PITTSBURGH CONVENTION HOTEL

ARCHITECTURAL THESIS 1978-79

DAVID J. DIXON

COLLEGE OF ARCHITECTURE AND PLANNING
BALL STATE UNIVERSITY
MUNCIE, INDIANA
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David J. Dixon

STUDIO CRITIC: John E. Wyman
OUTSIDE CRITIC: J. Robert Taylor
PROGRAM CRITIC: A. E. Palmer
STRUCTURAL CONSULTANTS: J. Robert Taylor
James Rodney Underwood
SPECIAL ASSISTANCE FROM: Wayne Cooper, RA
Celli-flynn & Associates
Pittsburgh, Pennsylvania
(architects for the Pittsburgh Convention/Exposition Center)
Photograph of hotel in city context
Model of Pittsburgh central business district
PITTSBURGH CONVENTION HOTEL
ARCHITECTURAL THESIS 1978-79
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ABSTRACT:

The Pittsburgh Convention Hotel was designed as an annex to the Pittsburgh Convention/Exposition Center. The facility will provide the needed facilities plus 667 living units and a banquet/ballroom. The complex is programmed for approximately 1.22 million square feet.

The project was first programmed and extensive research was undertaken into hotel design, support facilities and recreation facilities, plus the city of Pittsburgh and the convention center.

The project after the program was completed and the site analysis was done, went into the design process. The study of different concepts and massing was completed. The major thrust was on the function plus the city context and environmental influences. The V-shaped concept was found to be the best and schematic design was started. The schematic design phase took the concept and developed the functional relationships and the stacking of the levels. The hard part of the early phases of the project was to fit 1.22 million square feet of building onto about 90,000 square feet of site. The project was divided into three parts: the underground areas, the public areas that make up the large base and the guest room tower.

At the end of the schematic design phase the project was designed to a point where the basic floor plans of the major floors were laid out and a basic section was designed.

The second quarter was the design development phase was to take the schematic design and produce the finalized design. The schematic design was well accepted by the jury so no major changes were done on the basic concept. During the first half of the quarter the project was designed and at the mid-term presentation the final design and preliminary design drawings were completed. Once again the jury accepted the design very well.

The last half of the second quarter was for the finalizing of the drawings. The drawings from the preliminary presentations were drawn in final form.

The last quarter was a detailed design development phase. I worked on closer investigation of some parts of the project and worked on final models.

The design of the Pittsburgh Convention Hotel presented a great number of problems and challenges. The scope of the hotel was of a size that it provided a great learning experience.
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**PITTSBURGH CONVENTION HOTEL**

**ARCHITECTURAL THESIS 1978-79**

**DAVID J. DIXON**
PROJECT JUSTIFICATION

Pittsburgh, Pennsylvania is presently constructing the Pittsburgh Convention/Exposition Center. The center has 138,000 square feet of meeting and exposition space. The new convention center will bring a great influx of tourists, convention groups, and businessmen into the city. The convention center has a capacity of up to 1,200 people.

There has not been a hotel built in the downtown central business district of Pittsburgh since the late 1950's. There are only four hotels in the central business district of Pittsburgh, the 900-room William Penn Hotel, the 700-room Pittsburgh Hilton, the 350-room Hyatt House at Chatham Center, and the 200-room Carlton House (present redevelopment plans call for the demolition of the Carlton House Hotel). These hotels presently provide the necessary rooming for the Pittsburgh area. None of these hotels are within walking distance of the convention center. All (except the Carlton House) also have convention services of their own. The new convention center will centralize the convention services of the city. Presently the convention center has only been filled for about 30% of its possible dates in the first three years. This is due mostly to the lack of hotel rooms in the immediate area.

In addition to the convention center, Pittsburgh's 50,350 seat Three Rivers Sport Stadium (home of the Pirates baseball team and the Steelers football team) and the Civic Arena (home of the Penguins Hockey team) will bring additional visitors to a new hotel.

The Pittsburgh Convention/Exposition Center Market Study By Stanford Research Institute stated the need for 600-700 additional first class hotel rooms. The hotel complex must be near or connected to the convention center.

