

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 4, Issue 6, June 2015

## Planning Analysis and Design of World Class Railway Terminal

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**ABSTRACT:** The main objective of this paper is to prepare a “world class railway terminal station”. The terminal has been designed for the population of 3, 40,000 passengers per day and 200 tones of goods to be handled. The terminal station employee 12 platforms with includes two tier 8 platforms at ground level and 4 platforms at 1<sup>st</sup> tier. This terminal will facilitate will all modern facilities includes ramps, multistoried vehicle parking, facilities for disabled people and so on.

**KEYWORD:** Terminal station

### I.INTRODUCTION

This project presents a perspective in transport facilities and design of railway terminal building. It a movement to effectively connect the railway [1].The tendency has recently become a evident in several stations, affecting their architecture and interior design. Accordingly a new form of railway terminal has been designed to change the conventional image of terminal. The role of the station and communities is another issues discussed in this project

Its development gives a significant guidance for the design of terminal station. Noticeable a good relationship between stations and their communities encourages the commercial approaches and economic growth; these will bring together transportation facilities, commercial developments, local activities that allow the congregation of all classes of people.

This concept is now considered essential to providing convenience for the passengers. They include a well designed buildings provided with various kinds of integrated services such as restaurants , newsstand, shopping malls ,small shops and travel information system [8].

### II.AMENITIES AND PLANNING METHOD

#### Intermodel concept

The intermodal concept defines the transportation facilities of the 21th century [7]. The idea is described in several ways. It could refer to the interaction between the people, service, and different modes of transportation. According to Muller “the concept of transporting passenger and the freight on two or more different modes in such a way that all parts of transportation process including the exchange of information, are efficiently connected and coordinated”. The mix of transportation facilities will meet the diverse needs of population. As a consequence, they will form an integral part of urban area.

The need for intermodal transportation facilities has grown over years and the concept is now considered essential to providing convenience for the passengers[5].

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## III. ASPECTS OF STATION DESIGN

The design of today's railway station tends to be different in expression from their early age. Presently they often designed in such a manner to take advantage of the existing structure that affects the spatial planning. Attention is greatly paid to the problem solving of their interior spaces [6].

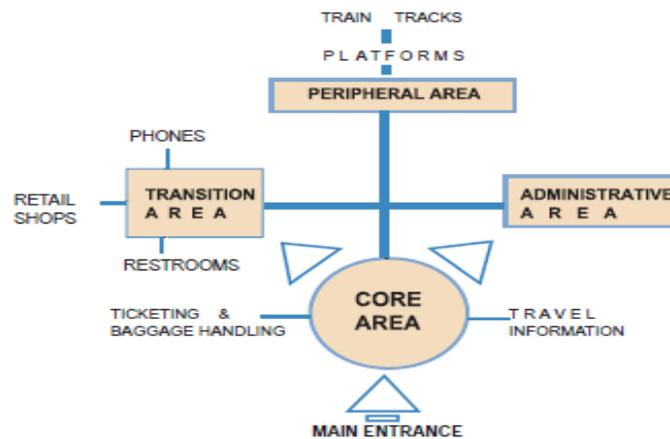


Fig 1: Layout sketch of world class railway terminal

### Passenger requirements [6]

The station should provide all facilities required by public such as:

- A booking office for tickets
- Passenger platform with or without shelter
- Waiting rooms and retiring rooms
- Other facilities like public telephone, refreshment room, telegraph office, inquiry office, etc
- Microphone to announce the arrival and departure times of trains as also for communicating to public the changes of time schedule platform number etc
- Guides from railway department to help the illiterate passengers.
- Provisions for disabled people

### Modern facilities provided

The modern facilities which are all provided are listed below

- Banks
- ATM's
- Primary health center
- Shopping malls
- Cinema theaters
- Vehicle parking facilities (5000 vehicles )
- Post office

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## Station components

The various station components such as

- Passenger platforms
- Drinking water taps
- Chairs
- Waiting rooms
- Cloak room
- Restaurants

These components are designed as per the future population.

## Access for the disabled persons

The design of station ought to meet barrier free requirements through the facilities. Accessibilities is an issues that concerns everyone [11]. The disable people using a railway station not only needs wheelchairs, but they include blind and partially sighted people, deaf, people with learning disabilities, people with heavy luggage etc. impediment access should not be considered only physically but also psychologically. In addition to solving the problems of steps, curbs etc should be avoided as much as possible and alternative arrangement is provided to them.

## Economical development through commercial

Adopting the intermodal concept makes the station more complex. More functions are integrated, and number of passengers is also increased. The station appears to be more than a people-processor, but can expedite people's life style [4], [9]. It gives an opportunity to bring together restaurants, retail outlets, banks post offices, Cinema Theater, shopping malls so on.

## Analysis and design Loads

Loads are the forces which are applied on the structure [2&3]. This may be either internal force or externally applied. the various forces acting in the structure are given below

- Dead load
- Live load
- Seismic load
- Wind load

## Analysis

Before analyzing the structure the beam column layout has to been prepared for both the terminal building and vehicle parking [10]. The various loads has been generated using IS 875 part 2\$3. Then the structures has been given a various load combination

- Dead load+ Live load
- Dead load + live load +wind load
- Dead load + live load + seismic load
- Dead load+ Seismic load
- Dead load+ wind load

The structures have been analyzed for the above load combinations and the moments have been obtained to design the structural components.

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## V.DESIGN

The structural components of the terminal station have been designed as per Indian Code provision. The structural components which include in the terminal have been listed below

- Slab
- Beam
- Grid beam
- Column
- Footing
- Staircase
- Ramps

These components have been designed using the moments/load obtained from the analysis report.

## VI. CONCLUSION

Applying the intermodal concept in the rail services heralds a number of developments, one of which the role of railway station. Increasing the number of passengers has resulted in the need of modern and regional design of station. As a result the conventional stations are gradually replaced by station complexes which do not serve alone. This not only gives a recreation center it also increases the economical position of the station.

They are not just place where train stop to collect and deposit passengers, but they become a gateway to form a communities.

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ISSN(Online): 2319-8753  
ISSN (Print): 2347-6710

# International Journal of Innovative Research in Science, Engineering and Technology

*(An ISO 3297: 2007 Certified Organization)*

**Vol. 4, Issue 6, June 2015**

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