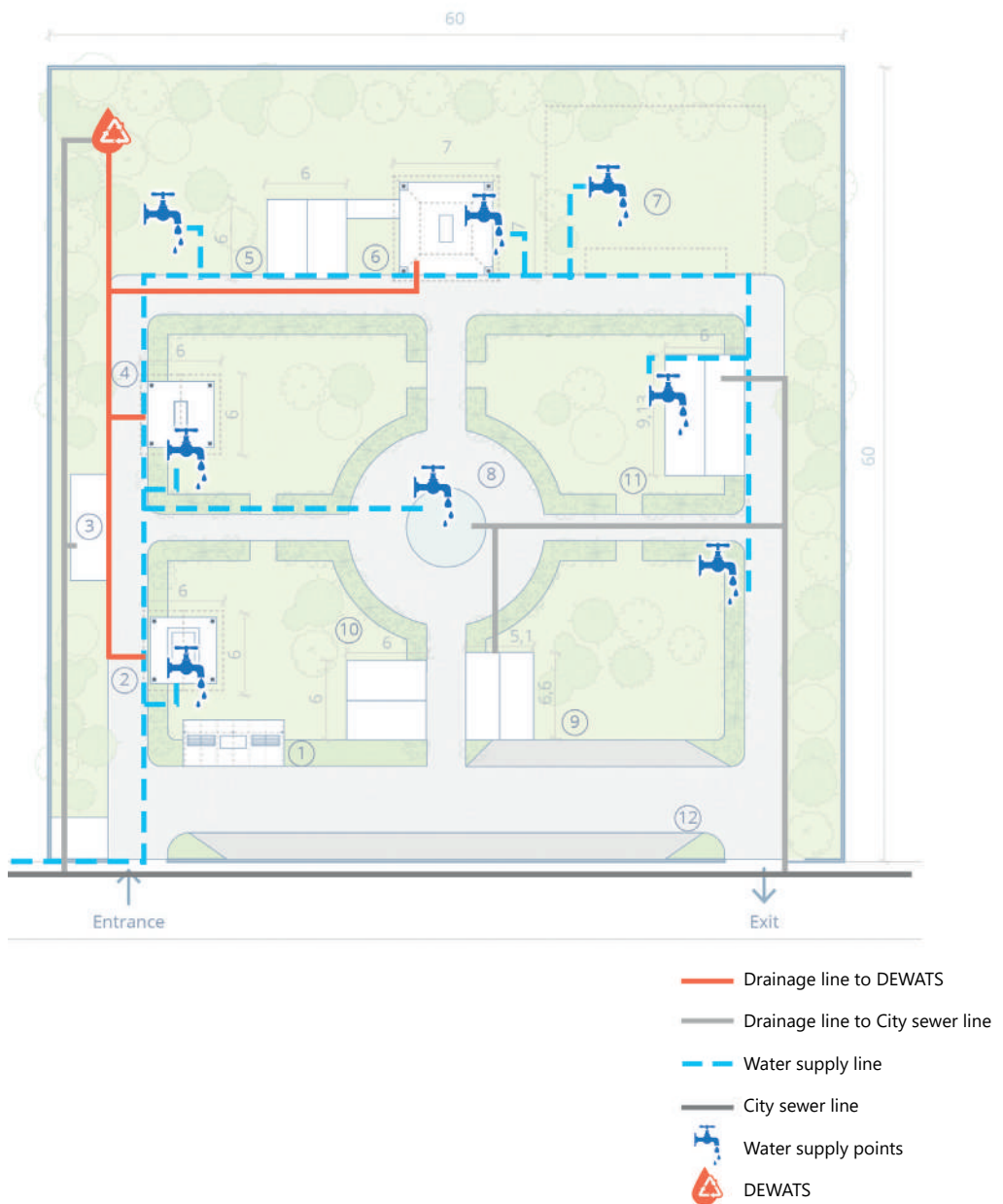


Figure 39. Water supply and disposal plan

4.4. Sustainable Materials

4.4.1. Circulation spaces

Zone	Element	Material	Dimensions (LxWxH)	Thermal Resistance
CIRCULATION AREA	Pathways (traditional material)	GFRC-glass fibre reinforced concrete	The GFRC layer is typically placed in two layers of about 10mm[17]	NA
		Granite paver	900mm x 2400mm.	
		Traditional Interlocking concrete paver block(TBP)	LWH- 200 x 100 x 60mm	
	Pathways (alternate material)	Lime pozzolana concrete blocks	LWH- 300 x 300 x 100mm	
		Permeable interlocking concrete paver(PICP)	200 x 200 x 60mm	
		Adobe bricks	LWH- 280 x 280 x 130mm	
		Clay Mud bricks	LWH- 190 x 90 x 90mm	
		Gravel surfaces alternate with block pavers and permeable concrete(IBPG)	200 x200 x 60mm	
		Porous concrete pavement	152mm thk	
		Grid pavers- HDPE grid ;concrete units with cells that typically contain topsoil and grass)	LWH- 400 x 400 x 80mm	



POROSITY	ANTI-SKID	EASE OF CLEANING	AESTHETICS
NA		NA	Polished and modern appearance
0.4-1.5%			Weathered and timeless appearance
NA			
NA			
14-30%			Visually pleasing with landscape
NA			Warm and earthy colours lend local/ traditional connect
NA			
NA			Non-uniform and rustic appearance
15-30%			
75%			Visually pleasing with landscape

Table 14. Sustainable material palette for circulation spaces

4.5. Landscape Palette



TYPE	COMMON NAME	BOTANICAL NAME
Trees	Khaira	Acacia catechu
	Neem	Azadirachta indica
Trees - Flowering	Gulmohar	Delonix regia
	Chhatiana	Alstonia scholaris
High Shrubs	Champak	Michelia champaca



AVERAGE HEIGHT (M)	SPREAD (M)	SOIL TYPE REQUIREMENT	SUNLIGHT REQUIREMENT	NOTES
8-12				Cyclone resistant
15-25	20	Sandy soil	Direct	Groundwater augmentation, drought tolerant, cyclone resistant
8-15	3.5-5	Sandy loamy soil	Direct	
20-25		Red alluvial soil	Direct	Cyclone resistant
1.2-1.8		Clay and sandy soils	Direct	Cyclone resistant

Table 15. Landscape palette for memorial garden



TYPE	COMMON NAME	BOTANICAL NAME
Low Shrubs	Crape Jasmine	Tabernaemontana divaricata
	Bouvardia	Bouvardia ternifolia
Hedge	Boxwood	Buxus spp.
	Dwarf umbrella tree	Schefflera arboricola
Base grass	Marigold	Tagetes erecta
	Balsam	Impatiens walleriana



AVERAGE HEIGHT (M)	SPREAD (M)	SOIL TYPE REQUIREMENT	SUNLIGHT REQUIREMENT	NOTES
0.6-1.5	1-1.5	All types of soil	Partial, full shade	
0.6-1.2	0.9	Sandy, clay and loam soils	Direct	
0.6-1.5	0.6-2.5	Loamy and sandy soils	Direct, partial	
0.6-2.5		Loamy and sandy soils	Direct, partial	
0.3-0.6		Loamy soil	Direct	
0.3-0.6		Loamy soil	Direct, partial	

4.6. Sample Design

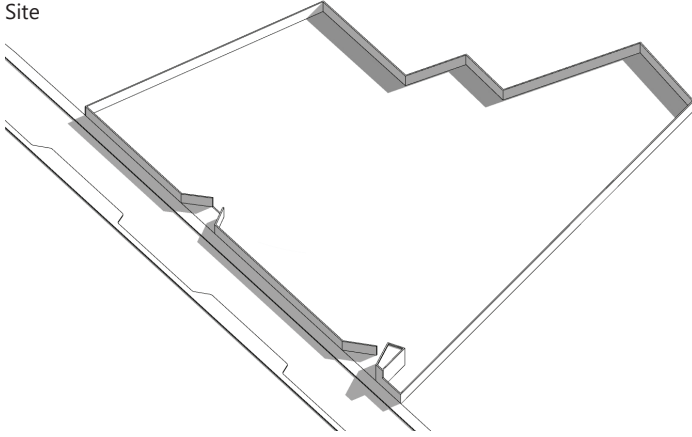
4.6.1. Site

Although the physical body dies, the individual soul has no beginning and no end. After the death of the body, depending on one's karma (i.e., the consequences of one's actions during the lifetime), the soul either may pass to another reincarnation and continues in the cycles of birth. Hence, the circles represents the cycle of life with no beginning and no end.

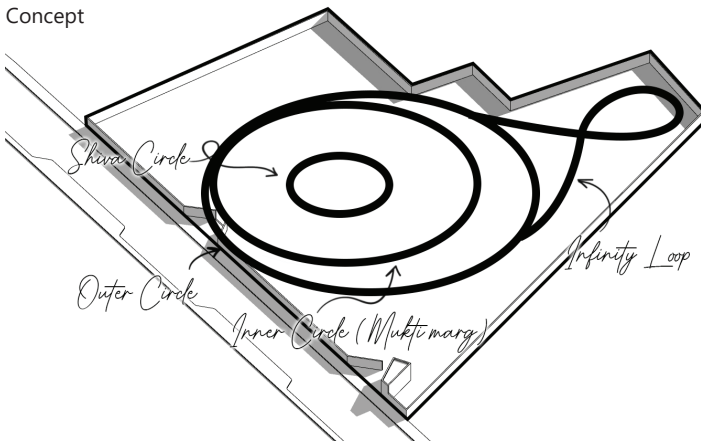




Site



Concept



Final Layout

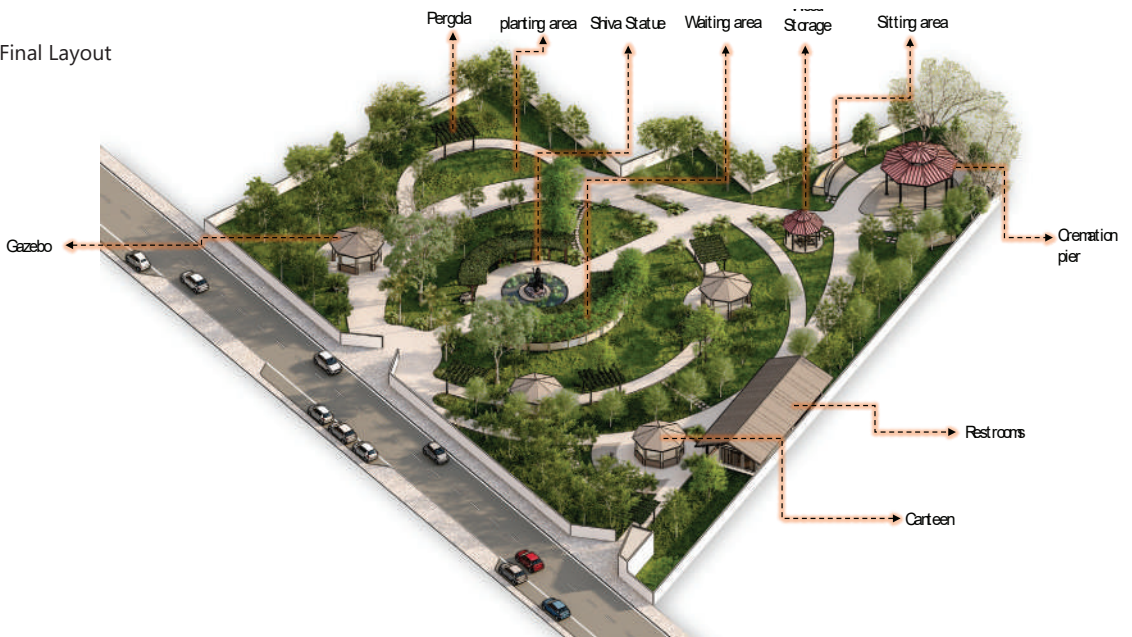
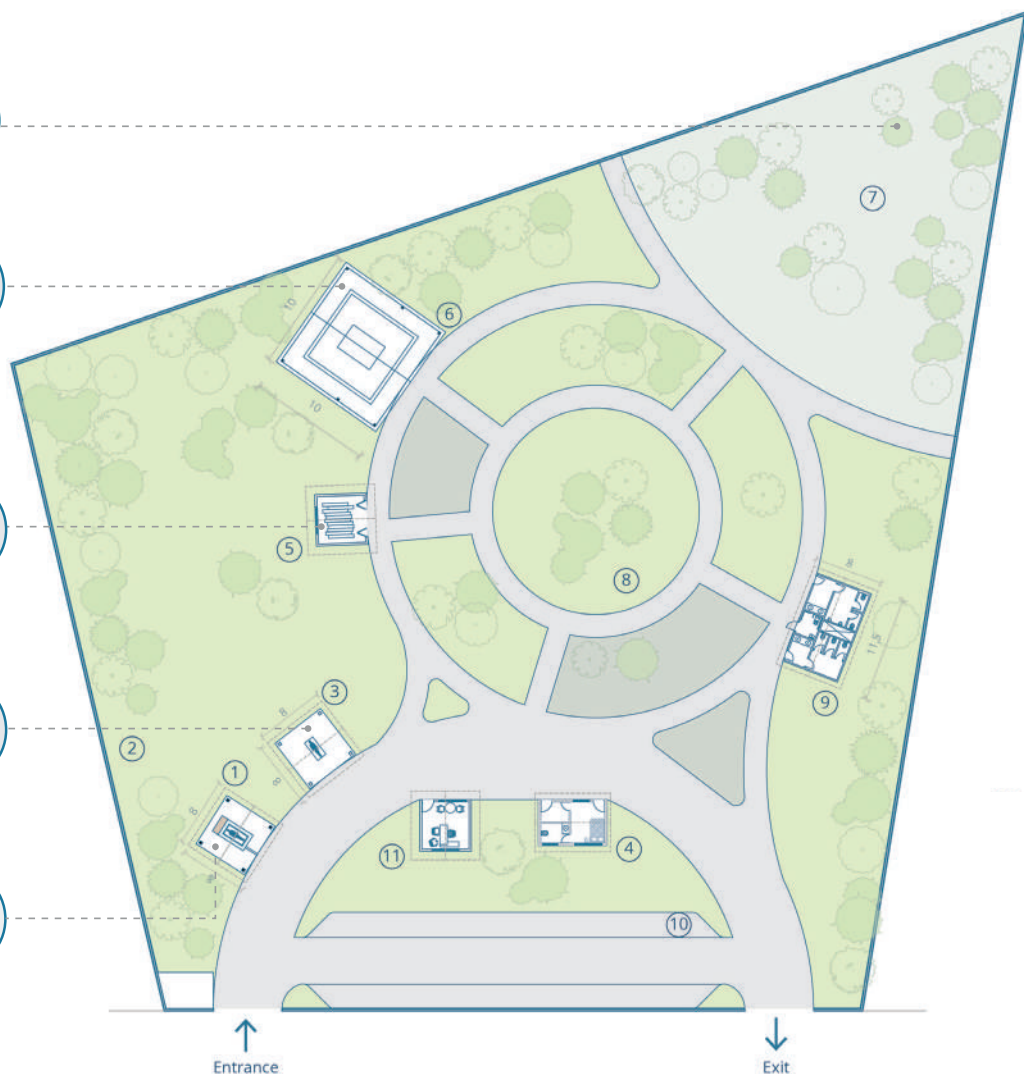
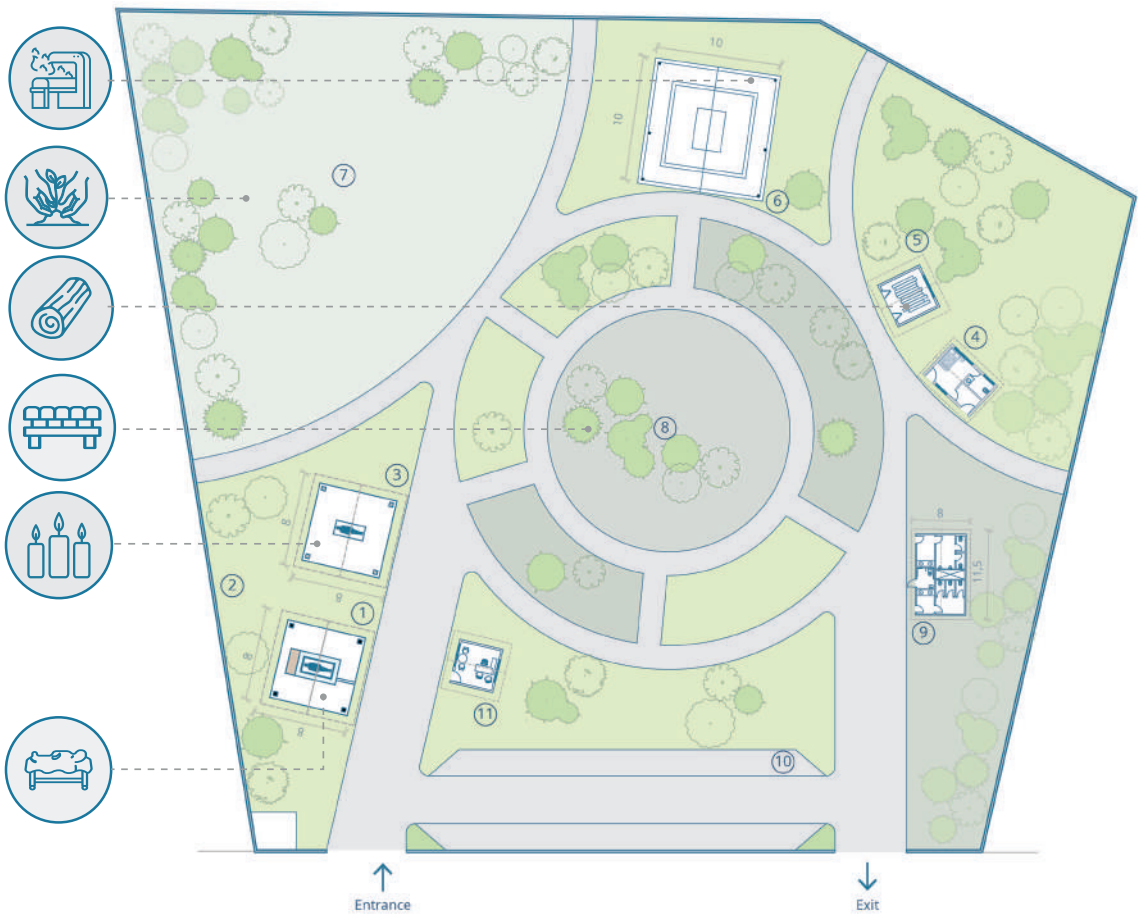


Figure 40. Sample design development



1. Body Preparation Area
2. Handwash Area
3. Ritual Area
4. Caretaker's Room
5. Wood Storage
6. Burying Shed
7. Memorial Planting
8. Waiting Area
9. Restrooms
10. Parking Area
11. Admin Office

