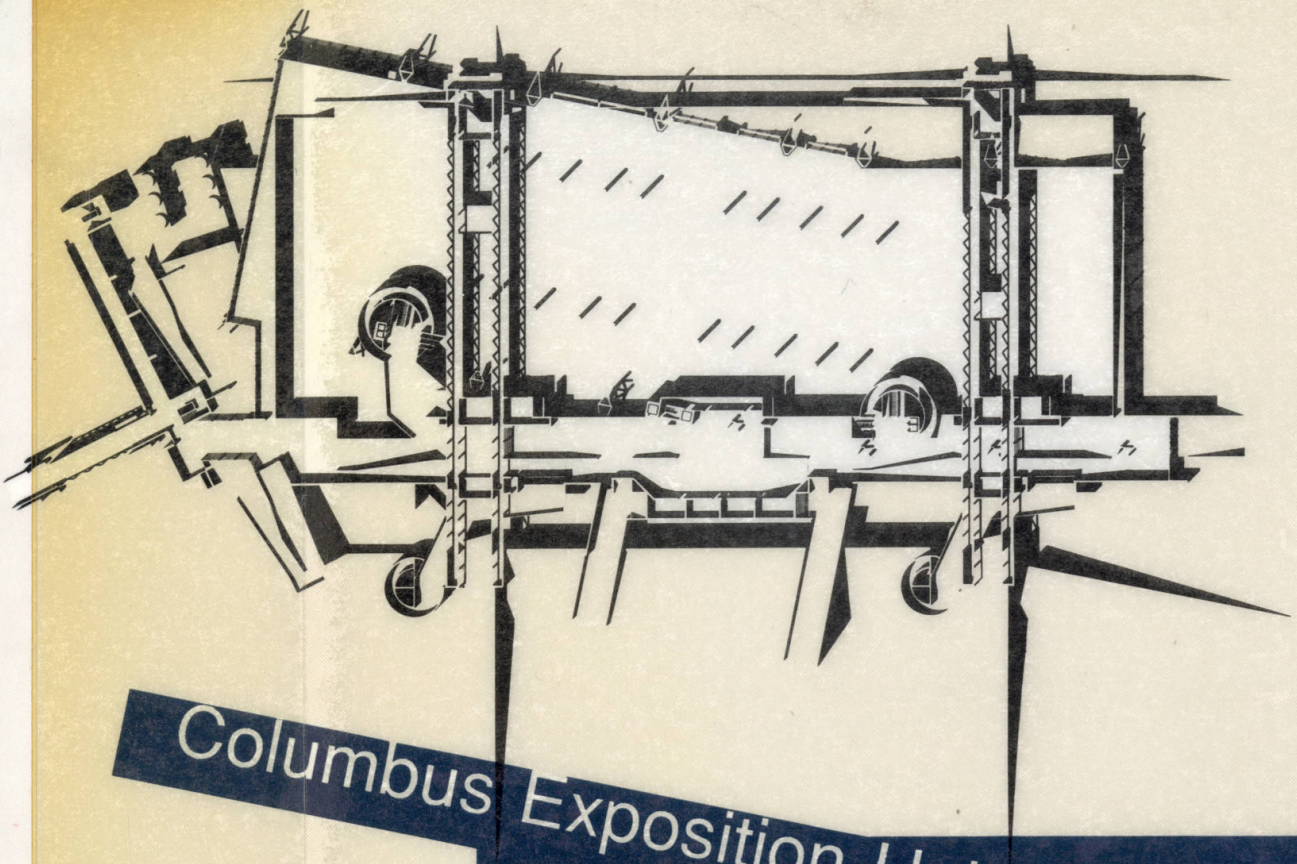


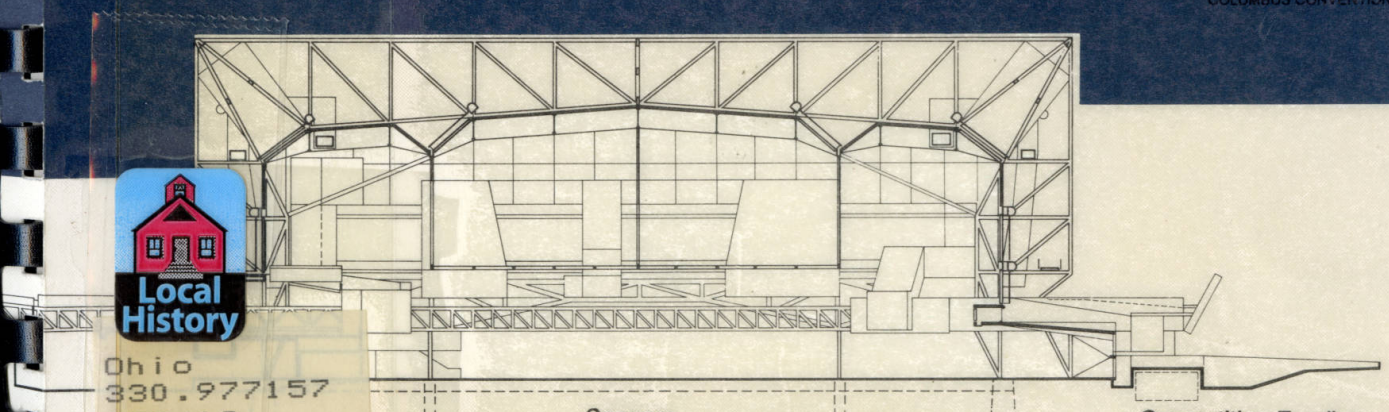
Columbus Exposition Hall
Columbus, Ohio

Holt Hinshaw Pfau Jones Architecture
March 1989

John E. Foster Associates
Tritt Architects
Ove Arup & Partners California

Industrial Light & Magic Co.
Office of Peter Walker/Martha Schwartz
8vo
Loschky Marquardt & Nesholm
Korda/Nemeth Engineering
Cini-Little International
Hanscomb Associates

COLUMBUS CONVENTION CENTER



Sponsor
The Franklin County Convention
Facilities Authority

Competition Funding
The Limited, Inc.
Leslie H. Wexner, Chairman

Competition Narrative

Columbus Exposition Hall

Columbus, Ohio

Holt Hinshaw Pfau Jones Architecture March 1989	Architect: 1
John E. Foster and Associates	Local Architect, Civil Engineer: 2
Tritt Architects	Community Liaison Architect: 1/2
Ove Arup & Partners California	Building Engineers: 1
Industrial Light & Magic Co.	Audio Visual Effects: 1
Peter Walker/Martha Schwartz	Landscape Architecture: 1
8vo	Graphic Design: 4
Loschky Marquardt & Nesholm	Facilities Planning: 3
Korda/Nemeth Engineering	Local Structural Engineer: 2
Cini-Little International	Food Service: 1
Hanscomb Associates	Cost Estimator: 1

Sponsor
The Franklin County Convention
Facilities Authority

Competition Funding
The Limited, Inc.
Leslie H. Wexner, Chairman

1 San Francicisco 2 Columbus 3 Seattle 4 London

Table of Contents

1.0 two parallel modes of acquiring knowledge...

it is...better, instead of contrasting magic and science, to compare them as two parallel modes of acquiring knowledge...

Claude Levi-strauss, *The Savage Mind*

Members of the Jury:
For three very busy months, our team has been thinking, talking, criticizing, designing, engineering, telephoning, faxing, cutting, glueing, painting, wiring, videotaping, writing, word-processing, printing, shipping and now, finally, submitting for your consideration, a vision of an American city poised on the edge of a great civic adventure.

With this competition, Columbus, Ohio has afforded everyone involved an exceptional creative opportunity. We are all pleased to submit this proposal — it represents our best collaborative effort to date.

Although it already carried the "convention center" label, we very quickly came to embrace a more overtly public and celebratory vision of a grand *exposition* as our way of thinking about the project, both in terms of its object quality and its pivotal role in an American city dedicated to continuing discovery. *This* convention center could become the first great *Exposition Hall* of the twenty-first century.

Great public buildings.
The principal competition objectives clearly called for no less than a Great Public Building:

A. *to develop a level of design excellence ... that embodies the community's high expectation for the facility ...*

B. *to create a unique architectural image for Columbus and a "must-visit" destination for visitors..*

C. *to develop a ... design that will attract conventions and exhibitions...*

Great buildings, in our view, exhibit five fundamental strengths:

They are intense.
They satisfy desires and *emotional needs* as well as functional requirements. Like the earlier cathedrals standing proudly above their cities, major public buildings serve as condensers of community aspirations and activities.

They are contemporary.
Buildings live in the world for which they are built; civic buildings dedicated to the presentation of that world, therefore find their highest expression there.

They are engaging.
Truly compelling architecture is *legible*. Engaging forms are honest, direct, and most importantly, relevant. The best American stuff has always been right to the point, a straight forward means to a worthy end.

They are critical.
All criticism contains the seeds of the change—the future—it proposes. In the context of public buildings, it is a call for a reasonable present vision of the future; an Architecture for a *present* in which can be discovered the *future.*

And, they are respectful.
These landmarks engender true civic pride at all levels of experience because they reconcile the conflict between their programmatic importance and the needs of the neighbors they serve.

Bold, forward-looking, coherent and sophisticated — a reflection of Ohio's pioneering spirit — Columbus Exposition Hall embraces these ideals, and the city's Discovery theme. Conceived as a machine-for-becoming-part-of-the-life-of-the-city-and-the-neighborhoods, it makes the process of discovery visible, an object of celebration for all who experience it.

Select a building design approach.
The fourth competition objective calls for an innovative approach to controlling project costs and strong, proven project management and consultant capabilities:

D. to select a building design that can be reasonably be expected to meet CFA's cost and delivery goals..

The Holt Hinshaw Pfau Jones team would modify this slightly to read; "to select a building design *scheme* that can be reasonably expected.." To select the best *approach* to the project — rather than a fait accompli competition design developed for what has recently become a moving target in terms of size, complexity, and budget — and a *team* that is willing and able to cope with real constraints down the road.

We believe our approach offers more "bang for the buck", more features, more interest, more honest, enduring Architecture because it is based on the aesthetics of function and economy. There is a lot to it; it is inherently interesting — but not particularly expensive — because the interest resides in the straightforward expression of everyday materials and products brought together in ways that reveal their engaging,though often overlooked, qualities.

Our unique team of architects, special effects technicians, planners, engineers, and designers set out to elevate architecture into event without compromising management effectiveness. We believe the thoroughness of our competition submission demonstrates this capability. Working side by side centrally in two locations; the Holt Hinshaw Pfau Jones offices in San Francisco, and the Foster offices in Columbus, the consultant efforts to this end were so integrated that it is virtually impossible to determine the extent of one discipline's contribution from another's. The working relationships forged during this test will serve the project well in the subsequent phases of this technically demanding project.

(It may be of interest to note that the same team is now working together on the current design competition for the United States Worlds Fair Pavilion at 'Discovery' Expo 92, to be held in Seville, Spain — Columbus, Ohio's official "sister city" — concurrent with the planned 1992 completion of this project. As the only team in the final round of both competitions, there is a chance, if selected for both, of dedicating sister buildings for sister cities simultaneously on the 500th anniversary of Columbus' discovery of the New World.)

Incorporating constituency input.
The final CFA objective was actually the first that we addressed:

F. to implement a procedure that offers an opportunity for public participation in the design evaluation process...

In formalizing our original team structure, we placed particular emphasis on this goal. Our experience with similar "landmark" projects has taught us that "must-visit" architectural impact must be tempered by a clear understanding of, and respect for, the surrounding communities' special interests. Although the competition brief required the participation of a "Local Architect" — implying the typical expectation that a large production-oriented firm would have to take care of business while the "national design firm" dilettantes about — we set out instead to identify and sign up an established Columbus architect with a demonstrated commitment to, and feeling for, current community development programs, the culturally and ethnically diverse neighborhoods, and local political and business affairs. (As we always handle our own project production work, this effort was conducted without consideration to firm size.) In addition, we were very fortunate to have a long-standing affiliation in San Francisco with a Columbus-bred architect who maintains professional ties with the various local neighborhood groups *and* is initimately familiar with our work and design process.

The combination of our choice for the team's Local Architect, John Coke of John E. Foster and Associates, together with the Community Liaison Architect, Homer Tritt of Tritt Architects, has proven extremely effective in our organized effort to solicit and incorporate constituency input. The concerns and aspirations voiced to our Local and Liaison Architects played a big part in our design process.

We believe that the ground work laid with the community during this phase — along with continuing interface — will greatly improve the prospects for a popular outcome for the project.

A coordinated marketing effort.
We realize that the proposed convention center only has a real chance of happening in the end if the selected design team, CFA, city leaders and community advocates can pull together around a strong, marketable object of civic pride. With this in mind, Columbus Exposition Hall was designed and its presentation strategized, to support the

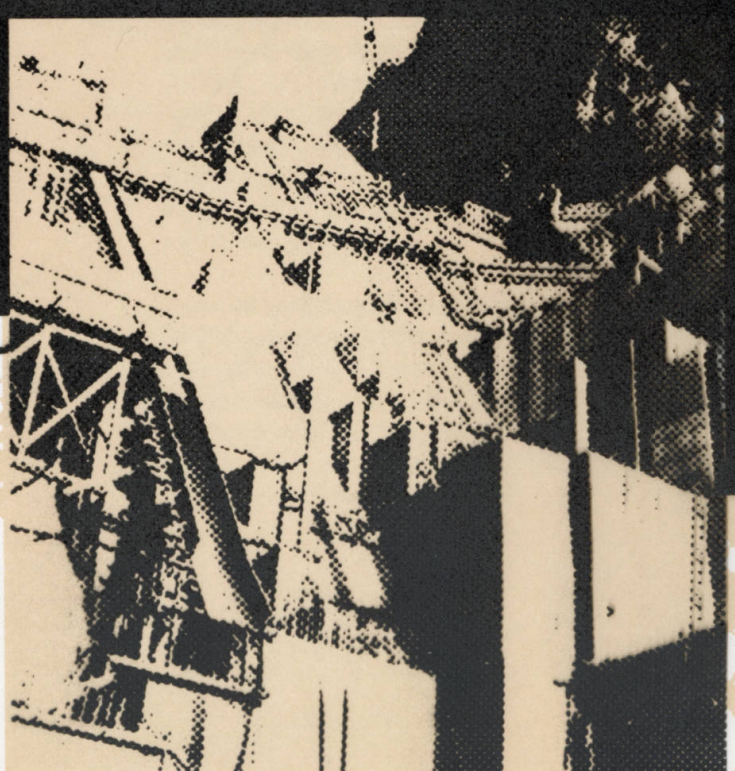
Downtown Strategic Plan's recommendation to consolidate city-wide marketing efforts around the Discovery theme. The Hall's bold, contemporary architecture, the comprehensive design/presentation approach, and the design teams' own current marketing momentum will all contribute to the future success of this downtown Columbus campaign.

To paraphrase the narrative text: Columbus is determined to build for itself a great new Center of Discovery — "eyeing a horizon that defines the first rank of American cities". The adventurous people of Ohio have consistently demonstrated determination and surprising vision — evidenced again with this competition — "and this is important, for the key to discovery is not the knowledge of what lies beyond this horizon, but the desire that takes you there."

We are confident that a great Exposition Hall is just the ship for this exciting voyage.

2.0 technology teases nature into unhiddenness

Martin Heidegger



*Under prime contract to the Convention Facilities Authority (**1**), Holt Hinshaw Pfau Jones (HHPJ:**2**), as Project Architects and as team leader for the convention center, will enter into individual consultant contracts with each of the firms providing project support.*

The Architectural team.
The Local Architect entity will be an affiliated association of John E. Foster and Associates (Foster) and Holt Hinshaw Pfau Jones (Foster/ HHPJ:**3**) The Local Architects will maintain physical operations in Columbus for the duration of the project. John E. Foster and Associates will maintain majority participation in the affiliated association while Holt Hinshaw Pfau Jones will provide the management personnel, and all standards and practices for the local entity. In terms of daily project activity these two architectural entities, HHPJ and Foster/HHPJ will operate as two offices of a single parent firm headquartered in San Francisco. The San Francisco office of HHPJ will provide principal project management for all architectural design and production services through completion of the major construction document packages. Late production phase and all construction administration phase services will be managed by Foster/HHPJ out of the Columbus office (refer to 4.0.1.3 for detailed description of the manpower distribution within the architectural team structure).

We have made every effort in structuring this architectural team to reinforce several important management practices:

Centralize design and production under "one architectural roof".
Project accountability, continuity, follow-through, "design to detail," and owner/architect correspondence, are all optimized. The weight of combined overhead is also minimized, allowing a greater percentage of the stipulated fee to be applied to ongoing design study and production detail, resulting in a superior building.

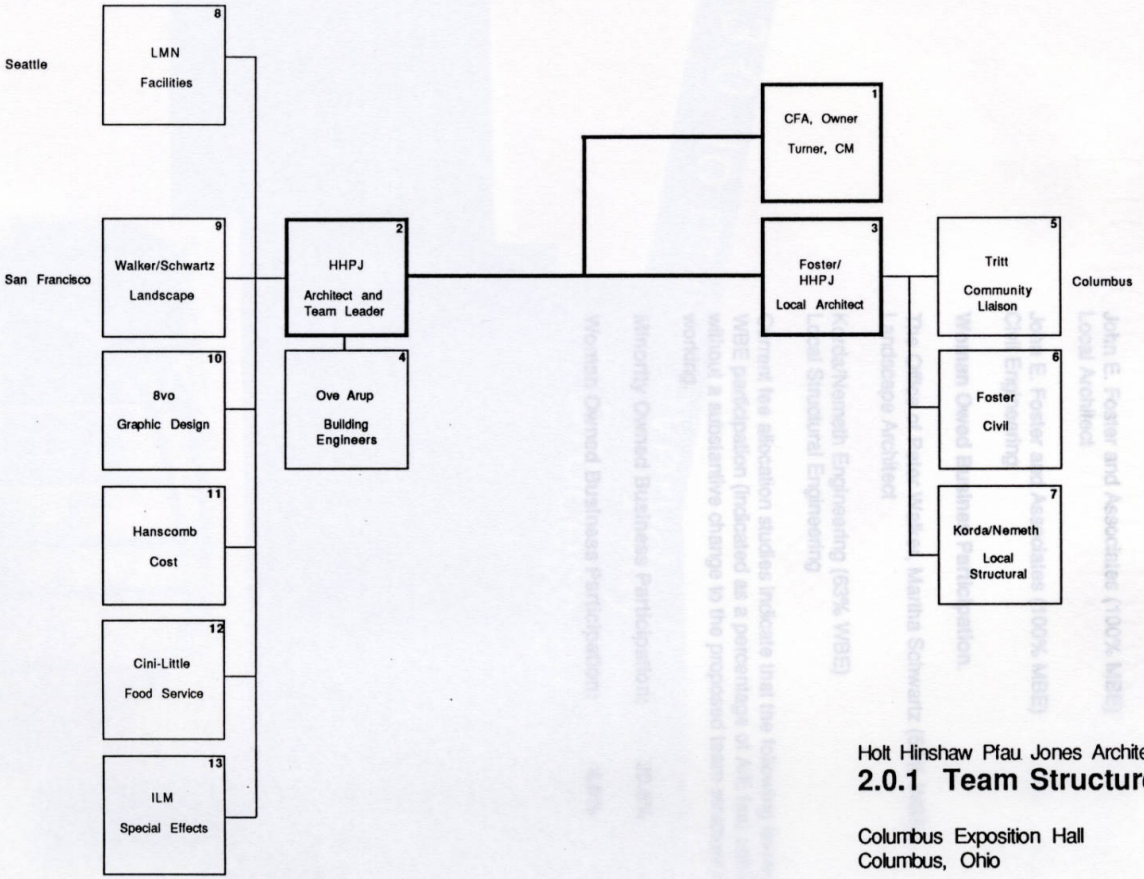
Keep the team as small as is practicable.
By affiliating the Local Architect and Project Architect under one management umbrella, the number of "cooks" can be greatly reduced. Internal communication is direct and effective, standards and practices are uniform, and client interface is greatly simplified. The selection of Ove Arup & Partners as the team's project Building Engineers is an extension of this philosophy. By consolidating structural, mechanical, electrical, plumbing, fire protection, acoustical and lighting under "one engineering roof", the team becomes much more manageable, and therefore effective and efficient.

