

TALAN TOWERS ASTANA

OFFICE TOWER - TECHNICAL INFORMATION

STRUCTURAL:

The office tower has a perimeter floor space of 42m x 27m, with perimeter columns typically spaced at 9 meters on center. The typical office floor will be constructed utilizing a waffle slab system with a structural member depth of 45mm. Floor loadings will be transferred to the perimeter columns and core walls via the two-way action of the waffle slab. The north and west sides of the typical office floors are cantilevered by extending the waffle slab beyond the perimeter columns. The cantilevered portion begins at the north-east corner and south-west corner, becoming longer approaching the north-west corner. The perimeter columns and concrete core are vertically continuous to the building foundation to transfer both gravity and lateral forces to the foundation. Structural design

is performed for the gravity loads and lateral wind load acting along the building. Wind load distribution is calculated based on the wind tunnel test results. R.C. core wall thicknesses vary 30 cm to 40 cm, R.C retaining wall thicknesses vary 60 cm, 40 cm, 30 cm. R.C. Columns dimensions vary from 120x120, 110x110, 90x90, 70x70cm. Pile Foundation thickness is 250 cm. Total number of piles underneath the building is 145.

Office tower column dimensions are as follows:

120x120 cm (B2~5th)
110x110 cm (5th~14th)
90x90 cm (14th~22nd)
70x70 cm (22nd~Roof)

MECHANICAL:

Heating of the office area will be done with floor type convactor and 4 pipes fan coil units. Fan coil units will be ceiling type. Convactor installation will be done by the landlord for the use of the tenants.

Cooling of the office area will be done with for 4 pipes fan coil units. Fancoil heating and cooling water will be supplied from the main building system and will be provided 1 meter into the tenants' space with valves, electronical calorimeter and flange.

For server condenser cooling of each floor DN40- 16350 W- 31°C /36°C
Pipe line will be provided 1 meter into the tenants' space with valves.

Fresh air and exhaust will be supplied by the fresh air handling units. Fresh air handling units will have cooling coils(for cooling), heating coils (for heating). Air handling units will be %100 fresh air with heat recovery unit and will be located on the mechanical rooms (Level 04 and Level 27). Ducts will be provided 1meter into the tenants' space with constant volume damper (CAV) & flange and rest of the installation will be done by tenant.

There will be exhaust fans for the ventilation of the WC's, be zoned according to architectural layout and these fans will be on the roof of the building.

Internal design conditions:

Winter Temperature : 21 °C

Summer Temperature: 24 °C

People Load: 10 m²/ person

Fresh Air : 60m³/h/ person

WC Exhaust : 2*270m³/h

Domestic cold and hot water, waste water branches for each floor:

Cold water: DN25

Hot water: DN20

Waste water: DN100

Air humidity:

- In summer conditions: between 50-55% relative humidity values,
- In winter conditions: min. 30% relative humidity values are considered/ provided in calculations/ projects via Air Handling Units.

ELECTRICAL :

The Office building will be served by two high voltage feeders in co-ordination with the local utility. The HV Switchboard room shall be located at ground level. Two (2)-2500kVA cast-resin dry type and fan cooled transformers shall serve the office and retail area together. Transformers shall continue to work on 130% -140% overload condition at least 2 hour.

The transformers will be backed up by stand-by generator system. Two (2)-1600kVA for retail and offices diesel engine powered generator will be provided and will be installed in the Central Power Plant.

Electrical power will be delivered and distributed throughout in the Talan Towers Astana Building at low voltage 220/380V volts, 50 Hz, 3phase, 4wire with solidly grounded neutral.

Intelligent power meters shall be communicating with BMS and reporting to a central computer to analyze the power data of the building.

Each floor level shall have its own distribution board installed and electrical room shall be reserved for this purpose. The vertical general power distribution will be realized by means of busbars. These busbars will be routed through the respective electrical rooms. Main power distribution shall be done by plug-in busbar systems throughout the Electrical risers.

Plug in Tap-off Switches for each office floor: 3x250A

Electrical Power Load for Office Floor: 90kW (100VA/m²)

Emergency backed up power by generator for office floor (power and lighting): 100%:

Emergency backed up power for Mechanical Equipment: 60%

A state-of-the-art building management system shall be installed to provide intelligent and fully automated building services to all occupants.

A computer based intelligent lighting control system for the switching and dimming of the light fittings shall be installed. The system shall be utilizing the presence detectors, daylight sensors etc. to provide a fully automated lighting control.

The building will be provided with infrastructure to accommodate state-of-the-art, integrated telecommunications technologies.

Local area network shall be based on fiber-to-desk topology. For Data transfer fiber optic cables are to be used.

Cat6, UTP structured wiring system shall be installed for the telephone system distribution

Internet connection shall be provided via a dedicated distribution system to all Building.

All components which are necessary, such as racks, plugs, patch panels etc. have to comply with the mentioned standards of the relevant cabling classification.

Switches and routers are placed in Server room/telecommunication rack and/or in the equipment room, centrally located in the building.

Weak Current Systems

Fire Alarm and Notification System

CCTV System

Access Control System

SMATV

Public Address and Music Broadcasting System

Parking Control System

ELEVATORS

Office Tower will be served by eight (8) high-speed passenger elevators and one (1) service elevator. These units are highest quality, state-of-the-art elevators produced by Kone in Finland according to European standards.

The passenger elevators will travel at 4 m/sec and will have full destination control system. The destination control system will be accessible by eight (8) operating panels on the ground floor and four (4) panels on every office floor. Kone destination control units have the "Red Dot" design award and they have easy to use 10" touchscreens with durable glass surface, convenient card-reader location, and easy software updating. These units support audio in multiple languages, have energy efficient operation, including active power-saving mode, are compliant with disability codes and easy to clean and maintain.

Façade Enclosure System Description:

Levels 1 and 2:

Aluminum Stick System with Steel Mullion reinforcements

Glazing: Double Insulated Glass Assembly with 10 mm TG on Exterior + 2x5 Laminated Glass on Interior

Retail Podium Areas with Guardian "Extra Clear Float" Glass

Levels 3 thru 30th

Aluminum frame Unitized Panel System

Glazing: Double Insulated Glass Assembly with 10 mm TG on Exterior + 2x5 Laminated Glass on Interior

Panel Construction:

Glazing: Double Insulated Glass Assembly with 10 mm TG on Exterior + 2x5 Laminated Glass on Interior – with Guardian “Extra Clear Float” Glass

Stone Cladding on Pilasters: 32 mm Jura Stone Limestone

Decorative Spandrel Panels: 3 mm Aluminum sheets with power coating

All Skylights and Canopies with Heated Glass Assemblies and Heated Gutters