Figure 41. Neighborhood level crematorium plan - Option 2



1. Body Preparation Area
2. Handwash Area
3. Ritual Area
4. Caretaker's Room
5. Wood Storage
6. Buring Shed
7. Memorial Planting
8. Waiting Area
9. Restrooms
10. Parking Area
11. Admin Office

Figure 42. Neighborhood level crematorium plan - Option 3

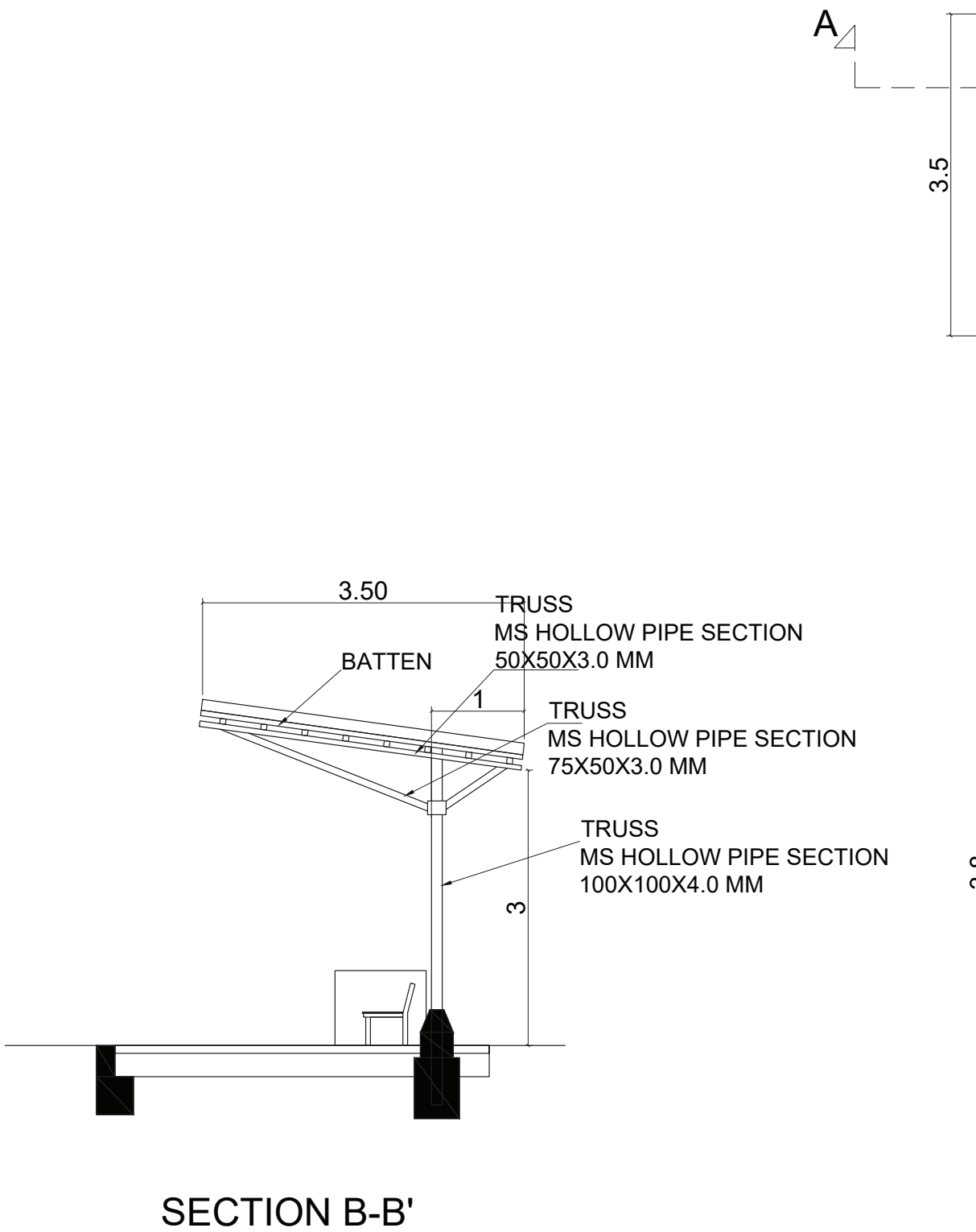


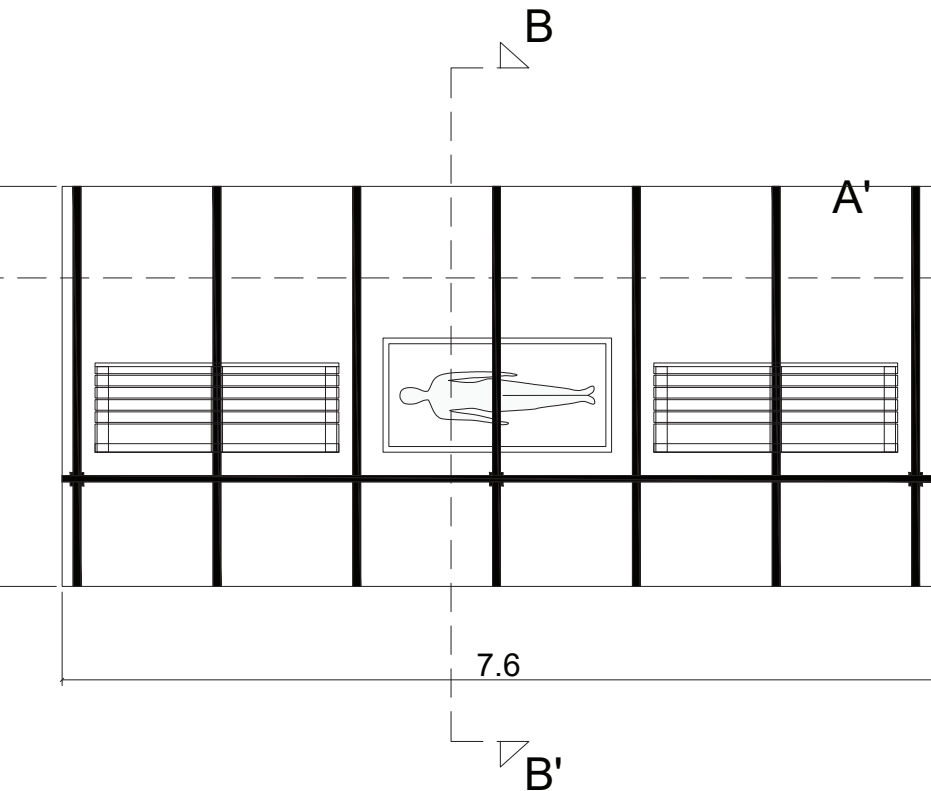
5. Annexure



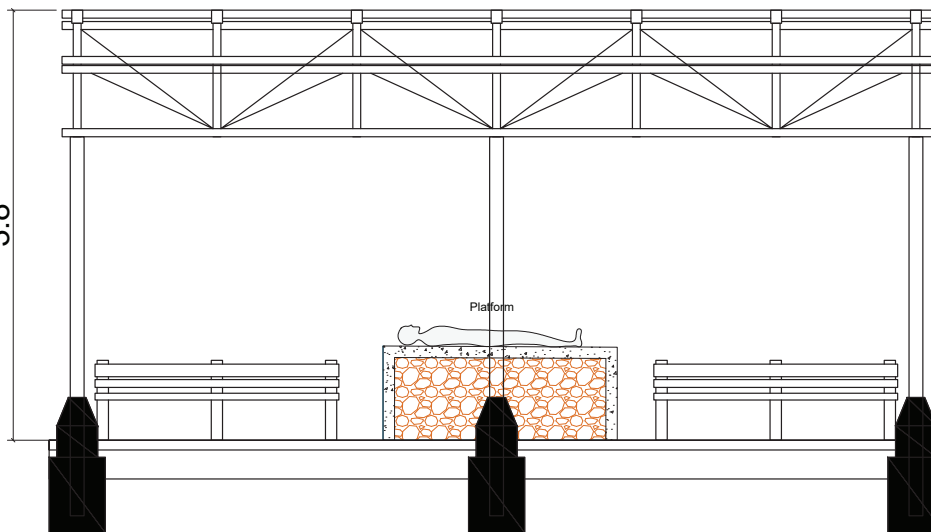
5.1. Working Drawings

5.1.1. Pre-preparation Area





Plan



SECTION A-A'

NOTES
These drawings are the property of JUSP and are not to be replicated, copied or misused. Any discrepancies between drawings and conditions must be immediately brought to the notice of the client.
All dimensions are in Meters unless mentioned otherwise.
Follow written dimensions, do not measure the drawing.

Conditions uncovered on site, may require changes. Contractor to discuss this with PMC and resolve the best possible accordingly

LEGEND

01		WATER CLOSET
02		WASH BASIN / LABSINK
03		FLOOR TRAP / AREA DRAIN
CWS		COLD WATER SUPPLY
WP		WASTE PIPE
SP		SOIL PIPE
BT		BIP TAP
		150X150MM CUT OUT IN SLAB

SYMBOL	LEGEND AND ABBREVIATIONS	DESCRIPTION
	WALL MOUNTED LIGHT FIXTURE	WALL MOUNTED LIGHT FIXTURE
	HANGING FAN POINT	HANGING FAN POINT
	CEILING FAN POINT	CEILING FAN POINT
	CEILING LIGHT POINT	CEILING LIGHT POINT
	AIR CONDITIONER	AIR CONDITIONER
	WATER CLOSET	WATER CLOSET
	WASH BASIN / LABSINK	WASH BASIN / LABSINK
	FLOOR TRAP / AREA DRAIN	FLOOR TRAP / AREA DRAIN
	COLD WATER SUPPLY	COLD WATER SUPPLY
	WASTE PIPE	WASTE PIPE
	SOIL PIPE	SOIL PIPE
	BIP TAP	BIP TAP
	150X150MM CUT OUT IN SLAB	150X150MM CUT OUT IN SLAB

NOTE :
1. THE HEIGHT MENTIONED IS FROM THE FINISHED FLOOR LEVEL TO THE BOTTOM OF THE ROOF.
2. ALL POINTS ARE TO BE TAKEN FROM THE WALL CENTERLINE UNLESS OTHERWISE MENTIONED.

Drawn by	Checked by	Verified by
V.S.		
REVISIONS		
S.No	Rev	Description
		Date

CLIENT :

Project Name:
Dignity - Crematorium Guidelines

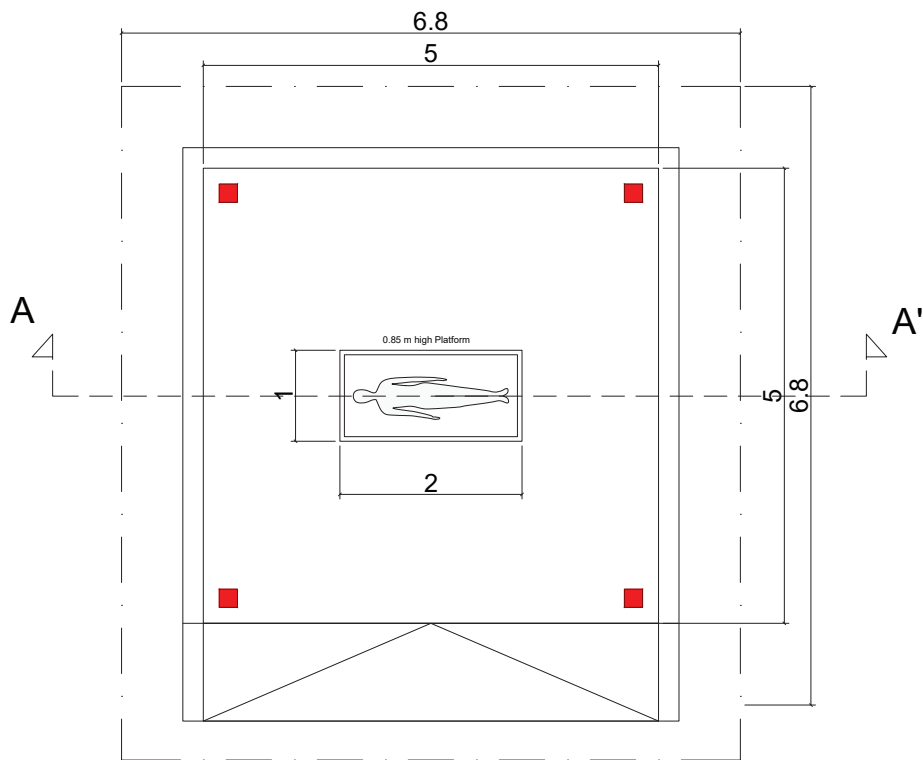
Drawing No :
Waiting area before body washing area

SCALE	DATE
1:1	12-09-2023

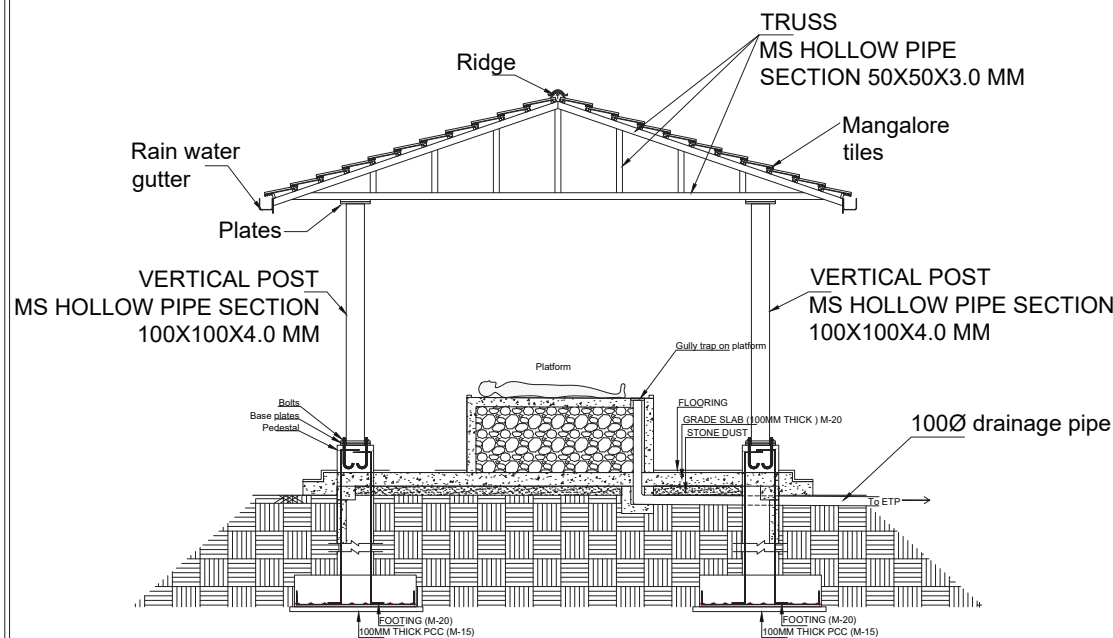
JANA URBAN SPACE FOUNDATION
19/4, "SAIR BAGH" BUILDING,
4TH FLOOR
CUNNINGHAM ROAD,
BANGALORE - 560052
info@janausp.org



5.1.2. Preparation Area



BODY WASHING AREA PLAN

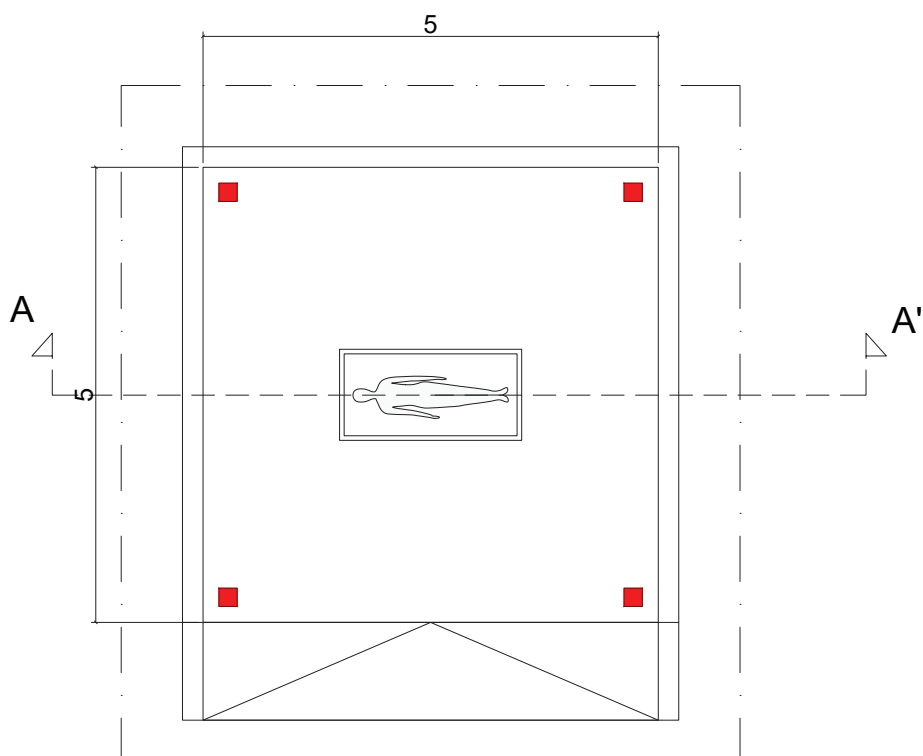


SINGLE P
SWITCH

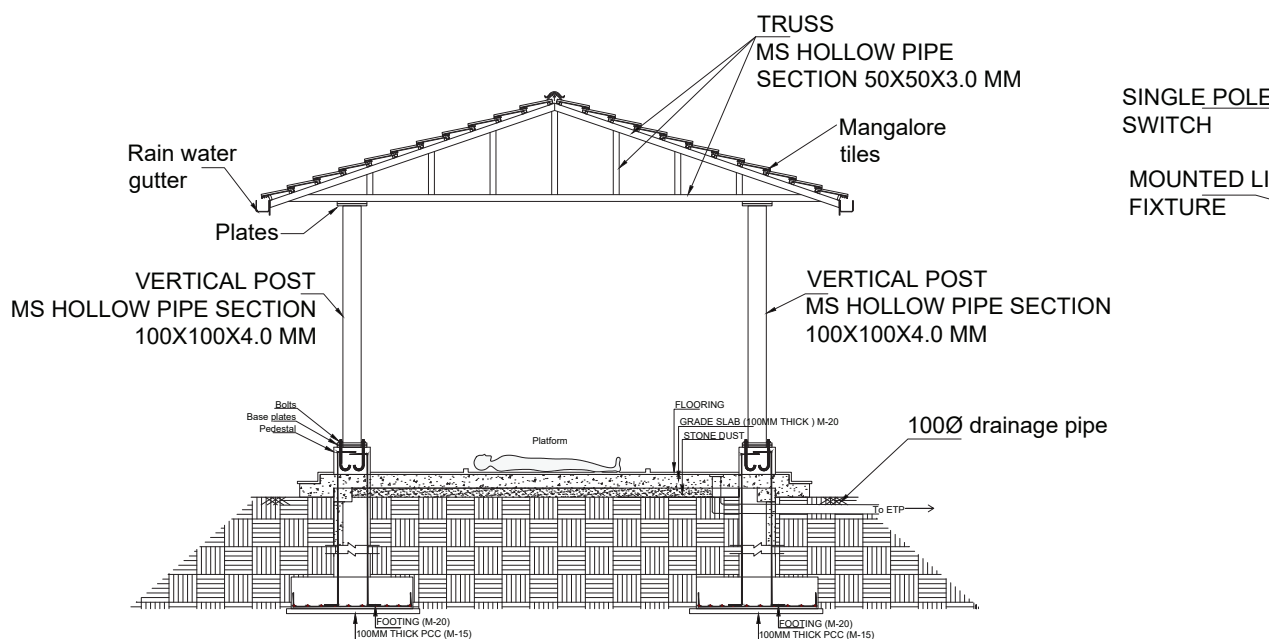
MOUNTED
FIXTURE

SECTION A-A'