Take advantage of internal personal resources.
HHPJ is unique in that the firm is headed by four Partners with individual strengths of experience in contract administration, project management, project design, and technical production. HHPJ's rigid policy of maintaining the greatest possible degree of control over the entire architectural process, has enabled the firm to build a senior staff of competent, well rounded design professionals.

The remaining team structure is very straightforward.
Supporting Foster/HHPJ out of Columbus are: Tritt Architects (**5**), Community Liaison Architect (maintaining physical operations in both Columbus and San Francisco during the planning and schematic design phases); John E. Foster Associates (**6**), also providing total Civil Engineering; and Korda/Nemeth (**7**), Local Structural Engineers.

Supporting HHPJ out of San Francisco are: Ove Arup & Partners California (**4**), Building Engineering; Tritt Architects; The Office of Peter Walker, Martha Schwartz (**9**), Landscape; 8vo (**10**), Graphic Design (this London based firm handles all West Coast commission work out of HHPJ, San Francisco); Hanscomb Associates (**11**), Cost Estimating; Cini-Little International (**12**), Food Service and; Industrial Light and Magic, Co. (**13**), Special Audio/Visual. Loschky Marquardt & Nesholm (**8**), Seattle, will provide Convention Facilities Planning support throughout the design phases.

We believe this simple, geographically cohesive team structure will enable Holt Hinshaw Pfau Jones to provide effective project management and a superior level of service to the client over the full duration of this challenging project.



Holt Hinshaw Pfau Jones Architecture

2.0.1 Team Structure

Columbus Exposition Hall
Columbus, Ohio

As previously confirmed, Holt Hinshaw Pfau Jones has adopted the CFA's MBE/WBE participation goals for determing internal contract negotiations.

Minority Owned Business Participation.

John E. Foster and Associates (100% MBE)
Local Architect

John E. Foster and Associates (100% MBE)
Civil Engineering

Woman Owed Busines Participation.

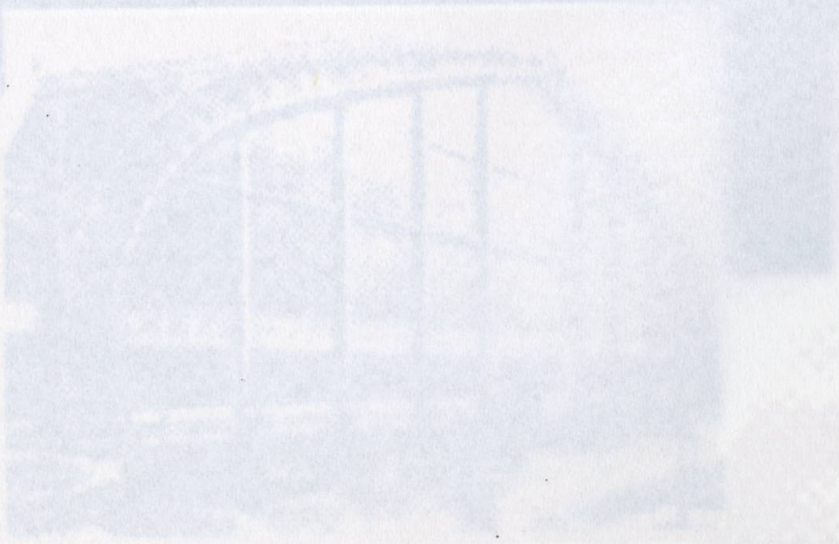
The Office of Peter Walker, Martha Schwartz (50% WBE)
Landscape Architect

Korda/Nemeth Engineering (63% WBE)
Local Structural Engineering

Current fee allocation studies indicate that the following levels of MBE/ WBE participation (indicated as a percentage of A/E fee) can be realized without a substantive change to the proposed team structure or way of working.

Minority Owned Business Participation: **20.5%**

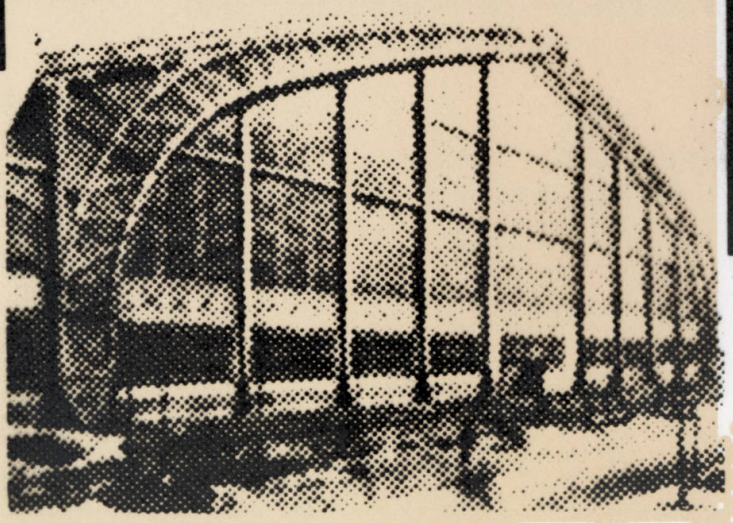
Woman Owned Business Participation: **4.6%**



3.0 to make everyday learning a process of discovery

We have now become aware of the possibility of arranging the entire human environment as a work of art, as a teaching machine designed to maximize perception and to make everyday learning a process of discovery.

Marshall McLuhan, *The Medium is the Message*



Seen from the air, the fabric of Columbus is marked by an unexpected open space. Here the regional hub of a great radial transit pattern frames the intersection of two dominant city grids. It was once the gateway that welcomed the world to Ohio. Here the exchange of travelers, goods, and information was marked with the promise that an exciting age of discovery held for the future.

That promise remains alive today as Columbus once again addresses this pivotal site. Today the program is a new Gateway, a portal where the city may meet the world and the world may discover Columbus. In the tradition of the Crystal Palace, the great Hall of Machines, and the best "cathedrals of commerce," the city should make its new exhibition hall a symbol of progress and optimism for the future. With this project, Columbus, the All American city, is taking the first steps to becoming the New American city.

A city of the present and future, rather than the past, Columbus has asked for a "must-visit" destination reflecting a positive and optimistic self image -- not the last convention center of this century, but the first great Exposition Hall of the next.

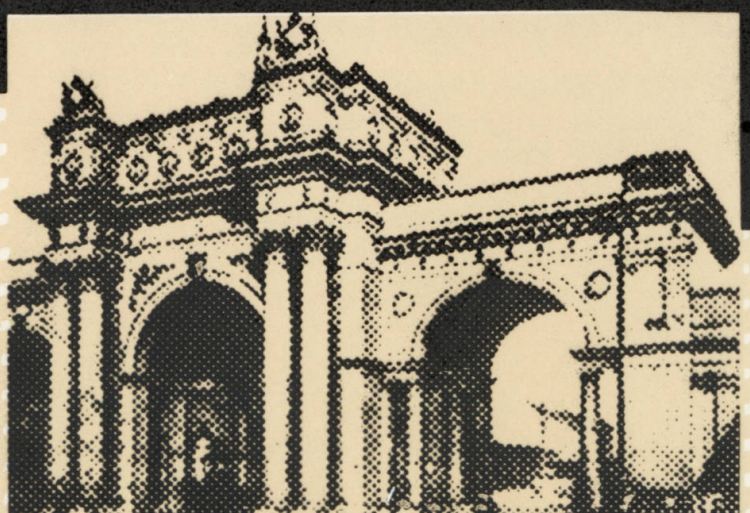
500 years ago Christopher Columbus boldly sailed over the horizon to discover a new world. Today, Columbus, Ohio has embarked on its own historic adventure, eyeing a horizon that defines the first rank of America's cities. Across this horizon lies the city's future: will it lead American into the next century or will it be left behind? The list of U.S. presidents, astronauts, inventors and sports heros Ohio has given to America attests to the reach of its vision and the strength of its heart.

And this is important, for the key to discovery is not the knowledge of what lies beyond this horizon, but the desire that takes you there.

3.1 the world may discover Columbus

Seen from the air, the fabric of Columbus is marked by an unexpected open space. Here the regional hub of a great radial transit pattern frames the intersection of two dominant city grids. It was once the gateway that welcomed the world to Ohio. Here the exchange of travelers, goods, and information was marked with the promise that an exciting age of discovery held for the future.

That promise remains alive today as Columbus once again addresses this pivotal site. Today the program is a new Gateway, a portal where the city may meet the world and the world may discover Columbus. In the tradition of the Crystal Palace, the great Hall of Machines, and the best "cathedrals of commerce," the city should make its new exhibition hall a symbol of progress and optimism for the future. With this project, Columbus, the All American city, is taking the first steps to becoming the New American city.



Masterplan Proposal: The City of Discovery
Seen from the air, the fabric of Columbus is marked by an unexpected open space. Here the regional hub of a great radial transit pattern frames the intersection of two dominant city grids. As the principal train depot of its time, it was the gateway that welcomed the world to Ohio. Here the exchange of travelers, goods, and information was marked with the promise that an exciting age of discovery held for the future.

That promise remains alive today as Columbus once again addresses this pivotal site. Today the program is a new Gateway, a portal where the city may meet the world and the world may discover Columbus — and a great City Room — a canopy under which the civic interests of commerce and community can come together.

It recognizes and engages the surrounding city fabric.
The project planning context and Columbus' Discovery theme may appear, at first glance, to represent opposing notions. If "contextualism" is taken as a masking, disguising, or extruding activity, then they are contrary. Context implies knowing; "what's there is what's there." Discovery, by definition, starts with unknowing; "what is there?". By neutralizing contextualism to signify only the awareness of a relationship, Discovery can provide the impetus for a contextual relationship; as the building extends linkages out into this context, the building then engages in the activity of discovering its context.

It recognizes and exploits the surrounding fabric.
The project's unique place in the "fabric" of Columbus provides the primary impetus for planning such a landmark urban presence. The two dominant city street grids — the High/Broad of downtown Columbus and the Avenue grid running through the surrounding neighborhoods — collide here in a tangle of redirected streets. This condition is most apparent where Goodale Boulevard, moving east along the Avenue grid, intersects High Street where it is deflected 11.5 degrees onto the Downtown grid before entering the project site. Superimposed over this two-dimensional city fabric are the sweeping three-dimension trajectories of high speed rail and expressway engineering. The resulting chaos — normally characterized as an urban eyesore — becomes instead, like a tightly wound spring, a source of potential power.

It makes itself part of the life of the city.
The proposed planning response exhibits the site's stored energy, containing the vortex of this turbulence and mediating the two grids. Conceived as a machine-for-becoming-part-of-the-life-of-the-city-and-the-neighborhoods, it makes the act of burrowing into the fabric visible; an object of celebration.

The device chooses the downtown grid for its base, acknowledging its commercial "foundations." The great Exposition Hall shell canopy shifts the 11.5 degrees and adopts the neighborhood orientation as a symbol of its greatest aspirations. At mid-length, the canopy cranks back onto the base, expressing the geometries of rotation and uniting the fields of commerce and community in a single expression.

The centerpiece of "Discovery."
The planning approach incites this energy into a grand expression of optimistic self image — Columbus Exposition Hall, the centerpiece of the city's new precinct of discovery. By relocating and expanding COSI (Ohio's Center of Science and Industry) into an exciting new facility at High and Nationwide Streets along the proposed light rail line already slated to connect the Hall and West High School sites, the masterplan establishes a strong three-part Discovery Way, tying High Street to Franklinton and the Scioto River. Orbiting this newly-formed constellation are the various required masterplan components: hotels and sports arena. Together they define a triangular "Exposition District" with the base resting on the shoulders of big downtown business and the apex extending into the neighborhoods as the door to adventure.

The exuberant architectural language shared among these major exposition components (as embodied in the Exposition Hall itself) underscores their connectedness and, in so doing, establishes an "historic district" of the 21st Century.

It welcomes the world.
Rather than ignoring the "back" side of the project — relegating it to passive service functions alone, Exposition Hall seizes the opportunity to gather in visitors — along with their latest inventions, services, and information — from the east via regional expressway and rail. Along the all-important airport approach, emissary fragments of the Hall's architectural imagery cling to the frequent overpasses. At first mysterious, they create anticipation as the great portal hedge suddenly gives way, revealing the confident new face of an eager, modern, American city. Extending to the world the means of its own discovery, the Hall sends out a series of precinct "greeters" — a welcome mat of architectural and landscape elements that encourage its exploration.

More than a ceremonial arch.
It heals the existing gap between the Central Business District and the Short North with more than a ceremonial arch. Bisecting the new triangular exposition district from apex to base as it runs from the Short North into the CBD, this pivotal stretch of High Street is also seen as the City Portal. The masterplan supports this intent emotionally and psychologically, as well as physically.

Determined yet friendly, the animated High Street facades provide an effective transitional street edge between the two districts. This edge is held back towards the Short North, and with the mid-length crank becomes increasingly dense as it reaches downtown, creating a visual "hot-spot" at High and Nationwide. Further defined by the surrounding assemblage of associated masterplan components — COSI and hotels — this intersection becomes a compelling spatial gateway through

which pedestrians and drivers alike are invited to explore the new City of Discovery — Columbus, Ohio.

3.1.2 Tritt Architects

Masterplan Proposal: A Community Plan.
Through a series of meetings held with members of the local neighborhood groups during December, 1988 and January, 1989, neighbors were able to voice their concerns about, and aspirations for, this important new facility which will so impact their communities and the Short North.

Among the participants were:
Jack Johnstone, resident and President, Italian Village Society
Zoe Johnstone, resident and VP, Short North Business Association
Roger Farrell, resident and Italian Village Commissioner
Nancy Haitz, resident and Market Master, North Market
Ron Fauver, resident, Italian Village
Jane Farrell, VP, Italian Society
Sanborn D. Wood, President Wood Development Inc.
Bruce Dooley, Victorian Village Society President
David Diroll, Victorian Village Commission Chairman
John Grandess, Architect, 61 W. 2nd Avenue
Barbara Covert, Citizens For a Better Skyline
Andy Klein, resident, Italian Village

Scale Changes.
The issues brought to light dealt with the unique problems of situating a major convention center simultaneously at the edge of the CBD and three culturally distinct neighborhoods: Italian Village, Victorian Village and the North Market. Especially impacted are residents of Italian Village. Their concern is that the "dead spot" created by the existing site become a portal to downtown with the appropriate scale changes associated with going from a small residential to a central business district — in other words, a gradual change through the portal into the activity of downtown and not an abrupt change from small 3 or 4 story buildings to the highrises of downtown.

High Street as "Main Street".
However, the Short North commercial district currently manifests its own urban vitality and is a good beginning to help mitigate the transition corridor through the site. Concurrently, the I-670 freeway bridge acts as a barrier to downtown. There is a clear desire that there be a continuity of the Short North with downtown and that I-670, in conjunction with the emptiness of the project site and the relative inactivity of the North Market Area as it faces High Street, be replaced with a mixture of uses that work together as a link through this portal along High Street. These dynamic program components include small retail in the North Market area, as well as residential, offices, hotels, COSI, the Greek Orthodox

Church, and of course, Exposition Hall. Working together, this activity will reinforce High Street as the "Main Street" of the north/south axis of Columbus. The lifestyle of these residents makes a strong case for an exciting 24 hour street.

Something to look at.
In response to pedestrian oriented activities, the community has expressed the desire for "something to look at," rather than a vast open urban plaza as commonly seen in some urban design. The Hall addresses this concern by letting the architecture, and the exhibits which inhabit it, be that interesting thing to view. Retail operators have traditionally found it difficult to survive as part of convention centers, so the exhibit space — "a community room" (quote from Sandy Wood) — is the activity response instead.

Pumping life back into the innerbelt.
In addition, positioning one of the hotels at the north end of the site and west of High Street in the I-670 air rights corridor draws pedestrian traffic north along High Street from the "hotel district" and COSI at the south end of the site, thereby reinforcing activity along the "gateway."

The proposed arena's location was another hot topic — seen as a destination point drawing outsiders into and through the surrounding communities whose only concern would be to see a ballet or go to a ball game. They would not be spending time or money in the neighborhoods of the Short North. Most neighborhood residents expressed this as a compelling reason for not locating the arena near the neighborhoods. The location preferred was more towards the downtown CBD, served by a system of roads that can support a regional audience vs. a local one. This regional attraction will also complicate the neighborhood parking issue, already impacted by the new convention center. Locating the arena as far as possible from the neighborhoods will discourage arena-event on-street parking.

Furthermore, they suggested that locating the arena closer to the CBD will encourage downtown pedestrian activity. This is good for pumping life back into the innerbelt.

Peaceful coexistence.
Parking is still an emotional issue according to some residents: "The presentation by the city is different each time." Even though the policy now provides parking permits for the residents, they believe that without adequate free parking at the convention center and the arena, people will be tempted to park in their neighborhoods if circulation is allowed to loop onto High Street. Existing traffic uses 3rd Street into downtown and 4th street to leave downtown. This must be maintained for each of the new functions proposed (the percentages of access are illustrated in the diagram). High Street therefore, must remain a predominantly pedestrian street. Widened sidewalks, street vegetation, rhythm, and visual interest at eye level were some of the suggestions. It was pointed out that introducing retail along the east side of High Street would be "setting up those businesses for a fall." Parking on that side will be a problem, and the rent required to justify the initial construction cost will be prohibitively high for small merchants. Therefore, the idea of the doubling as both a perceived and practical community room or "great hall" was met

with applause. Parking on the west side of High Street will be shared by the North Market visitors and the proposed hall as well as, in the future, by residential and retail development in the North Market area. The term "peaceful co-existence" was used.

Entrepreneurial opportunity.
Regarding the proposed, new ramp from 3rd street onto I-670, it was generally recognized that "there will be a scream" if and when buildings are removed from Italian Village. Our response is to keep these buildings by providing the required ramp in a different location (see masterplan). Also, in response to specific requests, we have created a "mews" type feature where E. Poplar Street adjoins the project site. A landscaped neighborhood room is formed by reinstating E. Poplar Street in Phase 2 (it must be temporarily claimed during Phase 1) as a multi-story mixed-use residential over commercial development using the air rights on the east side of High Street over I-670. This in turn helps link the Short North to downtown along the High Street portal. There had been some comments at our January 5 orientation meeting regarding the perceived conflict between retail in the North Market and retail in the Short North. We discovered at our community meetings that this may not be the case. The Short North merchants feel that by accentuating the portal through the convention site, with street level retail supported in the North Market, the High Street area will reinforce entrepreneurial opportunity for everyone.

