

## जाहिर सुचना

उप आयुक्त (उद्यान विभाग), पनवेल महानगपालिका हद्दीत नागरी दळणवळण साधनांचा विकास अंतर्गत प्रवाशांच्या सोयीसाठी विविध ठिकाणी पर्यावरण पुरक बस थांबे विकसित करणेबाबत आवश्यक बाबींकरिता बाजारभाव दरपत्रके मागविण्यात येत आहे. सदर बाबतचा तांत्रिक तपशील खालीलप्रमाणे आहे.

| Sr. No | Description   | Quantity | Rate             |
|--------|---|----------|------------------|
| 1      | पर्यावरण पुरक बस थांबे<br>Length: 24' X Width: 8' X Height: 11.5' | 01 Nos.  | Rs..... Per Unit |

### Item Specification

#### 1. Structural Design Standard:

- Compliance: The entire structure will be designed in accordance with Seismic Zone 3 requirements and will withstand wind speeds of up to 35 m/s. A certificate issued by a licensed structural engineer must be submitted, confirming compliance with IS codes for seismic and wind load requirements.

#### 2. Structural Members:

- Material: Galvanized Iron (GI) rectangular hollow sections (RHS) of premium quality (JSW/TATA/Apollo/Jindal or Any Equivalent brand) will be used for all structural members to prevent corrosion and ensure longevity.
- Base Frame: The base frame will consist of a 100x100x2mm GI hollow section, ensuring stability and load-bearing capacity. Special anti-corrosion treatment will be applied to the base frame for protection in harsh weather.
- Corner Post: Corner posts of the same 100x100x2mm GI hollow section will provide rigidity, with extra bracing for wind load resistance.
- Top Frame, Wall Stiffener, False Ceiling Grid: The top frame and wall stiffeners will use 100x100x2mm GI hollow sections. False ceiling grid will be made of 50x50x2mm GI, designed to support ceiling loads while reducing overall weight.
- Roof Grid and Seating Arrangement: Roof grids and seating frames will be made of 50x50x2mm GI Hollow pipe, ensuring adequate load-bearing capability for roofing and seating.

#### 3. Panelling:

- Exterior: The outer walls or cover panels of main body will consist of CNC-bent GI panels with a sheet thickness of 1.2mm duly welded and fabricated as per given design.
- Roof Wall: Aluminium Composite Panels (ACP) of 3mm thickness will be used for the upper body of bus stop as per the the layout. Structural supports will ensure stability and prevent warping or bending over time. This Panels then covered with 50mm SS Strips with mirror finished to ensure aesthetics and given architectural design.
- False Ceiling: Weather-resistant, exterior-grade Wood Plastic Composite (WPC) panels of 25mm Thickness with Grooves design will be used for the ceiling panel of bus stop as per the approved shade.

#### 4. Seating Arrangement:

- Material: Weather-resistant, exterior-grade SS304 Perforated CNC formed 3-seater chair need to be used with armrest to each chair.
- Seating Capacity: The benches will be ergonomically with necessary seating arrangement with a load-bearing capacity of up to 150 kg per seat.
- Fixing Arrangement: These benches fixed to the base by argon welding process to avoid theft and vandalism.

#### 5. Roofing:

- Material: The roof will be constructed using CNC-bent GI panels with 1.2mm sheet thickness. The roof will include an integrated water drainage system to prevent water accumulation and leaks.

#### 6. Painting:

- Corrosion Protection: The entire body will be coated with two layers of zinc-rich primer followed epoxy primer to ensure rust resistance. A final topcoat of weather-resistant paint will be applied to maintain aesthetics.

#### 7. LED Lights:

- Lighting System: 3 numbers of concealed LED panel of 2' x 2' lights will be installed with vandal-proof protection, ensuring long-lasting illumination. Lights will be integrated into the roof design to provide even lighting and reduce glare.
- Smart Control: LED lights will be connected to a smart timer system that automates the on/off functionality based on timing (day/night mode).

#### 8. Ceiling Fan:

- Design: 2 numbers of electric fans will be mounted in the ceiling with a vandal-proof grill. These fans will provide efficient cooling while maintaining safety against vandalism.
- Automation: Fans will be equipped with an automated on/off timer switch.

#### 9. Automation:

- Automation System: The lighting, fan, and signage systems will be connected to a central automated timer switch, allowing for energy-efficient operation based on predefined schedules (e.g., turning off at night).

