Design of High Speed Stations in Turkey

UIC nextstation TEHRAN 2019

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ANKARA HIGH SPEED TRAIN STATION

PROJECT SPECIFICATIONS

- **Sociological and Economical data:** In the area where the former station building is located, construction was completed in 2016 with Build-Operate-Transfer (BOT) model. The historical Ankara Station building is preserved.

- **Urban and Spatial Data:** Construction was completed and opened to operation in the city center of Ankara. High Speed Station is integrated with commuter lines. The connection works to the subway line are continuing. It will be integrated with all modes of transportation as soon as possible.

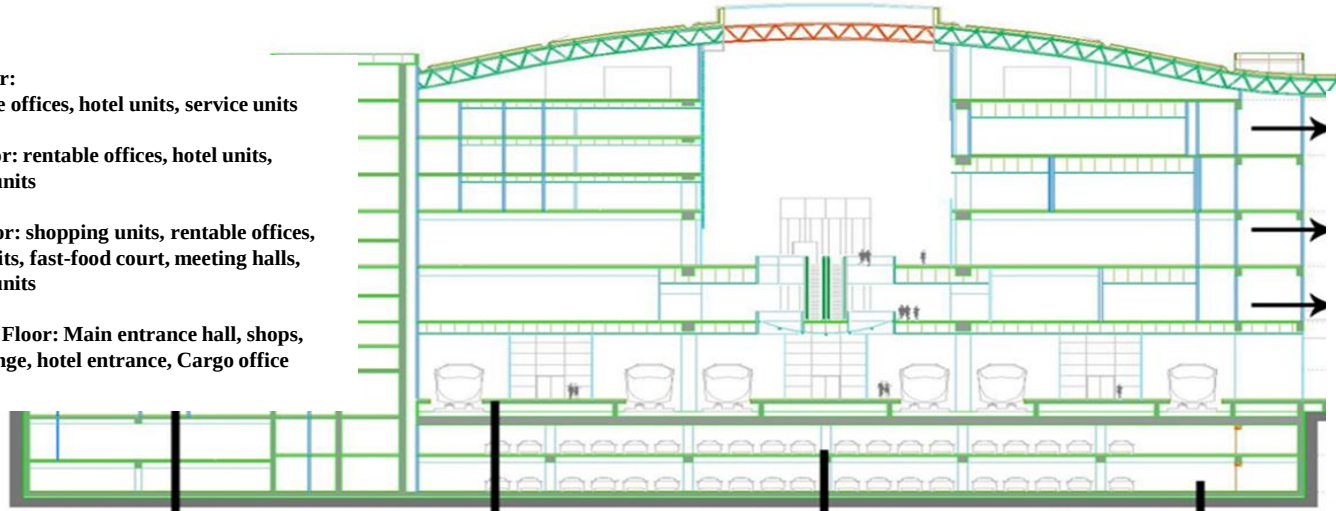
TECHNICAL INFORMATION

4th Floor:
Rentable offices, hotel units, service units

3rd Floor: rentable offices, hotel units, service units

2nd Floor: shopping units, rentable offices, hotel units, fast-food court, meeting halls, service units

Ground Floor: Main entrance hall, shops, VIP lounge, hotel entrance, Cargo office



3rd Floor:
Ball halls, leisure center, service units

1st Floor:
TCDD offices, shopping units: shops, restaurants and cafes, building service units.

Ground Floor:
Ticket offices, CIP, TCDD offices, building service units, waiting units, infirmary, shops, cafes, restaurants

1.Basement Floor
Technical volumes, shops, Masjids for man-woman, left luggage

Platform Floor
6 HST lines and 3 platforms sized 11x420 m

2.Basement Floor
Indoor car parks, technical volumes, depots for TCDD and shops

3.Basement Floor
Indoor car parks, technical volumes, depots for TCDD, shops and 3 pedestrian crossings for subway

