

Structural

The Ballenger East Building structural steel frame is the main support for the 4-story (above grade) 60,000 square foot building. The structural steel used is W-shapes. ASTM-A992 grade 50 or ASTM A572 grade 50 are the only two types for steel beams or columns, where the typical size is W8 x 22 for beam and W20 x 20 for columns. The foundation and basement are cast-in-place concrete which has a 4" thick concrete slab on grade while the higher levels are post-tensioned with each of the rest levels (P1, P2, 1st to 4th floor) has a floor slab of 8" thick concrete.

Construction

The construction on the building started in June of 2007. The project was originally bid and awarded to Turner Construction. The project was bid at a guaranteed maximum price of roughly \$34 million. The project was delivered in a design-bid-build method and was completed in October of 2008. Since the site was previously part of a railway station, precautions have been taken on the soil during the excavation and foundation placement process.

Mechanical

The building cooling is handled by the roof-top air-conditioning unit which has a service volume of about 22,500 CFM. The 2nd floor lobby, 3rd and 4th office levels run a single duct VAV system and each space operates a fan-powered VAV box with electric reheat. While the VAV box and inlet duct on the 1st and 2nd level occupancy area are to be installed under tenant scope of work. In the main lobby, heating and cooling are control by the air-handling unit in the mechanical room, which runs a VAV system with linear slot diffusers and slots installed on the ceiling. There are also unit heaters and wall-mounted heaters on each floor to provide separate zone heating.

Electrical

The Ballenger East Building has VEPCO, the electric utility company to deliver power to the service entrance where two main switchboards are located. Power is then distributed to panelboards and equipments throughout the building in either 480Y/277 3P 4W system or 208/120V 3P 4W with step-down transformers at corresponding electrical rooms. The 480Y/277V system is mainly distributed to systems like, exterior lightings, lightings and equipment on the underground parking levels, air-conditioning in the building and decorative lightings for retail tenants on 1st and 2nd floor. While the 208/120V power is generally distributed to lightings for offices on 3rd and 4th floors, telecommunication and security systems, fire alarm equipments, heat pumps and fans, etc.

There is an emergency diesel generator powered in 275KW, with a starting battery of 24V D.C. and a 10 amp voltage regulated battery charger, has configuration of 480Y/277V.

Lighting

The majority of the lighting for the entire building run on 277V, with various types of luminaires being used. On the building façade and exterior, there are pole-mounted luminaires, bollard lightings, wall sconces, uplights and downlights to provide illumination for both visual comfort and security reason. Yet only metal halide and fluorescent lamps have been used for that variety of luminaires.

Fluorescent lights is the only hardware shown on the drawings since the building interior has been an empty layout except the main lobby at the time being.

In the main lobby, cove-lightings are used along the perimeter of the 'sky-dome' ceiling to bring out the shape and volume of the space. For the elevator lobby, cold cathode and cove lightings have been used to enhance the visual interest of the space and there is a back-lit alcove at the end of the lobby area which encloses visual information.

Fire Protection

The main fire alarm control panel is located in the main electrical room on the mezzanine level, and is linked to fire alarm terminal cabinets on each floor. All the cabinets are equipped with an addressable loop signaling line circuit isolator module and notification appliance circuit extender power supply. 135F Heat detectors are located at the highest point in the center of each space, and there are also area smoke detectors mounted in the atrium, elevator lobbies and all elevator machine rooms. Duct smoke detectors are equipped on a per-HVAC unit basis in the entire building, which intends to shut down corresponding units and send signals to fire alarm control panel.

Transportation

Stairs and elevators serve the Ballenger East Building and move the circulation into different levels of the building. In the main lobby, there are two occupancy elevators lead to upper levels (1st to 4th), and there is one elevator leads to underground parking levels (P1 to P3). Besides, there is also one hydraulic elevator used to loading/service purposes which is located next to the service corridor.

There are three stairs in total. The 1st one serves like the main stairs for the building as it runs through all the floors, from P3 (foundation level) to the main roof level. The 2nd one runs from the mezzanine floor to the 4th floor, and it is for the maintenance team as it is located next to the telephone room and electrical room on upper levels. The 3rd one only runs through underground levels (P3 to mezzanine), thus it is likely the stairs of parking levels.