

CBD Chemical

Production Building Virginia, USA



Function/Occupant Type: High Hazard, Chemical Manufacturing Plant
Size: 55,000 GSF
Stories: 5 floors plus a mezzanine in the first floor and a penthouse roof
Primary Project Team: Withheld at request of Engineers and Contractors
Dates of Construction: April 2008 – January 2009
Cost Information: \$125 Million
Project Delivery Method: Design-Bid-Build with a Negotiated Guaranteed Max Contract

Architecture

The exterior skin is a combination of insulated metal panels and translucent metal panels. The north and south facing walls have horizontal strips of windows, while the west end has a vertical strip of windows. The skin of the building was designed as explosive release wall assemblies in the event of an explosion.

Structural System

The structural system is comprised of is moment frame structural steel. Every girder column connection is a moment connection. The lateral systems in both the north-south and east-west directions are structural steel moment frame systems. The first floor has an 8 inch cast-in-place concrete slab while the other four floors have normal weight concrete on metal deck. The entire building is sitting on precast concrete piles.

Mechanical System

The Production Building has two 5600 MBH has-fired boilers, two 507 ton air cooled screw chillers, and two AHUs. One small AHU serves the boiler building, while the large AHU serves the Production Building. The system is a constant air volume system with terminal air units which condition the air for each space locally. The large AHU uses an energy reclaim coil using a 30% glycol solution.

Electrical System

The electrical system has three service entrances at 480/277V. One powers the motors and control centers, one powers control centers and chillers, and the last controls PBP panels which power the heaters. There are small transformers for lighting/receptacle loads. A UPS at 208/120V serves emergency lighting loads.