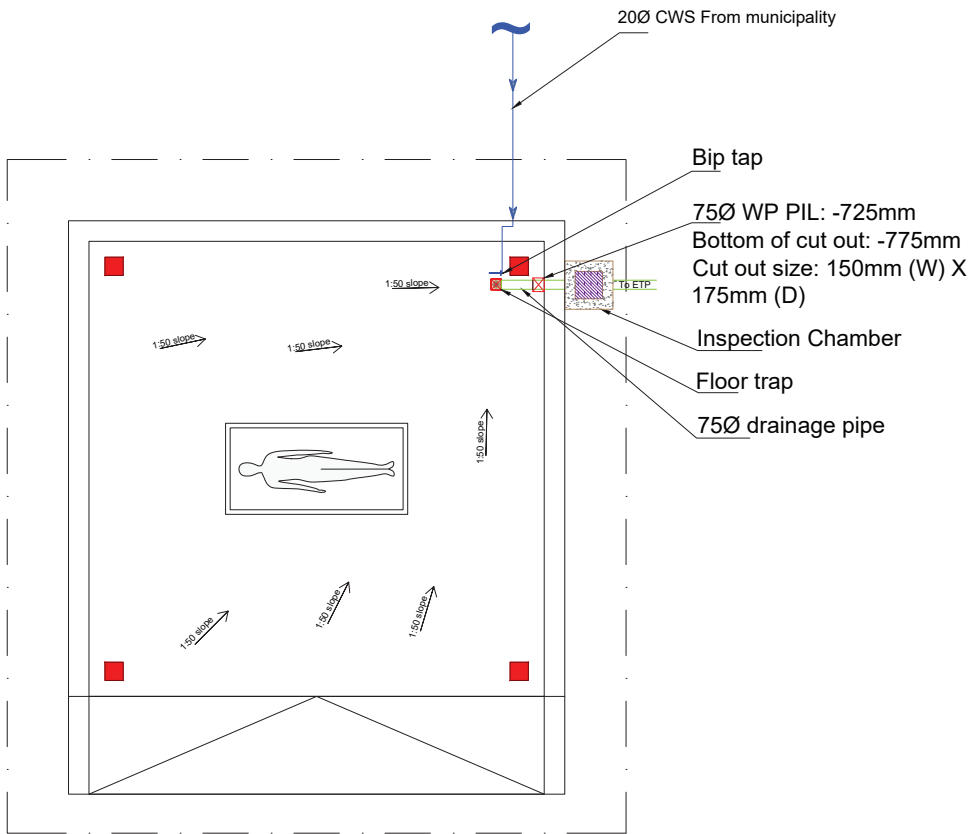
5.1.3. Ritual Shed



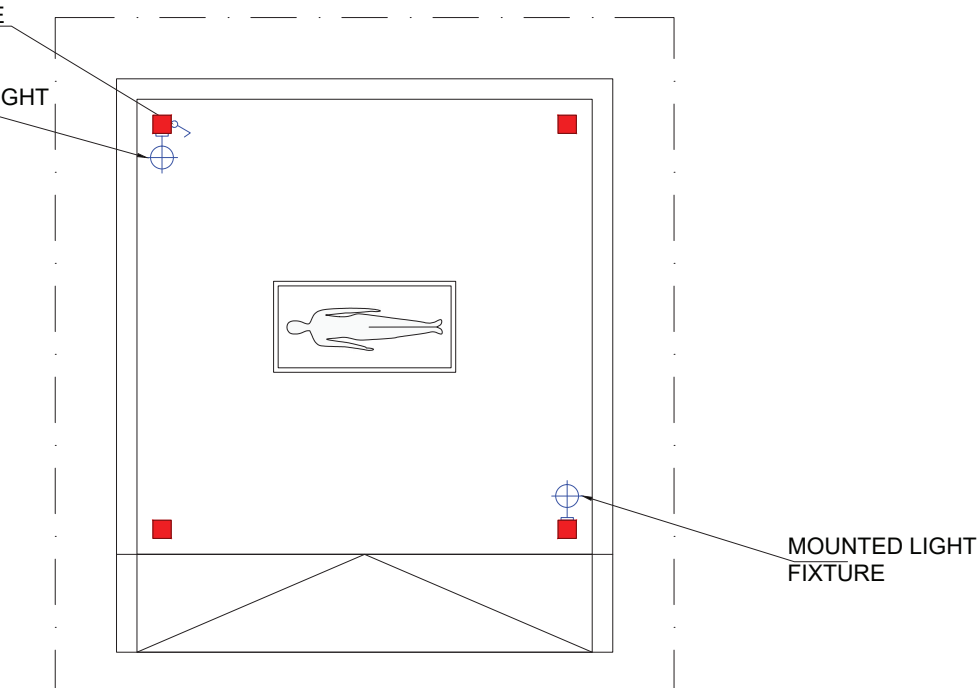
RITUAL AREA PLAN



SECTION A-A'



DRAINAGE PLAN



ELECTRICAL PLAN

NOTES
These drawings are the property of JUSP and are not to be replicated, copied or misused in any form. Any discrepancies between drawings and ground conditions must be immediately brought to the notice of the client. All dimensions are in Meters unless mentioned otherwise. Follow written dimensions, do not measure the drawing.

Conditions uncovered on site, may require changes. Contractor to discuss this with PMC and resolve the best possible accordingly

LEGEND

01		WATER CLOSET
02		WASH BASIN / LABSINK
03		FLOOR TRAP / AREA DRAIN
CWS		COLD WATER SUPPLY
WP		WASTE PIPE
SP		SOIL PIPE
BT		BIP TAP
		150X150MM CUT OUT IN SLAB

SYMBOL	LEGEND AND ABBREVIATIONS	LEVEL
	WALL MOUNTED LIGHT FIXTURE	0000mm APT
	BIP TAP	0000mm APT
	FLOOR TRAP / AREA DRAIN	0000mm APT
	WASTE PIPE	0000mm APT
	SOIL PIPE	0000mm APT
	COLD WATER SUPPLY	0000mm APT
	WATER CLOSET	0000mm APT

NOTE:
1. THE HEIGHT MENTIONED IS FROM THE FINISHED FLOOR LEVEL TO THE BOTTOM OF FIXTURE.
2. ALL FIXTURES SHALL BE 1000mm AWAY FROM WALLS EXCEPT LIGHT FIXTURES (OTHERWISE MENTIONED).

Drawn by	Checked by	Verified by
V.S.		
REVISIONS		
S.No	Rev	Description
		Date

CLIENT :

Project Name:
Dignity - Crematorium Guidelines

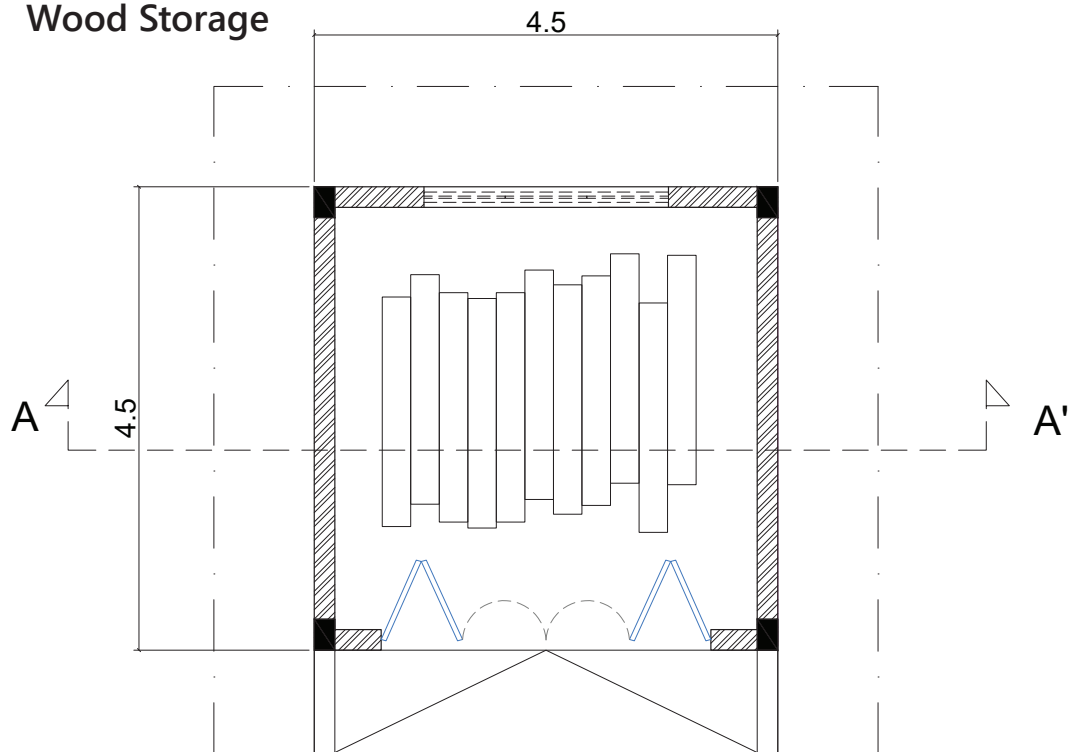
Drawing No :
Ritual Area Construction Details

SCALE — NTS DATE : 12-09-2023

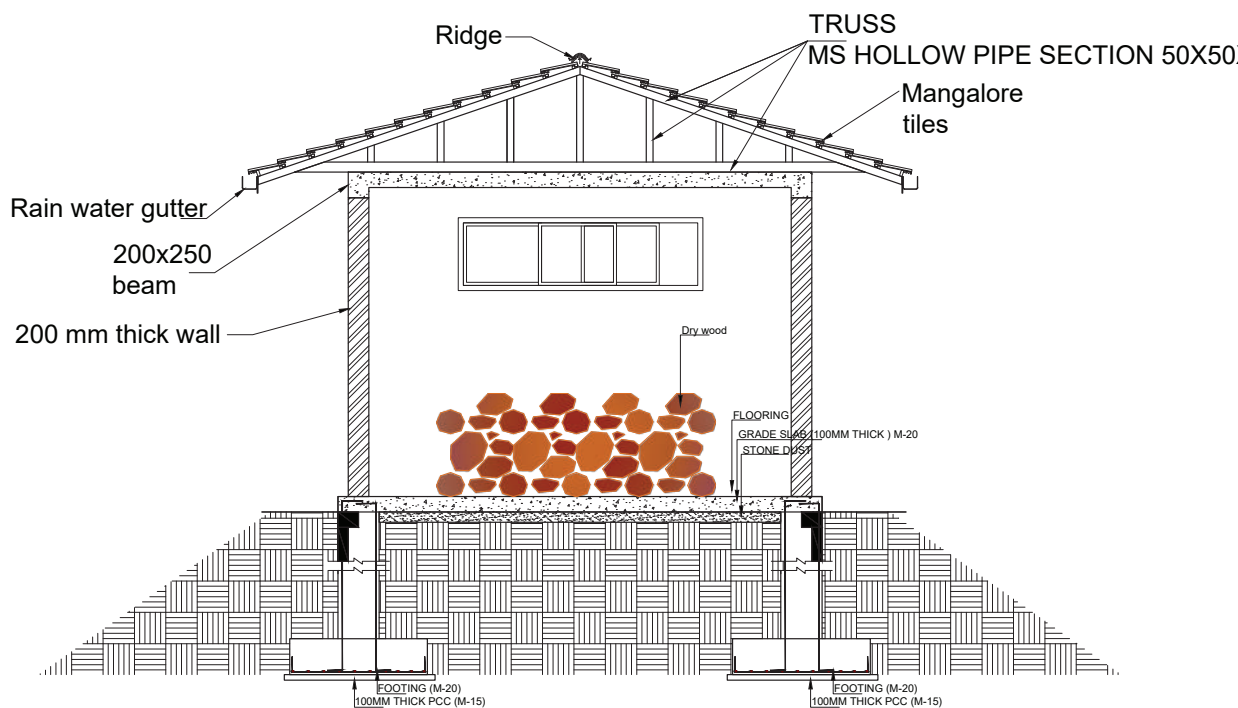
JANA URBAN SPACE FOUNDATION
19/4, "SAIR BAGH" BUILDING, 4TH FLOOR
CUNNINGHAM ROAD, BANGALORE - 560052
info@janausp.org



5.1.4. Wood Storage



WOOD STORAGE SHED PLAN



SECTION A-A'

NOTES
These drawings are the property of JUSP and are not to be replicated, copied or misused in any way. Any discrepancies between drawings and ground conditions must be immediately brought to the notice of the client. All dimensions are in Meters unless mentioned otherwise. Follow written dimensions, do not measure the drawing.

Conditions uncovered on site, may require changes. Contractor to discuss this with PMC and resolve the best possible accordingly

LEGEND		
01		WATER CLOSET
02		WASH BASIN / LABSINK
03		FLOOR TRAP / AREA DRAIN
CWS		COLD WATER SUPPLY
WP		WASTE PIPE
SP		SOIL PIPE
BT		BIP TAP
	150X150MM CUT OUT IN SLAB	

LEGEND AND ABBREVIATIONS		SYMBOL
SYMBOL	DESCRIPTION	SYMBOL
	BELL INDICATED LIGHT FIXTURE	
	BELL INDICATED LIGHT FIXTURE (BELL INDICATED)	
	CEILING FAN POINT	
	CEILING FAN POINT	
	CEILING FAN POINT	
	FAN REGULATOR WITH SWITCH	
	IN SOCKET FOR EXISTING FAN POINT (TYPICAL)	
APP	ARCHIT FURNISHED FLOOR	
ACC	ARCHIT CLOUSEIN	
AW	ARCHIT WINDOW	
NOTE		
1. THE HEIGHT INDICATED IS FROM THE FINISHED FLOOR LEVEL TO THE BOTTOM OF FIXTURE.		
2. ALL FIXTURES TO BE 100MM ABOVE FROM BELL INDICATED CLOUSEIN (DIMENSIONS INDICATED)		

Drawn by	Checked by	Verified by
V.S.		
REVISIONS		
S.No	Rev	Description
		Date

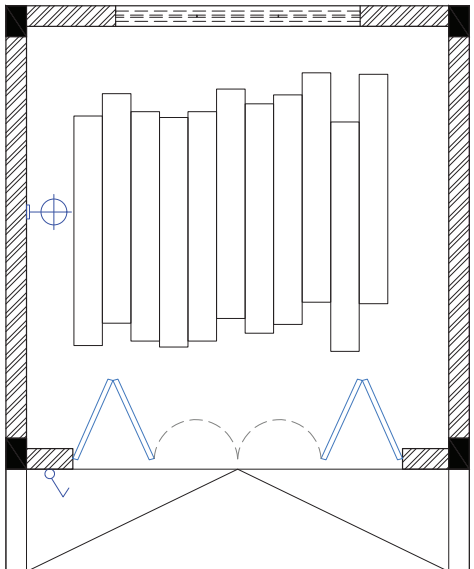
CLIENT :

Project Name:
Dignity - Crematorium Guidelines

Drawing No :
Wood Storage Construction Details

SCALE - NTS	DATE : 12-09-2023
-------------	-------------------

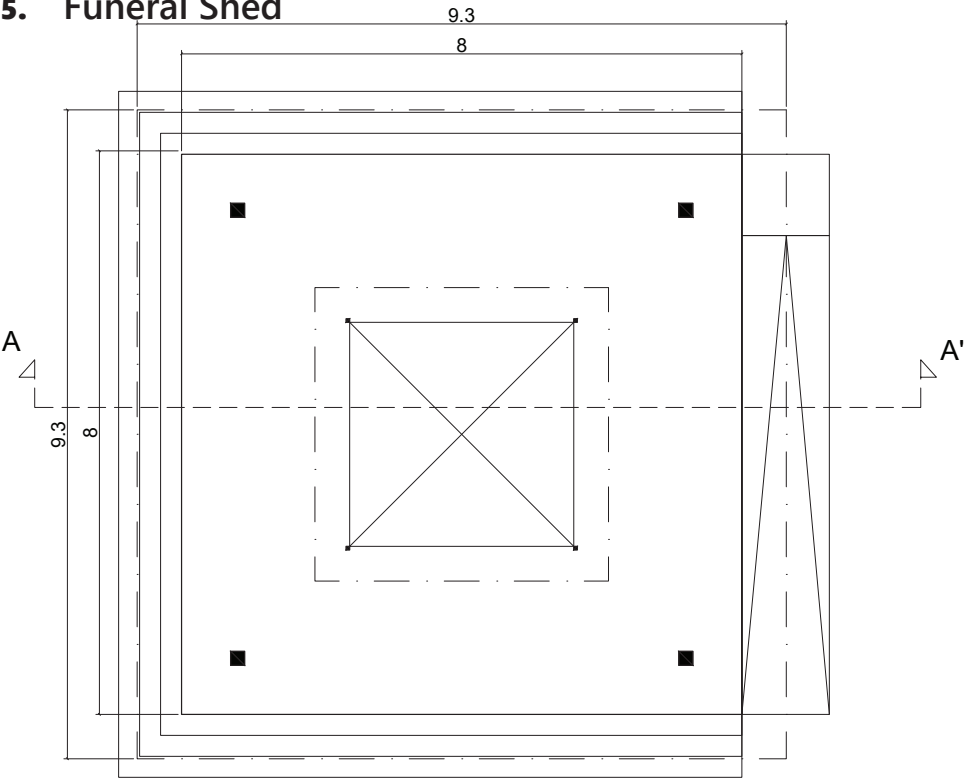
JANA URBAN SPACE
FOUNDATION
19/4, "SAIR BAGH" BUILDING, 4TH FLOOR
CUNNINGHAM ROAD,
BANGALORE - 560052
info@janasp.org



