A TELECOMMUNICATION FACILITY  WTTV CH 4 INDIANAPOLIS, INDIANA

ARCHITECTURAL THESIS
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ARCHITECTURE DEPARTMENT
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This thesis project is a response to the needs regarding the design of a new telecommunication facility for WTTV Channel 4 in Indianapolis, Indiana. Throughout the development of this design, I have chosen to refer to this project as a telecommunication facility because it was a response to fulfill the needs of the client in more ways than just the technological demands of a television station. In the design of this facility I have investigated the television station and its interrelationships with the community and its people, on whom its existence depends.

This type of project offered an opportunity to design not only a highly specialized media facility but also a project with public facilities to promote interaction of the public and the media. Thus the project included not only the technical functions of the television station, but also leasable office space, commercial shops and cafeteria with a multi-purpose lobby.
Prior to the initial programming of this facility, an extensive study was conducted of various building types which could have an effect on the development of the design. (see Appendix B) The building type study was essential not only in identifying the basic issues involved in the design of this facility but also in determining rough square footage figures and requirements necessary in the preliminary schematic design part of the total design process.

The examples chosen were primarily television stations and each was analyzed in terms of the following:

a) spatial organization
b) organization determining elements
c) scale
d) structural systems
e) building siting
f) circulation systems
g) mechanical systems
h) building material influence

Basic issues which needed to be dealt with at the early stages of this design process were determined as follows:

a) to design a building that functions as efficiently as possible as a television station.
b) exploration into new concepts and possibilities in television design.
c) critical analysis and investigation into the functions of a telecommunication facility to best understand the basic functions and problems of each space and application of this analysis in design.
d) the housing of many people in one building without stifling their creativity.
e) to capture in the building the excitement and spontaneity as well as the media image to the public.
FACILITIES PROGRAM

An in-depth program for the WTTV Telecommunication Facility followed the building type study. The early programming included an analysis of each functional space in terms of client and user descriptions, client goals, environmental requirements, regional and social context descriptions and a noting of special considerations of each space.

In order to simplify the task of programming and schematic design, the facility was divided into zones or general sub-groupings of areas which included spaces of similar spatial and functional needs.
   a) Parking area
   b) Administrative areas
   c) Production areas
   d) Support areas
   e) Leasable office space

At this point an activity interrelationship diagram was constructed to graphically show adjacency and circulation requirements, views and service or support relationships. From this diagram the building organization was established as a complex set of individual spatial clusters, which were imperative in the schematic design phase of the process. It is also important to note that a system of circulation or flow between spaces could be established.
### General Sub-groupings of Related Spaces 2-7-78

**Parking:** 29,000 sq.ft (120 spaces)  
Total square footage of building @ 35,000 sq.ft. x 80% of office space. One parking space per 100 sq.ft. of building space.

<table>
<thead>
<tr>
<th>Administration Area:</th>
<th>5,500 sq.ft.</th>
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<tbody>
<tr>
<td>Sales</td>
<td>2,400 sq.ft.</td>
</tr>
<tr>
<td>Administration</td>
<td>1,800 sq.ft.</td>
</tr>
<tr>
<td>Promotion</td>
<td>500 sq.ft.</td>
</tr>
<tr>
<td>Accounting</td>
<td>800 sq.ft.</td>
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<tr>
<td><strong>Total:</strong></td>
<td><strong>5,500 sq.ft.</strong></td>
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<thead>
<tr>
<th>Production Area:</th>
<th>12,190 sq.ft.</th>
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<tbody>
<tr>
<td>News Area</td>
<td>1,710 sq.ft.</td>
</tr>
<tr>
<td>Programming &amp; Production</td>
<td>9,080 sq.ft.</td>
</tr>
<tr>
<td>Tape Storage</td>
<td>500 sq.ft.</td>
</tr>
<tr>
<td>Engineering Dept.</td>
<td>900 sq.ft.</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>12,190 sq.ft.</strong></td>
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<tr>
<th>Support Facilities:</th>
<th>5,700 sq.ft.</th>
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<tbody>
<tr>
<td>Mechanical Area</td>
<td>3,100 sq.ft.</td>
</tr>
<tr>
<td>Carpentry Shop</td>
<td>900 sq.ft.</td>
</tr>
<tr>
<td>Employee Lounge</td>
<td>200 sq.ft.</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>5,700 sq.ft.</strong></td>
</tr>
</tbody>
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<thead>
<tr>
<th>Lease Office Space:</th>
<th>7,500 sq.ft.</th>
</tr>
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<tbody>
<tr>
<td>Should be flexible, for new approximated 1,500 sq.ft.</td>
<td></td>
</tr>
<tr>
<td><strong>Total Office &amp; Station:</strong></td>
<td><strong>30,890 sq.ft.</strong></td>
</tr>
<tr>
<td><strong>Total Parking:</strong></td>
<td><strong>39,000 sq.ft.</strong></td>
</tr>
</tbody>
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ESTIMATION OF PARKING SPACES NEEDED
(QUANTIFIED PARKING SPACES)