A front door to downtown.
The existing Ohio Center obviously turns its back to High Street. This, it was noted, makes it seem to turn its back on the whole city. By enfronting the Hall directly onto High Street, and placing COSI in a similar manner on the west side, the masterplan makes a gesture to the street that Ohio Center currently lacks. This layer of activity laid over the north/south High Street axis will energize the life of the street and work in conjunction with the discovery theme of a new downtown Columbus. It is a front door to downtown... a front door to Columbus!

A welcome mat to Columbus.
The front door theme has to work on the east side of the project as well. This is the link to the regional freeway system and to the airport. This side serves as the welcome mat to Columbus, coming from the airport and from the innerbelt.

The masterplan is planned in such a way that the act of arrival occurs within the formal greeting spaces along the east side of the building. Whether arriving via the internal pedestrian bridges from the High Street entries, or from the east via freeways, street or railway, Exposition Hall's visitors will experience the same dramatic architectural welcome.

Arena.
The arena is masterplanned along Nationwide Boulevard between 3rd and 4th Streets. There are three reasons for selecting this site. First, it is located far enough from Italian Village to alleviate the problem of disruption of life there. In fact, there are no direct connections to that area. Second, there is immediate ingress from 4th Street from the south and from I-670 from the north. Since the arena is designed to sit on top of three levels of parking, access is direct. Egress is to the south onto 3rd Street and to the north onto 4th Street and to I-670. Third, there is

immediate pedestrian access to the CBD along Nationwide Boulevard as well as pedestrian access to the Exposition Hall through a ramp system at the north end of the arena parking structure.

Exiting from the Exposition Hall parking is two fold. Eastern, northern and southern traffic can get directly back onto the new I-670 extension at the east side of the site while westerly traffic, along with traffic from the northwest 315 corridor, will use the new road under High Street through the existing railroad right-of-way and back to the new Nationwide Boulevard extension west of High Street (see masterplan). Nationwide traffic flows into Neil Avenue and back onto the freeway system.

Ohio Way extended for rail station.
Along with COSI, the new hotels on the west side of High Street, and a new parking garage, Ohio Way has been extended to act as an entry point to a lower level railroad station. It has been positioned so that both railroad right-of-ways can be considered as a stop for future passenger railroad systems connecting major "Discovery Way" projects with the CBD as well as regional and national destinations.

Conclusion.
Although a fundamental part of this initial masterplan proposal, community interface must continue through the remainder of project design and development to ensure that the issues outlined herein are creatively resolved and that community consensus is achieved.

The project's impact on the community, and the city as a whole, is viewed by the community as a potentially positive one. Their basic parameters for a positive outcome are: landmark stature as opposed to another background building; an urban presence that reinforces the city's discovery theme; an object of civic pride (a successful project); and a clear continuing voice for these concerns and aspirations. Exposition Hall and this team's planning approach embrace these community objectives.

3.1.3 John E. Foster and Associates

Masterplan Proposal: A strategic plan.
A new vision for downtown Columbus, Ohio has been spawned by Downtown Columbus Incorporated. During 1988, eleven task forces, representing 450 persons, were organized by DCI, Inc. and the first draft of a downtown Columbus strategic plan was issued during February 1989. The major objectives of the plan are planning, development, marketing and funding of key infrastructural and other projects designed to create a "Central City of scenic and comfortable public spaces; inviting pedestrian paths and walkways; ***fascinating new architecture*** *and charming old buildings; alluring retail streets and centers; thrilling fireworks, concerts and races; dramatic new office structures; comfortable, efficient and luxurious housing; beautiful and inspiring museums; mind opening educational and cultural centers;*

gracious and colorful parks; flowerful and sunswept festivals; fun-filled river recreation; and splendid new theaters and amphitheaters."

The Columbus business community via Downtown Columbus , Inc. has outlined a vision of Downtown which recommends that "Columbus should promote itself, and the downtown, as the world's 'Discovery Center' — a unique center to explore and promote the frontiers of human endeavor.

It is obvious that the socio-political context of downtown planning has matured enough in Columbus to enable a high degree of pluralistic consensus, resulting in a new vision and image of Columbus as it enters the twenty-first century.

Don't sweep the elephant under the rug.
Exposition Hall has responded to the strategic plan's challenge: fascinating new architecture which addresses itself to the environmental context; i.e., surrounding historic districts, placement on the High Street "spine", gateway to downtown from the airport, combining the architectural language of High Street with the linkages to other exciting components in a downtown discovery amalgam: Center of Science and Industry, hotels, arena, North Market, Short North and the new railroad station.

Further, the cultural context of urban neighborhoods such as Italian and Victorian Villages, as voiced through their community leaders, demands no larger than medium sized hotels (maximum 350 rooms) placed in symbiosis with the neighborhoods and in massing terms supporting the architectural language of the street while strengthening street retail.

The reinforcement of the "Discovery Center" concept is achieved by indicating that the site for a 250,000 sq. ft. new Center of Science & Industry (COSI) should be placed directly across from the Convention Center and over air rights north of the railroad corridor, and accessed by a pedestrian ramp under the High Street bridge. The massing and architectural language of this building and its pedestrian bridge, like Exposition Hall, isl contextual to the citizens' desire to "explore and promote the frontiers of human endeavor."

The sheer size of the Hall enables it to be a *determinant* of the planned context, not a background building shaped by other neighborhood forces. *Not* "sweeping the elephant under the rug" is a bold move, one which correctly responds to the political context of the citizenry and its mandates for a Downtown Columbus Strategic Plan.

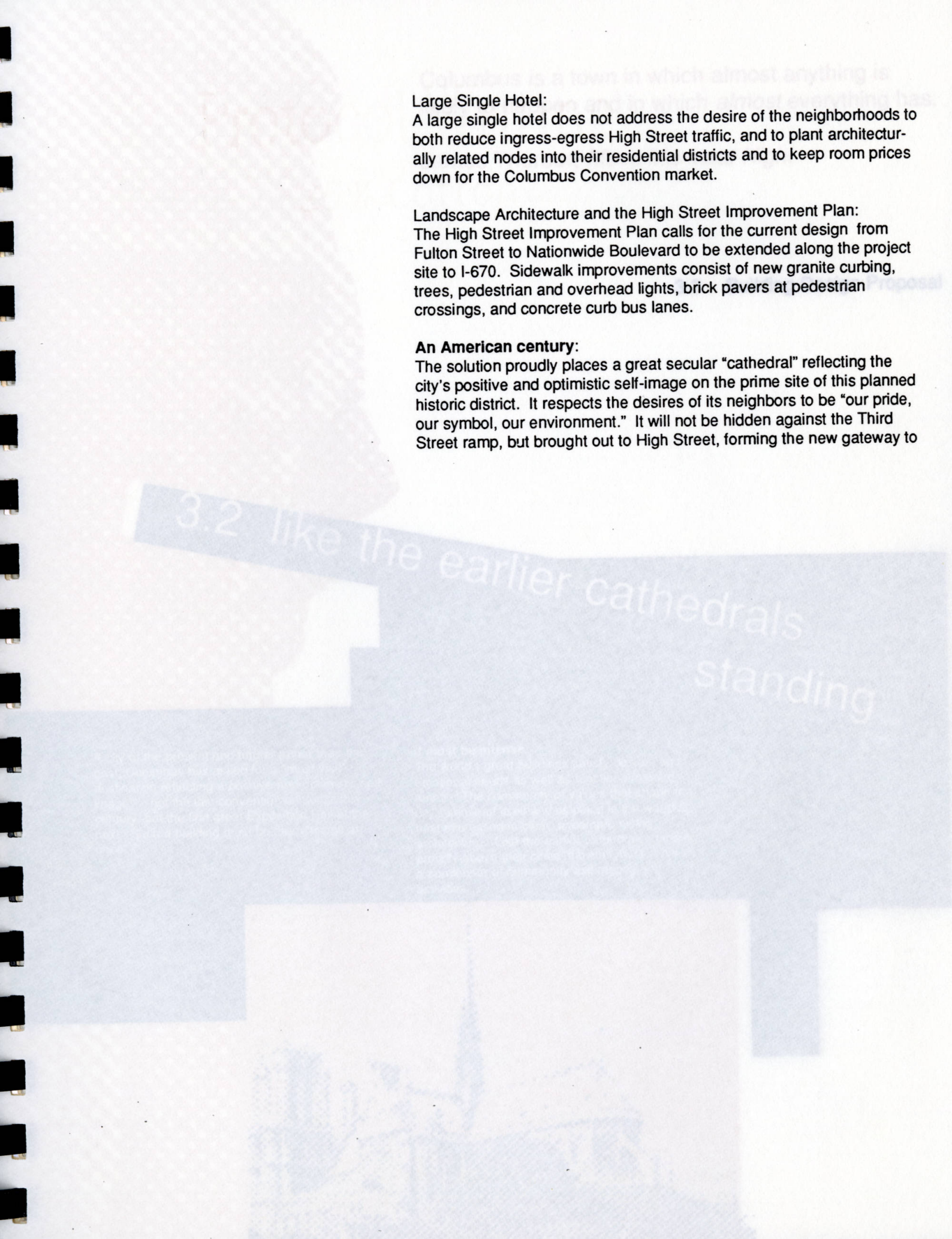
A Critique of Previous Planning Solutions

Arena:
Placement of the arena in the northeast quadrant of the site will conflict with the I-670 entry ramps and Goodale Boulevard which carry 75% of the vehicular traffic entering the site (from traffic reports provided).

Large Single Hotel:
A large single hotel does not address the desire of the neighborhoods to both reduce ingress-egress High Street traffic, and to plant architecturally related nodes into their residential districts and to keep room prices down for the Columbus Convention market.

Landscape Architecture and the High Street Improvement Plan:
The High Street Improvement Plan calls for the current design from Fulton Street to Nationwide Boulevard to be extended along the project site to I-670. Sidewalk improvements consist of new granite curbing, trees, pedestrian and overhead lights, brick pavers at pedestrian crossings, and concrete curb bus lanes.

An American century:
The solution proudly places a great secular "cathedral" reflecting the city's positive and optimistic self-image on the prime site of this planned historic district. It respects the desires of its neighbors to be "our pride, our symbol, our environment." It will not be hidden against the Third Street ramp, but brought out to High Street, forming the new gateway to



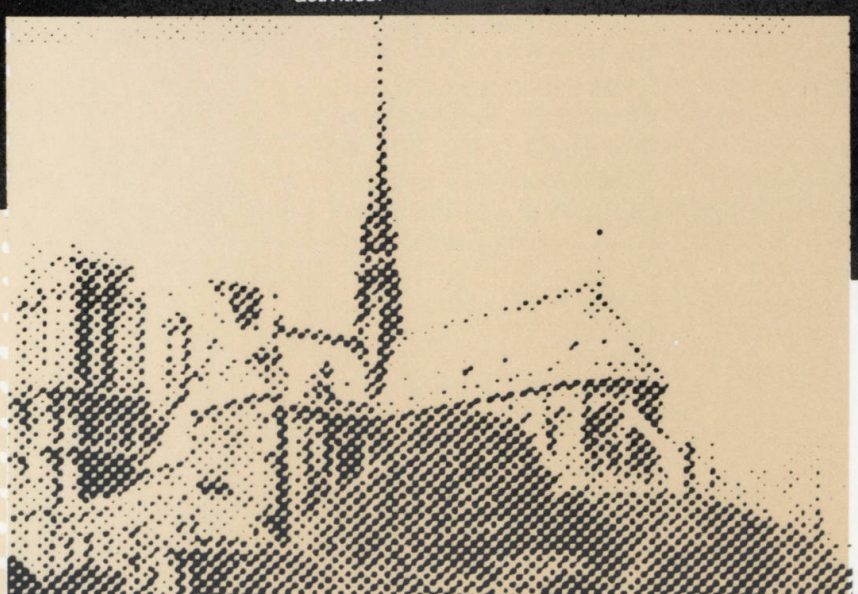
Columbus is a town in which almost anything is likely to happen and in which *almost* everything has.

James Thurber, *Move Marmsat Night*

3.2 like the earlier cathedrals standing

A city of the present and future, rather than the past, Columbus has asked for a "must-visit" destination reflecting a positive and optimistic self image — not the last convention center of this century, but the first great Exposition Hall of the next. Such a building must be many things at once.

It must be intense.
The world's great buildings satisfy desires and emotional needs as well as functional requirements. The community of values that shape a city's sense of itself and its place in the world are best expressed in clear, uncompromising architecture. Like the earlier cathedrals standing proudly above their cities, the Hall must serve as a condenser of community aspirations and activities.



Building Design Proposal

In the tradition of the Crystal Palace, the great Hall of Machines, and the best "cathedrals of commerce", the city should make its new exhibition hall a symbol of progress and confidence in the future. With this project Columbus, the All American City, is taking the first steps to becoming the New American City.

A city of the present and future, rather than the past , Columbus has asked for a "must-visit" destination reflecting a positive and optimistic self-image — not the last convention center of this century, but the first great *Exposition Hall* of the next.

It must be intense.

The world's great buildings satisfy desires and emotional needs as well as functional requirements. The community of values that shape a city's sense of itself and its place in the world are best expressed in clear, uncompromising architecture. Like the earlier cathedrals standing proudly above their cities, the Hall must serve as a condenser of community aspirations and activities.

It must be contemporary.

Any building must *live* in the world for which it is built: and a civic building such as this, dedicated to the presentation of that world, should find its highest expression there. Our contemporary culture is founded upon the omnipresence of technology. A building interested in the most appropriate expression for our world must face this fact and get on with the job of making today's architecture the best, most fascinating, and engaging of all.

It must be engaging.

To be truly compelling, architecture must be *legible*. Engaging forms are honest, direct and most importantly, *relevant*. They must be felt to be meaningful in an immediate way. This immediacy is lost in both abstract intellectualizations which suppress legibility and therefore limit accessibility, and stylistic convention which narrows the audience to those who know the language. The best American stuff has always been right to the point, a straightforward means to a worthy end.

It must be critical.

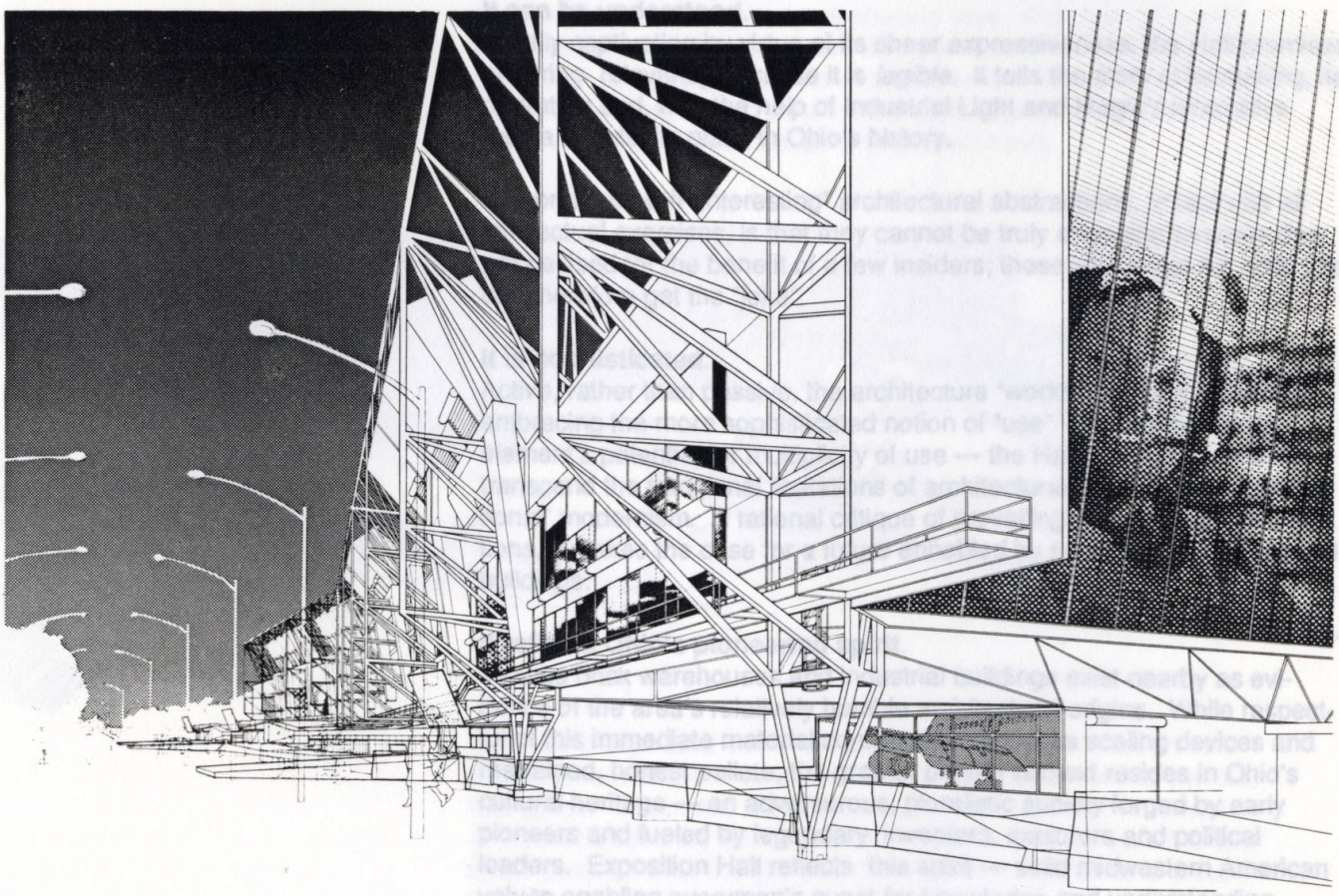
Critical as in Important, and critical as in Critique. This project is important because of the impact its vast size and complex program will have within the future of the city; a measure of its sophistication is the degree to which it can offer its critique without alienation. All criticism contains the seeds of the change — the future — it proposes. In the context of this project it is a call for a reasonable present vision of the future; an Architecture for a *present* in which can be discovered the *future*.

It must be respectful.
All this excitement must be balanced by heartfelt respect for the surrounding community's interests. Only by reconciling the possible conflict between this imposing public building and its private neighbors can Columbus' principle landmark engender true civic pride at *all* levels of experience

500 years ago Cristopher Columbus boldly sailed over the horizon to discover a new world. Today Columbus, Ohio has embarked on its own historic adventure, eyeing a horizon that defines the first rank of America's cities. Across the horizon lies the city's future: will it lead America into the next century or will it be left behind? The list of U.S. presidents, astronauts, inventors and sports heros Ohio has given to America attests to the reach of its vision and the strength of its heart.

And this is important, for the key to discovery is not the knowledge of what lies beyond this horizon, but the desire that takes you there.

Like the great sailing ships of Columbus' expedition — their massive sails and complicated rigging converting wind energy into forward motion across the seas — Columbus Exposition Hall is an exuberant (emotional) expression of the practical mechanics of this epic journey.



It is bold.
Too large to hide and too important to disguise by definition ("you can't sweep an elephant under the rug..."), the Hall exerts its presence as a major city landmark. It rises above the neighboring rooftops in a dramatic burst of visual energy — an image of civic strength and self-confidence. This is not a building for an insecure or culturally restrained city. It is a natural building for America's new center of discovery.

Any "contextual" effort to cloak or abstract this landmark building program into "polite" hiding — disguising it perhaps as some obscure building of the past, or carving it up into an abstract field of smaller fragments — would deny the project the enduring, "must-visit" landmark presence the city seeks.

It looks ahead.
Exposition Hall reflects the real, *contemporary* world in which we all live — this world that it has been designed to *attract* and *exhibit*. Not the once-feared Orwellian world of technological dependence, but a truly fascinating one of technological companionship. Never quite the same, its sophisticated multi-layered, multi-media expression tempts curiosity and invites continued exploration.

