

# COMCAST CENTER

## PHILADELPHIA, PA

CYNTHIA MILINICHIK  
STRUCTURAL

<http://www.arche.psu.edu/thesis/eportfolio/2007/portfolios/CLM311/>

### Project Team:

- Owner: **Liberty Property Trust**
- Construction Manager: **L. F. Driscoll Co.**
- Design Architect: **Robert A. M. Stern Architects**
- Architect of Record: **Kendall Heaton Associates**
- Structural Engineer: **Thornton Tomasetti**
- MEP Designer: **Paul H. Yeomans**
- Landscape Design: **Olin Partnership**
- Civil Engineers: **Pennoni Associates**
- Acoustics Consultant: **Cerami & Associates, Inc.**
- Security Consultant: **HMA Consulting, Inc.**
- Lighting Designer: **Quentin Thomas Associates, Inc.**

### Architecture:

- **Tallest LEED Certified** Building in US upon completion
- Tall-Story Core and Shell High-Rise Office Building
- European Style Tower
- Glass Curtain Wall with lightly tinted Low-E glass
- Crown at Top of Building with Dramatic Night Lighting
- Shadow Box aesthetic around Spandrel Beams
- **110' High Winter Garden** with Interior Dining Court
- Half-Acre Public Plaza along JFK Boulevard

### Structural System

- Cast-in-place **blast-resistant** central Concrete Core
  - Provides lateral load resistance with Shear Walls
- Steel Shell frames into Concrete Core with Shear Connections
- Steel framed box crowning the structure
  - Braced Frames provide lateral resistance for crown
- Composite Metal Deck Floors for economy
- **Vierendeel Truss** to transfer Column Loads at large opening in facade
- Caissons penetrate a minimum of 6 feet into rock
- Allowable Foundation bearing capacity of 20 tons
- **Wind Tunnel Test** performed for Wind Load Analysis

### General

- Cost: **\$435M**
- Size: **1.6M SF**
- Site Area: **90,000 SF**
- Stories: **55 Above Grade.**  
**3 Parking Floors Below Grade**
- Occupancy: **Office, Retail,**  
**Restaurant**
- Main Occupant: **Comcast**
- Construction: **Jan 2005 - Fall 2007**

### Mechanical System

- Multiple HVAC Systems include:
  - 900 ton to 2300 ton Electric Driven Centrifugal Water Cooled Chillers with Variable Frequency Drive
  - 43 Air handling units ranging from 810 CFM to 90,000 CFM
    - Part of the Variable Air Volume System
  - Steam system supplied by local utility main
  - Steam is piped to coils, converters and chillers.
  - Steam Condensate system includes coolers, traps, and controls
  - 1015 ton Steam Driven Absorption Chiller
  - Water source Heat Pumps used to condition entry areas.

### Electrical/Lighting System

- 120/208V 3 Phase 4 Wire System
- 277/480V 3 Phase 4 Wire System
- Each House Panel service it's own floor, 4 floors above and 5 floors below, 2 circuits / floor
  - 45 KVA Transformers feed panels on the 18th and 28th Floor with 150A/3 Pole MCB
  - Diesel fuel powered Fire Pumps and Emergency Generator
  - All Fixture Lamps by Osram Sylvania or Venture Lighting