LEASED OFFICE SPACE: 7500 sq.ft @ 200 sq.ft
   per parking space
   38 SPACES

ADMINISTRATION AREA (PRIMARILY OFFICE SPACE)
5500 sq.ft @ 200 sq.ft per parking space
   28 SPACES
(28 SPACES IS ALSO ADEQUATE PER ADDING
   ALL EMPLOYEES OF ADMINISTRATION AREA
   PLUS SOME FUTURE EXPANSION NEEDS.)

PRODUCTION AREA (PARKING AS PER NUMBER
   OF EMPLOYEES)
NEWS AREA = 10 SPACES
PROGRAMMING & PRODUCTION = 28 SPACES
ENGINEERING DEPT. = 7 SPACES
   51 SPACES

SUPPORT FACILITIES (PARKING AS PER NUMBER
   OF EMPLOYEES)
PROP DESIGN (CARPENTRY SHOP): 4
MECHANICAL ROOM
   4 SPACES

ESTIMATED VISITOR PARKING = 10 SPACES
TOTAL ESTIMATED PARKING REQ'D.: 135 SPACES
TOTAL ESTIMATED PARKING AREA: 21,600 sq.ft
SITE SELECTION

At this point in the design it was necessary to analyze the site chosen (which was located at the southern part of the city outside of the city limits) and determine if this was the best possible location of WTTV. It was my responsibility as the designer to locate WTTV in the best possible location in order to fulfill the needs of WTTV.

The Urban Design Section of the Department of Metropolitan Development advised the location of the new facility to be in the downtown area and stated that they would be in favor of seeing the location of the facility on North Meridian Street in an area from the Indiana War Memorial Mall to or just beyond the Interstate 65 overpass. North Meridian carries the most prestigious address in the downtown area and this area they recommended has fallen into a state of being semi-derelict and abandoned. The facility could stimulate growth and renovation in this area.

The advantages of a downtown site, and specifically the North Meridian area were:

a) better access for clientel, vehicles, and pedestrians
b) prominence that WTTV needed to compete with the other three major television facilities
c) association with other stations
d) better range of coverage for the Indianapolis viewing area (effective viewing radius is fifty miles)
e) possibility of better employees by offering them the amenities of the downtown area (restaurant and commercial shops all within walking distance)
f) being in the general public's view
g) possible future use of the National Network Cable-which runs down Meridian Street
h) Interstate 65 gives easy access statewide as well as Interstate 74 from the Southeast and Interstate 70 from the East and West.