Postmodernist and "historicist" conventions are limited to contrived reflections of the past. No matter how well executed, these nostalgic rehashings stifle the process of discovery.

It can be understood.
Initially captivating by virtue of its sheer expressiveness, the Hall promises enduring relevancy because it is *legible*. It tells the story of its making, its operation and, with the help of Industrial Light and Magic's innovative media effects, its place in Ohio's history.

The problem with "interesting" architectural abstractions, in fact with all intellectual exercises, is that they cannot be truly engaging because they are devised for the benefit of a few insiders; those who know the code and can therefore get the "joke".

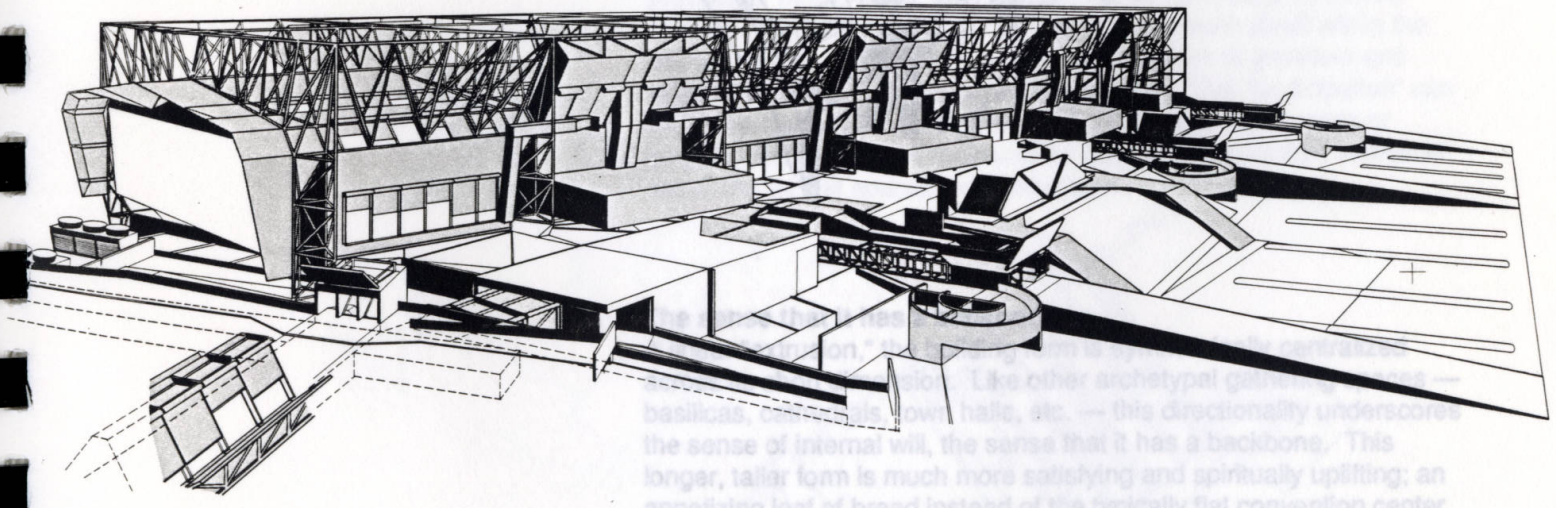
It is sophisticated.
Active, rather than passive, the architecture "works" on many levels. By embracing the more sophisticated notion of "use" — exploiting each element's potential for multiplicity of use — the Hall's expressive forms transcend the traditional limitations of architectural convention and "functional" modernism. A rational critique of prevailing architectural affectations, it makes the case for a future ennobled by more honest, meaningful buildings.

It reflects Ohio's pioneering spirit.
Various brick warehouses and industrial buildings exist nearby as evidence of the area's relatively humble architectural origins. While respectful of this immediate material context by virtue of its scaling devices and restrained, honest pallete, the greater project context resides in Ohio's cultural heritage — an adventurous, pluralistic society forged by early pioneers and fueled by legendary inventors, explorers and political leaders. Exposition Hall reflects this spirit — solid midwestern American values enabling everyman's quest for knowledge and understanding.

Conversely, conventional architecture must draw inspiration from outside the immediate community. While "contextual" adjustments may be made, the heart of classicism, post-modernism, etc. lies in the architectural orders of civic and religious oppression — the "Master's House on the Hill". Pediments, columns, arches, temples, domes, rotundas, foyers, etc. are all brought down from above by those who consider themselves worthy of such an occupation.

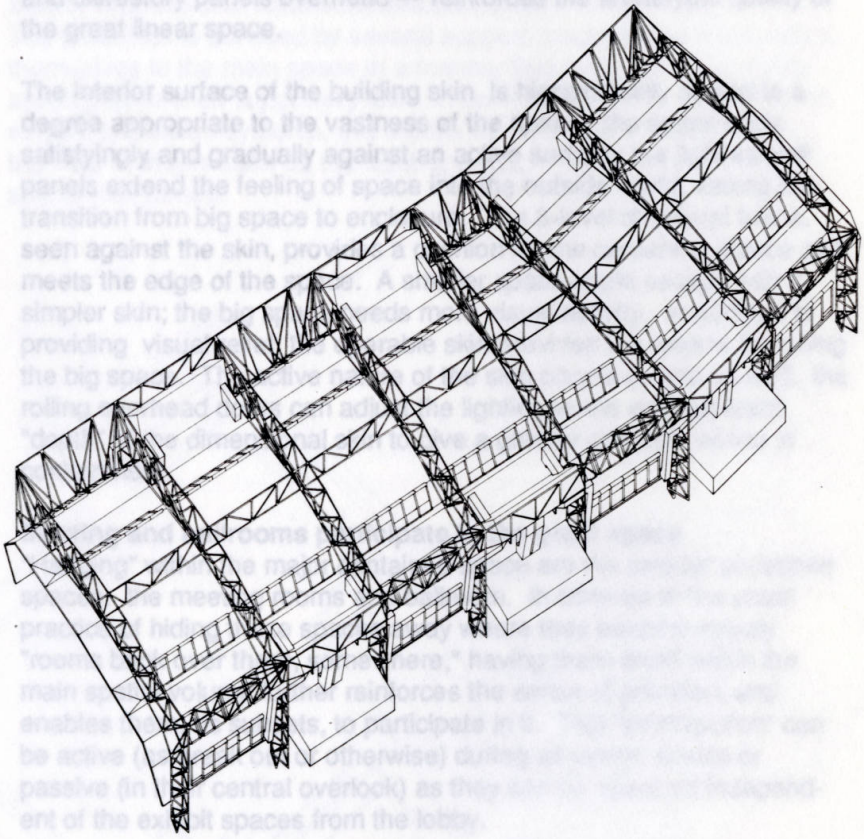
Because the building program is so vast, and such an important element within the city, it is imperative that it be clearly and strongly organized; it must be well enough composed that it seems animated by a satisfying internal logic and will; that its form has the sense of inevitability and obviousness so that its sheer bulk is no longer the issue.

It is a coherent event "Machine".
Based on our understanding of the paradigmatic convention center diagram, we have organized the Hall into an organically coherent event "machine." By organic we mean that the parts of the machine, which are specifically designed to address the various different aspects of the program, all fit together in a logical order to create an entity with an overall integrity. In this way the individual, sometimes contradictory, aspects of the program are accommodated as statements of the will of the whole, rather than as many separate compromises. The civic metaphors are obvious here, and all great public buildings manage, like the public they serve, to reconcile the push and pull of competing interests within an overall community vision. No public bulding should be a neutral box; all great civic buildings reflect the pride and standards of their community.



The Hall is organized into two major assemblies which answer the programmatic requirements to contain a large space and to service that space. Within this broad organization is a connective web of sub-assemblies that, like conceptual tugboats, help to ease the bulk of the program onto the site and maneuver its requirements around both inside and out.

It extends the tradition of great public spaces.
Visually, logically, and emotionally, the major programmatic element of the building is the large exhibit space. It is the driver of the program. Exposition Hall underscores the importance of this by increasing its size and forming it in such a way that it references, and extends the best parts of, the tradition of great public spaces which man has created. In simplest terms, this space is created by suspending a pre-manufactured industrial building system (skin, joists and purlins) from a simple, custom-fabricated, cor-ten steel post-tensioned truss assembly, to free-span the 270 foot transverse dimension on terms friendly to both systems (i.e., the shortspan skin system is fooled by the trusses into thinking it's still on columns).



The sense that it has a backbone.
A linear "extrusion," the building form is symmetrically centralized across its short dimension. Like other archetypal gathering spaces — basilicas, cathedrals, town halls, etc. — this directionality underscores the sense of internal will, the sense that it has a backbone. This longer, taller form is much more satisfying and spiritually uplifting; an appetizing loaf of bread instead of the typically flat convention center pancake.

The linear diagram also allows clear divisional strategies with divided sections which retain their sense of *place*, both as separate entities and as spacial increments of the overall Hall.

The scale of contemporary endeavor.

The exaggerated clearspan expression further heightens the grand sense of scale — the sense of wonder — by telegraphing the *achievement* of a vast containment out into the world. The primary structural system, both inside and out, is the visually engaging *sign* of freely spanned space and the scale of contemporary endeavor.

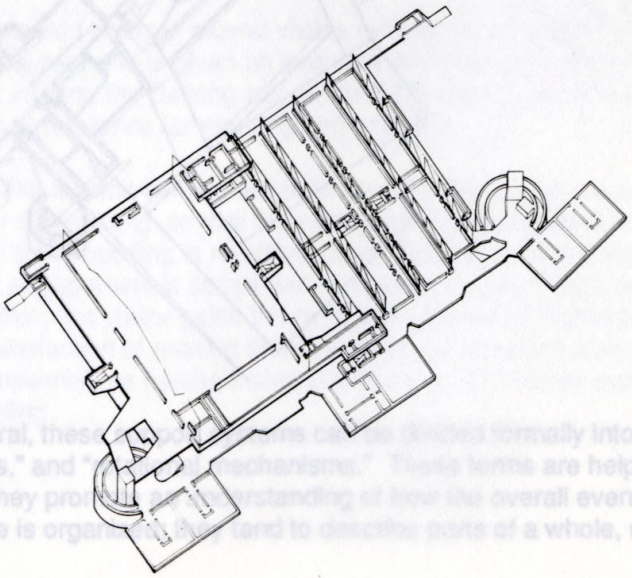
Awash in varigated light.

Like the late gothic cathedrals, the Hall's solid wall structures and vaulted ceiling forms subordinate to the admittance of highly varigated daylight. This wash of natural light — from expansive kalwall sidelight and clerestory panels overhead — reinforces the archetypal quality of the great linear space.

The interior surface of the building skin is hierarchically scaled to a degree appropriate to the vastness of the space: the space ends satisfyingly and gradually against an active surface; the light kalwall panels extend the feeling of space into the outside world, easing the transition from big space to enclosure. The 3-level structural frame, seen against the skin, provides a cushion for the careening glance as it meets the edge of the space. A smaller space could escape with a simpler skin; the big space needs more visual activity. In addition to providing visual relief, the operable skin provides the means for tuning the big space. The active nature of the skin occurs in time as well: the rolling overhead doors can adjust the lighting levels and apparent "depth" of the dimensional skin to give a greater or lesser sense of containment.

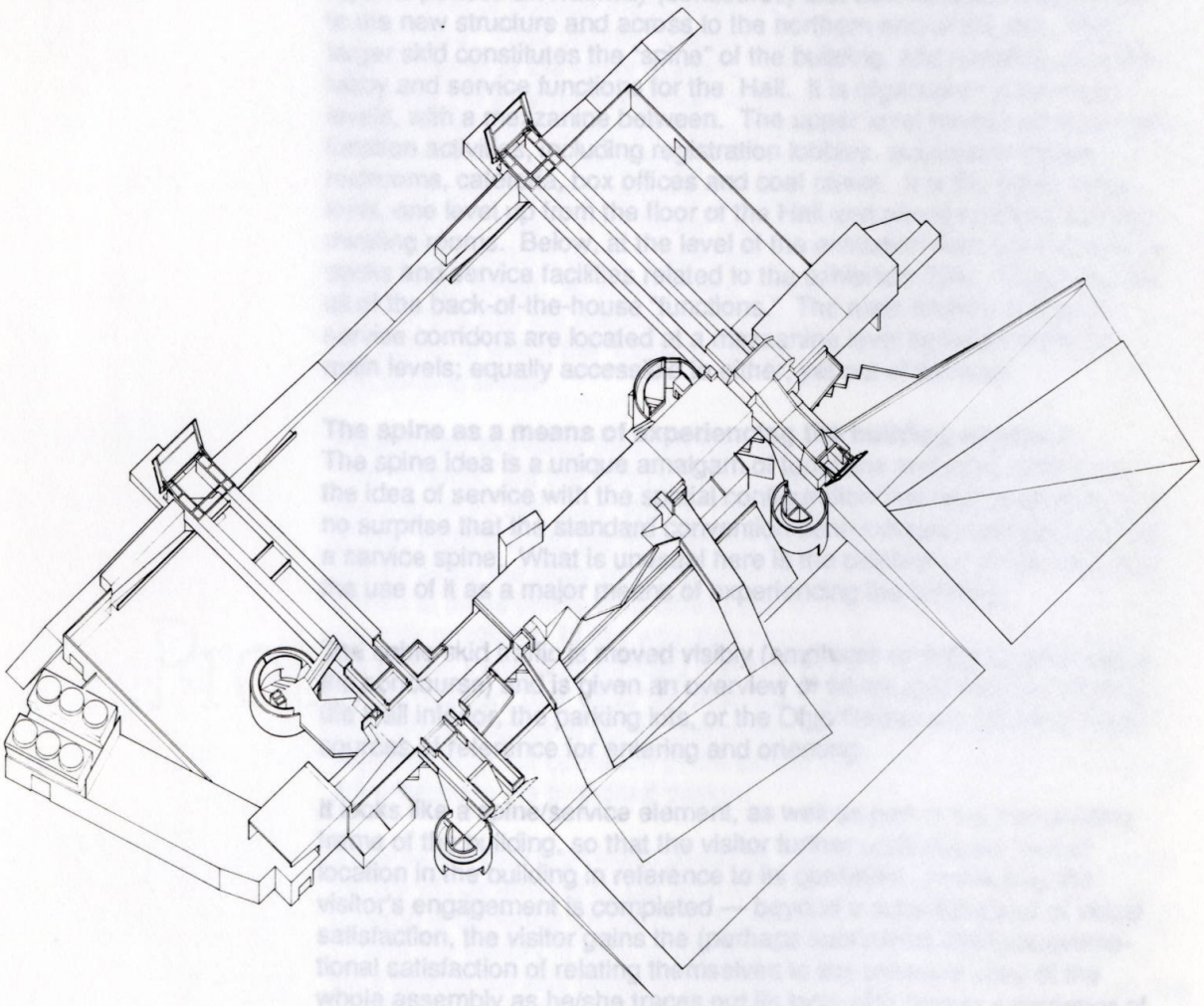
Meeting and ballrooms participate in the great space.

"Hanging" within the major contained space are the smaller contained spaces: the meeting rooms and ballroom. In contrast to the usual practice of hiding these spaces away where they become merely "rooms back over there, somewhere," having them dwell within the main spatial volume further reinforces the sense of grandeur and enables them, as subsets, to participate in it. This "participation" can be active (as break out or otherwise) during all-center events or passive (in their central overlook) as they can be operated independent of the exhibit spaces from the lobby.



In fact, as a budget add-alternate (see 3.3.5), this participation could be extended to a very active one. By hanging these subspaces from perimeter "crane-rails," they could quite easily (if somewhat expensively) travel up and down the entire length of the Hall. This would allow the rooms to be spread out in smaller groupings to serve many separate meeting functions, or to be ganged together at one end of the building, leaving the great exhibition space free of them. The organizational flexibility would be as dynamic as the spacial possibilities, and the haptic integration of the users' experience with the building's conceptual mechanics would be unparalleled in the history of architecture.

Skids, runners and rotational mechanisms.
The great Hall is serviced by several support mechanisms which orient themselves to the main space in a manner that best and most visibly accomplishes their supporting role. In some cases, such as that of the vertical circulation systems, this means that they literally intrude into the Hall; in others such as the loading docks, a more discreet relationship is maintained.



In general, these support systems can be divided formally into "skids," "runners," and "rotational mechanisms." These terms are helpful because they promote an understanding of how the overall event machine is organized; they tend to describe parts of a whole, rather

separate, programmatically based, building elements. In most cases, in fact, these formal divisions of the machine include several different parts of the programmatic puzzle. For example, the "spine" skid includes the main registration lobby, as well as the major service functions. In addition to their internal roles, as "parts" of the machine, the support assemblies also help to both orient the machine to its surroundings, and these surroundings (and thus the people within and around it) to the machine.

The feet upon which the building sits.
The event machine is founded , like a building, on its services and circulation systems. These systems form a framework that situates the large contained space on the site and the program elements within the building. The primary members of this frame are the "skids." The skids are the feet upon which the building sits; they are the first level of the ground frame which orients the building to the High/Broad grid; the first *layer* of contextualism. One runs along High Street to form an external pedestrian walkway along the edge of the Exposition Hall; the other, larger, skid forms the eastern edge of the entire assembly and contains the internal pedestrian walkway (concourse) that connects the Ohio Center to the new structure and across to the northern end of the site. This larger skid constitutes the "spine" of the building, and contains all of the lobby and service functions for the Hall. It is organized on two main levels, with a mezzanine between. The upper level houses all of the pre-function activities, including registration lobbies, associated offices, restrooms, cafeteria, box offices and coat check. It is the public entry level, one level up from the floor of the Hall and one level down from the meeting rooms. Below, at the level of the exhibition floor are the service docks and service facilities related to the exhibition floor. These include all of the back-of-the-house "functions." The main kitchen and food service corridors are located at a mezzanine level between these two main levels; equally accessible to either, yet out of the way.

The spine as a means of experiencing the building amalgam.
The spine idea is a unique amalgam of functions and form, combining the idea of service with the spatial configuration that best realizes it. It is no surprise that the standard convention center diagram always includes a service spine. What is unusual here is the celebration of the idea, and the use of it as a major means of experiencing the building.

The spine skid traffic is moved visibly (emphasis on sloping walkways in the concourse) and is given an overview of where and why it is moving: the Hall interior, the parking lots, or the Ohio Center are constant visual sources of reference for entering and orienting.

It looks like a spine/service element, as well as part of the surrounding frame of the building, so that the visitor further understands his/her location in the building in reference to its operation. In this way the visitor's engagement is completed — beyond a superficial blur of visual satisfaction, the visitor gains the (perhaps subliminal) intellectual/emotional satisfaction of relating themselves to the coherent unity of the whole assembly as he/she traces out its logic with his/her experience of the building.

Located along the east side to accommodate the vast majority of patrons and to keep the services off High Street, the spine also connects more directly with the Ohio Center (our studies show 75% of anticipated traffic will come from the east). This has the added advantage also of allowing the Hall's interior staff to be directly visible from High Street without the intervening obstruction of empty lobbies or meeting rooms.

The spine is also located logically in the center of the main service components of the program. To one side lies the Hall as the large contained space, to the other lies the parking mat as the large open space: between them, acting as a filter and organizer, is the spine/lobby/service skid.

An outrigger to High Street.