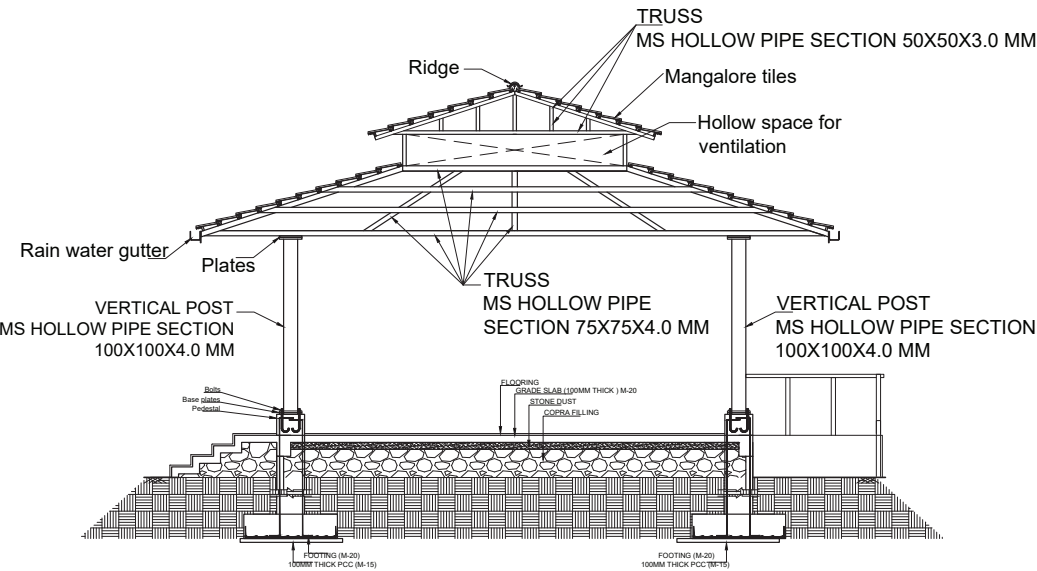
ELECTRICAL PLAN

X3.0 MM

5.1.5. Funeral Shed



BURNING SHED PLAN

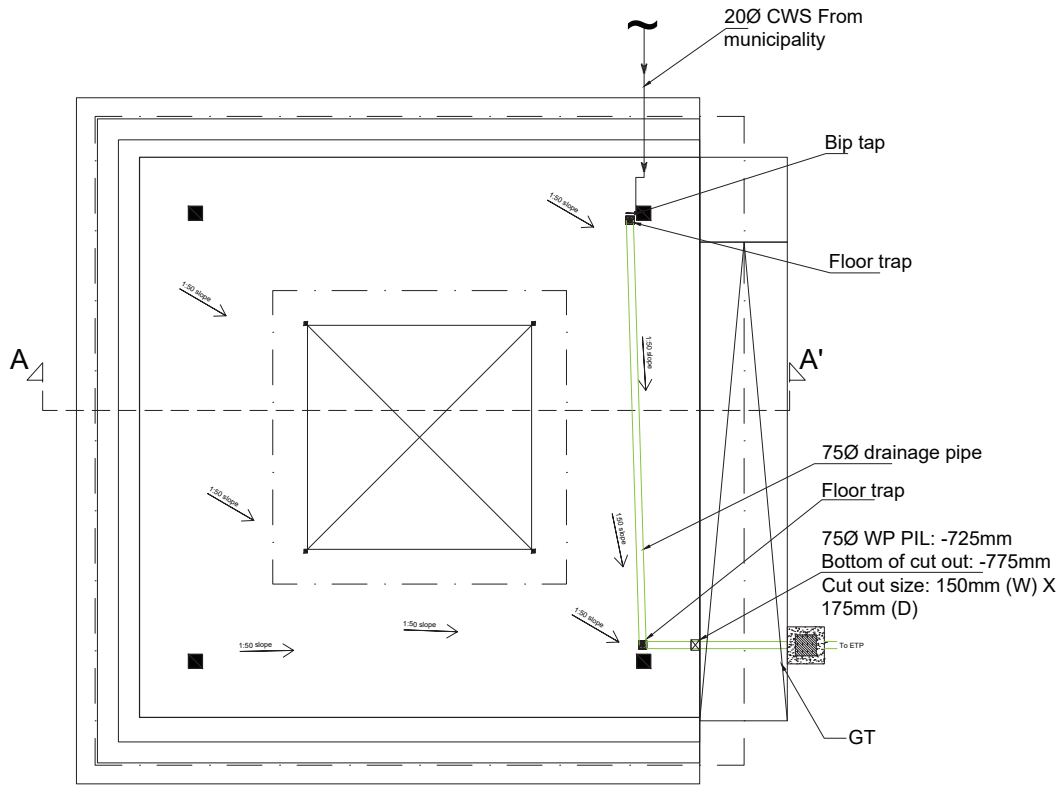


SECTION A-A'

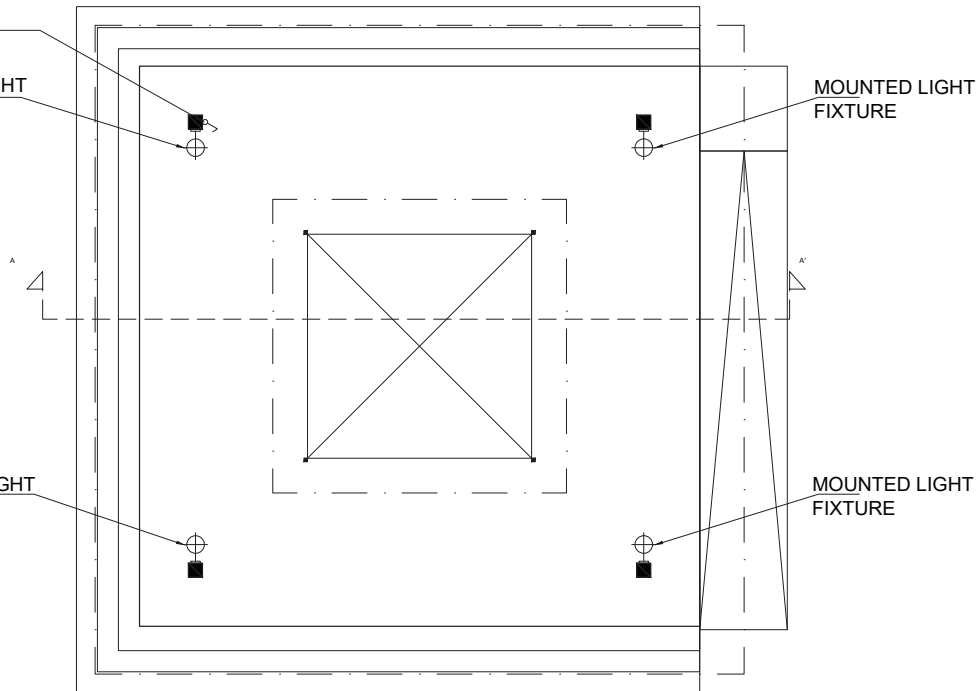
POLE SWITCH

MOUNTED LIGHT
FIXTURE

MOUNTED LIGHT
FIXTURE



DRAINAGE PLAN



ELECTRICAL PLAN

NOTES
These drawings are the property of JUSP and are not to be replicated, copied or modified in any way. Any discrepancies between drawings and ground must be immediately brought to the notice of the client.
All dimensions as in Meters unless mentioned otherwise
Follow written dimensions, do not measure the drawing.

Conditions uncovered on site, may require changes. Contractor to discuss this with PMC and resolve the best possible accordingly

LEGEND

01		WATER CLOSET
02		WASH BASIN / LAB SINK
03		FLOOR TRAP / AREA DRAIN
CWS		COLD WATER SUPPLY
WP		WASTE PIPE
SP		SOIL PIPE
BT		BIP TAP
		150X150MM CUT OUT IN SLAB

SYMBOL	LEGEND AND ABBREVIATIONS	NOTES
	WALL SECTION CUT	1. ALL WALLS TO BE CONCRETE
	DOOR	2. ALL DOORS TO BE CONCRETE
	WINDOW	3. ALL WINDOWS TO BE CONCRETE
	FLOOR TRAP	4. ALL FLOOR TRAPS TO BE CONCRETE
	BIP TAP	5. ALL BIP TAPS TO BE CONCRETE
	150X150MM CUT OUT IN SLAB	6. ALL CUT OUTS TO BE CONCRETE
	150X150MM CUT OUT IN SLAB	7. ALL CUT OUTS TO BE CONCRETE
	150X150MM CUT OUT IN SLAB	8. ALL CUT OUTS TO BE CONCRETE
	150X150MM CUT OUT IN SLAB	9. ALL CUT OUTS TO BE CONCRETE
	150X150MM CUT OUT IN SLAB	10. ALL CUT OUTS TO BE CONCRETE

Drawn by	Checked by	Verified by
V.S.		
REVISIONS		
S.No	Rev	Description

CLIENT :

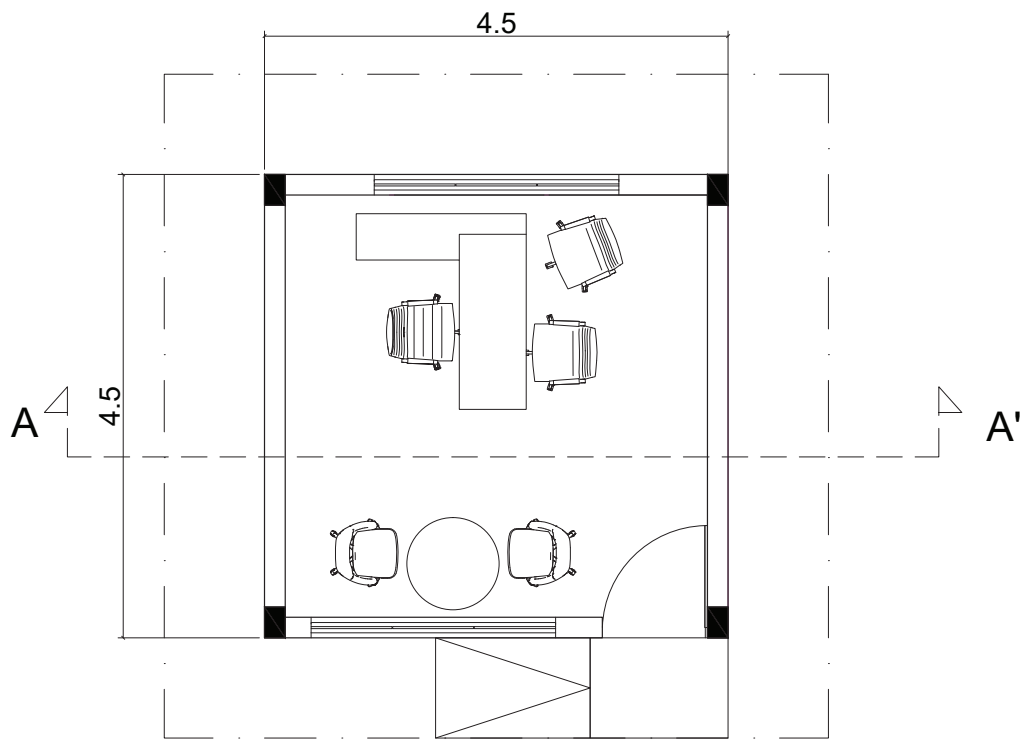
Project Name:
Dignity - Crematorium Guidelines

Drawing No :
**Burning Shed
Construction Details**

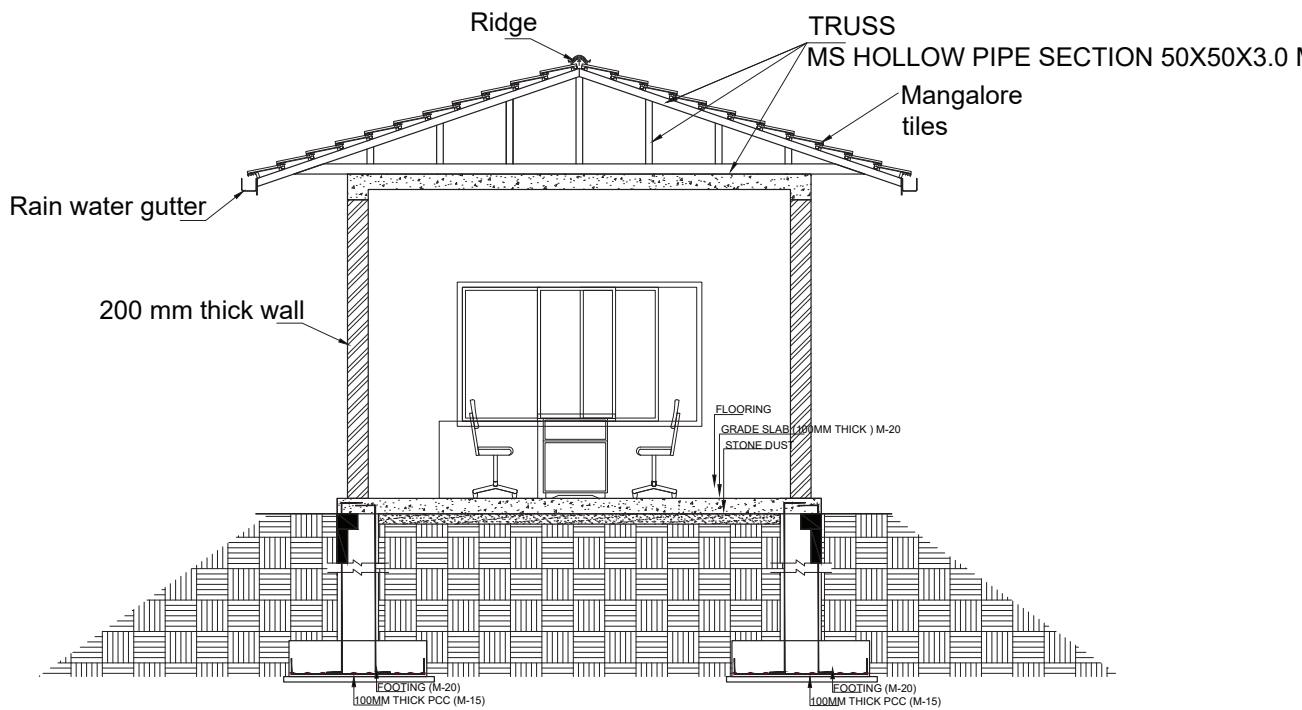
SCALE : 1:50 DATE : 12-09-2023

JANA URBAN SPACE
FOUNDATION
194, "SAIR BAGH" BUILDING, 4TH FLOOR
CUNNINGHAM ROAD,
BANGALORE - 560052
info@janasp.org

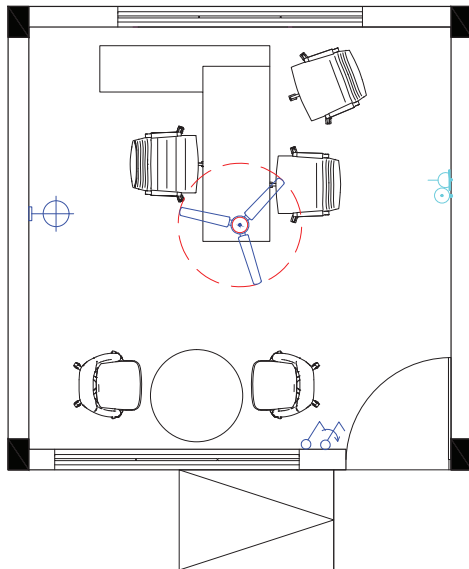
5.1.6. Administrative Office



ADMINISTRATION OFFICE PLAN



SECTION A-A'



NOTES
These drawings are the property of JUSP and are not to be replicated, copied or misused in any way. Any discrepancies between drawings and ground must be immediately brought to the notice of the client. All dimensions as in Meters unless mentioned otherwise.
Follow written dimensions, do not measure the drawing.

Conditions uncovered on site, may require changes. Contractor to discuss this with PMC and resolve the best possible accordingly

LEGEND			
01		WATER CLOSET	
02		WASH BASIN / LABSINK	
03		FLOOR TRAP / AREA DRAIN	
CWS		COLD WATER SUPPLY	
WP		WASTE PIPE	
SP		SOIL PIPE	
BT		BIP TAP	
	150X150MM CUT OUT IN SLAB		
LEGEND AND ABBREVIATIONS			
SYMBOL	DESCRIPTION	UNIT	QTY
	DRAINAGE MANHOLE COVER	PC	1
	DRAINAGE MANHOLE COVER	PC	1
	DRAINAGE MANHOLE COVER	PC	1
	DRAINAGE MANHOLE COVER	PC	1
	DRAINAGE MANHOLE COVER	PC	1
	DRAINAGE MANHOLE COVER	PC	1
APP	ADJUST FRAMED FLOOR		
ADJ	ADJUST COUNTER		
ADJ	ADJUST WINDOW		
NOTE: 1. THE MOST IMPORTANT IS FROM THE FRAMED FLOOR LAY TO THE BOTTOM OF KEYSTONE 2. ALL FROM LAY TO THE BOTTOM OF KEYSTONE FROM			

Drawn by	Checked by	Verified by
V.S.		
REVISIONS		
S.No	Rev	Description

CLIENT :

Project Name:
Dignity - Crematorium Guidelines

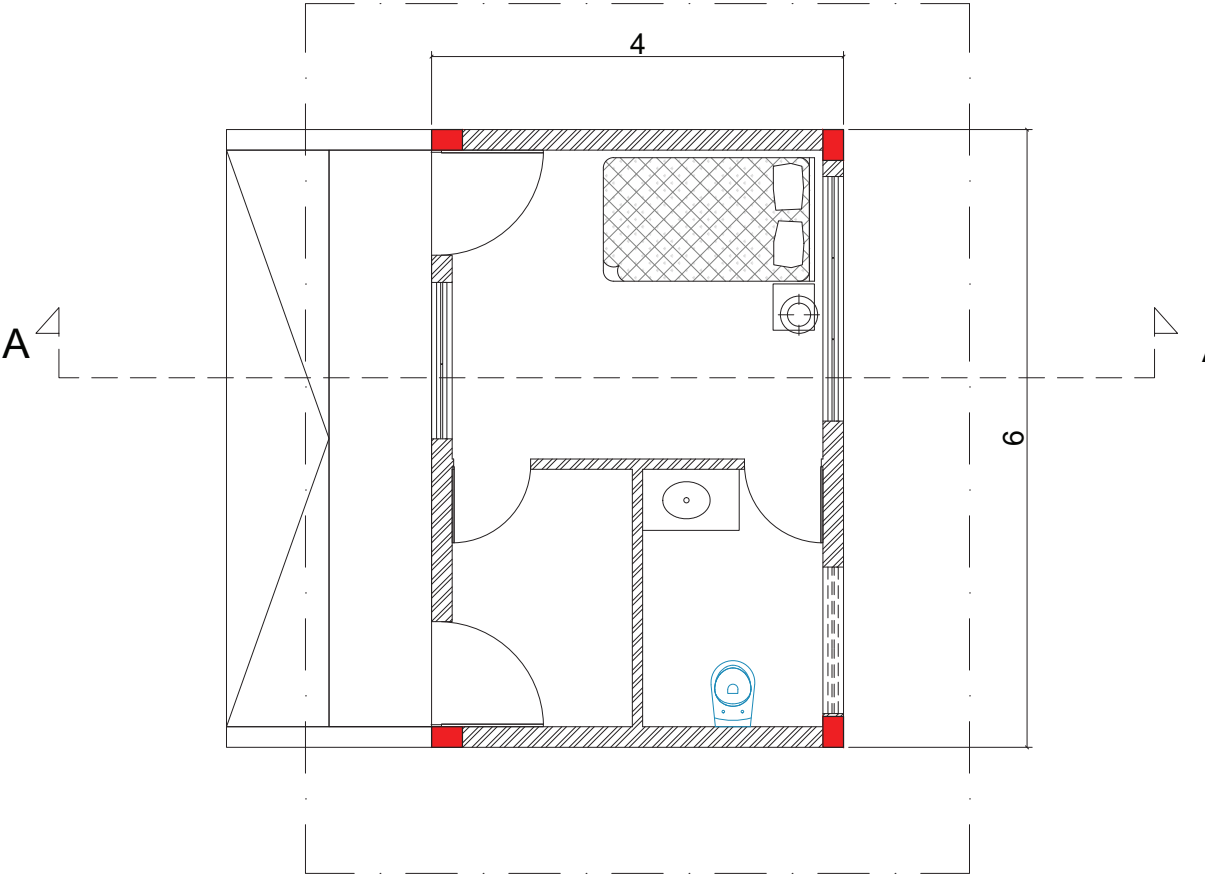
Drawing No :
Admin office
Construction Details