#### 10. CCTV System:

- Cameras:
  - o Quantity: 3 bullet security cameras will be provided in each bus stop.
  - o Resolution: Each camera will have a minimum resolution of 2 MP to ensure high-definition video recording for clearer identification and coverage.
  - o Make: HIK Vision/CP+/Dahua or equivalent high-quality brand.
  - o Field of View: Cameras will be installed at strategic points to cover a 360-degree view around the bus stop. One camera will focus on the entrance, one will cover the seating area, and one will monitor back access.
  - o Features:
    - § Night Vision: Equipped with infrared (IR) LEDs to provide clear footage up to 30 meters in low-light or no-light conditions.
    - § Weatherproof: IP67-rated for waterproof and dustproof performance.

- Network Video Recorder (NVR):

- o Channels: 4-Channel NVR capable of recording all cameras simultaneously.
- o Storage: 4 TB hard disk with provisions for up to 30 days of footage backup. Automatic overwriting of old data after the storage limit is reached.
- o Remote Access: Footage can be viewed remotely via mobile apps or web interfaces using secured access protocols.



- **Connectivity:**

- o Then provision for internet via a 4G router with 4G SIM card connectivity, allowing for real-time streaming and access from remote locations. SIM card will be provided by corporation.
- o Power Backup: The NVR and cameras will be connected to the solar power system with an integrated backup battery to ensure continuous operation during power failures.

- **Switching and Cabling:**

- o Switch: 8-channel switch for camera network.
- o Cabling: High-quality D-Link CAT6 cables will be used for all network connections to ensure fast data transfer and signal integrity over long distances.

## 11. Scrolling LED Signage:

- **Display Type:**

- o LED Scrolling Display: High-brightness, energy-efficient LED display that is visible in night. The scrolling LED display will be used for bus number indications and advertisements.
- o Resolution: Minimum 32x288 pixels, ensuring adequate display quality for both bus information and advertisements.

- **Display Size:**

- o Dimensions: The signage will have a display size of approximately 10 feet x 1 feet for front, providing sufficient space for easy visibility of bus information and scrolling advertisements.

- **Content Display Features:**

- o Multi-Language Support: The display system will be capable of showing text in multiple languages (local language, English, etc.) to cater to a diverse population.

- **Durability and Weather Resistance:**

- o IP65 Rating: The signage Led panels will be IP65-rated, ensuring it is fully weatherproof (waterproof and dustproof), which is critical for outdoor usage.
- o Vandal-Proof: The LED screen will be protected by an impact-resistant polycarbonate cover and Aluminium frame, providing extra durability and protection from vandalism.
- o Operating Temperature: The signage system will be capable of operating in temperatures ranging from -10°C to 50°C, ensuring functionality in extreme weather conditions.

## 12. Electrical Fittings:

- **Safety Devices:**

- MCB (Miniature Circuit Breaker): A high-quality MCB (L&T/Schneider or equivalent make) will be installed in the electrical circuit to prevent short circuits and overloads. It will automatically cut off the power supply in case of any electrical fault.
- ELCB (Earth Leakage Circuit Breaker): To ensure user safety, an ELCB will be integrated into the system to protect against electric shocks due to ground faults or leakages. This device will immediately disconnect the power supply if it detects a leakage current above safe limit.

- **Conduits and Cabling:**
  - o High-Quality Wiring: All internal electrical wiring will use FRLS (Flame Retardant Low Smoke) copper cables for Polycab or equivalent brand to ensure durability, fire resistance, and long-term safety.
  - o Conduits: Electrical wiring conduits for additional protection against weather, corrosion, and potential vandalism. The conduits will be securely fastened and concealed within the structure for a clean appearance.
  - o Color-Coding: All wires will be color-coded according to electrical standards for easy identification during installation and maintenance.

- **Automation and Control:**

- o Automated Control System: All electrical fittings, including lights and fans, will be integrated into an automated control system with programmable timers. This will allow the lights and fans to automatically switch on or off based on pre-set schedules, minimizing energy wastage.

### 13. Solar Power System:

- Solar Panels:

- o Type: Monocrystalline solar panels, known for their higher efficiency and space-saving design, will be installed. Each panel will have a capacity of 550W, ensuring optimal energy production even under low light conditions.
- o Number of Panels: A total of 2 solar panels will be installed, providing a combined output of 1100W under standard test conditions.
- o Brand/Make: Panels will be sourced from reliable manufacturers such as WAAREE, Luminous, or an equivalent Tier-1 brand to ensure long-term reliability.
- o Mounting Structure: The panels will be mounted on a corrosion-resistant, heavy-duty aluminium or galvanized iron structure with a tilt angle of approximately 20°-30° (depending on geographic location) for maximum sun exposure and energy generation.

- Battery Backup System:

- o Type: Two high-capacity, maintenance-free 12V, 200Ah will be installed in series to store excess energy generated by the solar panels.