All reports and data show the great need for the Pittsburgh Convention Hotel.
PARTICIPANTS:

Special assistance on this project was received from the following individuals:

Jack E. Wyman, Professor, Ball State University, Muncie, Indiana

J. Robert Taylor, Professor, Ball State University, Muncie, Indiana

A. E. Palmer, Professor, Ball State University, Muncie, Indiana

Wayne W. Copper, RA, Celli-Flynn & Associates, Architects, Pittsburgh

Pittsburgh Convention & Visitors Bureau, Pittsburgh

American Hotel & Motel Association, New York City

City of Pittsburgh, Planning Department

Robert L. Spraker, Sales Manager, Pittsburgh Hyatt House at Chatham Center, Pittsburgh

Fritz Gibson, Jr., Assistant Director of Development, International Motel Lodges, Pittsburgh

Port Authority of Allegheny County-Transportation Division

Southwest Pennsylvania Regional Planning Commission

Department of Transportation, Commonwealth of Pennsylvania

John Portman & Associates, Architects & Engineers, Atlanta, Georgia

Special Assistance:

Mr. & Mrs. Robert H. Dixon
Laura Beach

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CLIMATOLOGICAL DATA

The National Oceanic and Atmospheric Administration LOCAL CLIMATOLOGICAL DATA
Annual Summary With Comparative Data 1977
PITTSBURGH, PENNSYLVANIA, Greater Pittsburgh
Airport describes the climate of the Pittsburgh area as:

"Pittsburgh lies at the foothills of the Allegheny Mountains at the confluence of the Allegheny and Monongahela Rivers which form the Ohio. The city is a little over a hundred miles southeast of Lake Erie. It has a humid continental type of climate modified only slightly by its nearness to the Atlantic Seaboard and the Great Lakes.

The predominant type of air which influences the climate of Pittsburgh has a polar continental source in Canada and moves in upon the region by way of tracks which vary from almost due north from the Hudson Bay region to a long westerly trajectory resulting from polar outbreaks into the Rockies which progress eastward. There are frequent invasions of air from the Gulf of Mexico during the summer season with resulting spells of warm humid weather. During the winter season air from the Gulf occasionally reaches as far north as Pittsburgh and causes the normal alternate periods of freezing and thawing. The last killing frost in spring will usually occur about April 21 and the first in autumn near October 20, to give an average growing season of about 180 days. There is a wide variation in the time of the first and last frosts over a radius of 25 miles from the center of Pittsburgh due to terrain differences.

Precipitation is distributed well throughout the year. During the winter months about a fourth of the precipitation occurs as snow and there is about a 50% chance of measurable precipitation on any day. Thunderstorms occur normally during all months except the midwinter ones, and have a maximum frequency in midsummer. The first appreciable snowfall is generally late in November and usually the last occurs early in April. Snow lies on the ground in the suburbs an average of about 33 days during the year.

Seven months of the year, April through October, have sunshine more than 50% of the possible time. During the remaining five months cloudiness is heavier because the track of migratory storms from west to east is closer to the area and because of the frequent periods of cloudy, showery weather associated with northwest winds from across the Great Lakes. Cold air drainage induced by the many hills leads to the frequent formation of early morning fog which may be quite persistent in the river valleys during the colder
months.

Rises from the tributary streams cause occasional flooding at Pittsburgh. Serious inconvenience is occasioned by the Ohio River reaching the flood stage of 25 feet about once each year. Significant flooding, or a 30-foot stage, occurs about once each three years."
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SUMMER

June 22 Summer Solstice
12 noon
Altitude 73.5°
Azimuth 0.0° South

WINTER

December 22 Winter Solstice
12 noon
Altitude 26.6°
Azimuth 0.0° South

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TEMPERATURE
Mean
Year Average: 53°

HOT AND COLD DAYS
Over 90°
Year Average: 16
Below 32°
Year Average: 102
RELATIVE HUMIDITY
(Percentage)
1:00 pm
Year Average: 56%

PERCENTAGE OF POSSIBLE
SUNSHINE
(Percentage)
Year Average: 39%
WINDS
Average speed - Miles per hour
Direction by arrow
Year Average: N. W. 10.5 MPH

PERCIPITATION
(Total inches of water)
Year Average: 36"
MEAN NUMBER OF DAYS WITH 0.01 INCHES OR MORE PRECIPITATION (Days)

Year: 150 Days

SNOW (inches)

Year: 31" T = Trace
DEGREE DAYS
(Heating)
Year: 5291 Days
Base 65° F.