SCALE — NTS	DATE : 12-09-2023	
-------------	-------------------	--

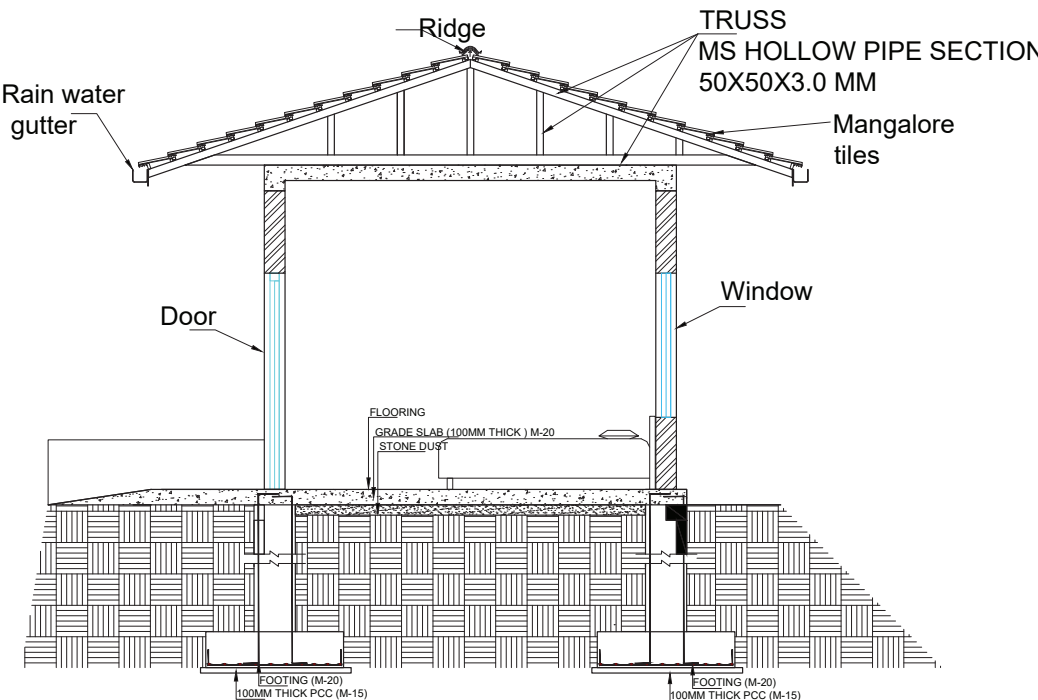
**JANA URBAN SPACE
FOUNDATION**
19/4, "SAIR BAGH" BUILDING, 4TH
FLOOR
CUNNINGHAM ROAD,
BANGALORE - 560052
info@janausp.org



5.1.7. Staff Quarter

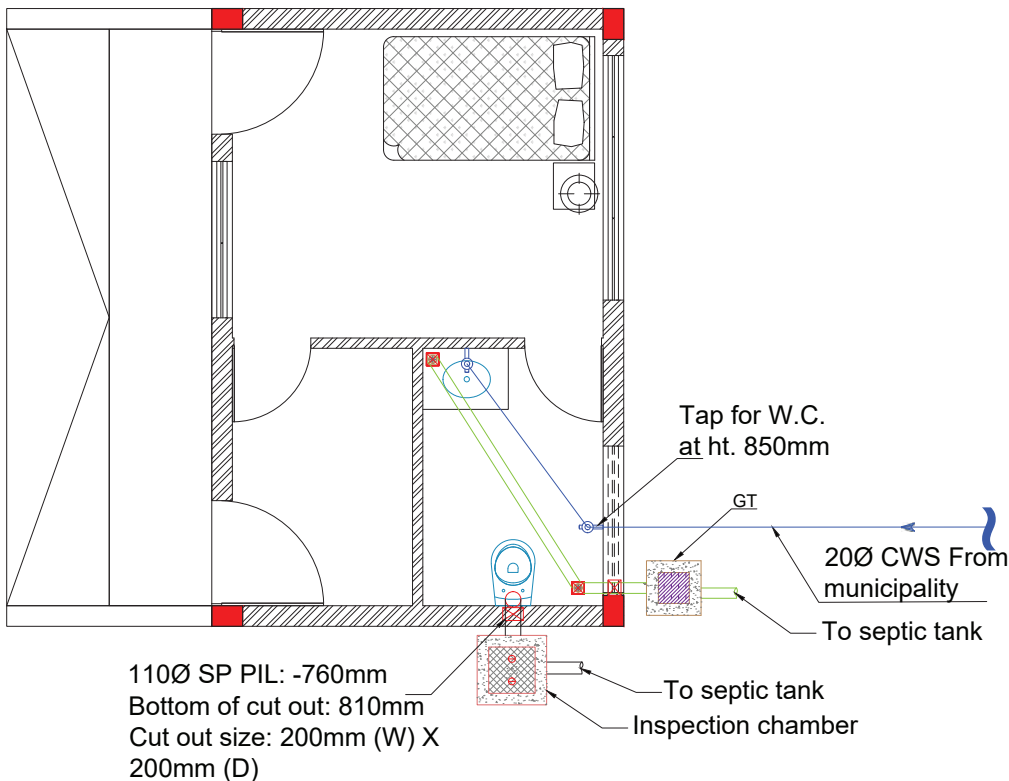


CARETAKER'S ROOM PLAN

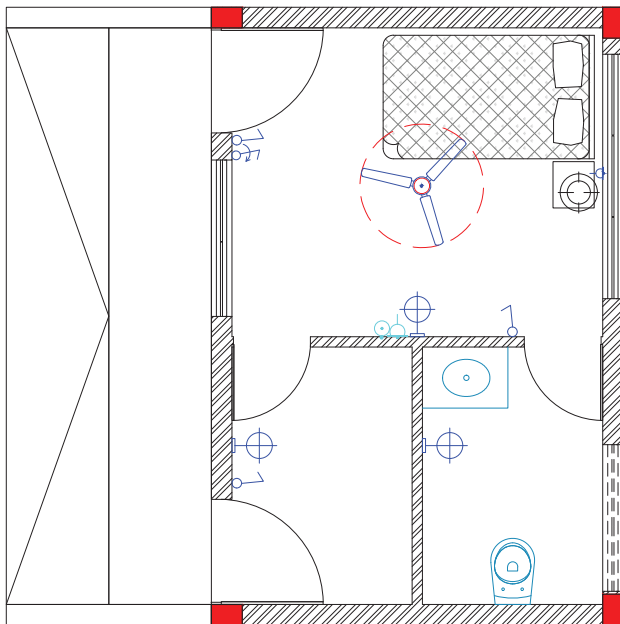


SECTION A-A'

A'



DRAINAGE PLAN



ELECTRICAL PLAN

NOTES

These drawings are the property of JUSP and are not to be replicated, copied or misused in any way. Any discrepancies between drawings and ground conditions must be immediately brought to the notice of the client. All dimensions are in Meters unless mentioned otherwise. Follow written dimensions, do not measure the drawing.

Conditions uncovered on site, may require changes. Contractor to discuss this with PMC and resolve the best possible accordingly

LEGEND

01		WATER CLOSET
02		WASH BASIN / LABSINK
03		FLOOR TRAP / AREA DRAIN
CWS		COLD WATER SUPPLY
WP		WASTE PIPE
SP		SOIL PIPE
BT		BIP TAP
		150X150MM CUT OUT IN SLAB

LEGEND AND ABBREVIATIONS	SYMBOL	DESCRIPTION	UNIT
01		WATER CLOSET	NO.
02		WASH BASIN / LABSINK	NO.
03		FLOOR TRAP / AREA DRAIN	NO.
CWS		COLD WATER SUPPLY	MM
WP		WASTE PIPE	MM
SP		SOIL PIPE	MM
BT		BIP TAP	NO.
		150X150MM CUT OUT IN SLAB	NO.

NOTE

1. THE HEIGHT MENTIONED IS FROM THE FINISHED FLOOR LEVEL TO THE BOTTOM OF PIPELINE.

2. ALL PIPES SHALL BE 150MM DIA. UNLESS OTHERWISE SPECIFIED.

Drawn by	Checked by	Verified by
V.S.		
REVISIONS		
S.No	Rev	Description
		Date

CLIENT :

Project Name:
Dignity - Crematorium Guidelines

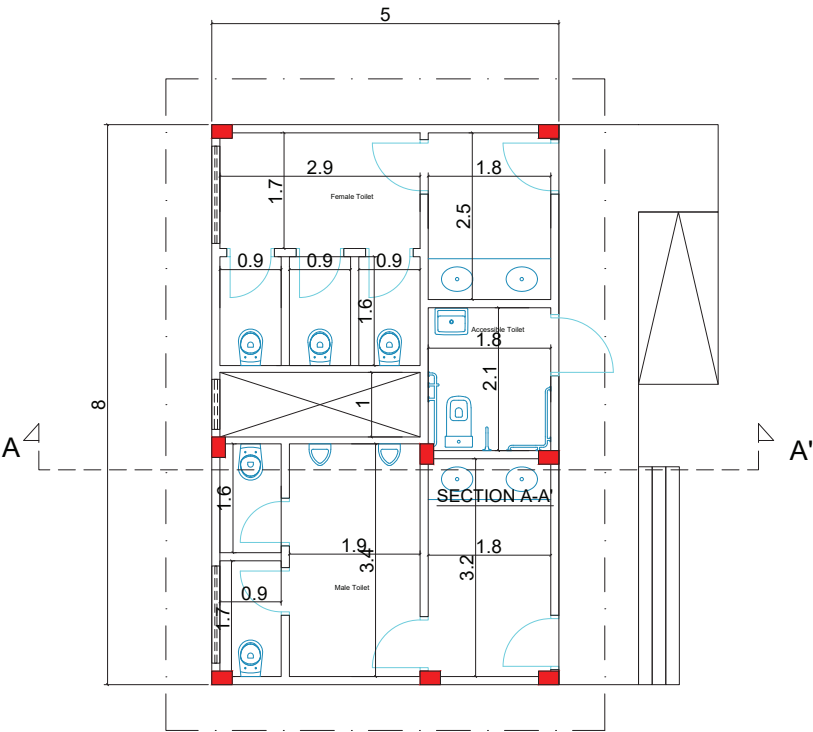
Drawing No :
Caretaker's room Construction Details

SCALE : NTS DATE : 12-09-2023

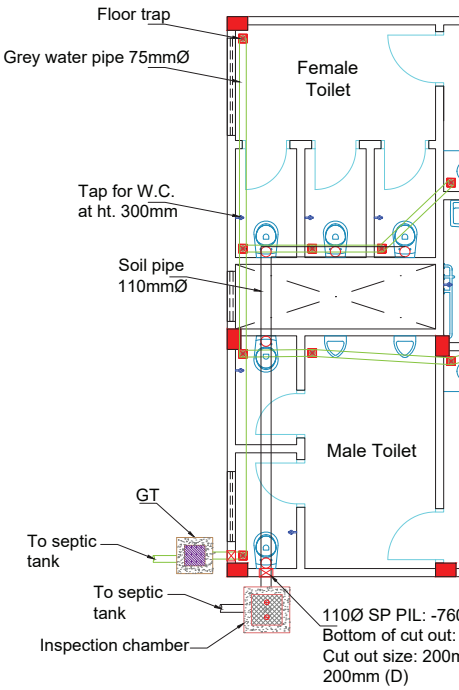
JANA URBAN SPACE
FOUNDATION
19/4, "SAIR BAGH" BUILDING,
4TH FLOOR
CUNNINGHAM ROAD,
BANGALORE - 560052
info@janausp.org



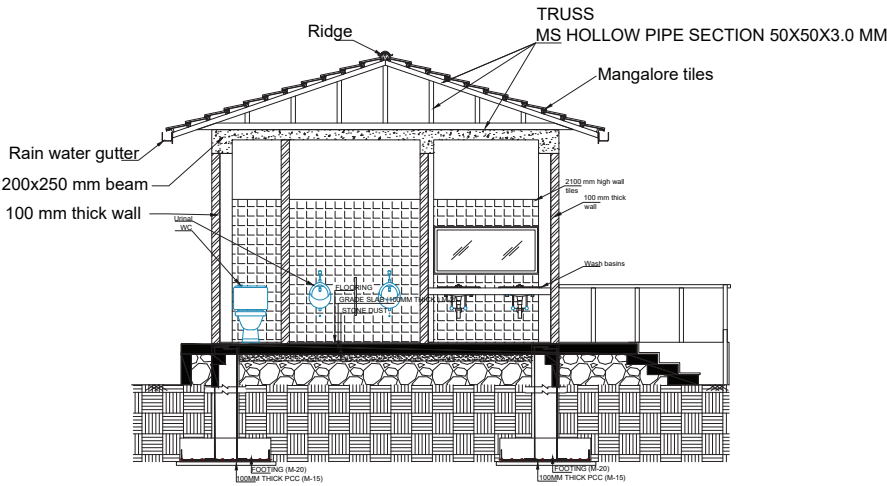
5.1.8. Restrooms



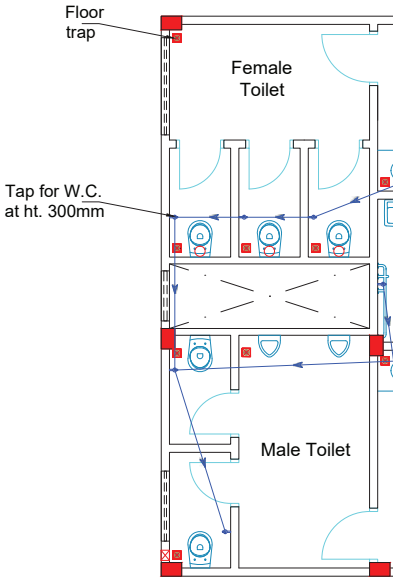
RESTROOM PLAN



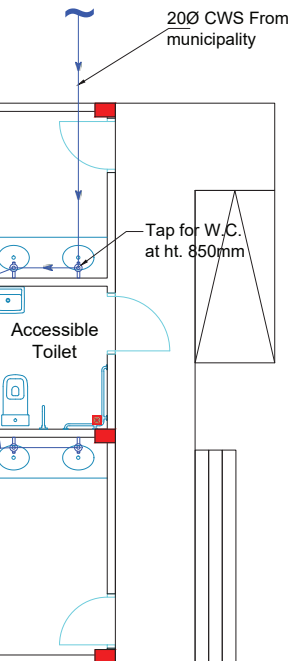
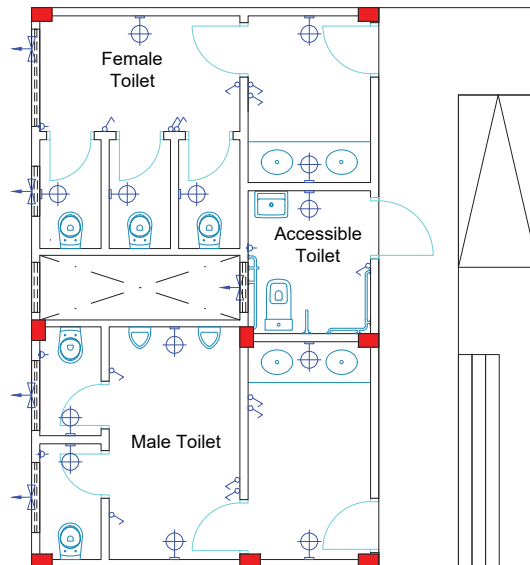
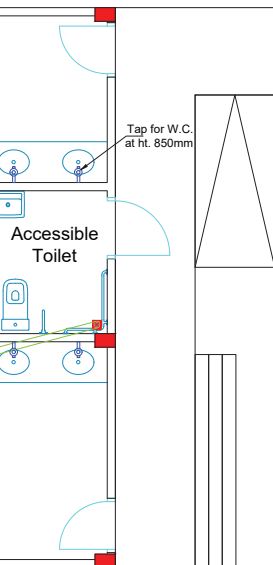
DRAINAGE



SECTION A-A'



WATER SUPPLY



NOTES
These drawings are the property of JUSP and are not to be replicated, copied or misused in any way. Any discrepancies between drawings and ground must be immediately brought to the notice of the client.
All dimensions as in Meters unless mentioned otherwise
Follow written dimensions, do not measure the drawing.