Relating to the spine skid as a sort of outrigger, is the High Street skid. It has four primary roles on two levels. Like the spine skid, these levels are "split" in relation to the spaces they serve. On the lower level, half a ramp down from the exhibition floor, lie half the restrooms for the exhibit hall. By being lowered in this way, they do not obstruct views into the Hall from High Street or obtrude themselves impolitely into the activities taking place there. Their discreet location also gives added three dimensionality to the figures of the event machine. On the upper level (the top of the skid) lies the external pedestrian walkway along High Street. From here, pedestrians are afforded the same overview of the exhibit hall floor as that enjoyed by those walking along the concourse in the spine skid, but in this case the overview is external to the building. It is at this level that the building connects to High Street and the North Market neighborhoods. These connections occur specifically at the orthogonal street intersections along High Street. At these points, satellite control lobbies admit pedestrians into the building in a secure, controlled way. These are also the points at which the "runners" bridge between the skids, and out onto the parking areas.

Pedestrian skyways through the Hall.

The "runners" are the second layer of the frame which grounds the building on its site; they "locate" the building longitudinally along High Street, locking it into the intersecting street grid. The runners define those places along the skids where access occurs, and transfer the traffic generated at these points from side to side through the building, outside of the security envelope. In this way they become the cross-members of the foundation frame both formally and functionally. Since they fly over the exhibit hall floor they allow the main east side concourse and the satellite High Street lobbies to act as one continuous entrance/security space separate from the operation of the exhibit hall itself. This provides several advantages to the proposed design:

It solves the vexing problem posed by the fact that while over 75% of the people will be arriving by car from the east, the emotional facade to the building is obviously on the High Street side. It makes no sense to force 75% of the visitors to walk all the way around the building to get into it; yet it makes still less sense to put acres of parking lots on High Street like a suburban shopping mall. It also doesn't make a lot a operational sense to split the lobbies into separate worlds. The runners which connect the

skids act as pedestrian skyways over the exhibit floor seamlessly connecting the High Street satellites into the main registration lobby on the east, solving the problem in a diagramatically clean, yet visually and experientially dynamic, way.

Not only do they solve these "functional" problems, but they do so in ways that reinforce the logical structure of the building. Like the skids, they move traffic in a way that demonstrates haptically the will and logic of the building. The runners "lock-on" to the intersections along High Street and continue, on the event machine's terms, the intersecting streets into and through the building. They are streets in the air, defining in the void between the individual bridges that make up each assembly the location and size of the intersecting street. And, like the intersecting streets, they are external to the security envelope of the building, allowing pedestrians to penetrate the building without going through security.

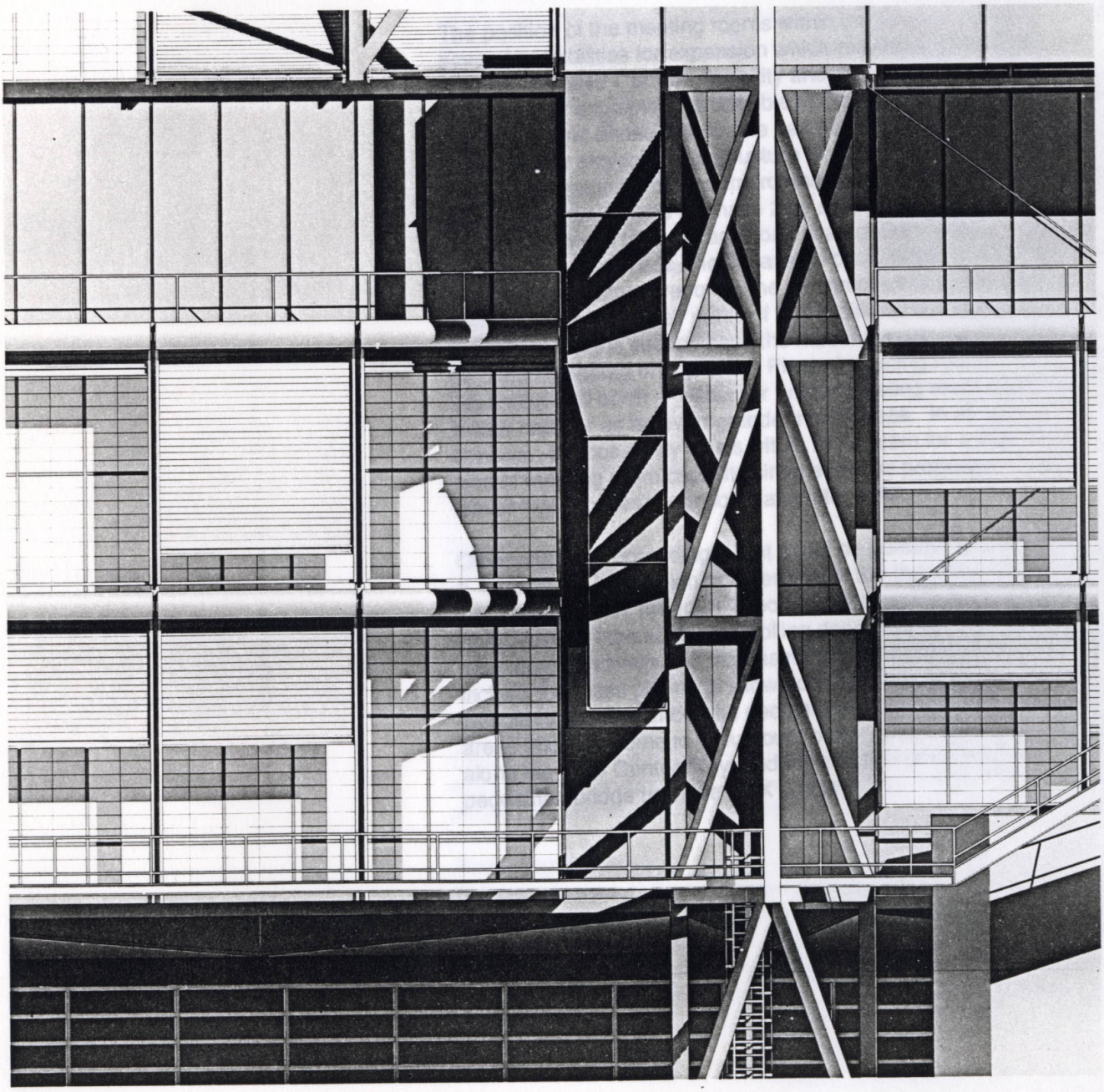
Flying through the very space of the Hall.
The runners allow the visitor from High Street (or the east side, for that matter) to check out the exhibit hall excitement without committing to tickets (for those events where this is undesirable, the runners can be "closed" to the public — and made available as catwalks for security and exhibition support). They allow the Hall to remain "open" to the community at all times, encouraging local interest in its various acitvities and the landmark interior volume.

By dropping through the spine skid to bridge over the loading docks, and land on the parking mat ramps, the runners reach out to visitors, providing the entrance/drawbridge to the spine/skid lobbies from the main parking areas. In this way, the visitor is made aware of the internal organization of the building from the very beginning, rehearsing in their entry sequence the continuation of the neighborhood streets through the Hall and down into the east side parking.

Rotational circulation devices.
The primary means of vertical circulation between the various levels of the foundation frame, exhibit hall, and meeting rooms occurs at the rotational devices: the large cylindrical forms within the building which "cause" the volume of the exhibit hall to crank from the High/Broad grid to that of the Avenues. These cylinders house an exciting array of circulation mediums, including escalators, elevators, stairs, and circular ramps. Secondary vertical circulation occurs out in the parking lot, where cylindrical "stabilizing rollers" form circular ramps up from the parking mat to the east end of the runners, and at the High Street satellite lobbies, where leaf-spring ramps and stairs take the visitor up to the runners and down to the exhibit floor.

Expansion/Phase 2
Because of the severely limited budget, issues surrounding the expandibility of the Hall become very complex. In particular, those instances where expansion suggests the upgrading of the initial building demand careful attention. In the proposed design we have attempted to take advantage of this situation wherever possible to enable Columbus to get as much as it can out of its basic Phase I budget, without sacrificing the later integrity of the building as a whole.

The design makes this easy in many ways. Foremost among these is the obvious "extrudable" nature of the Hall: using all the same systems as the original, the expansion consists merely of an addition of two more truss-bays and their attendant services. This makes the expansion extremely cost efficient, allowing Phase 2 to include a selective upgrading of the first phase of construction. This also ensures that the Phase I construction alone results in a complete building. Unlike other probable schemes, we believe our design does not suffer at all from a lack of the full Phase 2 build out; it will stand proudly as a complete symbol for Columbus for as long as necessary without any expansion.



For budgetary reasons we propose the adaptive re-use of three of the buildings existing presently on the site to house some peripheral parts of the Phase I program. These include the exhibitors' storage and facilities services. The simplicity of the extrusion concept is somewhat compromised by this cost saving measure, because these buildings lie in the path of the Phase 2 extrusion. It is easily possible, however, by means of phased construction and demolition (with which our team has substantial experience) to build the second phase without interrupting the operation of the relocatable activities initially housed in those existing buildings. By the design of the process itself, we can enjoy the initial cost savings of the adaptive re-use without spoiling the advantages of the design's extrudability.

The position of the meeting rooms within the design suggests several possibilities for expansion which maximize either cost savings in Phase I, or, the flexibility and dynamism of the final building. For example, it is possible in the case of the north block of meeting rooms (those without the ballroom on top), to save money in Phase I by designing the structure to carry only the load of the Phase I complement of meeting rooms. Conversely, it is possible to simplify and save costs in Phase 2 by structuring the Phase I meeting rooms to take the additional load of the Phase 2 meeting rooms. In the first case, the expansion could occur as an upgrading of the Phase 1 structure, or as the construction of a new block of meeting rooms in the air rights of the additional two truss-bays of the expansion. In the second case the meeting room expansion could be accommodated on top of the Phase I meeting rooms, leaving the expanded Hall open — either for further meeting room expansion at a later date, or as an even grander main space. In all scenarios however, the possibility exists within the system for a later expansion of meeting room capacity since even the proposed Phase 2 leaves two "spaces" open to fill at a later date.

Other possible "upgradings" that could be pursued as part of Phase 2 include the installation or extension of the Industrial Light & Magic Co. visual effects program — both the "Living Wall" and the entry "marquees" — the addition of rolling door blackout capability to the translucent endwalls, the increasing of the landscaping program to include the mass plantings shown on the masterplan, the addition of exhibitors' storage under the pedestrian ramps from the east parking areas and "Welcome to Columbus" berm, covering the drop-off zone along the Ohio Center Way, and the addition of a covered pedestrian bridge from the CSX parking.

Building Engineering Design Proposal

To quote Ove Arup:

design and construction are interdependent and must be adjusted to one another.

simplicity of design makes economic and aesthetic sense. when we build we don't want good structure but a good house.

when many cooks make a dish they had better agree among themselves about the receipe.

to start thinking about the cost of what you are designing after you have designed it is a bit late.

Building Engineering is the application of these simple truisms across all engineering disciplines associated with the building design process. Focused engineering input is provided by a team which is accustomed to working together in a coordinated and creative fashion.

Columbus Exposition Hall presents an opportunity to apply our building engineering skills appropriately to a design problem of major import. A building with a 270' clearspan designed to accommodate and respond to the technology of an exposition hall — with its diverse range of function and occupancy — is indeed a Building Engineering design challenge.

Benefits of a Building Engineering approach to the design and construction of a project of the complexity of Columbus Exposition Hall are:

Systems.
Full evaluation of alternative engineering systems for the project and their impact on one another and on the architectural concept and building performance are undertaken from the very outset of the design process. We give the architect and owner a coordinated engineering "menu" to form a basis of rational and cost effective decision making.

Coordination.
Design by a multi-disciplinary group of engineers who work together as a team minimizing coordination problems on the job site and hence change orders and late schedule changes.

Team Organization.
The organization of the design team is simplified if responsibility for all engineering is vested in one group which has experience in handling large scale projects. This clear organization of engineering input benefits quality, schedule, and cost control by minimizing design changes and coordination conflicts which can adversely affect budget and progress on the job site.

Specialist Skills.
The scale of our Building Engineering practice enables us to maintain the specialist skills which will be needed for this project within our own organization. This benefits the owner in that we are able to consult freely on an as-needed basis, obtaining concise and practical advice which focuses on the design issues. The relationships bewteen individual engineers and specialists within our organization have been built over many years of collaboration.

The structural system is both a challenge and an opportunity.
A 270' clearspan is both a challenge and an opportunity. While at first glance the form of the primary steel portal frames (trusses) appears conventional, their geometry can be seen to vary subtly to reflect the demands of the dominant loading, which is a heavy snowfall on the roof. This induces compression in some members and tension in others. Double members carry the compression and single ones carry the tension, thus ensuring stability. This highly innovative portal frame design was developed by Arup expressly for Exposition Hall.

Order comes from a hierarchy of primary portal frames, secondary trusses, and tertiary beams. This leads to economy in, and ease of, construction. Foundations are driven steel piles, embedded in the bedrock beneath the site.

Mechanical system.
Air Handling:
The convention center will be heated, cooled and ventilated by air handling units located along the building perimeter, within overhead mechanical air handling rooms. Each air handling unit will contain supply and return fans, heat recovery coils, heating coil, cooling coil, 30% prefilters, 85% final filters, economizer section and anti-vibration mountings. External supply and return ducts will distribute air vertically and horizontally on the facade of the building. Conditioned air will be supplied at 25 feet above floor level through high velocity nozzles. Air will be returned at 10 feet above floor level and at a high level. It is unnecessary and wasteful in energy terms to cool or air condition the full volume of the space. The objective of the heating, ventillation and air conditioning system within the Hall is to satisfy the comfort of the occupants — generally on the main floor, the meeting rooms and conference areas, offices and cafeterias.

By using high velocity nozzles at 25 feet above floor level, a satisfactory air flow and comfort condition can be achieved to approximately 120 feet across the width of the building. Return air at 10 feet above floor level reduces the possiblity of stagnant air. Return air at high levels uses the natural convection force of rising heat to return air to the air handling units. Separate air handling units will be provided for cafeterias, offices, meeting rooms and the Hall itself. Hot water unit heaters will be provided within the loading dock and storage areas.

The high level return air system will be used, in conjunction with automatic roof mounted smoke vents, to remove smoke in the event of a fire.

Central Mechanical Equipment:
The intention is to provide a separate structure to house the central mechanical equipment such as the chilled water generation equipment, low pressure hot water equipment, the emergency generator, electrical substation, fire pumps, and water and oil storage.

The chilled water generation equipment will consist of three 500 ton centrifugal chillers, a constant volume primary pump serving each chiller (one additional standby pump connected to the primary circuit as a standby), two secondary pump circuits with two variable speed pumps each rated at 60% maximum capacity. Three cooling towers will be located on the roof of the central plant building. Each cooling tower will be rated at 600 tons. One set of cooling water pumps will be provided, run and standby to circulate water through the towers, chillers and free cooling heat exchanger.

Free cooling is provided by passing cooling water through the free cooling heat exchanger. The heat exchanger cools the chilled water circuit when the external wet bulb temperature drops below a preset value. The system reduces the use of the chillers in periods when a cooling load is required but not when the external conditions provide a low wet bulb temperature (usually spring, winter and fall seasons).

The low pressure hot water generation equipment will consist of two dual (gas/oil) fired boilers, primary constant volume run and standby pumps, and two secondary pump circuits with two variable speed pumps each rated at 60% maximum capacity.

Chilled water will be circulated at 42F flow and 56F return temperatures to each air handling unit coil. Low pressure hot water will be circulated at 182F flow and 142F return temperature to each air handling unit coil. The cooling and heating coils will be provided with two port modulating valves. Each system will be provided with chemical treatment. The chilled water and low pressure hot water systems will be provided with expansion vessels.

Control System:
A direct digital control system will be provided to control, monitor, and analyze the mechanical system operation. The system computer and visual display unit will be located within a maintenance room located with the Central Plant Building.

The system shall provide the following functions using remote direct digital control panels.

1. Operate valves, dampers, pumps, air handling units, chillers and boilers.
2. Monitor Alarms
3. Load shedding on chillers, boilers and free cooling system.
4. Load shedding on generators.
5. Energy analysis.

Electrical system.
Electrical supply will be obtained from the local power companies. Substations will be provided for the HV chillers, mechanical equipment and exhibition hall.

Underfloor power outlet boxes will be provided in the exhibition hall for receptacle power. Local 480V and 208V distribution boards will be provided along the walls for power distribution. Lighting will be by means of HID fixtures mounted on a structural grid suspended at 20-30 feet above floor level. Additional flood lights in groups will be provided at high levels around the perimeter walls and celings. Motor control centers will be provided for the mechanical equipment. A fire alarm system will be provided. On site emergency generators will be provided for egress lighting, exhaust fans, etc.

Plumbing.
Plumbing fixtures:
Restroom fixtures will be provided for a total of 20,000 people.

Domestic cold and hot water:
Water will be supplied to each plumbing fixture to make up systems for heating water boilers, make up for cooling towers, etc. Cold and hot water will be supplied at each floor utility boxes. Hot water will be generated at the building's central plant and will be distributed to each point of use. The hot water system shall be single pipe with electric trace heating. Domestic hot water for concession/restroom area will be electric hot water heaters.

Sanitary drainage:
A full sanitary system will be provided for restrooms, kitchen and at each floor utility box in the exhibition hall.

Rainwater system:
A complete roof drainage system with all horizontal piping, insulated with overflow drains connected to the storm drain at a high level,will be provided.

Fuel oil system:
Two 10,000 gallon underground fuel oil storage tanks and piping system will be provided to serve the fire pump emergency generator and hot water heating boilers.

Compressed air:
The system will include three air compressors rated at 175 cfm, and auxillary equipment to provide air for control and at each floor box.

Natural gas:
Natural gas will be provided for domestic water heaters and wall boxes distributed along walls in main hall.

A complete sprinkler and standpipe system will be provided per NFPA 13, local codes, and insurer underwriter's requirements.

Fire protection

Means of escape:

Frequent and ample exits are provided and clearly indicated. Escape times are controlled as much by exit widths as by travel distances.

Compartmentations:

Areas of significant fire risk or fire load are either totally enclosed or partially enclosed and controlled by active fire suppression as appropriate. The Hall's volume and high ceiling act as a large smoke and flame reservoir, enabling people to escape danger.

Acoustics and vibration control.

The appropriateness of the acoustic and vibration characteristics of the center will be crucial to the perception of the Hall's validity by visitors and users. This aspect will ultimately be a major factor in establishing the success of the building as an international Exposition Hall. The function and form of the spaces within the complex vary dramatically from the large volume exhibit hall to the intimate meeting rooms, each having very different acoustic/vibration and functional requirements. In developing our approach to the competition brief the design team has responded to the major challenge of blending appropriate acoustic and vibration technology to aesthetic function and budget. Development of these ideas will be critical to the evolution of a successful design.

Acoustic separation:

Spaces within the complex must be separated one from another to achieve privacy and security. Particular care has to be taken in designing and building these separations if they are to be effective.

An appropriate strategic acoustic design relies heavily for success on the design and development of construction details which must be then be properly executed by the contractor. The difference between success and failure is heavily dependent on design detailing and construction implementation.

Acoustic performance of space:

Tuning of its geometry and sensitive selection of floor and roofing materials significantly affects acoustic absorption and the acoustic character of a space. This is particularly important in the large volume exhibit hall where control of space reverberation time is critical. Also, zoning of public address and centrally controlled sound systems are important. Matching sound input volume and location to various uses and occupancies of the Hall will dramatically enhance their effectiveness.