The six block area along North Meridian was analyzed as a possible location for WTTV according to the following variables:

a) Historical merit (highly desirable--least desirable)

b) Land cost ($200,000--800,000+)

c) Building condition on the site (excellent--derelict)

d) Building use (housing having a higher priority than businesses)

(housing--college building--library--factory--small businesses

A set of numerical values were assigned to each variable (for example highly desirable--5 and least desirable--1). The variables were then added up and a ranking of the potential available sites was established. The site chosen from the potential available sites was the one just North of Interstate 65.
SITE SELECTION

N. PENNSYLVANIA
N. MERIDIAN
N. ILLINOIS
The site study consisted of an analysis of both direct observation and reference information. The site location on North Meridian offered the following potentials:

a) direct visibility and accessibility from Interstate 65
b) nearly adjacent to two competitors TV 6 and TV 13
c) offered three sides of frontage on Meridian, Pennsylvania, and Interstate 65
d) possibility of spurring development of Meridian Street Corridor

The following section shows data collected which offered direct input on the development of the design for this facility.
The spatial design of the building followed collecting and analysis of data gathered in the building type study and site analysis phases of the design process. The building types study, site synthesis and activity interrelationship diagram formulated the early schematics of the design. The three schematic concepts of the building are a result of the manipulation of building zones or sub-groupings of areas and are a direct response to the information provided by site studies and building type studies.

In the following three concepts, these elements remained relatively constant:
  a) a central lobby area is used as a way of connecting spaces together
  b) support facilities are kept to the rear of the building and away from major circulation areas.
  c) each responds to the presence of two major traffic arteries
  d) each responds to the pedestrian scale of the city
  e) production areas are buffered from sound by other functions of the facility.
  f) each acknowledges the presence of staff and visitor parking.
The first scheme was conceived as a low, linear concept where the administrative and production areas were separated but each accessible from the lobby area. The building schematic was primarily horizontal in concept and utilized an additional setback for parking in front of the building and support facilities as a buffer zone for production areas from environmental noise. Prop design area, garage and loading dock were located at the rear of the complex and accessible a one-way street, Pennsylvania Avenue. Parking for primarily News vehicles was separated from staff and visitor parking for ease of entrance and egress.

Advantages:
a) recording studios buffered against outside sound by support facilities
b) garage area and prop design in best location with respect to entrance and egress.
c) separate news parking provides good solution to entrance and egress problems.
d) separation of administrative offices and leasable office space from production areas--yet connected by lobby.

Disadvantages:
a) parking at ground level and in front of building.
b) location of leasable office office space on Meridian Street.
c) building not vertical enough to have visual impact on elevated Interstate 65 overpass
Scheme 2

Scheme number two was conceived as a more vertical organizational concept than scheme one. The vertical organization responded well visually to the elevated Interstate 65 overpass. Instead of parking being on grade, it was placed underground and a large lobby was placed on the south side of the building. The lobby could respond well to views from Interstate 65, giving a very transparent look to the building and avoiding a closed in appearance from passersby. Interstate 65 played a very dominant role in the early schematic design of this building. On either side of the lobby, vertical circulation elements provide access to the above floors.

Advantages:
a) introduction of the use of the microwave relay tower as a possible identity giving element.
b) two storey lobby on Interstate 65 side—visually dominant.
c) vertical organization and zoning of building offer good privacy, especially for production areas.
d) parking underground eliminates viewing building across car parking.

Disadvantages:
a) creates problems in entrance and egress of parking garage from busy downtown street.
b) vertically organization possibly disrupts functional relationships of interior spaces.
c) transportation of props up to recording studios on top floor.
A NEW FACILITY FOR WTTV-CHANNEL 4
Scheme three was primarily a response to both scheme one and two in that it utilized many advantages of each scheme. As in the first two schemes, this scheme is based around a multi-purpose lobby which I choose to refer to as an "activity street." It functions as a space that other spaces feed off of. This scheme is organized primarily vertically with parking being below grade. The first level contains offices and support facilities as does the second level. Production area and studios occur on the third and fourth levels. This scheme also incorporated a concept of future expansion where the television station functions grew into leasable office space areas, where growth was needed.