Conditions uncovered on site, may require changes. Contractor to discuss this with PMC and resolve the best possible accordingly

LEGEND

01		WATER CLOSET
02		WASH BASIN / LABSINK
03		FLOOR TRAP / AREA DRAIN
CWS		COLD WATER SUPPLY
WP		WASTE PIPE
SP		SOIL PIPE
BT		BIP TAP
	150X150MM CUT OUT IN SLAB	

LEGEND AND ABBREVIATIONS		LEGEND
FORMAL	DESCRIPTION	FORMAL
	ONLY ADVANCED USER PREVIEW	F.A.L.
	ENTER THE FOLLOWING ADDRESS FOR TYPE 822 ARTIST	ADDRESS APP
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	
	DELETED PAINTPOINT	

NOTE :	1. THE HEIGHT MENTIONED IS FROM THE FINISHED FLOOR LEVEL TO THE BOTTOM OF FIXTURE. 2. ALL POINTS IN PLAN TO BE 150mm AWAY FROM WALL JOINT UNLESS OTHERWISE MENTIONED.
--------	---

Drawn by	Checked by	Verified by	
V.S.			
REVISIONS			
S.No	Rev	Description	Date

CLIENT:

Project Name:
Dignity - Crematorium Guidelines

Drawing No :

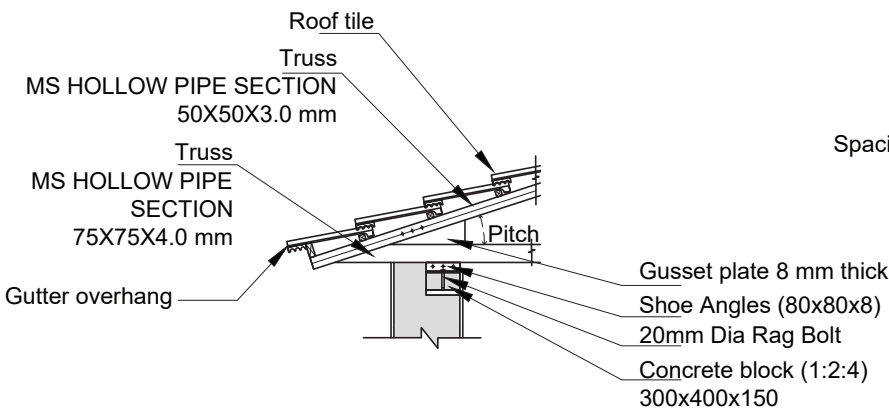
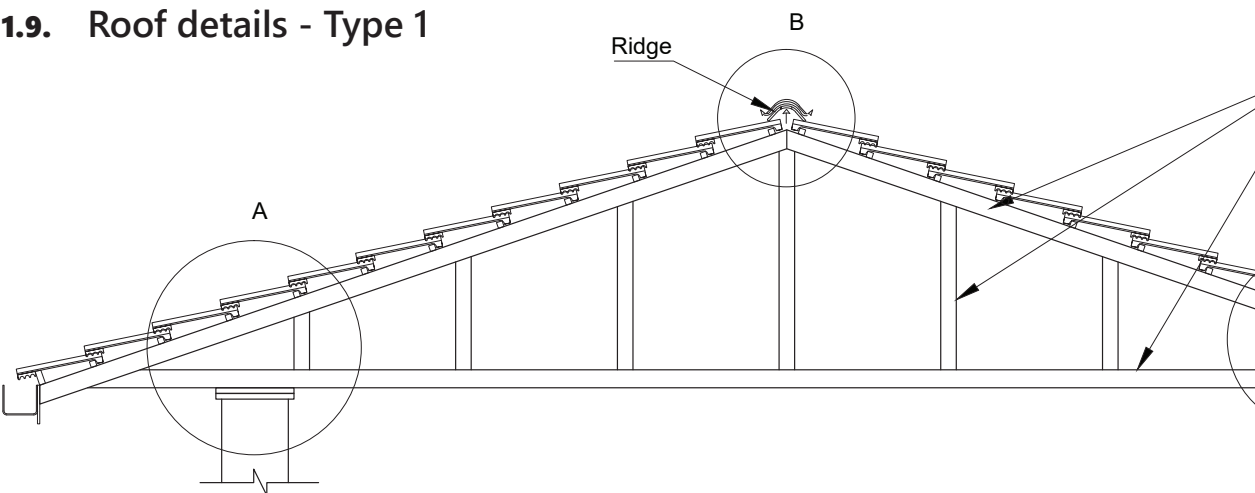
Restrooms Construction Details

SCALE – NTS	DATE : 12-09-2023	
-------------	-------------------	--

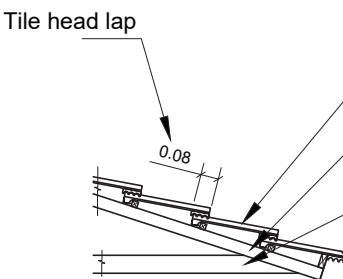
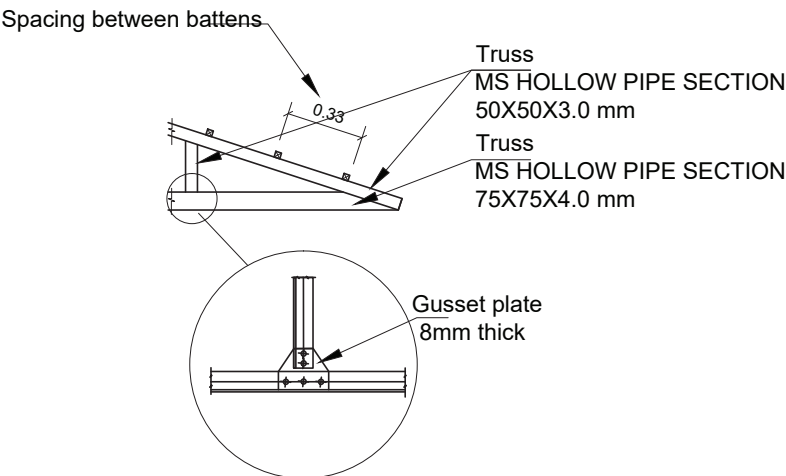
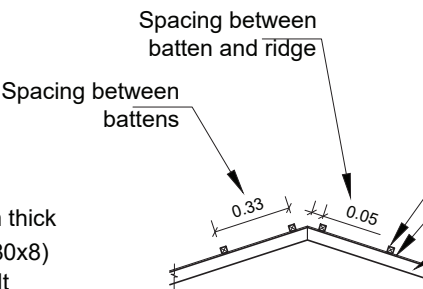
**JANA URBAN SPACE
FOUNDATION**
19/4, "SAIR BAGH" BUILDING, 4TH FLOOR
CUNNINGHAM ROAD,
BANGALORE - 560052
info@janausp.org



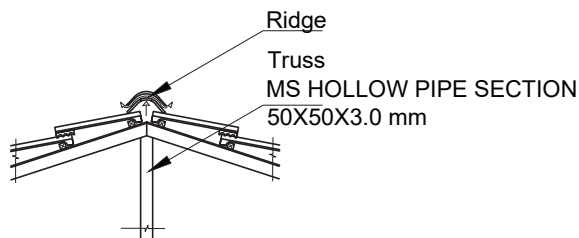
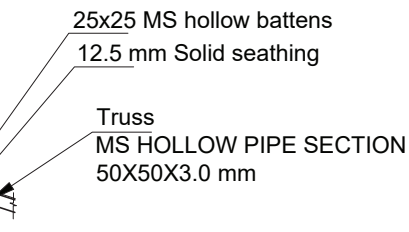
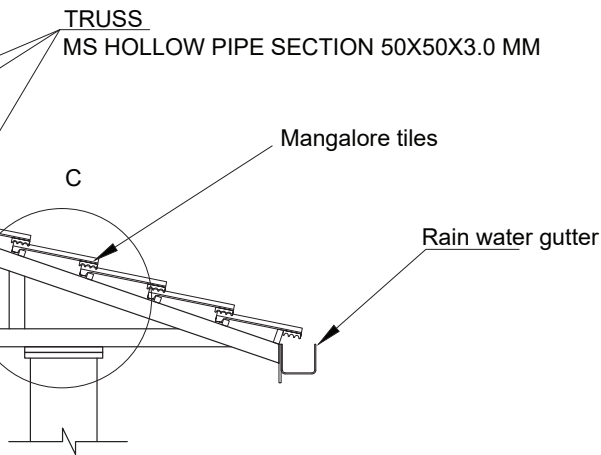
5.1.9. Roof details - Type 1



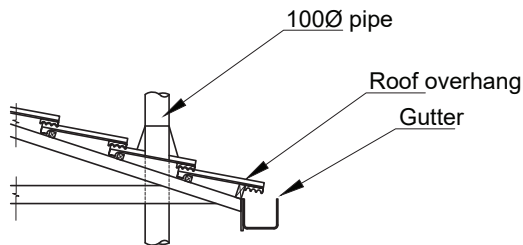
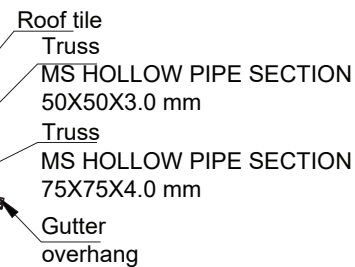
Detail - A



Detail - B



Detail - B



Detail - C

NOTES
These drawings are the property of JUSP and are not to be replicated, copied or misused in any form. Any discrepancies between drawings and ground conditions must be immediately brought to the notice of the client. All dimensions are in Meters unless mentioned otherwise. Follow written dimensions, do not measure the drawing.

Conditions uncovered on site, may require changes. Contractor to discuss this with PMC and resolve the best possible accordingly.

Drawn by	Checked by	Verified by	
V.S.			
REVISIONS			
S.No	Rev	Description	Date

CLIENT :

Project Name:
Dignity - Crematorium Guidelines

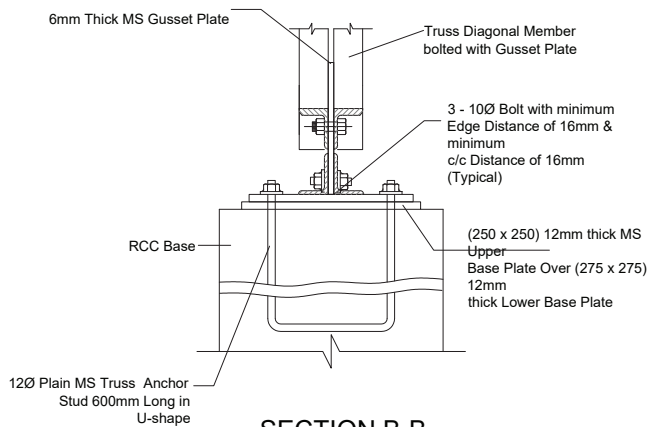
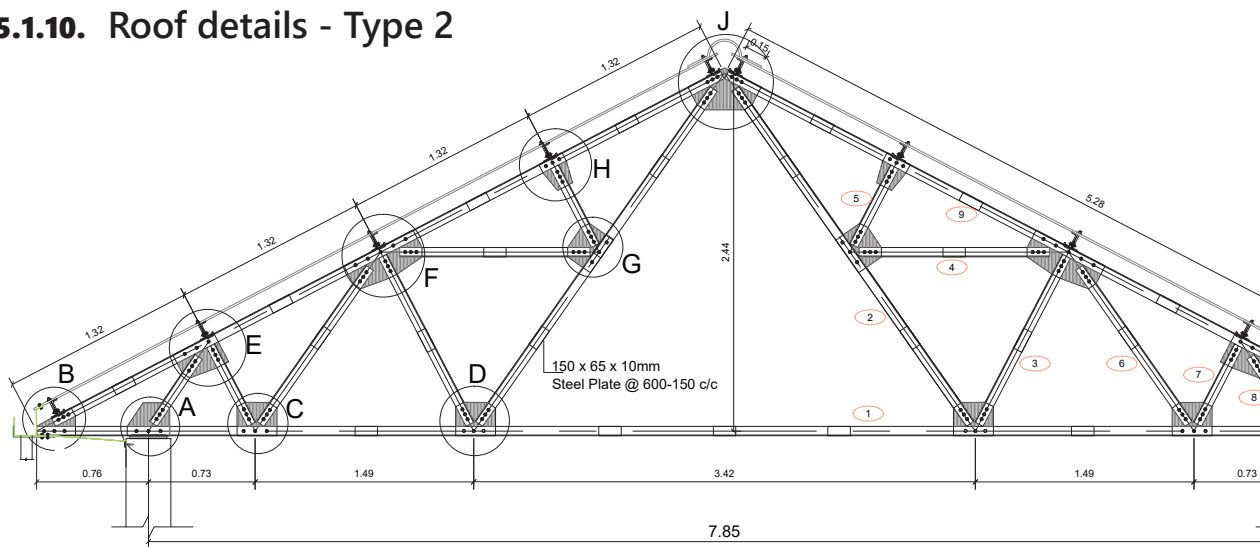
Drawing No :
Roof details - Type 1

SCALE : - NTS DATE : 12-09-2023

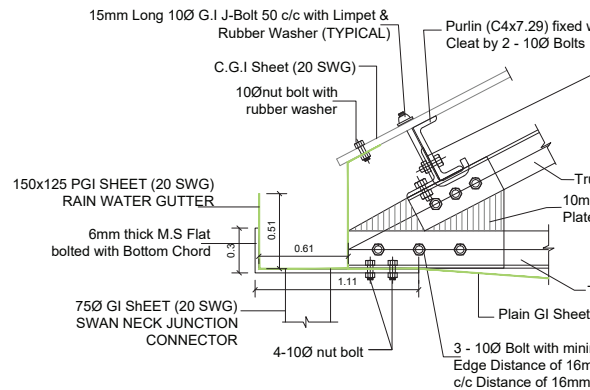
JANA URBAN SPACE
FOUNDATION
19/4, "SAIR BAGH" BUILDING, 4TH FLOOR
CUNNINGHAM ROAD,
BANGALORE - 560052
info@janasp.org



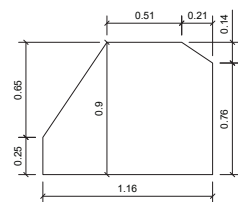
5.1.10. Roof details - Type 2



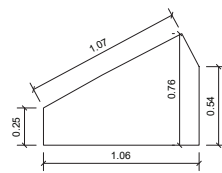
SECTION B-B



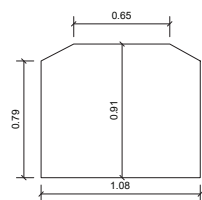
DETAIL B



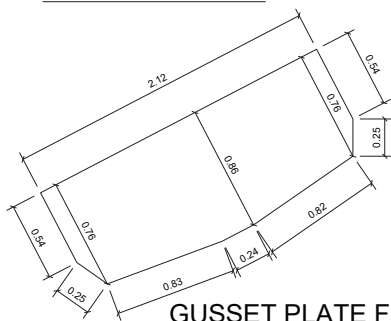
GUSSET PLATE A



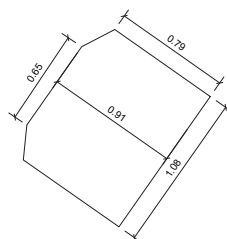
GUSSET PLATE B



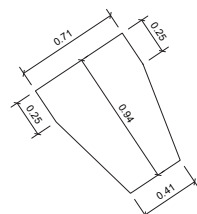
GUSSET PLATE C & D



GUSSET PLATE F



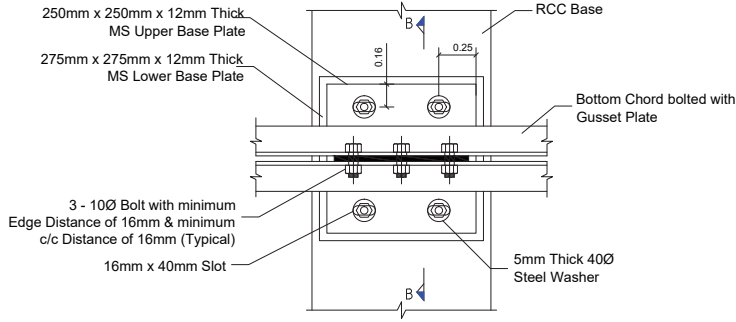
GUSSET PLATE G



GUSSET PLATE H

NOTES
These drawings are the property of JUSP and are not to be replicated, copied or misused in any form. Any discrepancies between drawings and ground conditions must be immediately brought to the notice of the client. All dimensions are in Meters unless mentioned otherwise. Follow written dimensions, do not measure the drawing.

Conditions uncovered on site, may require changes. Contractor to discuss this with PMC and resolve the best possible accordingly



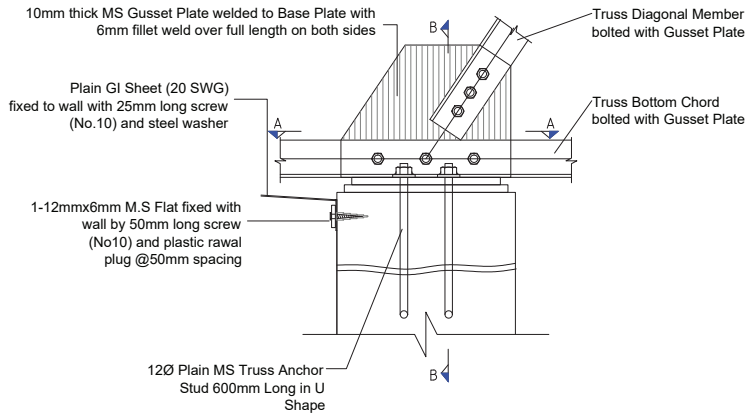
SECTION A-A

with
Cleat (L 60 x 60 x 6)
150mm Long bolted with Top
Chord
with 2-10Ø bolts

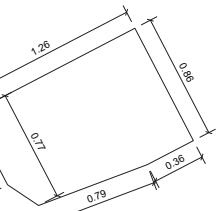
Truss Top Chord
10mm Thick MS Gusset
Plate

Truss Bottom Chord
(20 SWG)

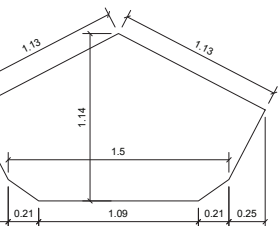
10mm
thick & minimum



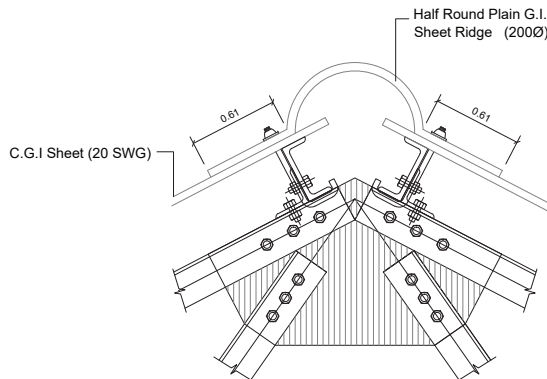
DETAIL A



GUSSET PLATE E



GUSSET PLATE J



DETAIL J

Drawn by	Checked by	Verified by
V.S.		
REVISIONS		
S.No	Rev	Description
		Date

CLIENT :