HVAC and building system acoustics:

Equipment generates noise. Air handling units, pumps, transformers are all sources of vibration and noise. The key to a successful design is achieving a balance between direct sound attenuation, isolation of equipment, and the acoustic characteristics of the space. The center design has been developed with a view to zoning systems to achieve differing acoustic criteria appropriate to the various functions and spaces contained in the center.

Lighting.
Exterior lighting consists of HID floodlights mounted along the perimeter of the building at high level illuminating the facades In addition, on grade search lights will be provided both inside and outside the exposition hall to enhance the character of the space.

Expansion.
The modular design of the Hall makes this a straightforward task. As expansion is essentially no different from initial erection, tremendous economies of repetition and scale are afforded. The sequence would be to:

1. Erect and temporarily brace two new 270' portals.
2. Install 120' trusses between new portals. Begin cladding.
3. Erect temporary end wall just inside end wall of Hall.
4. Remove end wall of Hall.
5. Install 120' trusses between end of Hall and adjacent new portal. Extend eaves trusses to connect new portals to Hall structure.
6. Remove temporary bracing.
7. Re-erect end wall at new end of enlarged Hall.
8. Complete cladding.
9. Remove temporary wall.

The mechanical air conditioning system will follow the same module design strategy of Phase I. Another two pentrooms will be constructed, one on either side of the Hall, each containing four air handling units. Ducting runs will follow the same strategy as the remainder of the Hall.

The central plant, i.e., chillers and boilers, can either be increased in size or additional chiller and boilers added to accommodate the additional cooling and heating load. It is less expensive to oversize the chillers and boilers to accommodate the future loads than to provide additional equipment in the future.

Civil Engineering Design Proposal

The proposed site is located immediately north of the Ohio Center and is bounded on the west by High Street, on the north by Swan Street and the east by 3rd Street. The site currently serves as a parking lot for the Ohio Center, with vehicle entrances located on High Street and Swan Street. The area of the site is approximately 15.5 acres if Swan Street is considered the northern boundry, and increases to approximately 20 acres to Goodale Boulevard and 23 acres to the I-670 connector to 3rd Street.

Storm sewers.

The proposed site generally slopes from the northeast to the southwest and is characterized by elevations ranging from 760.00 to 749.00. An existing north/south 48 inch storm sewer under Kerr Street bisects the site and connects to an east/west 66 inch storm sewer which was installed parallel and north of the Norfolk and Southern Railroad tracks at the Ohio Center.

Assuming an exhibition hall elevation of 749.00 would allow 11 to 19 feet of vertical elevation to the discharge trunk sewers. This vertical elevation is more than adequate to accommodate a new drainage system. Utilization of the smaller, existing (8-15 inch) tributary storm sewers may not be feasible due to their depth, (approximately 5 feet below the exhibition hall) and the local drainage pattern changes that will occur with the addition of the Hall. The north/south orientation of the 48 inch storm sewer requires a similar building orientation west of the storm sewer; otherwise the storm sewer would have to be relocated due to space requirements.

Sanitary sewers.

A 21 inch trunk sanitary sewer runs parallel to the 48 inch storm sewer and also bisects the site in a north/south orientation. The 21 inch sanitary sewer is located approximately 10 feet east of the 48 inch storm sewer and connects to a 24 inch sanitary sewer. The 24 inch sanitary sewer flows to the west and is located just north of the Norfolk Southern Railroad tracks and the 66 inch storm sewer at the Ohio Center. The sanitary sewer depths (approximately 20 feet) should allow easy access from the Hall. The orientation of the 21 inch sanitary sewer again requires a north/south building alignment to avoid relocating major utilities.

Water distribution system.

There are several water distribution mains on, or adjacent to, the project site; included is an 8 inch water main on Goodale Boulevard and a 6 inch water main on Kerr Street. For purposes of providing a looped system for domestic and fire services the 12 inch water main on High Street and the 16 inch water main on Swan Street are utilized.

Electric power.
The primary electric power in the area is 13.2 KV. The electrical engineer's proposed configuration is compatible. The Columbus Southern Power Company (Energy Service Manager) has stated that they feel adequate power (approximately 3 megawatts) is readily available. The existing primary underground line under High Street is in concrete conduits. The overhead primary lines are along Kerr Street terminating at a transformer at Kerr Street and Swan Street. The second overhead primary line is along Pearl Street and terminates at a transformer at Pearl Street and Swan Street.

Communications.
Preliminary investigations by the Ohio Bell Telephone Company have assured the adequacy of the existing system. The most easily accessible telephone conduits are buried along the east edge of High Street. However, the northwest quadrant of the project site in the vicinity on Pearl Street and Swan Street also contains underground cables.

Natural gas.
There is an 8 inch gas main located along the south edge of Swan Street. Preliminary records seems to indicate that this main is reduced to 3 inches as it approaches the Kerr Street intersections. Further investigations will have to be conducted before conclusions are reached relating to adequacies.

3.2.4 Industrial Light & Magic Co.

Building Effects Design Proposal
For many years, Lucasfilm, Ltd. and its special effects division, Industrial Light and Magic, have defined the leading edge of two-dimensional, projected "light and magic." In over 50 major film productions, ILM has conceived and executed elaborate audio/visual moviemaking techniques which together represent a heretofore untapped resource for the real world.

Columbus Exposition Hall is the first third-party, real world challenge that ILM has chosen to accept. Initially attracted to the other team members — whose exceptional creative process and work product is not unlike ILM's own — it was the unique project program that secured their participation. Architectural opportunities had come along without much notice, but this one — the public centerpiece of a major city's new center of discovery, to be dedicated on the 500th anniversary of America's discovery — really caught the firm's imagination.

With this remarkable collaboration, ILM makes their "architectural effects" debut. Awash with industrial light and magic, Columbus Exposition Hall will excite, entertain, and educate countless residents and visitors for generations to come, in a way no other building in history could before it.

Creative energy that radiates from within.
Industrial Light and Magic was asked to help make an architectural statement about the new Hall and its role in the city in which it lives, and to develop ways to reinforce the impression that the building has a life force of its own; a creative energy that radiates from within the structure.

A special effects canvas.
The evolution of one key idea — the bulding as a "high-tech canvas" displaying ever-changing light, three-dimensional imagery, spatial effects, and sound — became the primary special effects vehicle. The talent of local artists, musicians and writers, current world and local affairs, Ohio history, science fiction (and non-fiction) — virtually any conceivable notion — would be brought forth in a panorama of light, effect and sound across this "Living Wall."

A story unique to the city of Columbus.
... adistant rumble, the source difficult to determine. An immense image moves into view overhead; the first steam engine pulls into Union Station and screeches to a halt. Laser-generated wheel sparks fly from the wall. Travelling out diagonally, they explode into brilliant clusters above High Street. Dozens of childrens faces, gathered in closeup, recoil at the sound and sight of the strange new beast. Each face begins to transform into its adult image; each expression into that of sheer amazement. Teletype sounds, huge front page headlines banner the length of the Wall, laser fireworks erupt...The Wright Brothers Have Done It...

The viewer sees, in fact experiences, the story of Columbus; its history, its current endeavors, its future.

The walls of a tent.
The story telling tools are slides, lighting effects, special projection and programming technology. The graphic design and structural elements of the building are incorporated into the "look" of the presentation to add an additional dimensional layer. The overall effect is enhanced by a "surround sound" audio system and subtle music and effects track.

The action appears to be three dimensional. A collage of images is projected onto the wall representing local artists' perspectives of Columbus. The imagery and lighting effects span the entire 1,100 foot long wall, starting at one end and progressing towards the other. Before the eye has come to rest at one end, it is drawn back to the beginning by another image and effects series. Unable to take it all in at first viewing, one must return again and again.

The entire event is exciting yet mysterious as though seen through the walls of a high-tech tent with shadows thrown about on it's surface by the flicker of firelight.

The experience is never the same twice.
A typical 20 minute presentation might consist of giant panoramas created from drawings, paintings and collages made from old and new photographs of the city and its people; these panoramas, possibly sponsored by a local corporation, would be changed serveral times a year.

The video projection system would be connected to a series of cameras mounted within the Hall. When no action is taking place within, the screen is fed with news and additional alternate programming by a local television station.

Lighting is incorporated into the movement of imagery across the wall. Strategically placed in areas close to the building, the special lighting is programmed to enhance the three dimensional effect of the experience. Miniature, high intensity lights, suspended away from the wall, and fiberoptics generate laser-like effects in the night sky.

Inside the tent.
A separate effects projection system washes the interior surfaces of the great shell with "virtual architecture" — huge, seamless images of vaulted ceilings, blue skies, the shuttle launch tower..

The event of Discovery.
With these effects, the building magically expresses the changing moods, aspirations and self-image of its city — blue and serene at times, brilliant orange and explosive at others. The programming software allows the technology of light and sound to "paint" virtually any audio/visual effect imaginable. Creative minds of the day will undoubtedly recognize the possibilities, and if so, Columbus may very well enjoy a variety of fascinating visions on a spectacular scale. This unique collaboration will clearly elevate Columbus Exposition Hall beyond architecture into event — the event of discovery.

3.2.5 The Office of Peter Walker Martha Schwartz

Landscape Design Proposal
The city fabric has been torn apart by years of urban renewal and highway engineering. Large areas of industrial buildings and older neighborhoods have been lost to parking lots. Aiding this depopulation of the Central Business District is the highway system (the inner loop) and the railroad — important transportation links which unfortunately become psychological as well as physical moats, further inhibiting downtown pedestrian activity.

The city of Columbus is fortunate to have neighborhoods which nurture the human experience. They are currently isolated from the CBD and its non-work hour potential. To strengthen the city grid pattern and reweave the urban fabric vital spaces must be created.

The street can be revitalized.
The strength and scale of the Exposition Hall allow it to redefine the High Street plan to announce its presence. Pedestrians and drivers on High Street must know that they are passing through a spacial gateway along a bridge between the Short North and the Central Business District. By creating pedestrian scale spaces, interest and activity, the street can be revitalized, attracting more street level businesses and still more activity.

The landscape organizes the disorganized.
It begins to organize and define its sphere of influence and reflect its value in its landscape setting. Mass portal plantings define the transition between the vernacular landscape and the new experience. Hedgegrows of tall evergreen trees, reminiscent of Midwest farm windbreaks, and colorful hedging begins to announce the introduction of the new order. It begins to organize the disorganized character and "left over" spaces. Satellite parking areas are orchards that move out into the existing urban landscape, anchoring themselves in the community.

Built from the present, connected to the past.
Exposition Hall creates an enviroment for itself from the existing industrial landscape. Existing landscape materials — asphalt, gravel, concrete and metal are reorganized in unexpected ways. These elements are durable, tough, industrial and reflect the history of the site.

The landscape is organized to draw the pedestrian experience to the ground plane and to emphasize the horizontal dimension. A tapestry of color and materials on High Streeet gives visual energy to the streetscape. Rail lines appear across the landscape and streets as ghosts of the past recalling the history of the area. Light reflecting from the rails enlivens the street. The feel of the rails as one drives or walks over them gives a tactile connection to the past. A hedge garden made from low concrete dividers painted green, gravel, and lawn accentuate and celebrate the ground plane as the materials animate the space and disappear under the building. The High Street side of the Hall is a garden created from horizontal elements rich in texture, composition and history. An ordered canopy of overhead industrial light fixtures together with "hedgerow" elements and buckeye sidewalk plantings, frame the High Street portal. The hedge garden is kept low so as to not obstruct views of the Hall's "Living Wall" along High Street.

The landscape scheme does not deny the direct, tough and industrial nature of this site but seeks to express an attitude about the future which is built from the present.

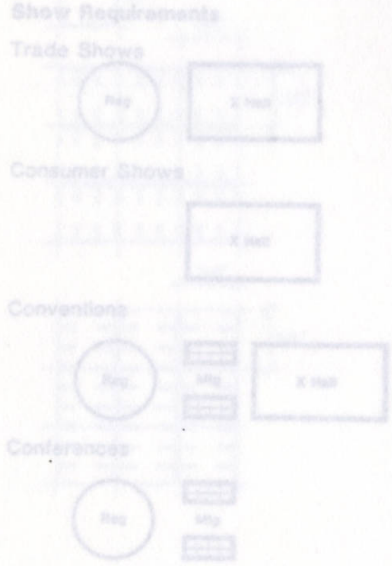
Portal hedges.
East of Exposition Hall the new, primary parking area forms an inviting "welcome mat" on which to arrive. Asphalt ribs functioning as parking dividers are painted with yellow reflective paint to convey the image of an industrial mat extending from the building. Towers flood the area with light to emphasize the arrival experience. Lawn

panels are raised to the visitor in greeting: Welcome to Columbus. Rows of asphalt chunks, painted yellow, rib the asphalt parking lot as parking stall dividers. The entire lot is surrounded by an 18' chain link fence. To announce the new order, the landscape language is to be redefined as it engages the Highway I-670 landscaping.

The airport traveller is met with large hedgerows of evergreen trees which cross the highway. The breaks in these hedgerows create portals through which to pass before reaching the Hall beyond. As one travels west to the site the enviroment becomes more industrial reflecting, the character and materials of the site. The space between the Ohio Center and the Hall is a powerful transportation and communication artery. Rows of columnar trees help to reinforce the rail line trajectories so that they read throughout the city. Beyond the site the lines of trees flow off in many directions (as do the rail lines), and meet on the site in a convergence of tension and power articulated by the columnar trees.

Groves of trees.
West of the site in the North Market, the scale is reduced to neighborhood proportions. Ohio Buckeyes, the state tree, are used as street trees linking the satellite parking areas to High Street. Columnar Norway Maple trees, planted in groves, provide softening and canopy for utilitarian parking areas and allow drivers to spot the remote parking lots as the distinctive red groves of trees pop up above the buildings. The use of this one tree in all satellite lots creates a landscape sign for parking.

A special paving material will connect and extend the North Market area to its adjacent lots. The open lot is planted with a grove of trees allowing easy access and providing shade and a sense of protection. This parking lot and tree canopy could serve as an outdoor market on weekends.



Graphic Design Proposal
"Visual Engineering" is really a better term for the graphic design challenge presented by such a vast building project. The traditional lines dividing architecture, engineering, graphic design and, in this case, special building effects, are almost impossible to determine. Visual engineering is the integrated, collaborative process through which all visible building is considered.

The design rigor carries over into two dimensions.
The concern for the conceptual rigor and integrity of the building design carries over into those two-dimensional aspects of the program which will be subject to graphic design. In this too will be

a close integration with the lighting design, to the extent that Industrial Light & Magic Co.'s ideas are informationally oriented. The goal of the graphic design effort will be to unite the informational program with the physical program so that directional and other graphics are not seen as a foreign presence pasted onto the building, but as an integral part of its appearance and operation.

It presents an information canopy.
This will occur in three primary ways. First, Through the architectural elaboration of the event signage — the marquee flaps at the entrances, for example — the two-dimensional message is given enough importance to warrant its place in the building: instead of a roadside billboard pasted on the side of the building, the design presents an *information canopy*. Second, the graphics will help the architecture in its own task of defining spaces and traffic zones. This will occur chiefly in the registration lobbies and concourse areas where, for budgetary reasons, paint and strong design will replace glitzy details and finishes. Finally, the audio-visual program of the lighting designers will be informed by the input of the graphic designers and architects so that these effects become an extension or intelligent counter to the building's apparent will and help to define existing spaces or create illusions of other spaces.

3.2.7 Loschky Marquardt & Nesholm

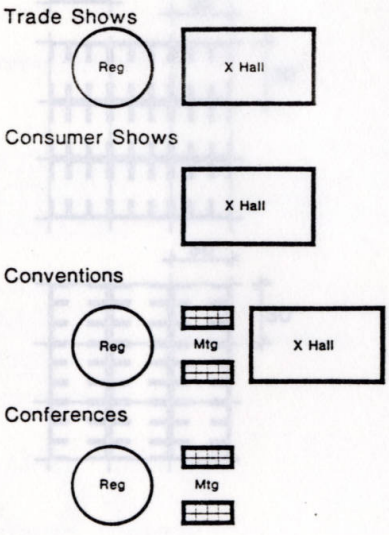
Facilities Planning Proposal

The design and planning of convention centers as a building type must accommodate a specific combination of requirements: function, image, community identity, and scale. Translated into plain language, these projects must: 1) functionally perform to specific standards in a highly competitive industry; 2) the architectural image should convey a sense of surprise and celebration for the typically festive nature of the events accommodated; 3) the community values engendered by the facility must include endurance, quality and pride; and 4) today's larger convention centers must typically be accommodated (for proximity reasons) in the pedestrian oriented urban core.

Certainly other project types present similar challenges. But few present quite the same dichotomous mix. It follows that projects which exhibit a fresh architectual order and design sensitivity in balancing these issues will establish the new standard against which the success of all other centers will be measured.

This team's early decision to revisit the current prototypal "convention center" thinking regarding programmatic content, disposition, and architectural packaging fostered a broader vision of this new facility's role in its city. No longer viewed as just another convention center, it can become the popular focus of a dynamic American city.

Show Requirements



This section summarizes Columbus Exposition Hall's successful accommodation of the functional requirements of the convention center program and most importantly, shows how this is done within the architectual framework of a spatially exciting, standard-bearing design solution.

Exhibition hall configuration.

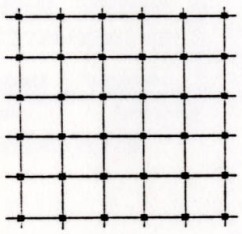
A distillation of traditional programmatic requirements for successful exhibition halls produces two primary objectives:

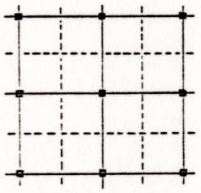
1. Clear span space providing the maximum practical vertical and horizontal dimensions, thereby promoting the greatest degree of space-use/event accommoda tion flexibility.
2. A fundamental 10' x 10' booth module which trans lates into modular multiples of 30' x 30' for a primary services grid, 60' x 60' for a secondary services grid, and 90', 120' 150' etc. structural grid.

Certainly the relationship of the exhibition hall to other parts of the center and the control of external noise, light, air and similar environmental issues are important, but the fundamental requirements around which all else pivots are represented by the above. Further, Exposition Hall has been successfully designed to transcend these fundamental requirements to include spacial qualities and experiences which lift the spirit and excite user-visitors and local residents. The strength of the Hall's expressive architectural image will ensure its enduring ability to bring convention users back to the facility regularly. In large spaces, booth layout efficiency is largely unaffected by the introduction of such features. The efficiency (booth area as a percentage of total area) of this Exposition Hall is a very respectable 61% compared with the theoretical maximum of 67% for traditional, static rectangular halls.

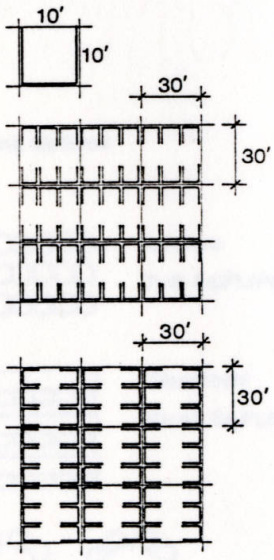
The accompanying diagrams illustrate the proposal's exhibition hall flexibility for booth layout and public assembly functions.