Advantages:

a) the primary advantage is the vertical height is retained as a response to Interstate 65
b) the parking is located below grade
c) television facility faces into Meridian Street
d) service areas are at the rear of the facility
e) sound isolation of production areas

Disadvantages:

a) utilizes only two sides of frontage on site
b) site is not fully utilized or developed
c) concept of growth
d) vertical circulation from prop design area to studios
In this phase of the design process re-evaluation and change of the basic facility program was necessary. The greatest single change in programmatic needs of the design occurred in the area of leasable office space. The change was prompted by consultation with the Urban Design Section of the Department of Metropolitan Development. Since the site of this facility is only twelve blocks from the center of Downtown Indianapolis (Monument Circle), the site has great potential for speculative office space. The location of the site is just one block outside of the Regional Center causing a decrease of rental costs yet still well within accessibility of the downtown and Meridian Street amenities. Representatives of the Urban Design Section felt that as much as 100,000 square feet of leasable office space could be used at this proximity to the downtown.
The following are programmatic re-evaluation goals/restraints:

a) utilization of entire site - three sides of frontage
b) zoning of specific related areas
c) zoning of facility growth
d) lobby/atrium concept good
e) appearance of facility at night
f) views from office areas are critical both on Meridian Street and Interstate 65
g) zoning of entrance and service areas
h) possibility of introduction of green space in downtown area
i) environmental noise - how do you deal with it
j) specific demands of office space and station space - should they be separate buildings
k) possibility of 3 separate building pieces (station-leaseable offices-lobby)
I) circulation to studios - both people and amenities
m) zoning of areas for privacy
n) clarity of circulation systems
0) structural and mechanical needs of the different spaces
p) outdoor showing of production possibly outdoor studios
q) facility image to public
r) integration of station and downtown is critical
Design development followed schematic design in the total design process. It was primarily a ten week development period. The first five weeks resulted in an architectural concept with the following five weeks being devoted to refinement and development of structural, mechanical, spatial, and material expression. Presentation of developed design followed this period.

After consideration of the goals and restraints of the programmatic re-evaluation a two day sketch problem was conducted in order to establish these goals and priorities and get them well in mind. The result of this sketch problem is shown on the following page. As a response to the corner condition, a drive thru and entrance area was designed to accommodate vehicular travel and pedestrian entrance. The primary organization of this concept is the station functions surrounded by office space. The circulation flow originated at the entrance lobby and other functions of the facility fed off of the "activity street". The organization around production areas offered good sound isolation from exterior noise, however the zoning of areas is not clear. Virtually no attention was given to the functional separation of the spaces as far as separate identities. The height of the vertical height of the facility does not respond well to Interstate 65. Feasible office space is still much too small.
The following two building organizations are a direct response to the last organization, the two hour sketch problem. The main difference is in the incorporation of an outdoor production studio, acting as a terminus to the lobby area. It is also a response to the open area of the buildings behind the facility. The area has potential for development other than just rear building service. Just to the north of this area is a redeveloped apartment complex whose function is different than the other buildings in this area (primarily small business).

The first building organization responds much better to Meridian Street and Interstate 65, in that, the office areas form a background or stage prop for the production area of the television station. The corners also open up for views into the interior of the facility. Special parking areas for news personnel is located at the corner of the facility. The first organization has problems in the raising up of the facility above grade to allow parking underneath the building.
Mid-term critique design development issues:

a) television station itself seems to take second place to office space
b) how has image been determined by functions of television station?
c) how critical is sound isolation in recording studios?
d) visual appeal of newsroom and studio areas
e) movement from street
f) possibly take advantage of the panorama of downtown as a backdrop for an outdoor studio
g) get television image on Meridian Street
h) image should be simplified for quick image
i) possibility of more vertical building, put office space below, recording studios up on top to get view over Interstate 65, only elements at grade are newsroom and broadcast control room.
Towards the end of the second term of this thesis project the process of determining and analyzing the siting of the project continued. It was a process of using different organizations of the facility in an attempt at form giving and response to the site variables, which had so much input on the building organizations on the site. In the final analysis, the best response to the site was one of dealing with three separate entities and the process of organization of these three entities on the site (television station- leasable office space-lobby).