Project Name:
Dignity - Crematorium Guidelines

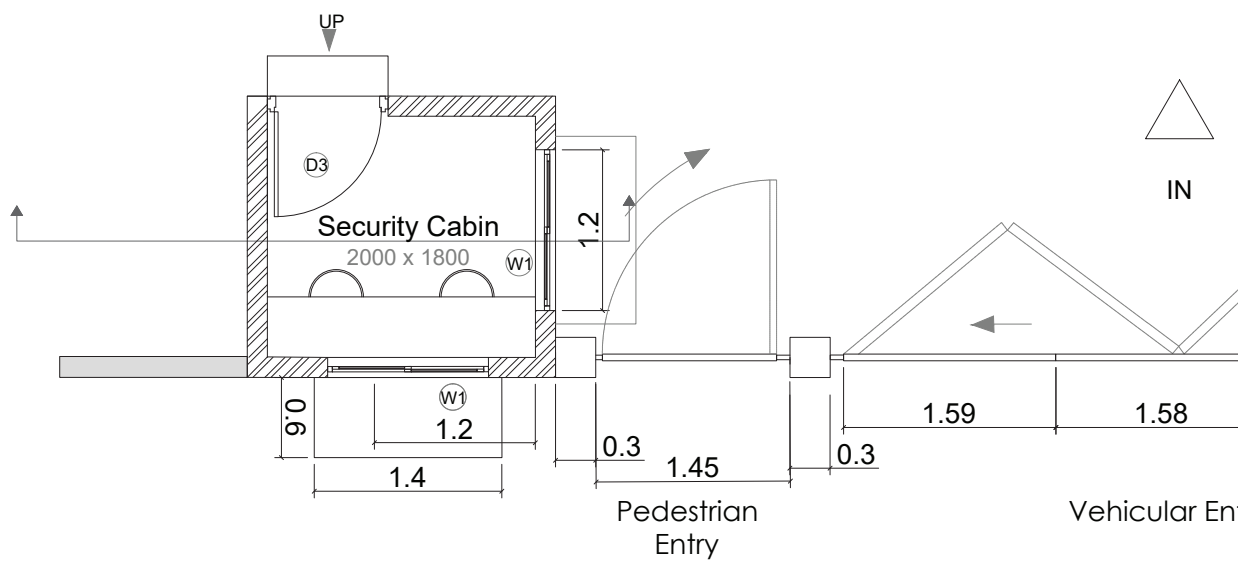
Drawing No :
Roof details - Type 2

SCALE - NTS DATE : 12-09-2023

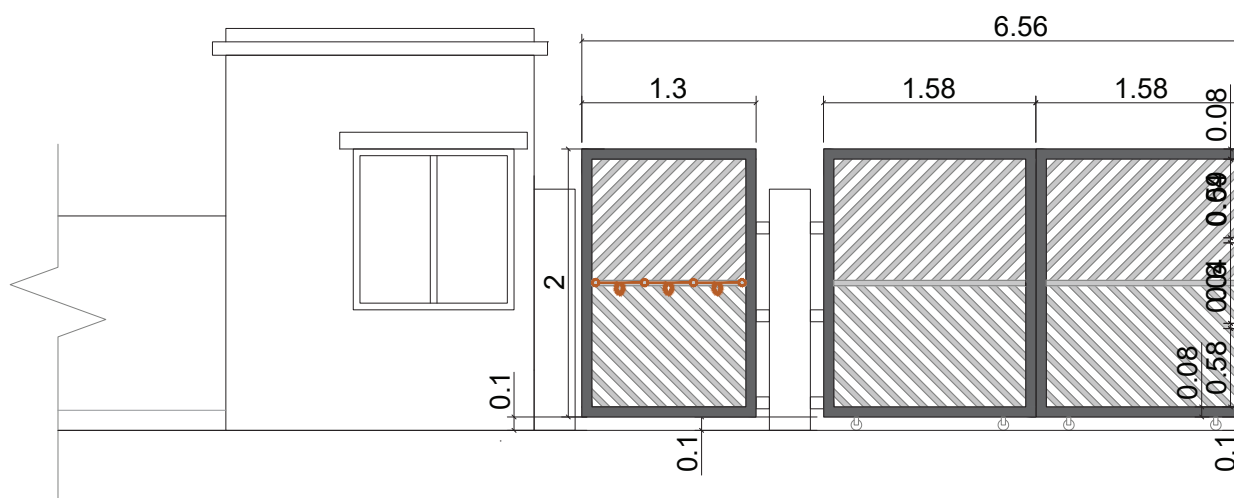
JANA URBAN SPACE
FOUNDATION
19/4, "SAIR BAGH" BUILDING, 4TH
FLOOR
CUNNINGHAM ROAD,
BANGALORE - 560052
info@janausp.org



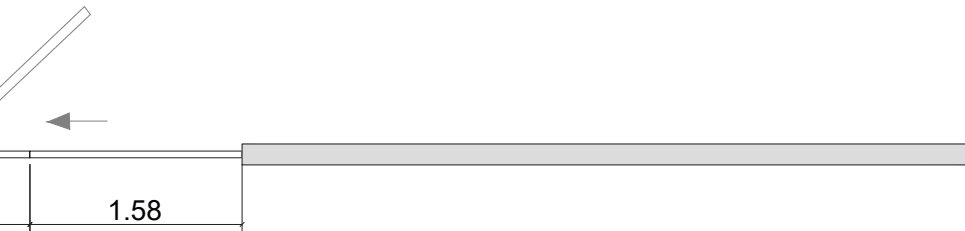
5.1.11. Entry/ exit gate detail



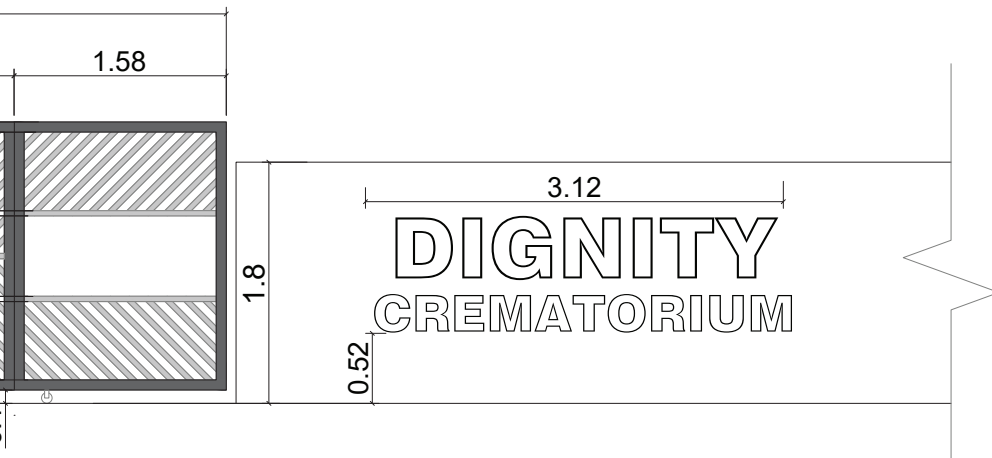
Plan



Elevation



try



NOTES
These drawings are the property of JUSP and must not be replicated, copied or misused in any way. Any discrepancies between drawings and ground must be immediately brought to the notice of the client. All dimensions are in Meters unless mentioned otherwise.
Follow written dimensions, do not measure the drawing.

Conditions uncovered on site, may require changes. Contractor to discuss this with PMC and resolve the best possible accordingly

Drawn by	Checked by	Verified by
V.S.		
REVISIONS		
S.No	Rev	Description
		Date

CLIENT :

Project Name:
Dignity - Crematorium Guidelines

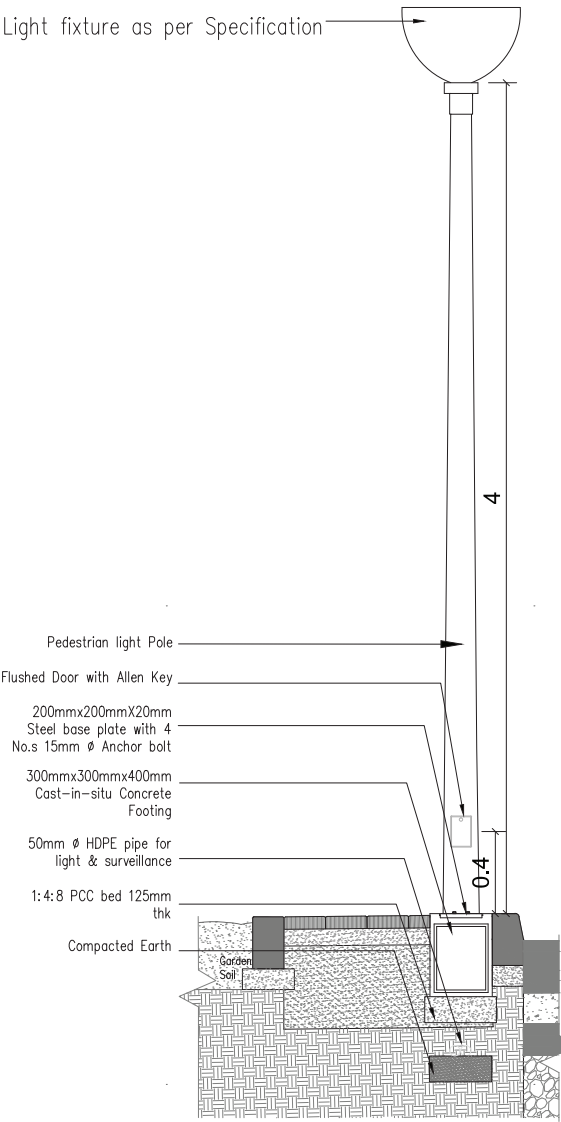
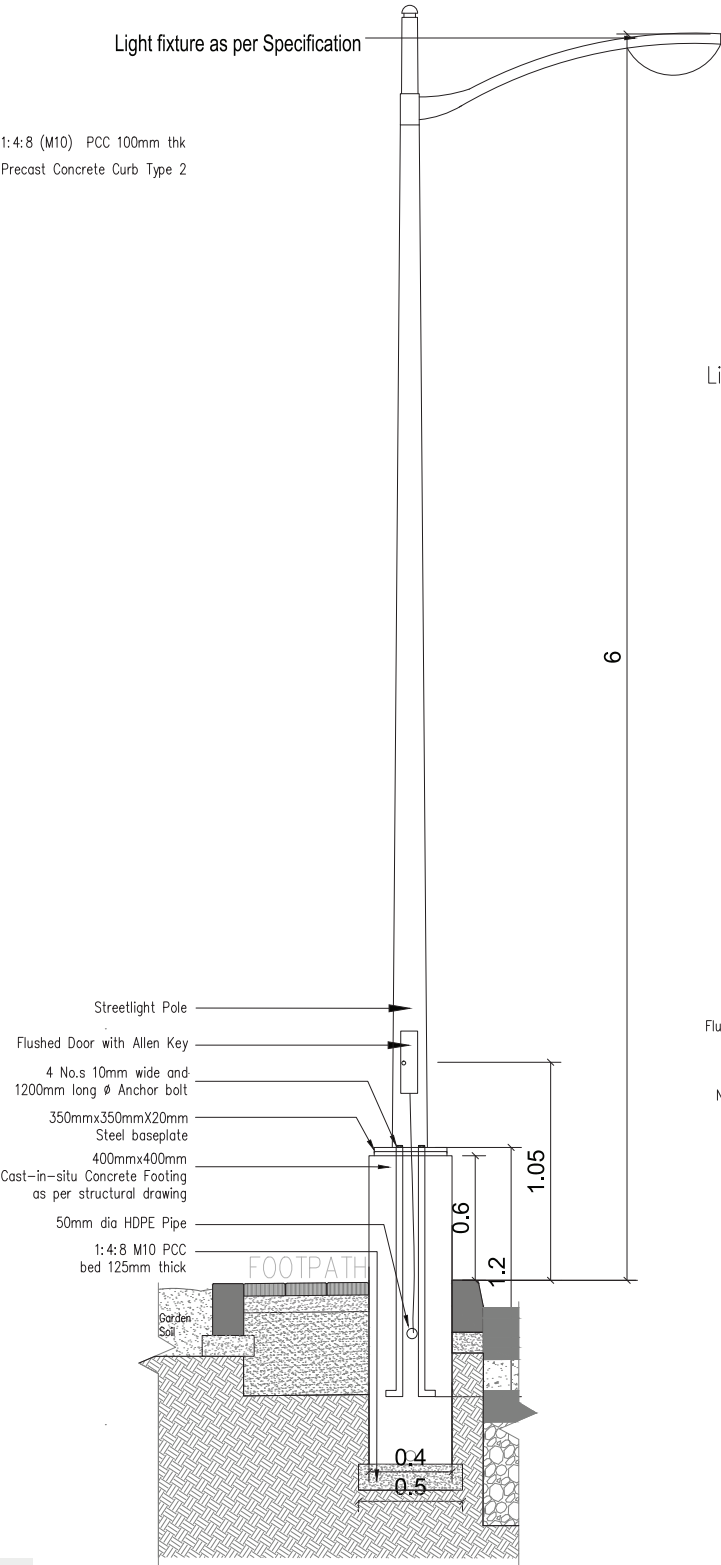
Drawing No :
Gate details

SCALE — NTS DATE : 10-10-2023

JANA URBAN SPACE
FOUNDATION
19/4, "SAIR BAGH" BUILDING, 4TH
FLOOR
CUNNINGHAM ROAD,
BANGALORE - 560052
info@janasp.org



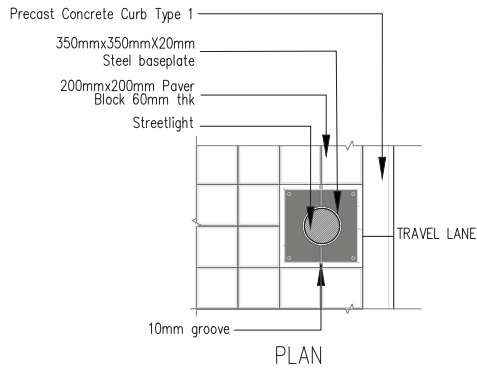
5.1.12. Streetlight detail



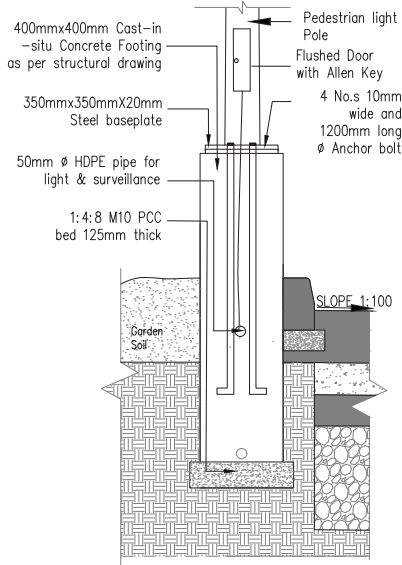
SECTION

NOTES
These drawings are the property of JUSP and shall not be replicated, copied or misused in any way. Any discrepancies between drawings and ground must be immediately brought to the notice of the client. All dimensions as in Meters unless mentioned otherwise.
Follow written dimensions, do not measure the drawing.

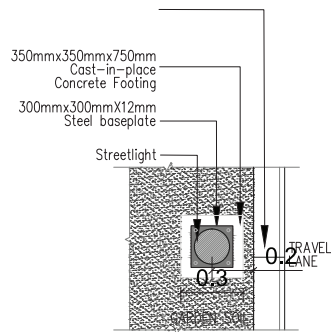
Conditions uncovered on site, may require changes. Contractor to discuss this with PMC and resolve the best possible accordingly



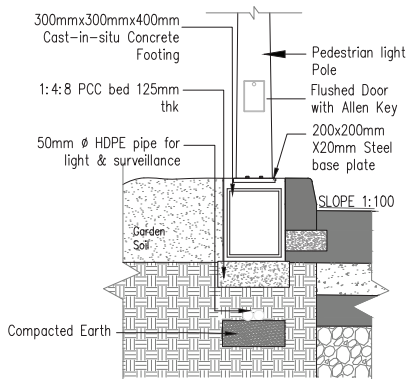
Street Light fixing on Paver Blocks



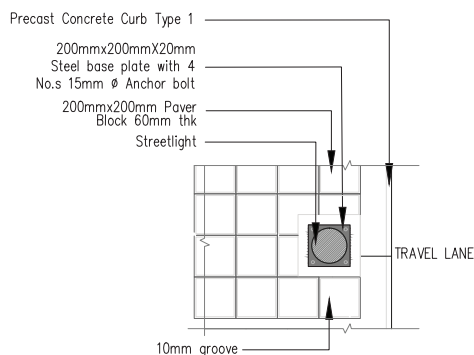
SECTION-Street Light



PLAN
Light Pole fixing on Landscape



SECTION-Pedestrian Light



Pedestrian Light fixing on Paver Blocks

Drawn by	Checked by	Verified by
V.S.		
REVISIONS		
S.No	Rev	Description
		Date

CLIENT :

Project Name:
Dignity - Crematorium Guidelines

Drawing No :

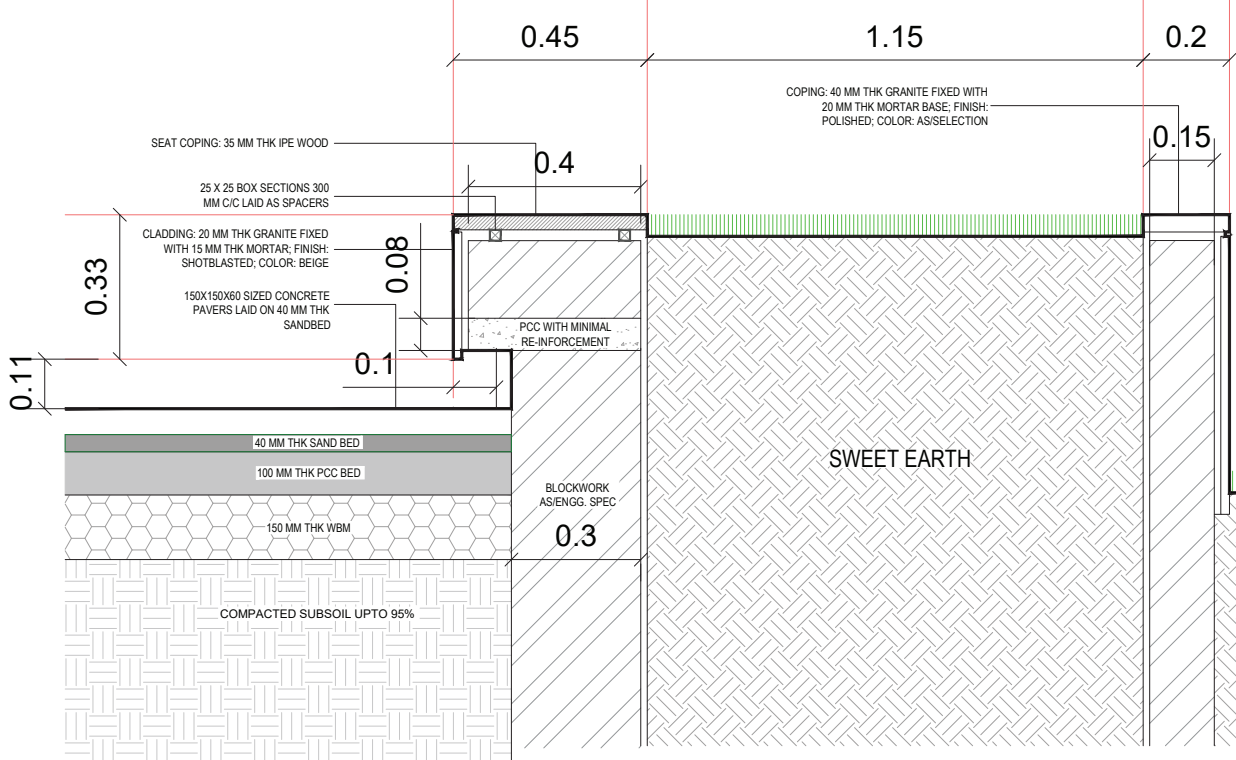
Light and Street pole details

SCALE - NTS DATE : 10-10-2023

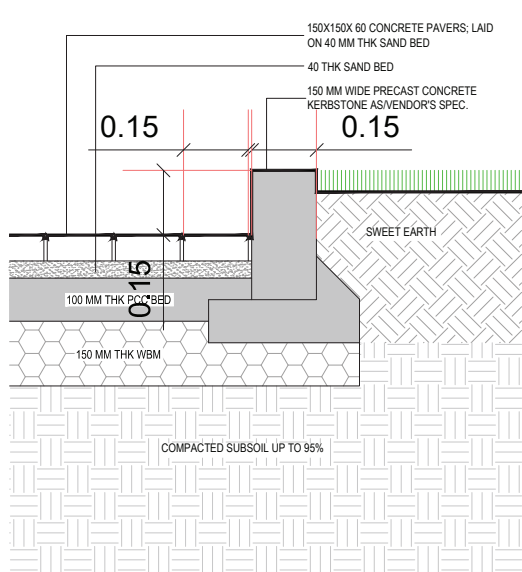
JANA URBAN SPACE
FOUNDATION
19/4, "SAIR BAGH" BUILDING, 4TH
FLOOR
CUNNINGHAM ROAD,
BANGALORE - 560052
info@janausp.org