Utility Grid

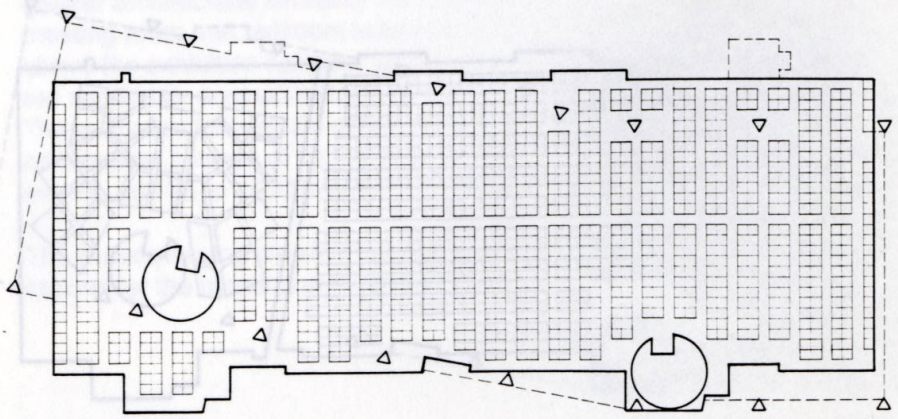




Basic Booth Module

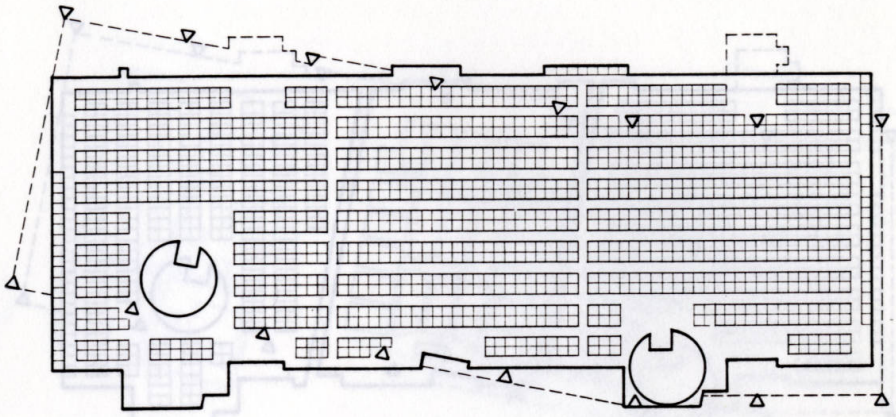


Perpendicular Booth Layout



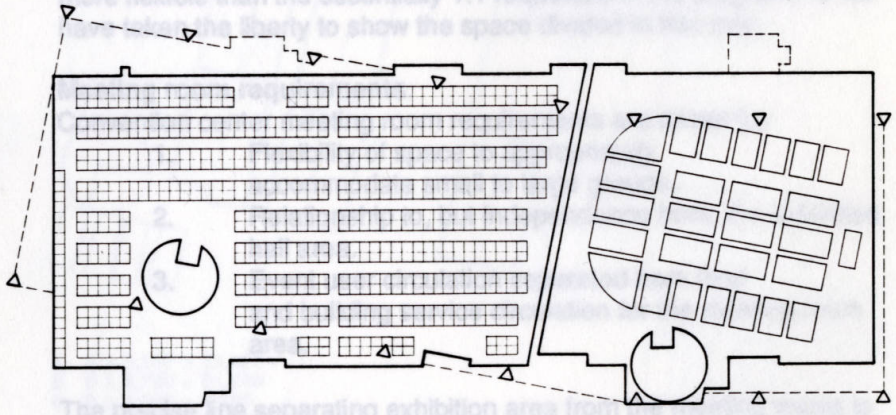
ABC 216,000 SF

Parallel Booth Layout



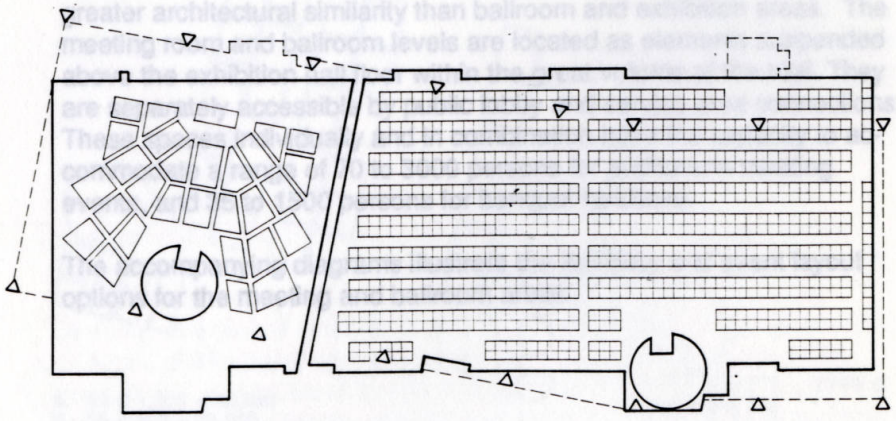
ABC 216,000 SF

Parallel Booth, General Assembly Layout



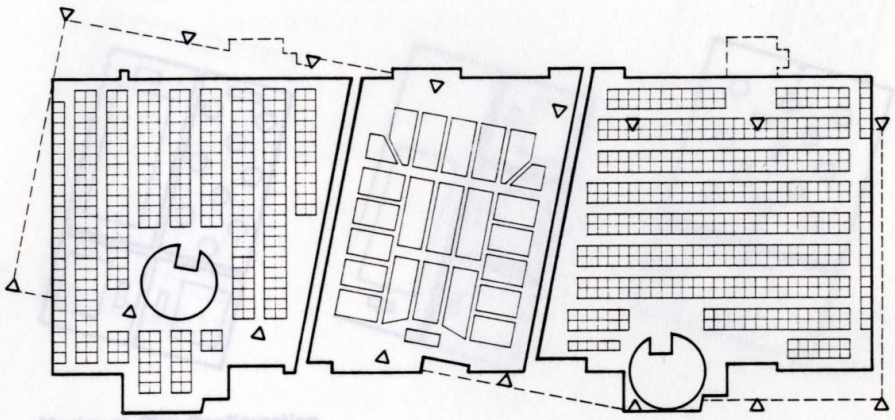
AB 120,000 SF C 96,000 SF

Optional Layout Not Required By Program



A 65,000 SF BC 161,000 SF

Optional Layout Not Required By Program



A 65,000 SF B 65,000 SF C 96,000 SF

Note that the division of the exhibition hall varies from the program requirements. It is our experience that a ratio of 2:3 in size is far more flexible than the essentially 1:1 requested in the program, so we have taken the liberty to show the space divided in this way.

Meeting room requirements.

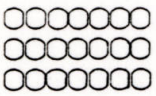
Convention center meeting room requirements are driven by:

1. Flexibility of space to appropriately accommodate small to large groups.
2. Relationship to, but independence from, the exhibition hall area.
3. Event user circulation separated from food and building service circulation for the meeting room area.

The precise line separating exhibition area from the meeting rooms is inevitably blurred by flexibility of use. The largest meeting room facility, the ballroom, is considered the smallest module of light exhibition use. The meeting and ballroom spaces have a higher level of finish, greater demands on A/V and other technical systems, and a more personally scaled enviroment. Hence the ballroom and meeting areas have a greater architectural similarity than ballroom and exhibition areas. The meeting room and ballroom levels are located as elements suspended above the exhibition hall floor within the great volume of the Hall. They are separately accessible by public lobby and service area connections. These spaces individually and in combination have the capacity to accommodate a range of 70 to 3000 persons for auditorium meeting events, and 35 to 1500 persons for banquet functions.

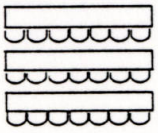
The accompanying diagrams illustrate the flexibility and event layout options for the meeting and ballroom areas.

Seating Options



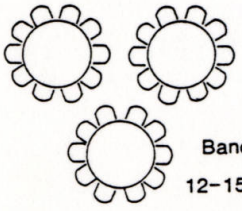
Lecture

7-9 Sq.Ft./Pers



Classroom

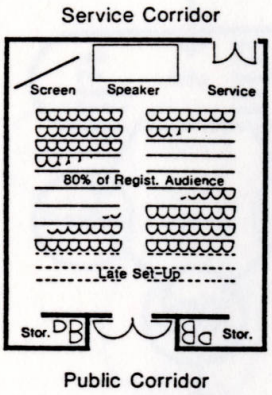
10-12 Sq.Ft./Pers.



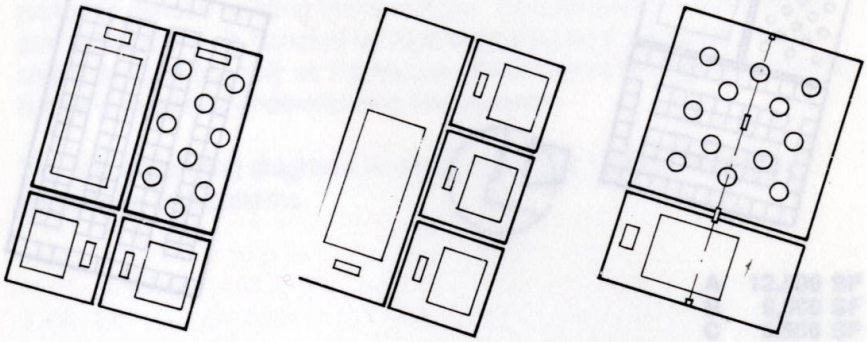
Banquet

12-15 Sq.Ft./Pers.

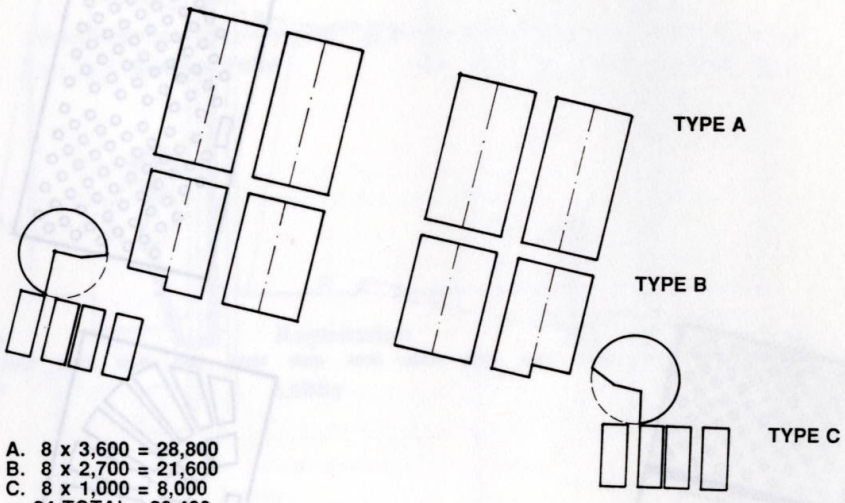
Meeting Room Layout



Meeting Room Layouts - Type A OR Type B

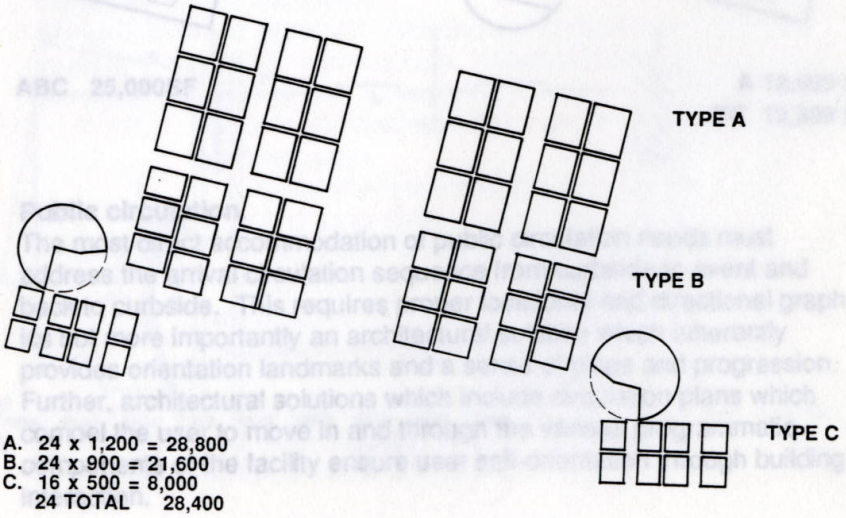


Maximum Size Configuration



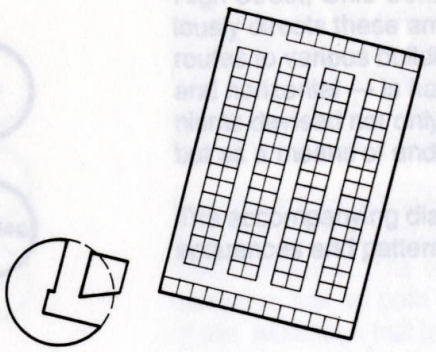
A. 8 x 3,600 = 28,800
B. 8 x 2,700 = 21,600
C. 8 x 1,000 = 8,000
24 TOTAL 28,400

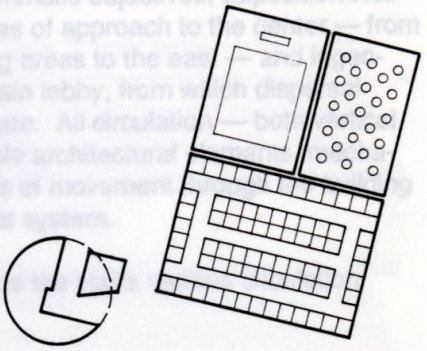
Maximum Number Configuration



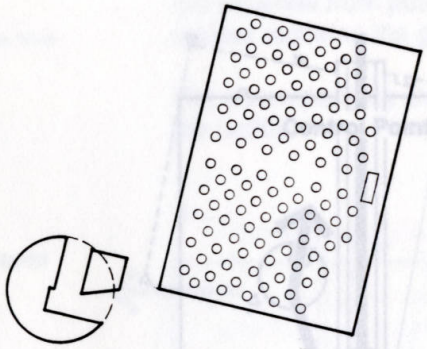
A. 24 x 1,200 = 28,800
B. 24 x 900 = 21,600
C. 16 x 500 = 8,000
24 TOTAL 28,400

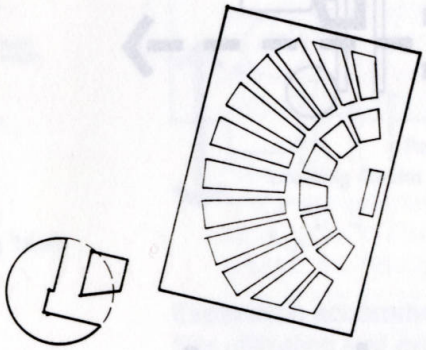
Ballroom Requirements



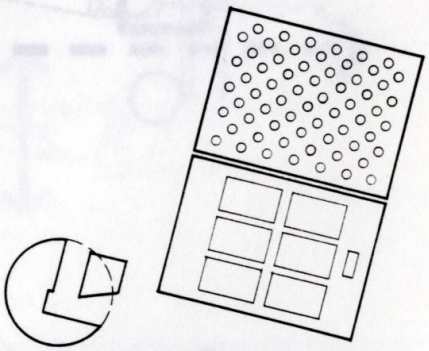


A 12,500 SF
B 6,500 SF
C 5,500 SF





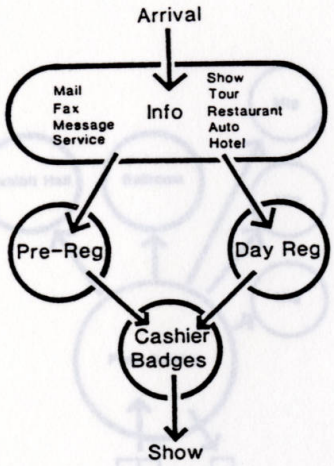
ABC 25,000SF



A 12,500 SF
BC 12,500 SF

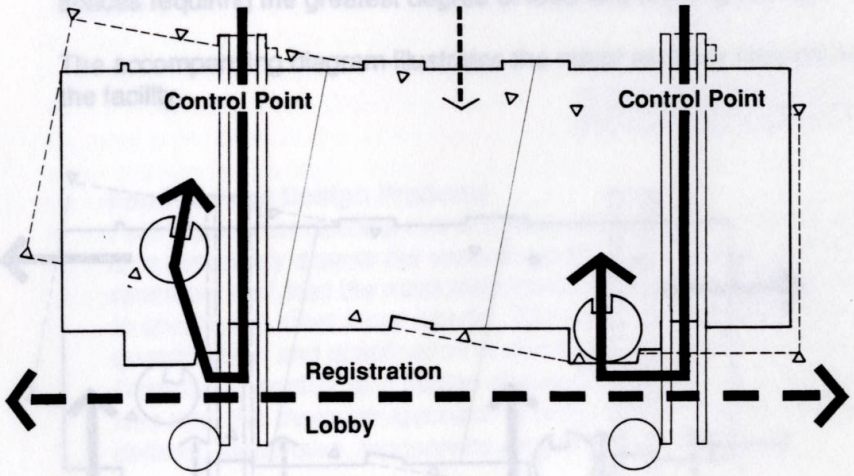
Public circulation.
The most direct accommodation of public circulation needs must address the arrival circulation sequence from curbside to event and back to curbside. This requires proper locational and directional graphics but more importantly an architectural solution which inherently provides orientation landmarks and a sense of place and progression. Further, architectural solutions which include circulation plans which compel the user to move in and through the various programmatic components of the facility ensure user self-orientation through building interaction.

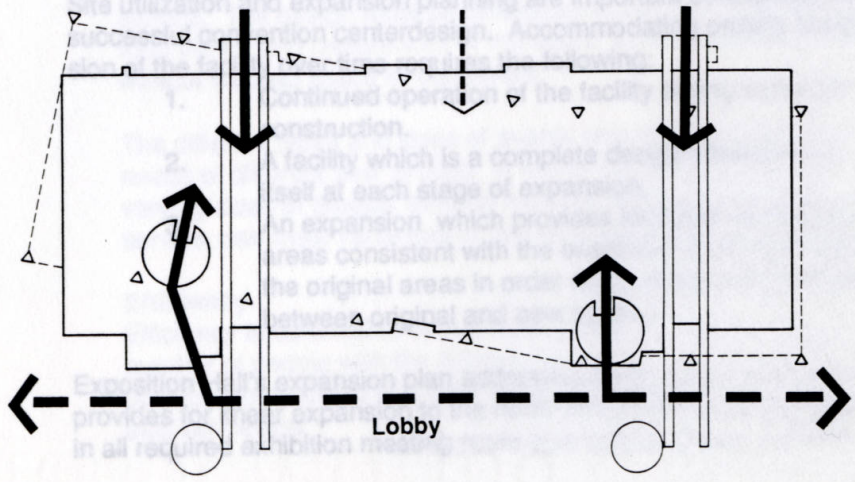
Registration



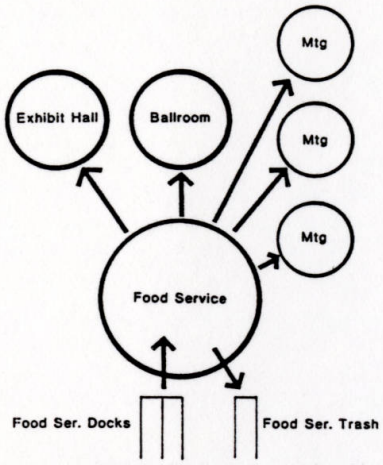
Combining these design and programmatic objectives, Exposition Hall accommodates the disparate avenues of approach to the center — from High Street, Ohio Center and parking areas to the east — and ingeniously directs these arrivals to the main lobby, from which dispersal routes to various building areas radiate. All circulation — both vertical and horizontal — is handled by legible architectural elements, mechanisms devised not only as the means of movement through the building but as a means of understanding that system.