- Charge Controller:

- o Type: A MPPT Charge Controller will be installed to regulate the flow of electricity from the solar panels to the battery and inverter system. MPPT technology allows for real-time monitoring of solar output and ensures that the batteries charge efficiently.
- o Protection Features: The charge controller will include over-voltage, under-voltage, short-circuit, and reverse polarity protection to safeguard the solar system and electrical components.

- Wiring and Connectors:

- o Solar Cables: High-quality, UV-resistant solar cables (minimum 4 sq mm) will be used for all connections between the solar panels, charge controller, inverter, and battery system. All cables will be sized correctly to minimize power loss and ensure safety.
- o Connectors: MC4 connectors (IP67-rated for waterproofing) will be used for all solar panel connections to ensure secure and weatherproof connections.
- o Cable Management: Cables will be routed through UV-protected, flexible conduits to protect against environmental damage and ensure a clean installation.

### 14. Pole Mounted WPC Dustbin:

- Design and Structure:

- o Type: Double-sided, pole-mounted waste bin with a modern aesthetic, designed for outdoor use and easy maintenance.
- o Material:
  - § The main body and cladding of the dustbin will be made from Wood Plastic Composite (WPC), a durable, eco-friendly material known for its resistance to weather, moisture, and decay.
  - § Galvanized Iron (GI) Section: The supporting structure, including the stand and mounting pole, will be made from a 100mm X 50mm GI hollow section with a 2mm thickness, ensuring strength and resistance to rust.
  - § Mounting Pole: The pole will be powder-coated in matte black for a sleek finish and enhanced weather resistance.



- Dimensions:

- o Overall Dimensions:

- § Length: 360mm

- § Width: 860mm

- § Height: 950mm

- o Volume Capacity: The dustbin will have a total capacity of 100 liters, divided into two 50-liter compartments to allow for waste segregation (e.g., recyclable and non-recyclable waste).

- Cladding and Aesthetic:
  - o WPC Panels: The exterior cladding will be made of weather-resistant WPC panels in a wood-grain finish to give the dustbin an attractive and modern look that complements the bus stop's design.

- o Color Scheme: The WPC cladding will be finished in a wooden texture, while the pole and base will have a matte black powder-coated finish to provide a contrast and enhance durability against rust and fading.

- Waste Compartment:
  - o Liner and Liner Locking: Each compartment will be equipped with GI (galvanized iron) liners duly powder coated, which are durable, waterproof, and resistant to tearing. Liners will have a locking arrangement to secure them inside the bin, preventing vandalism and spillage.
  - o Easy Removal: The dustbin will have a hinged MS (Mild Steel) top lid, allowing for easy access to the liners for quick removal and cleaning. The hinged design will be spring-loaded to prevent accidental opening.

- Grouting and Mounting:

- o Mounting Base: The dustbin will be mounted on a 5mm thick GI flange at the bottom, with a size of 150mm X 150mm. The flange will have 4 holes spaced 120mm apart (on a Pitch Circle Diameter – PCD) to secure the dustbin.

- Vandal-Proof Design:

- o Reinforced Components: All external components, including the pole, base, will be reinforced and coated to resist tampering and vandalism.

#### 15. Bus Stop Base Construction:

The base structure of the bus stop shall be fabricated using GI square hollow pipes of size 50 mm x 50 mm x 2 mm (Make: TATA/JSW/Apolo/Jindal or equivalent), arranged in a grid pattern of 2 feet x 2 feet. This structural framework will be overlaid with 16 mm thick high-strength cement sheets for load distribution and surface uniformity.

#### 16. Signage Lollipop:

- Purpose: The Signage Lollipop will serve as a highly visible, illuminated marker for the bus stop, helping commuters identify the stop from a distance, especially at night or in low-visibility conditions. It will also offer branding opportunities and display important bus stop information.

- Design and Structure:

- o Shape and Size:

- § The lollipop signage will be square with a size of 2 feet X 2 feet, ensuring high visibility from different angles and distances.

- § The lollipop will be mounted on top of the roof of bus stand to ensure a prominent height of sufficient height from the ground, making it visible from afar.

- o Materials:

- § The main body of the Lollipop signage will be made from GI panels for durability, lightweight, and corrosion resistance.

- § The supporting pole will be constructed using GI sections (Galvanized Iron) with a wall thickness of 1.2mm for structural strength and weather resistance.

o Finish:

§ The entire structure, including the pole and signage casing, will be powder-coated in matte black or any approved colour scheme, ensuring long-term durability and aesthetics. The powder coating will be resistant to rust, fading, and peeling due to harsh outdoor conditions.

o LED Backlighting:

§ The signage will feature energy-efficient LED backlighting to ensure clear visibility at night. The LEDs will be installed around the perimeter of the signage to provide uniform, soft illumination without causing glare.

o Power Source:

§ The LED lighting system will be powered by the solar energy system installed at the bus stop, making the signage energy-independent and eco-friendly. It will be connected to the backup battery to ensure operation even during power outages.

o Dual-Sided Signage:

§ The lollipop signage will have branding or information printed on both sides, ensuring visibility from either direction of approaching commuters or vehicles.