ANKARA HIGH SPEED TRAIN STATION

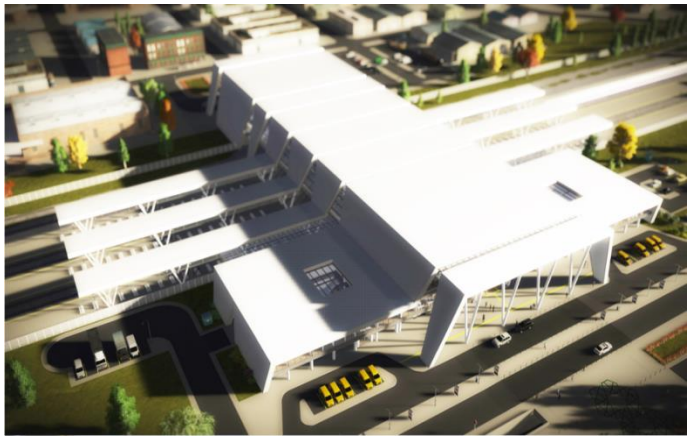
Technical Specifications of the Project

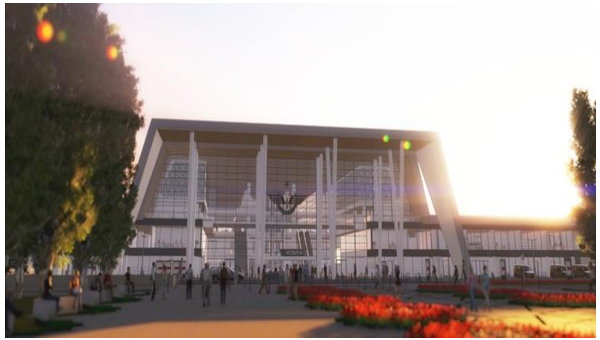
- Total Construction site of the building: 171.000 m²
- Platform Construction Area: 12 600 m². Contains 3 platforms totally.
- Marquise Construction Area: 6 000 m²
- Number of passengers per day: 50.000 passenger (for the year 2023)

Units in the Building:

- Circulation, Ticket Offices, Passenger Waiting and Distribution Areas
- Administrative areas (TCDD offices, cafeteria, meeting and training hall, ticket offices, technical depots…)
- Commercial areas (restaurant, cafe, bank, post office, shops, agencies, bureau, hotel, office…)
- VIP and CIP lounges
- Indoor parking space approximately 40.000 m2
- Technical Volumes

KONYA BUĞDAYPAZARI HIGH SPEED STATION





Technical Specifications of the Project

- **Total Construction site for the buildings:** 29 500 m²
- **Platform Construction Area:** 12 000 m². Contains 3 platforms totally.
- **Marquise Construction Area :** 6 000 m²
- **Station area and land use area:** 35.000 m²
- **Number of passengers per day :** 11000

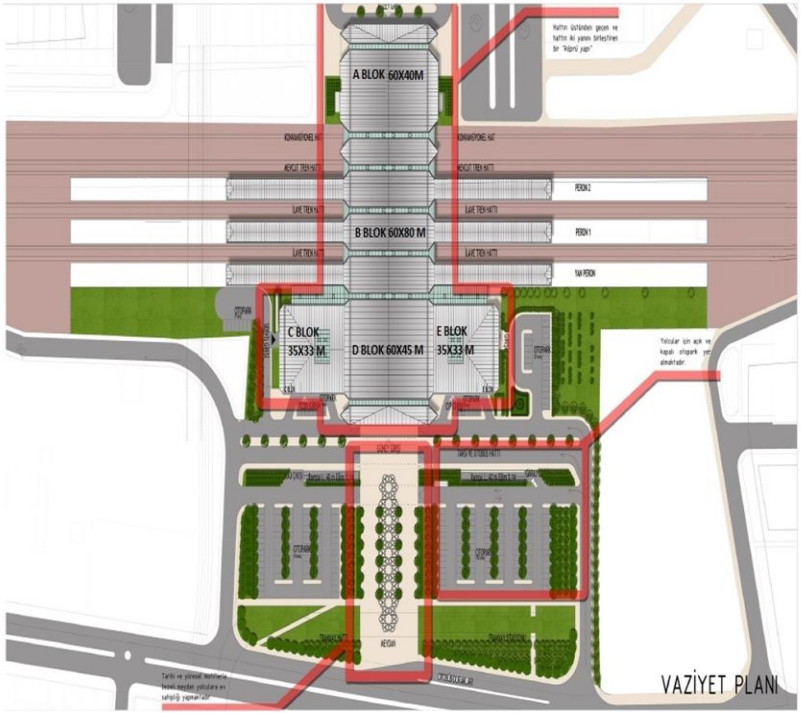
- **Units in the Building** :
- Circulation, Ticket Offices (15 offices), Passenger Waiting and Distribution Areas
- Administrative areas (TCDD offices, cafeteria, meeting and training hall, ticket offices, technical depots…)
- Commercial areas (restaurant, cafe, bank, post office, shops, agencies, bureau, hotel, office…)
- VIP and CIP lounges
- Indoor car park (for 117 cars)
- Service Areas (8)
- Technical Volumes

