

TERMINAL BUILDING, PETRAPOLE, WEST BENGAL (CENTRIC TO STEEL)

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- **Petrapole ICP (Integrated Check Post) :**

Petrapole stands as the Indian section of the Petrapole-Benapole border crossing connecting India and Benapole in Bangladesh. Situated near Bongaon in the North 24 Parganas district of West Bengal, the Petrapole border represents the sole land port in South Bengal. Petrapole stands as the largest land port in South Asia, serving as the primary point of entry for passengers from Bangladesh. Annually, it manages the handling of approximately 2.3 million (23 lakh) travellers, underscoring its pivotal role in cross-border transportation. Approximately 30% of the trade conducted on land between India and Bangladesh occurs via the Petrapole Land Port.

- **Introduction:**

A state-of-the-art passenger terminal is nearing completion at the Petrapole land port, poised to revolutionize the movement of individuals between India and Bangladesh. The new terminal is designed to accommodate over 20,000 passengers daily, with a capacity of handling 2,500 passengers simultaneously. Spanning an expansive 60,000 square meters, the terminal is being constructed by Shapoorji Pallonji Engineering & Construction, at an estimated cost of Rs 450 crore, boasting a contemporary airport-like appearance.

- **Initial Phase and Construction:**

Initiated in February 2020, the construction faced delays due to the Covid-19 pandemic. However, upon completion, the terminal is anticipated to offer a visually appealing architectural spectacle. The three-tier structure, conveniently accessible from NH35, will feature dedicated counters for immigration and security checks, waiting areas, duty-free shops, a cafeteria, medical facilities, currency exchange counters, belt conveyors, offices, a hostel, and other amenities. Additionally, the basement will accommodate parking facilities.

- **Current Scenario and future projection:**

Currently, the existing infrastructure experiences congestion, particularly for passengers entering India from Bangladesh, with the capability to handle only 550 passengers simultaneously. The new terminal aims to address this challenge by efficiently serving 2,500 passengers at any given time and processing up to 20,000 passengers daily. The Petrapole integrated check-post is slated for a complete makeover, and once it is operational, promises passengers a seamless experience with the operationalization of the new terminal.

- **Petrapole Land Port at a Glance**

- The largest land Port in South Asia, *Land port* Petrapole is located along the international border between India and Bangladesh, at a distance of about 80 kms from the city of Kolkata.
- Petrapole (India)-Benapole (Bangladesh) is an important land border crossing for India-Bangladesh both in terms of trade and passenger movement.
- Nearly 30 percent of land-based trade between India and Bangladesh takes place through *Land Port* Petrapole
- Since its operationalization in February 2016, the *Land Port* has been witnessing an increasing number of passenger movement with an average of 22 lakh people crossing the border post on either side each year.

- **Project Stakeholders:**

- **Client:** Land Ports Authority of India
- **Architecture, MEP & Structure Engineering Services:** Creative Group (For RITES Limited)
- **Contractor:** Shapoorji Pallonji Engineering & Construction

- **Steel – A key element in the construction**

The huge structure visible from the National Highway, is being covered with Steel Roof Arch type structures. The main highlight of the structures are these arches which have varying spans and heights. This segmental differentiation between the structures gives it a very defining and distinct look.

The major observations and facts about the use of steel in this structure are as follows:

- The centre is being constructed into 3 segments with the length of 100m each. The width of each section will be 60m, 55m and 50m and the heights will be 35m ,30m and 30m respectively
- The total area covered by the structure will be approximately **60000 sq. m**
- An estimated amount of **8000 Metric Ton** of structural steel has been used in the structure.
- The huge spans have been obtained by the Arch-type frame structure
- Tensile member frame structures will be also situated as the outside stalls of the Immigration centre
- **SAIL** E350 BR Grade structural steel has been used in the whole structure.

- The Roof Cladding will have both opaque and translucent sheets to allow part of sunlight for daylighting features
- The supports at the end of the structure are Pin Jointed
- The sections used in the structure are box type tapered specially fabricated for this project.
- The erection of the arch bridge is being done in parts with each arch section joined together to form the whole arch.
- This construction incorporates both bolted connections and welding. Initially, there were concerns about the finishing of the structure with bolted connections, prompting the inclusion of welding as an alternative. However, the welding process is time-consuming during erection, whereas bolted connections allow for significantly faster structure assembly in comparison.



Fig 1 : Outside View



Fig 2: Inside View



Fig 3: Full frontal view of the structure

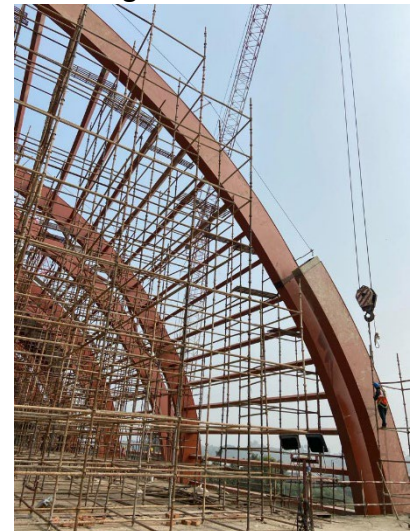


Fig 4: Hollow sections being erected at the site



Fig 5: Pin Jointed base



Fig 6: Site as from NH 35



Fig 7: INSDAG Officer at the Segment 3 of the site



Fig 8 : INSDAG Officer with Mr Kunal Mahapatra, Manager, Formwork Division, Shapoorji Pallonji E&C, Kolkata RO