The image of this telecommunication facility had a high priority in the design of the facility. The television media implies a very high technology image to the public and it was this public image that prompted the use of a high technology looking, brushed aluminum panel that was chosen as the exterior skin. The image was one of the machine aesthetic and for that reason it seemed logical to use metal and glass as an exterior surface. The incorporation of the micro-wave relay tower as an image generating element in the design of the building helped also. The relay tower could now be pulled forward and used as an architectural element instead of being located at the rear of the building in an inconspicuous way.

The organization and zoning of the building was primarily vertical with the most visually dominant piece of the three, the television station, placed right up front to loom out over and above Interstate 65. The leasable office wings were placed behind the television to act as a stage prop for the display of the television station. Parking for approximately 500 cars was placed under the facility, accessible from the Interstate 65 side of the building.
The interior of the building was functionally zoned in such a way as to place the high activity areas of the television station on lobby level and directly visible from Meridian Street. Station offices and recording studios were placed on the above floors with activity areas lessening with each higher floor. An outdoor studio was placed at rear of the lobby between leasable office wings where people could watch the taping of a program from inside or outside the lobby.
The first five weeks of the remaining ten week period remaining for this thesis project was devoted to detail development. The last five weeks was spent on final presentation. After finally determining the correct siting of the facility pieces (station-office-lobby), the primary changes occurred in making the interior spaces more desirable and humane.

The greatest improvements in the design came in the areas of lobby development, parking garage entrance/exit, location of main elevator banks and exterior skin treatment of the facility.

At this point in the development of the design, the lobby area seemed to be the weakest link. The intention of the lobby was to connect the three entities together in an organized fashion and provide public interaction by offering amenities which would be a means of appeal to the general public. The first floors of the leasable office space seemed to function better as an extension of the lobby than office space that flowed out of the lobby. The public amenities offered on the lobby level were a cafeteria with seating, a few small commercial shops and a community affairs display and exhibit area. The outdoor studio at the rear of the lobby served to disrupt the concept of the lobby more than strengthening it. The idea of the outdoor studio was still a sound one, the problem was it was located in the wrong place. After analysis of sightlines toward the downtown area, discovery of the fact that over a forty foot level one could have a panoramic view of the downtown skyline, prompted the potential of a rooftop outdoor studio. This was a highly desirable possibility for WTTV. The outdoor studio was moved to the top of the structure and future expansion of the station offices formed a stage backdrop for the studio. The station piece of the facility was already this height to form a visually dominant form with respect to Interstate 65.

Station security had a high priority in the design
development of the facility. Early schemes had the entire facility elevators located in the television station. Control of persons entering the station was critical. Since the elevators also served the parking garage below, it seemed logical and economical to bring the elevators up out of the garage and into the lobby area where office personnel and clients could continue to the offices and station personnel could transfer to another elevator bank located inside the station itself. Control of persons entering the station could be controlled by one receptionist and the four elevator banks did not need to continue the next five floors of the station itself. One elevator was sufficient to service the station itself.

The parking garage worked much better as entrance and exit areas were separated and located at the rear of the facility. The location of the garage at the front of the building created a poor, congested situation. The parking garage functions as a series of ramp systems which feed off on the different floors. The facility is still elevated three feet above street level with skylights at ground level on the East and West sides to let natural light into the garage.

The greatest change in the facade treatment was on the Interstate side of the building. The curved, metal panel skin performed various functions. It was a unique form offering a quick image to rapidly moving automobiles on Interstate 65 while also having functional design roots. The area behind the curve housed the production areas of the station while the glass areas were office space. Also, the bottom of the curve covered garage functions of the station yet opened up to Meridian Street to the West. The curve of the exterior skin was abandoned for the simple reason that it was technically difficult to work out and also the same image implications could be delineated in other ways.