

STATE COLLEGE, PA

Fraser Centre

Tyler Strange
Structural

<http://www.engr.psu.edu/ae/thesis/portfolios/2011/trs5062/index.html>

PROJECT INFORMATION

Location: Fraser St./Beaver Ave. State College, PA

Occupancy Type: Retail/Office/Hotel/Condos

Size: 230,000 SF

Stories Above Grade: 10 (1 Below Grade)

Construction Dates: Fall 2010 - Fall 2012

Project Cost : Estimated \$40M

Project Delivery Method: Design - Bid - Build

PROJECT TEAM

General Contractor: Leonard S. Fiore

Construction Manager: Leonard S. Fiore

Architect: Wallace Roberts & Todd, LLC

Landscape Architect: Wallace Roberts & Todd, LLC

Structural Engineer: David Chou & Associates, Inc.

MPE/Fire Prot. Engineer: AKF Engineers

Civil Engineer: L. Robert Kimball & Associates

Theatre Engineer: JKR Partners, LLC



STRUCTURE

Foundation consists of isolated and continuous footings

Isolated footings range from 4'x4' and 24" thick to 15'x15' and 42" thick

Continuous footings range from 3' wide 16" thick to 6' wide 54" thick

CIP concrete slab and columns resist gravity loads

Lateral loads are resisted by shear walls throughout the building

Slabs are primarily 12" thick reinforced with #5 rebar

Mechanical floor slab is 16" thick and reinforced with #9 rebar

MEP

The HVAC System of Fraser Centre consists of the following:

Type of System

Constant volume air system (12,000 cfm)

Constant flow hydronic system

Variable flow hydronic system

Unit Heaters (Electric-resistance heating coils)

Cabinet unit heaters with centrifugal fans

Propeller unit heaters

Open-circuit, induced draft, cross flow cooling tower

Condensing Boilers

Gas fired

Pulse combustion

Fire-tube

Water-tube

Water-jacket

Hydronic Pumps

Closed-coupled/in-line pump

Closed-coupled/end-suction pump

Automatic condensate pump unit

Axial HVAC Fans

Tubeaxial fans

Vaneaxial fans

Mixed-flow fans

Centrifugal HVAC Fans

Airfoil fans

Forward-curved fans

Difusers

Rectangular/square ceiling diffusers

Perforated diffusers

Louver faced diffusers

ARCHITECTURE

The Fraser Centre is a mixed-use building containing a parking garage, retail stores, a theatre, condominiums, and penthouse suites. The base of the Fraser Centre is a glass curtain wall drawing passers-by off of the sidewalk and into the retail stores on the ground level. Above the curtain wall is an appealing mixture of glass and aluminum composite panels creating an attractive addition to down town State College. This building is the only one in State College that has an all glass and aluminum façade.