DEGREE DAYS
(Cooling)
Year: 927 Days
Base 65° F.
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HIGHWAYS
1. Pennsylvania Turnpike
2. Interstate 79
3. Airport Parkway
4. Parkway East
5. Allegheny Beltway
6. McKnight Road
7. Ohio River Boulevard
HOTELS (15 mile radius)

1. Downtown
   - Carlston House
   - Pittsburgh Hilton
   - Pittsburgh Hyatt House
   - William Penn

2. Inn at Parkway Center

3. Holiday Inn-Greentree
   - Marriott Inn

4. Villing

5. Grossgates
   - Howard Johnson

6. Redwood

7. Sheraton-South

8. Holiday Inn-West 22/30

9. Sheraton-North

10. Hospitality

11. Hilton Airport Inn

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HOTELS (cont.)

12. Holiday Inn - Sewickley
13. Conleys
14. Holiday Inn - Airport
   Howard Johnson - Airport
   Ramada Inn
   Sheraton
15. Holiday House
    Sheraton - Monroeville
16. Holiday Inn - East
    Howard Johnson

Total number of rooms within a 15 mile radius of the C.B.D.

4,810
LAND USE

- Residential
- Commercial
- Business
- Sport Facilities
- Governmental
- Site

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PARKING
- Parking
- Future Parking
- Site

Total public off street parking
22,126 spaces

Site: Loss of 379 spaces

Future: 2,500 spaces
PITTSBURGH CONVENTION HOTEL

LIGHT RAIL TRANSIT SYSTEM STATION NEXT TO PENN CENTRAL STATION
PRESENTLY BEING PLANNED
SITE

The site for the Pittsburgh Convention Hotel is located in the dense urban environment of the Central Business District of Pittsburgh. The site is easily accessible by automobile, by bus (two bus stations are adjacent to the site), by rail (the Penn Central Station is adjacent to the site), and by airport limousine (a transportation system from the Greater Pittsburgh International Airport to the downtown hotels).

The environment of the site is one of transition. The environment is a combination of medium high rise (15-24 stories) and low rise 93-7 stories. The site is between the high density commercial area and the warehouse district. The area for about two to three blocks, between the site and the commercial area, down Liberty Avenue is called the "Strip District," this is a collection of pornographic establishments. The raised railroad tracks which slice through the convention center site is the dividing line between the C.B.D. and the warehouse district. The tracks end the environment toward the North-east. (see the following sheet)

Over-all the environment is underchange and transition. The Pittsburgh Convention Hotel complex should bring a settling influence into the area and hopefully bring new life back into this area.
FLOOD PLAINS

- Rivers
- Standard Flood Site

Standard Flood:

Very rare instances—the largest possible flood that could occur on the river due to the climatologic records and the topography.
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EDGE CONDITIONS
- Hard
- Soft
- Site

SCALE 1"=200'
SITE

The site of the Pittsburgh Convention Hotel is presently covered with a paved parking lot (379 spaces). There is also one Building on the site. Both have been condemned and will be demolished. There is also a small street (Exchange Way) through the center of the site; it has also been condemned and will be closed.

The site is almost flat. Any change in elevation that did exist has been removed when it was paved.

There are no natural plants on the site and due to the paved condition it would be almost impossible for much vegetation to exist. The drainage of the site is to the streets where the storm water is removed by city storm sewers.

There are no special characteristics of the site. The site is presently a parking lot and there is one small building on it.
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PENN AVENUE

10th STREET

5-9' x 20'
PARKING SPACES

11th STREET

LIBERTY AVENUE

FOOTBALL FIELD

AREA: 104,963 sq. ft. or 2.410 Acres

SITE

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EXISTING STRUCTURE ON SITE
To be removed

Remaining site is a public parking lot—
to be bought out.

SITE

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VIEW FROM SITE

- Good
- Poor

1. Ground Level
2. 5 Stories
3. 10 Stories
4. 25 Stories or more

SITE
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SOILS

The soil conditions of the site is "Urban-Land". The Allegheny County Soil Survey defines Urban-Land as: "This land consists of fill material which was hauled in and placed on the flood plains. Subsequently the areas were covered by urban works and structures. The fill includes shale, sandstone, limestone, brick, concrete, cinders, industrial waste, junk and upland soil material."

The soil analysis describes the engineering properties as: "To variable to estimate requires on-site inspection." The soil in the site is all fill and would require detailed test borings. The soil on the site of the Pittsburgh Convention/Exposition Center is similar to that under the site for the Pittsburgh Convention Hotel. Test bores for the convention center were driven to 150 feet under the surface. At the north end of the site the test bores did not reach structurally stable soil at that depth. The depth of any structurally stable soil is unkown. The southern end of the convention center site shows stable soil at a depth of 75-80 feet. The soil under the convention hotel is bedrock and stable at a depth of 60-75 feet.