§ The bus stop name, route numbers, and any municipal or corporate logos will be prominently displayed in high-contrast, reflective vinyl for easy readability during the day.

§ Vinyl Branding: Both sides will be covered with 3M/LG/ or equivalent high-quality vinyl, which is UV-resistant and waterproof, ensuring that the print remains vibrant and legible over time.

o Pole Mounting: § The signage lollipop will be securely mounted on top of the GI pole using high-tensile GI brackets and fasteners to ensure structural stability even in high winds.

#### 17. Writing Desk

- Material: GI Specially formed panel
- Mounted on one of the right-side walls as per the approved Drawing with painted finish with high abrasion resistance.

#### 19. Portability:

- The prefab bus stand will be portable in nature in such a way that in case of road widening it can be lifted and can be shifted to another location.

#### 20. Grouting:

- Specially designed grouting bolts to be provided on both sides of prefab bus stand which will be used for grouting the main structure with the ground to provide stability and protection against wind load.

#### 21. Lifting Hook:

- Prefabricated bus stand will have necessary 4 numbers of specially designed lifting hook having capacity to take the load of bus stand. This lifting hook will be CO2 welded to the main structure.



## 22. 3D Letters:

- Material:

The 3D letters will be made from acrylic, both materials known for their durability, resistance to weathering, and ability to maintain their appearance over time.

- Thickness: The letters will be 50mm thick, providing a bold, three-dimensional appearance that enhances visibility.

- Mounting:

Fixing Method: The letters will be mounted onto the top fascia of the bus stop using high-strength stainless steel studs or acrylic adhesive, depending on the material.

- Acrylic Letters: Acrylic letters will be mounted using 3M VHB double-sided adhesive tape or structural silicone, providing a seamless, clean installation without visible fasteners.

- Illumination:

Backlit Option: The 3D letters will have an optional backlit feature using LED strip lights. The backlighting will provide a soft glow around the letters, making them stand out at night and in low-light conditions.

- Lighting System: Energy-efficient, waterproof LED strips will be installed behind each letter to provide uniform illumination. The LEDs will be powered by the bus stop's solar energy system, ensuring an eco-friendly lighting solution.

## 23. Earthing:

The structure will have earthing systems –for electrical safety and for lightning protection.

- Each earthing pit will have a metal pipe (1.5 meters long) buried in the ground.

- Around the pipe, backfill compound of 15 kg (charcoal, salt, and sand) of will be filled to improve conductivity.

- Special wires will connect the structure to these pits to safely carry any electric current into the ground.

## 24. Lightning Arrester:

A lightning rod will be installed on top of the structure to protect it during lightning storms.

- Made from copper rod will be about 1.5 meters higher than the roof.

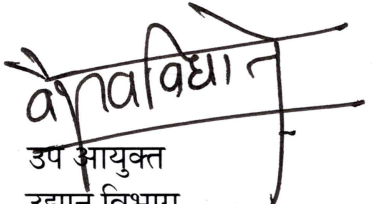
- When lightning strikes, the rod will safely carry the electricity down through a metal strip and into the ground through the earthing pit.

- This system prevents damage to the structure and ensures the safety of people nearby.

१) सदर कामाची सूचना दि. २६/०८/२०२५ ते दि. ०१/०९/२०२५ पर्यंत सायंकाळी ०५:०० पर्यंत उपलब्ध राहणार आहेत.

२) सीलबंद निविदा ०१/०९/२०२५ पर्यंत सायंकाळी ०५:३० वाजेपर्यंत पनवेल महानगरपालिकेच्या उद्यान विभागात स्विकारण्यात येतील व प्राप्त झालेली दरपत्रके शक्यतो दि. ०३/०९/२०२५ रोजी सकाळी ११.३० (शक्यतो) वाजता उपस्थित ठेकेदार यांच्या समक्ष उघडण्यात येतील.

३) अटी व शर्ती युक्त निविदांचा विचार केला जाणार नाही.

  
उप आयुक्त  
उद्यान विभाग

पनवेल महानगरपालिका

जा.क्र पमपा/उद्यान/६५२५/प्र.क्र.४९/ ५९९ /२०२५

दि. २६/०८/२०२४

प्रत माहितीस्तव —

१. प्रसिध्दीकरीता

२. माहिती फलक करीता