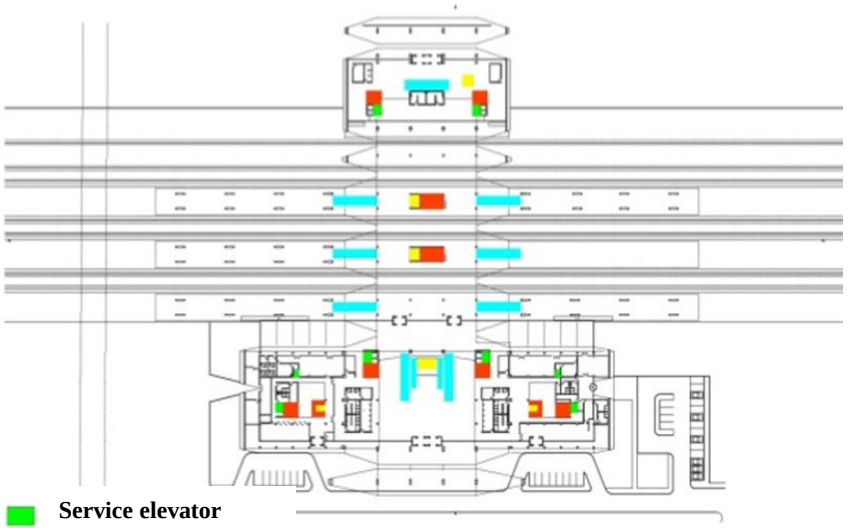
KONYA BUĞDAYPAZARI HIGH SPEED STATION

- **Sociological and Economic Data:** The design has been started by considering the data regarding the population of Konya, the number of train runs, passenger density, etc.

- **Urban and Spatial Data:** Konya Bugdaypazari HST station is under construction. The station will be integrated to both subway and tram.

KONYA BUĞDAYPAZARI HIGH SPEED STATION





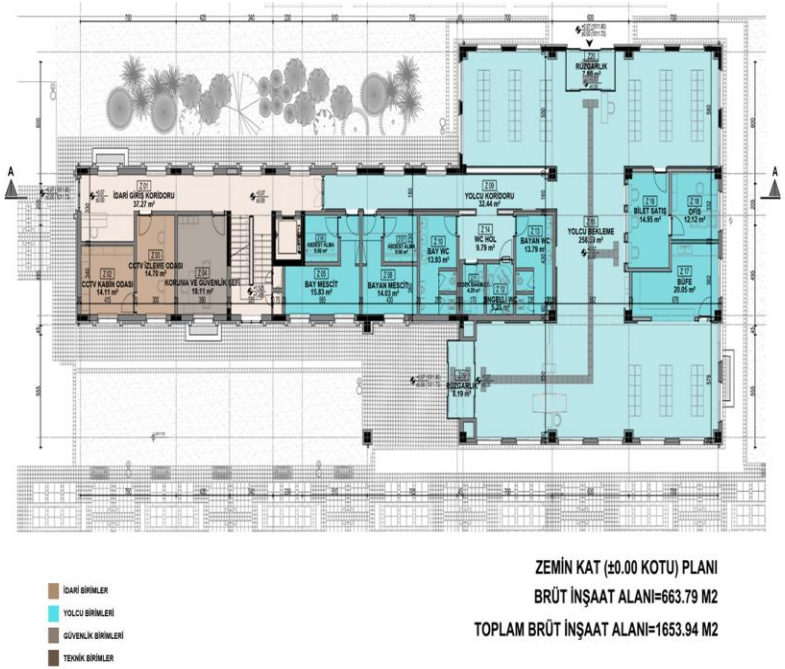
- Service elevator
- Fire escape
- Escalators
- Passenger Elevator

ÇUMRA HIGH SPEED STATION

SPECIFICATIONS OF THE PROJECT

- <u>For ÇUMRA Station:</u>
- **Passenger Capacity:** 1000 passenger daily
- **Total construction area :** 1650 m2
- **Platform Types:** 2 Platforms

ÇUMRA HIGH SPEED STATION



SPECIFICATIONS OF THE PROJECT

- **Sociological and Economic Data:** It was designed in the area of the former station building next to the existing historical Çumra station building.

- **Urban and Spatial Data:** Çumra HST Station building is designed to be integrated with public transportation modes within the city.

ABOUT THE DESIGN OF HIGH SPEED STATIONS

As mentioned in the previous slides about the high-speed train stations, there are many parameters that effect the design of the stations. We can divide them into design parameters and technical parameters.

Design parameters :

1-Space Design
2-Security
3-Ticket Control System
4-Pedestrian and vehicle approach
5- Cultural Requirements

Technical parameters:

National and International Standards
1- Structure and Freight Gauge
3- Electrification Gauge
4- Platforms (UIC 741)
5- Access for Disabled People(UIC 140)

1.Space Design:
First of all, the administrative units are determined. Afterwards, it is determined whether there will be commercial units such as restaurants and shops according to the location of the station building. Accordingly, the square meter of the building is developed.

2.Security
Depending on the country where the station is designed, it is decided whether there will be a security point at the entrances and exits. For example, in European countries there are no security points in the entry and exit points of the stations however we have security checks in the stations in Turkey. And this has a significant impact on the design of the building.