The water table under the convention hotel site is at about 725.0 feet in elevation above sea level. The site is about 735.0 feet. The water table is about 8'-10' below the surface.
SITE PHOTOGRAPHS
#1 Looking south-west from on top of the Grayhound Bus Station across the southern half of the site. The one structure (shown later) and the billboards, both to be removed, can be seen. The Federal Building and the Post Office are shown across the street from the site.

#2 Looking west, from on top of the Grayhound Bus Station across the northern half of the site. The Pittsburgh Convention/Exposition Center, is north of the site, on the right edge of the photo.
#3 Looking west, from on top of the Grayhound Bus Station. The center of the site is presently a street (Exchange Way) it has been condemned and will be closed. The Eben & Irr Building is a commercial-office building.

#4 The front of the one structure on the site shows the quality of the establishments. The Zarkin's Restaurant-Bar is a small diner/bar and partial drug store and the Fort Wayne Cigar Store is a smoking store which also sells books and novelties. The stores are to be bought out and the structures removed.
Looking south-west towards the Hill District. The rotunda of the Penn Central Station is on the left side and the Federal Building with the Post Office-Federal Court Building behind it. The dome of the Civic Arena overlooks the site part of the way up the Hill District.

The Penn Central Station, presently used by Conrail and Amtrak, is on the south-east edge of the site. The Greyhound Bus Station is next to the Penn Central Station, on the right edge of the photo. The foreground is the parking lot which makes up a majority of the site.
#7 Looking south-west, from the railroad tracks on the convention center site across the hotel complex site. The Post office and the Federal Building across the street from the site. The background is part of the business district with the 64-story U. S. Steel Building rising above the city.

#8 Looking south-east, from the corner of the Trailways Bus Station, diagonally across the site to the Penn Central Station.
#9 Looking north, from the hill above the site, across the entrance to the Penn Central Station. The east bus way and the light rail transit station will be in the foreground.

#10 Looking north-west, diagonally across the site from the rotunda of the Penn Central Station.
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PANORAMIC VIEW OF SITE
PANORAMIC VIEW OF SITE

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Photographs of model of Pittsburgh central business district
CONCEPTS
CONCEPTS
PROGRAM AREAS

1. GUEST ROOMS
2. PARKING
3. SUPPORT FACIL.
4. FOOD SERVICE
5. BACK-OF-HOUSE
6. COMMERCIAL SHOPS
7. RESTAURANT
8. BANQUET/BALLROOM
9. RECREATION
10. MEETING ROOMS
11. LOUNGE
12. BACK-OF-HOUSE
13. LOBBY

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SCHEMATIC DESIGN

Lounge

Guest Rooms

Public Areas

Parking

CONCEPTS
Schematic Design
Section Breakdown

Level Breakdown

PUBLIC AREAS

Lounge
Coffee Shop
Lobby
Registration
Banquet/Social
Meeting Rooms
Night Club
Main Kitchen
C.S. Kitchen
N.C. Kitchen

Convention Group Lobby
Link to Convention Center

Shops
Cinemas

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CONCEPT OF SERPENTINE ROOM TOWER ON SQUARE BASE
LOOKIN AT SQUARING OFF THE CURVES
SCHEMATIC DESIGN

- ATRIUM -
- VIEWS EQUAL ALL AROUND
- SINGLE CORE COULD BE PROBLEM
- RES7 PLACEMENT

CONCEPT

CIRCULAR OR OVAL DOUGHNUT
ATRIUM ROOM TOWER

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CONCEPT-
SKETCH OF STEPPED
CONCEPT
CONCEPT:
LOOKING AT
SQUARE BASE
PARKING BELOW
SLAB ROOM TOWER

PARKING
SCHEMATIC DESIGN

VIEWS TO RIVERS ON NORTH SIDE
LIMITED SURFACE TO WIND.

VIEW

CONCEPT
V-SHAPED
ROOM TOWER

CONCEPT DESIGN
CR17 WITH JACK

LEVER HOUSE
S.C.M.

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CONCEPT:
SLAB ON SQUARE BASE
TO NARROW TO FALL
DUE TO LIMITED NUMBER OF ROOMS PER FLOOR
BAD VIEWS

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