

architectural engineering thesis

[mechanical option]

by JOSHWENTZ



statistics

location. Pittsburgh, PA, Schenley Park function. education, administration, research occupants. Phipps employees / researchers size. 24, 350 square foot, 3 stories cost. \$ 20 million construction dates. Dec. 2010 - Apr. 2012 delivery method. Jump sum with contractor



architecture

sustainability. LEED Platinum
materials. regional, salvaged barn siding,
motorized low-e glazing, metal light shelves
Living Building Challenge. + green roof
site. rainwater harvesting, constructed wetland
façade. high thermal mass
net zero. energy & water consumption



mechanical

heating & cooling. geothermal ground source rooftop energy recovery unit. 12,400 cfm VAV with enthalpy wheel, desiccant dehumidification raised floor distribution. 4,860 cfm open office 100% passively cooled atrium ventilating. CO2 sensors, demand controlled controls. building management system





owner. Phipps Conservatory architect. The Design Alliance structural. Atlantic Engineering Services MEP. CJL Engineering contractor. Turner Construction landscape. Andropogoan Associates integrated design process required by owner

structural



substructure. cast –in-place concrete foundation. 12" concrete wall reinforcement, 30" diameter concrete column reinforcement superstructure. structural steel strip & spread footings frame construction. with composite slab on deck

lighting / electrical



lights. mainly 4' T8 or T540 direct/indirect high efficiency ecosystem dimming ballast natural daylighting, occupancy sensors photovoltaics. 36 kW PV arrary vertical access wind turbine transformer. 75 kV main distribution panel. 600A