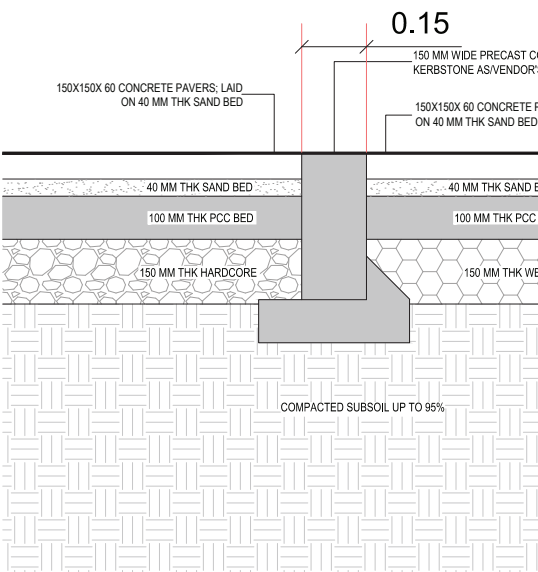
5.1.13. Pavement detail



PLANTER & SEAT DETAIL

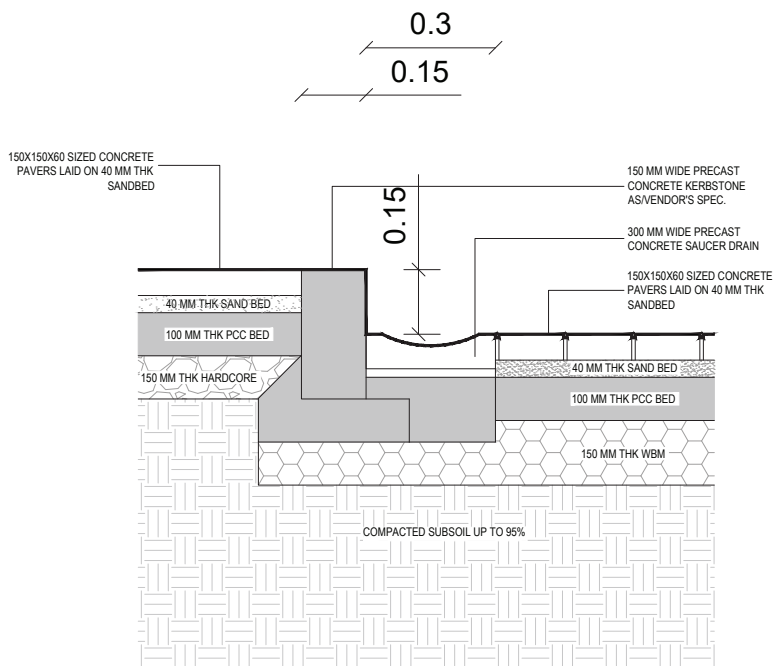


GREEN / PARKING EDGE

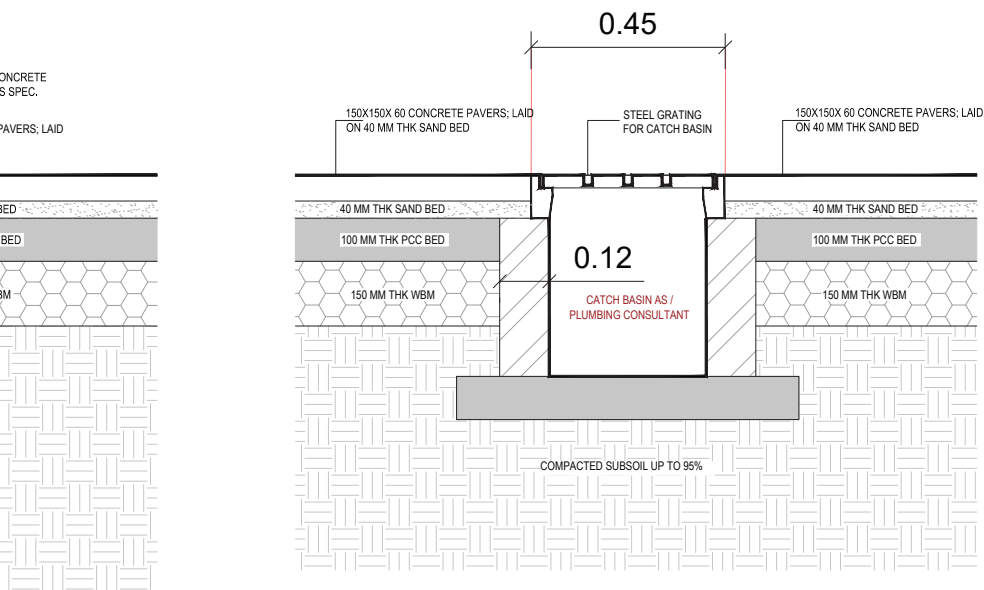


FLUSH KERB DETAIL

Conditions uncovered on site, may require changes. Contractor to discuss this with PMC and resolve the best possible accordingly



FOOTPATH & DRIVEWAY EDGE



CATCH BASIN DETAIL

Drawn by	Checked by	Verified by
V.S.		
REVISIONS		
S.No	Rev	Date

CLIENT :

Project Name:
Dignity - Crematorium Guidelines

Drawing No :

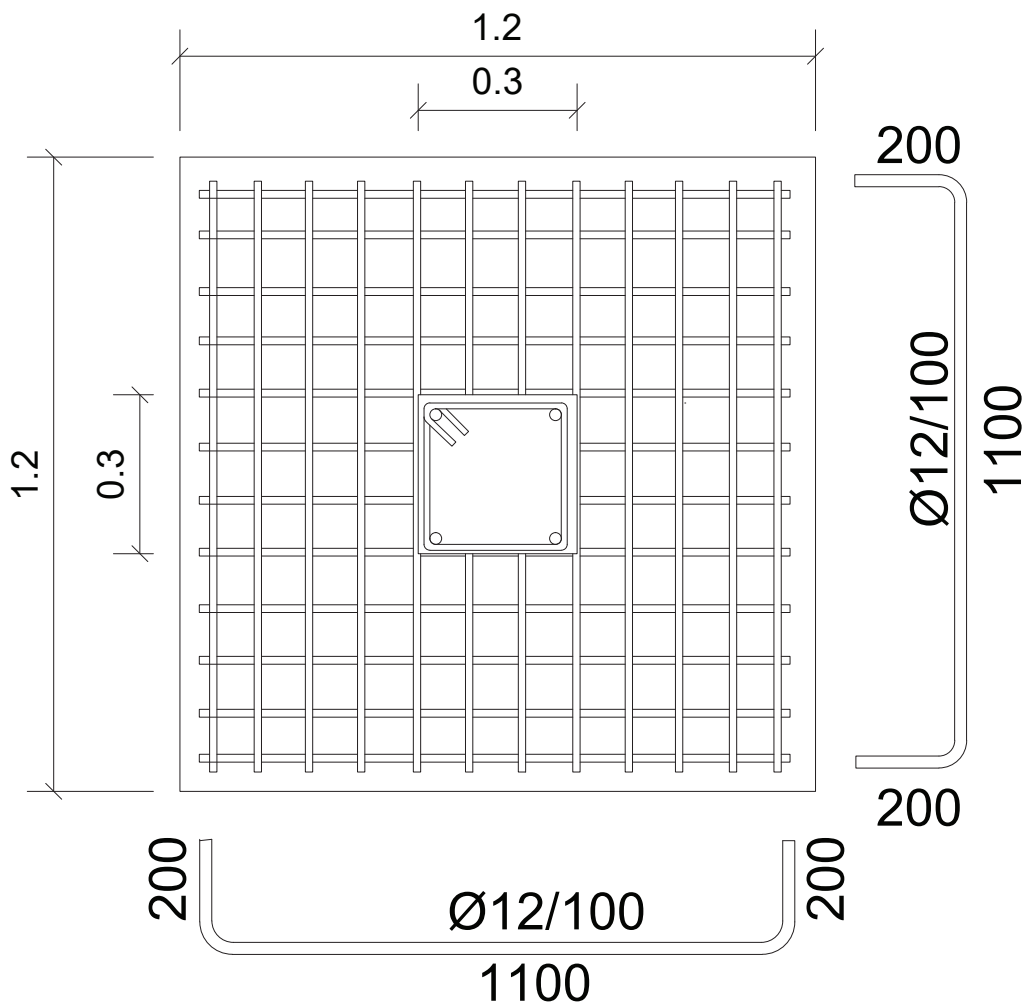
Pavement Details

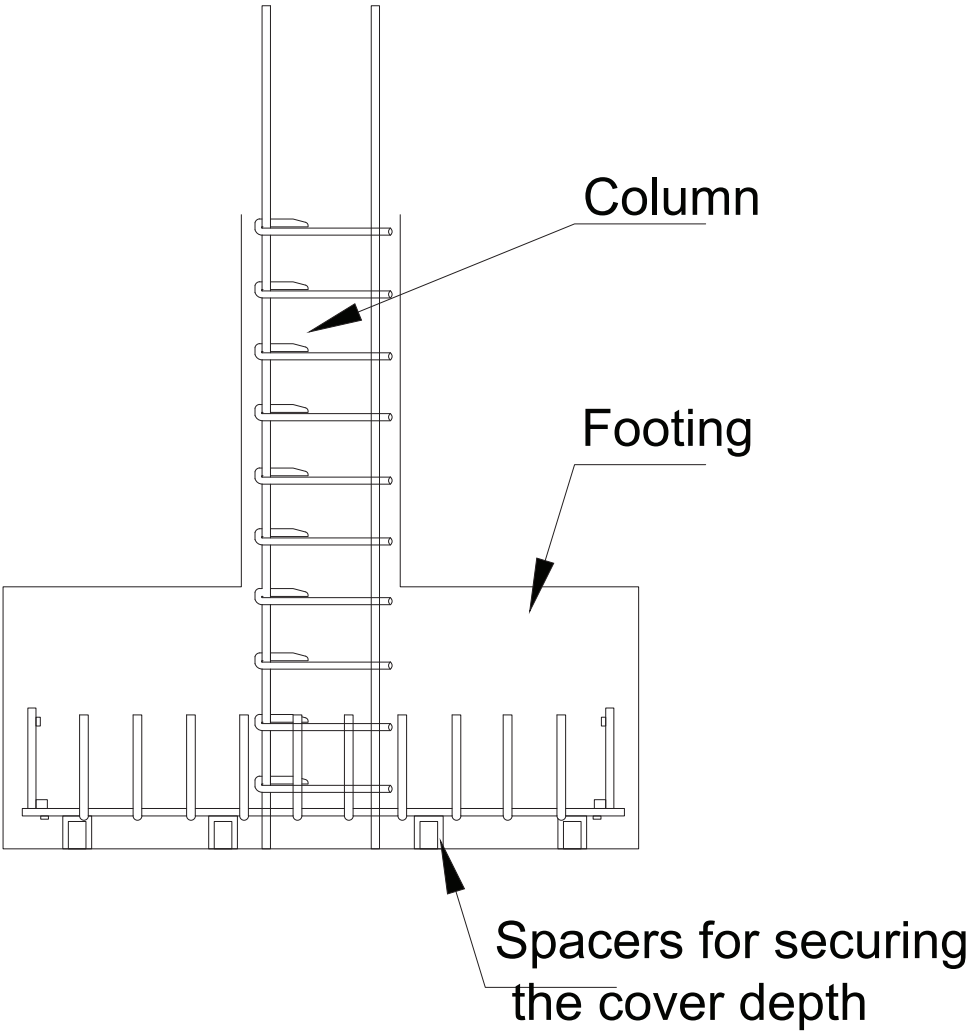
SCALE – NTS	DATE : 12-09-2023	
-------------	-------------------	--

**JANA URBAN SPACE
FOUNDATION**
19/4, "SAIR BAGH" BUILDING, 4TH
FLOOR
CUNNINGHAM ROAD,
BANGALORE - 560052
info@janausp.org



5.1.14. Footing detail





NOTES
These drawings are the property of JUSP and are not to be replicated, copied or misused in any way. Any discrepancies between drawings and ground conditions must be immediately brought to the notice of the client. All dimensions are in Meters unless mentioned otherwise. Follow written dimensions, do not measure the drawing.

Conditions uncovered on site, may require changes. Contractor to discuss this with PMC and resolve the best possible accordingly

Drawn by	Checked by	Verified by
V.S.		
REVISIONS		
S.No	Rev	Description
		Date

CLIENT :

Project Name:
Dignity - Crematorium Guidelines

Drawing No :

Foundation Details

SCALE - NTS	DATE : 12-09-2023
-------------	-------------------

JANA URBAN SPACE
FOUNDATION
19/4, "SAIR BAGH" BUILDING, 4TH FLOOR
CUNNINGHAM ROAD,
BANGALORE - 560052
info@janausp.org



5.2. Case Study 1

CREMATORIUM NAME: UDAN CREMATORIUM
(AMALSAD, INDIA)

ARCHITECTS: D6THD DESIGN STUDIO

AREA: 1000 SQ.M

YEAR: 2020

To change such underperforming hindu crematorium into a vital place at Amalsad town in India, d6thD design studio had been commissioned by a private trust. Architect came up with the idea to create a place not limited to fulfil the cremation rituals but to make much needed valuable public space for daily use in the urban setting.

Use of locally available random rubble stones and terracotta roofing tiles are not only instilling muted environment but also cost effective and time tested. The project encourages visitors to explore the different spaces and interpret its purpose through their own experiences and needs. By realizing death as a motivating element to focus the meaning of life on both a personal and social level; this unique crematorium- "Udan" becomes an important public space for the town as well as the surrounding villages.



Figure 43. Udan Crematorium
Source: ArchDaily

5.3. Case Study 2

Crematorium Name: MOKSHA Crematorium (Panaji, India)

Architects: Rahul Deshpande and Associates

Area: 8000 sqm

The design process took nine years as the religious groups, the clergy, the sentiments, the egos, and the bureaucracy contributed to the problems and subsequently found the solutions. The construction was simple masonry in English bond, meticulously designed with concrete columns and steel structure. The roof was pitched and covered with local clay tiles.

The design followed the same trajectory. Simple lines, the soothing play of mass and voids, and the minimal use of light all express calm and silence in unison. Towards nothingness. The experience of space compliments the mood of the mourners and attempts to counsel them, subtly but surely. The huge volume in the lobby, scarcely lit with a light from the sky signifying the loss, yet reflecting we are in the end alone, in this huge wide world. The latticed steel structure leads the mourners to the final point, where they can witness the cremation. The Pyres have a shelter reminiscent of a small countryside house, somehow creating a feeling that the loved one is leaving for his final journey from home and not from a burning pyre.



Figure 44. MOKSHA Crematorium
Source: ArchDaily

List of Figures

Figure 1. The cremation process	15
Figure 2. Existing crematorium shed in Bhubaneswar, Odisha	17
Figure 3. Small size crematorium	26
Figure 4. Medium size crematorium	27
Figure 5. Large size crematorium	28
Figure 6. Spatial criteria for site selection	31
Figure 7. Environmental criteria for site selection	32
Figure 8. Socio-cultural criteria for site selection	33
Figure 9. Influence vs. Interest matrix of stakeholders	38
Figure 10. Crematorium circulation and user movement	43
Figure 11. Crematorium lighting layout	45
Figure 12. Parking layout	46
Figure 13. Circulation plan for mortuary van and four-wheelers	47
Figure 14. Pre-preparation area - plan and section	49
Figure 15. Preparation area - Section	51
Figure 16. Ritual shed plan and section	57
Figure 17. Wood storage plan and section	61
Figure 18. Wood storage: electrical plan	62
Figure 19. Funeral shed plan and elevation	65
Figure 20. Funeral shed plan and surrounding area	66
Figure 21. Funeral shed service and utilities	67
Figure 22. Isometric views of types of funeral shed	70
Figure 23. Funeral pyre (Above: Isometric view, Below: Elevation)	71
Figure 24. Waiting Area	73
Figure 25. Administration Office plan and section	76
Figure 26. Administration Office electrical layout	77
Figure 27. Staff quarters plan and section	80
Figure 28. Staff quarters: electrical fixture layout	81
Figure 29. Restroom plan and section	82
Figure 30. Restroom: drainage plan	83
Figure 31. Memorial planting garden	85
Figure 32. Universally accessible ramps	88
Figure 33. Universally accessible pathway details	89
Figure 34. Universally accessible parking details	90
Figure 35. Accessible toilet	91
Figure 36. Types of signage	93
Figure 37. Design details for signages	95
Figure 38. Solid waste management plan	97
Figure 39. Water supply and disposal plan	99



Figure 40. Sample design development	107
Figure 41. Neighborhood level crematorium plan - Option 2	108
Figure 42. Neighborhood level crematorium plan - Option 3	109
Figure 43. Udan Crematorium	141
Figure 44. MOKSHA Crematorium	143

List of Tables

Table 1. Population as per planning unit	25
Table 2. Crematoria classification as per planning unit	25
Table 3. Spatial criteria for site selection	31
Table 4. Environmental criteria for site selection	32
Table 5. Socio-cultural criteria for site selection	33
Table 6. Data collected site and user survey	34
Table 7. Data collected from total station survey	35
Table 8. Data collected from geotechnical investigation	35
Table 9. Types of stakeholder participation	37
Table 10. Sustainable material palette for wood storage shed	63
Table 11. Sustainable material palette for funeral shed	69
Table 12. Sustainable material palette for waiting area	75
Table 13. Sustainable material palette for administration office and staff quarters	79
Table 14. Sustainable material palette for circulation spaces	101
Table 15. Landscape palette for memorial garden	103



Jana Urban Space Foundation

19/4, "Sair Bagh" Building,
4th Floor, Cunningham Road,
Bengaluru, Karnataka 560052

W <https://www.janausp.org/>

T +91 80 41200844 | 41500844