3. Ticket Control System
Where and how ticket control will be carried out is an important parameter affecting the design of the building as it will affect the passenger circulation in the building. For example, in the European countries there is no point in the structures in the station for the control of the tickets, but in Turkey the tickets are checked in the platforms. It is necessary to design the necessary areas for the passengers to land on the platforms in a controlled manner.

4-Pedestrian and vehicle approach
It depends on whether the station is designed inside or outside the city. In the train stations designed in the city where subway, suburban tram and integrated transportation are provided, there is also intensive pedestrian use. The intense use of pedestrians means that commercial areas are going to be placed where people will intensively pass and the station is designed accordingly. Because in this type of stations, they are addressed not only for passengers who want to use this structure but also for the transit pedestrians.

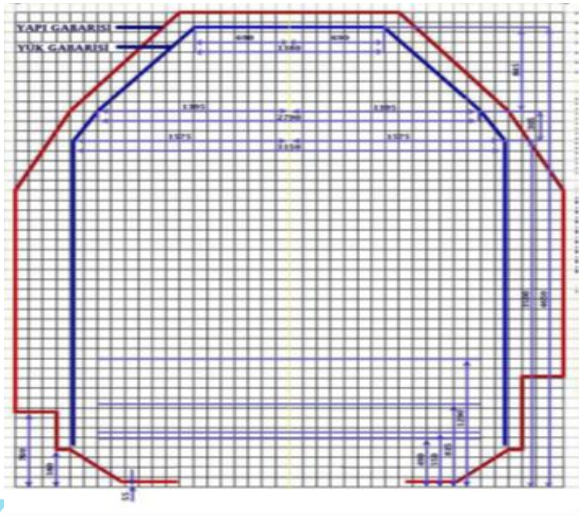
In the train stations designed outside the city, the design of the train station changes accordingly as the passengers will come here by tram, subway, bus or auto. When compared with the stations in the city, the stations outside the city will have more arrivals with cars and carrying out the loading and unloading functions of the road arrangements will be an important parameter affecting the design.

5. Cultural Requirements
The spatial requirements vary according to the country where the station is built. For example, in Europe there are no VIP-CIP lounge distinctions, but there are first class passenger lounges. Again, in our country, women and men arrangements in Masjids are located in high-speed train stations.

DESIGN OF A HIGH SPEED STATION

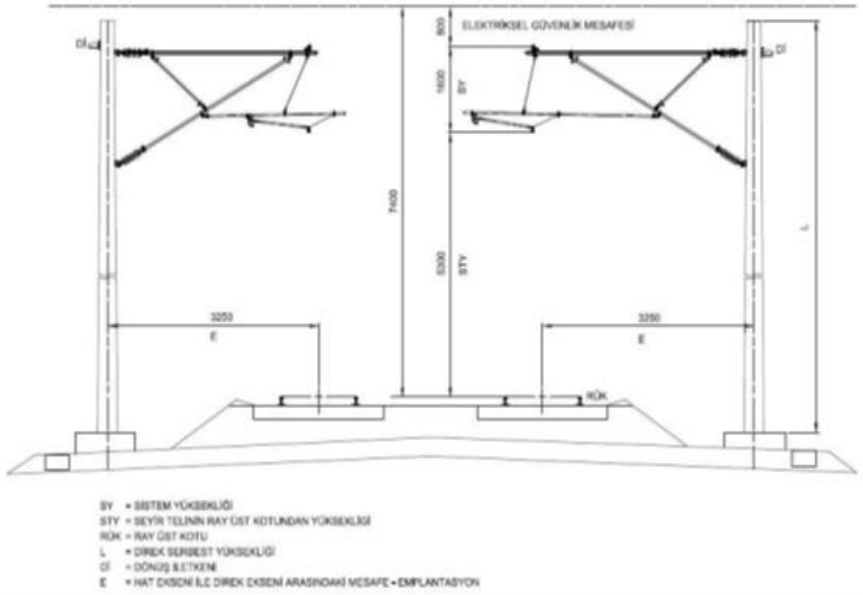
1&2. Structure Gauge:

Marquise and Platform design and freight gauge is one of the most important criteria for high speed train station projects. It is a must to comply.



3.Electrification Gauge :

Particularly in structures where high-speed train stations are designed as bridges or overpasses, it is imperative to comply with the electrical gauge.



DESIGN OF A HIGH SPEED STATION

4. Platforms:

The platform design complies with TSE (Institute of Turkish Standards) standards applied in our country. A minimum clearance of 2.5 meters is required for unobstructed passage at the sides of the platform where the train lines are situated.

The recommended platform heights according to UIC 741 codex for high speed train stations are shown in the figüre on the right. In our country, 55 cm platform height is applied for high speed trains.

5. Access for Disabled People :

High speed train stations are designed according to the both national standards TSEs and UIC codex 140 regarding the access for disabled people.

Thank you

for your kind attention

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