The accompanying diagrams illustrate the Hall's various circulation sequences and patterns.

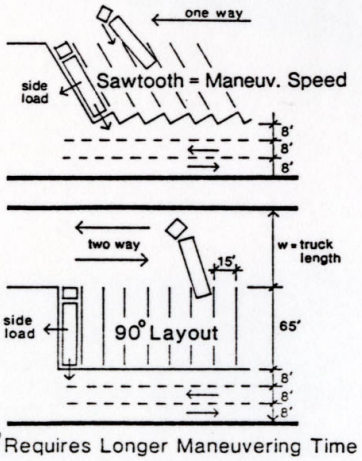




Food Service



Truck Efficiency

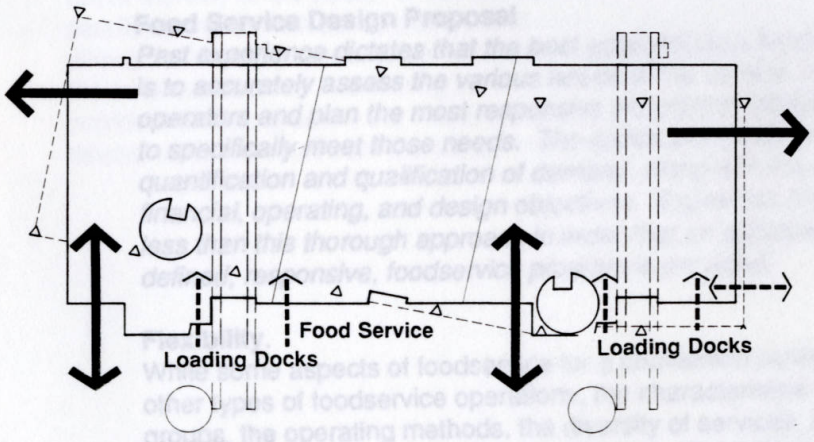


90° Requires Longer Maneuvering Time

Service systems requirements.
Convention centers' service requirements largely relate to the truck dock area for the exhibition hall and food service/building operations. At an industry average of one dock per 10,000 square feet of exhibition hall, this requirement is typically a major determinant of any design solution, typically forcing at-grade facilities to relegate an entire side of the center to this "back door" status.

Columbus Exposition Hall satisfies those functional requirements while avoiding the "back-door" issue by creatively stacking the service and lobby functions. The truck dock service zone connects directly to the exhibition hall for both loading/unloading and truck access onto the floor of the exhibition hall itself. Vertical service circulation runs from the truck-dock service zone to the food service and meeting/ballroom levels for light exhibit service needs as required. Internal service cooridors are seperate from public circulation and provide direct links to those spaces requiring the greatest degree of food and building service.

The accompanying diagram illustrates the major services network for the facility.



Expansion accommodation.
Site utilization and expansion planning are important considerations in successful convention centerdesign. Accommodating orderly expansion of the facility over time requires the following:

1. Continued operation of the facility during expansion construction.
2. A facility which is a complete design statement in itself at each stage of expansion.
3. An expansion which provides for future contiguous areas consistent with the orientation and character of the original areas in order not to negatively distinguish between original and new spaces.

Exposition Hall's expansion plan addresses these issues and naturally provides for linear expansion to the north with proportional increases in all required exhibition meeting room and support areas. External

approaches and related circulation systems are also expanded in this linear approach.

Conclusion.
A call for great exhibit hall architecture is a call for a facilities planning philosophy which transcends the mere accommodation of pre-conceived functional requirements. Buildings of this size and civic importance must satisfy emotional needs as well; memorable architecture helps promote community pride while delivering a marketing advantage in the highly competitive convention center industry.

Exposition Hall optimizes the facilities planning program in an architecturally exciting solution which captures the celebratory spirit of convention and exhibit events. Its execution will mark Columbus as the national leader in convention centers, not just in size and superior operations, but in overall design ingenuity and architectural significance.

3.2.8 Cini-Little International

Food Service Design Proposal
Past experience dictates that the best approach to a foodservice project is to accurately assess the various needs of the owners, users, and operators and plan the most responsive program of facilities and services to specifically meet those needs. The needs are identified through the quantification and qualification of demand, along with the examination of financial, operating, and design objectives. Exposition Hall deserves no less than this thorough approach in order that an appropriate, well defined, responsive, foodservice program is provided.

Flexibility.
While some aspects of foodservice for a convention center are similar to other types of foodservice operations, the characteristics of the user groups, the operating methods, the diversity of services, and the objectives of the owners are significantly different. Flexibility and efficiency are the most important elements of a successful events facility food service. The design must be innovative enough to meet the changing food trends and preferences of the users, accommodating changes without wasting space or equipment.

The different types and sizes of events require a sensitivity to the varying needs of different user groups. A facility designed to accommodate varying sizes of groups, offering multiple options in menu and style of service, can meet variances in demand quantities and characteristics.

Efficiency.
Efficiency in convention center foodservice means providing the greatest number of people with the highest quality food and service for the lowest possible cost. Costs of space, labor, and equipment are minimized by efficient design.

Quality.
High quality is difficult to define but easily recognized. While food items alone often convey quality messages (hot dogs vs. caviar), it is important to note that any foodservice item can be of high or low qualtiy (high quality caviar vs. low quality caviar). Whether a group prefers hot dogs or caviar, their expectations for quality must be met in order to provide the appropriate appeal, attraction and satisfaction.

Marketing.
Foodservice can make a big difference in the prospective user's decision to select one convention site over another. In the competitive convention business, Columbus Exposition Hall must have a well conceived food-service program that enhances its ability to lure business.

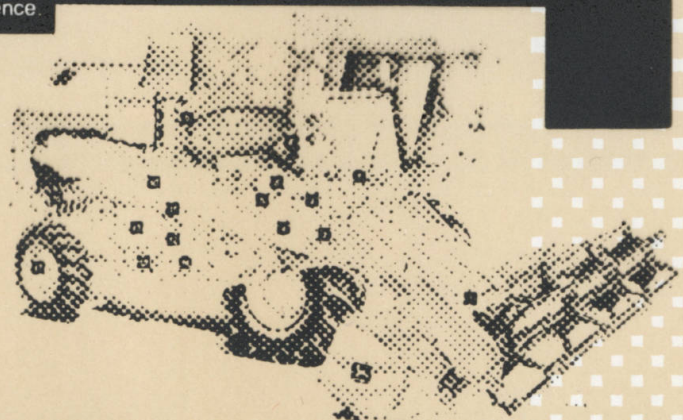
This project.
The foodservice component of the project program is the classic example of invisible support elements hidden in the spaces between primary areas. To the extent that it enhances the operations of the convention center, this is the approach taken in the proposed design. The kitchen is located at a mezzanine level between the loading docks and the registration lobby, out of the way of either yet immediately accessible to both. It is linked with these areas, the meeting rooms, and ballroom by a service core of freight elevators and stairs. Running along the service spine at the mezzanine level of the kitchen is a continuous food service corridor, out of the way of the docks, which accesses the concession stands and satellite pantries with dumb waiters and stairs. A similar arrangement allows the meeting rooms to be serviced from support satellites without the inconvenience of intervening service corridors. In this case these corridors are hung below the meeting rooms and appear as "duct" structures when seen from the exhibit hall below.

3.3 the best American stuff has always been

It must be contemporary.
Any building must *live* in the world for which it is built; a civic building such as this, dedicated to the *presentation* of that world, should find its highest expression there. Our contemporary culture is founded upon the omnipresence of technology. A building interested in the most appropriate expression for our world must face this fact and get on with the job of making today's architecture the best, most fascinating, and engaging of all.

It must be engaging.
To be truly compelling, architecture must be *legible*. Engaging forms are honest, direct, and most importantly, *relevant*. They must be felt to be meaningful in an immediate way. This immediacy is lost in both abstract intellectualizations which suppress legibility and limit accessibility, and stylistic convention which narrows the audience to those who know the language. The best American stuff has always been right to the point, a straightforward means to a worthy end.

It must be respectful.
All this excitement must be balanced by heartfelt respect for the surrounding community's interests. Only by reconciling the possible conflict between this imposing public building and its private neighbors can Columbus' principal landmark engender true civic pride at all levels of experience.



Major Manufacturers.

Air Handling:	Chillers:	Boilers:
Miller Picking	Carrier	AjaxBoilers:
Buffalo	McQuay	Parker
Pumps:	Variable Air Volume Box:	Cooling Towers:
Bell & Gossett	Trox (United Air Flow)	Baltimore(BAC)
Peerless Pump	Barber-Coleman	Mark
Controls:	Valves & pipeline equip.:	Plate Heat Exchangers:
MCC Powers	Stockham	Alfa Laval
Andover	Crane	Baltimore (BAC)
	Nibco	
Diffusers, High velocity Nozzles:	Underground Fuel Oil Storage:	Fire Pumps:
Krantz	Joor	Peerless
Trox (United Air Flow)		Aurora
Barber Coleman		
Domestic Water Heaters:	Elevator:	Acoustic Panels:
Raypak	Dover	Panelfold
AO Smith	U.S. Elevator	Hufcor

Energy Consumption.

The energy consumption of this building has been estimated at approximately 250,000 therms for gas load and between 1500 MWHs and 2000 MWHs for electrical load. The electrical load includes mechanical plant, lighting and power requirements. The assumptions used to calculate the above are as follows:

Design Conditions External:	
Summer	90F DB 75F WB at 2.5% range
Winter	5F saturated
(Based on Ashrae)	
Conference Rooms	70-78 F
Internal Meeting Rooms	70-78F
Offices	70-78F
Cafeteria	70-78F
Convention Hall	78F
Degree Day (Heating)	5211
Average Winter Temperature	40F
Operational Times	
Conference Areas	9 a.m.to 5 p.m., 5 days a week
Meeting Rooms	9 a.m. to 5 p.m., 5days a week
Offices	9 a.m. to 5 p.m., 5 days a week
Cafeteria	9 a.m. to 5 p.m., 6 days a week
Convention Hall	9 a.m. to 5 p.m., 6 days a week

Energy Savings from the freecooling system and runaround coils have not been accounted for in the energy consumption estimation.

Building Foundations.
The foundation system relies on driven steel piles approximately 100' long supporting concrete pilecaps. Pairs of pilecaps on the opposite ends of the same trusses are tied together by below-grade steel tension wires. A separate pile and cap system supports the meeting rooms. Concrete slabs on grade are 8" thick at the exhibition hall and truck docks, 4" elsewhere.

Building Structure.
The primary structure consists of 270' span post-tensioned cor-ten steel main trusses at 120' O/C. Truss depth at the center is 24' and the top chord is 120' above the exhibition hall floor. Secondary, pre-manufactured 5' deep roof trusses span 120' at 30' O/C, supporting W14 purllins at 10' O/C at the main roof and roof edge conditions. A mixture of grades 50 and 36 TS sections for the primary trusses will be delivered to the site in sub-assemblies. Field welding will be accomplished at grade, then sub-assemblies will be hinged and lifted into place to be field bolted for final connection. Sides and roof are then cross-braced.

The wall support structure consists of horizontal 6' deep premanufactured steel trusses with both chords hung from the roof structure at varying centers.

Building Shell.
The roof skin is a premanufactured insulated metal panel system mounted directly to the W14 steel purlins. Translucent fiberglass Kalwall) sandwich panel inserts run the full length of the roof in four locations to provide natural light. Blackout is provided by pre-finished steel rolling shutter doors. The exterior enclosure is organized horizantally into four zones. The upper zone is a metal panel system to match the roof. The two center zones consist of various heights of translucent fiberglass sandwich panels , again with overlaid steel rolling shutter doors for blackout. The lower zone alternates between metal panels and a painted aluminum 'storefront'-type glazing system with clear glass. Miscellaneous elements inhabiting the main building shell i.e., mechanical enclosures and louvers, ductwork, catwalks are painted steel to match the color of the primary structure. Rainwater goods are galvanized steel.

Building Entries.
The lobby and service areas consist of precast concrete panelled walls with slab-on-grade lower floors. Intermediate floor and roof structures are of metal deck with concrete fill. Entry structures on both east and west sides, and the entry bridges and ramp system connecting to the Ohio Center are all steel framed structures clad with premanufactured insulated metal panels. Straight entry ramps on the east side are asphalted earth fill. Curved ramps are poured in place concrete.

The intention of this requirement is to compare designed areas with requested areas. At this pre-schematic phase of a project, however, such comparisons are valid only for those parts of the program where some level of design intention has solidified into an inflexible direction. This is certainly not the case with our proposed design at this stage of the process, where significant deviation is due more to drawing error than intent. Consequently, the vast majority of the following numbers represent an intention to conform to the programmatic requirements, rather than a necessarily approximate scaling of pre-schematic 1/32 scale diagrams. This is not an intention to be obscure, but to emphasize our flexibility on this issue. In any case we are confident that our design is realizeable at the exact figures requested, given a reasonable time to work it out.

Area	Requested	Proposed
Exhibit Hall and Support Areas		
Hall A	100,000	86,500 (see 3.2.7)
Hall B	116,000	135,000 (see 3.2.7)
Exhibitors' Storage	20,000	18,000
Restrooms	8,000	7200
Panel Storage	400	400
Electrical Closets	400	400
Telephone and A/V Closets	400	400
Custodial Closets	300	300
Transformer Rooms	1500	1500
Lobbies and Pre-Function Areas		
Hall A	10,000	9,000
Hall B	15,000	14,000
Box Offices	300	300
Check Rooms	1,000	900
First Aid Room	375	300
Concourse	20,000	22,000
Restroom	not given	1,250
Ballroom/Meeting Rooms		
Main Ballroom	25,000	25,000
Type A Meeting Rooms	28,800	28,800
Type B Meeting Rooms	21,600	21,600
Type C Meeting Rooms	8,000	8,000
Panel Storage (included in meeting rooms)		
General Storage	14,000	10,000 (shown)
Telephone, Electrical, A/V	800	800
Restrooms:		
Women	3,000	2,700
Men	2,500	2,000
Custodial	300	270
Offices		
Exhibit Facility Supervisor's Office	150	140
Exhibit Facility Maintenance Manager's Office		150 140

Staff Restrooms	200	180	
Association Executive Offices	1,200	1,000	
Service Contractor Offices	1,200	1,000	
Food Service Areas			
Kitchen		not given	9,000
Satellite Pantries	not given	1,500	
Cart Holding Area	not given	400	
Concession Stands	not given	1,500	
Storage/Concessions	not given	1,100	
Cafeteria/Seating	7,900	7,000	
Serving/Preparation	2,500	2,300	
Storage/Cafeteria	600	500	
Staff Restrooms/Cafeteria	100	100	
Patron Restrooms/Cafeteria	400	400	
Food Service			
Manager's Office	180	160	
Food Service Sales	240	200	
Food Service Accounting	100	100	
Food Service Purchasing	100	100	
Clerical/Reception	not given	200	
Food Service Workroom	not given	280	
Food Service Conference	225	200	
Support areas			
Exhibit Hall Docks	7,500	7,500	
Exhibit Hall Trash Docks	750	750	
Exhibit Hall Access Ramps	3,000	3,000	
Food Service Docks	750	750	
Food Service Trash Docks	750	750	
Dock Supervisor	150	140	
Truckers' Restrooms	300	280	
Dock First Aid	100	100	
Dock Vending	50	50	
Security Supervisor	120	120	
Security Office	210	200	
Building Automation	120	120	
Fire Command Center	350	330	
Security Staff Lockers	600	550	
Custodial Storage	1,000	900	
Carpentry Shop	600	550	
Sign Shop	500	450	
Plumbing Shop	500	450	
Building Maintenance Shop	600	550	
Material Storage	7,500	7,000	
Vehicle Storage	5,000	5,000	
Maintenance Staff Lockers	600	550	
Maintenance Staff Restrooms	200	180	
Maintenance Staff Lunch/Break Room	150	140	
Procurement and Stores Office	100	100	
HVAC Engineer	100	100	
Master Electrician	100	100	
Master Housekeeper	100	100	
Custodial Office	150	140	
Temporary Staff Locker Rooms	2,000	1,800	

Temporary Staff Restrooms	800	720
Uniform Issue and Repair	700	630
Temporary Staff Lunch/Break Room	160	150
Temporary Staff Supervisor	120	110
Temporary Staff/Clerical and Records	250	230
Temporary Staff Office Workroom	250	230
Audio-Visual Equipment Storage	1,400	1,300

CONCEPTUAL ESTIMATE
FOR
COLUMBUS CONVENTION CENTER
COLUMBUS, OHIO
MARCH 15, 1989

CLIENT

HOLT HINSHAW PFAU JONES
NEW TIVOLI
480 GREEN STREET
SAN FRANCISCO, CA 94133

SF/

COST CONSULTANT

HANSCOMB ASSOCIATES INC.
750 BATTERY STREET, SUITE 400
SAN FRANCISCO, CA 94111

Hanscomb

INTRODUCTION

This cost estimate has been prepared to reflect the anticipated cost of construction of the proposed Columbus Convention Center in Columbus, Ohio. Hanscomb Associates have worked closely with the design team throughout the preliminary design process and our estimate is based on our understanding of the project from it's conception and the subsequent drawings produced by the Architect.

The cost is based on current prevailing price levels in the area.

Project:	Date:	Sheet No.:
COLUMBUS CONVENTION CENTER COLUMBUS, OHIO	MARCH 15, 1989	

Since Hanscomb has no control over the cost of labor, materials, or equipment, or over the contractor's method of determining prices, or over competitive bidding or market conditions, the opinion of probable construction cost provided for herein is made on the basis of professional experience and qualifications. The opinion represents Hanscomb's best judgment as a professional construction consultant familiar with the construction industry. However, Hanscomb cannot and does not guarantee that proposals, bids, or the construction cost will not vary from opinions of probable cost prepared by them.

Hanscomb

COLUMBUS CONVENTION CENTER
COLUMBUS, OHIO

MARCH 1989

ESTIMATE SUMMARY (PHASE I)

Building Area: 527,512 GSF

	$/SF	COST
Excavation & Foundations	7.06	3,723,000
Structure	19.04	10,046,000
Roofing & Waterproofing	4.54	2,394,000
Exterior Wall	7.93	4,181,000
Interior Partitions & Finishes	11.01	5,807,000
Specialties	2.57	1,358,000
Equipment & Furnishings	0.36	190,000
Vertical Transportation	3.66	1,930,000
Plumbing	3.70	1,952,000
Fire Protection	1.68	888,000
HVAC	10.40	5,485,000
Electrical	14.41	7,599,000
General Conditions (9%)	7.77	4,100,000
Escalation (bid Summer/Fall, '89)	0.00	0
Subtotal/ Base Building	$94.13	$49,653,000
Demolition		328,000
Bridge to Ohio Center		436,000
Sitework		3,702,000
Auxiliary Parking Lots (CSX Lot or others		928,000
Maximum Construction Award Amount:		$55,047,000
Project Costs:		
Construction Contingency (5%)		2,882,000
Owner's Contingency		2,882,000
Approximate Land Costs:		
- CSX Property (7.8 acres)		3,179,000
- Swan North to I-71 property		4,171,000
A & E Fees (6.9%)		3,804,000
C.M. Fee & Reimbursables (4.7%)		2,588,000
Testing & Inspections		150,000
Builders Risk Insurance		87,000
Bonds		475,000
Surveys		25,000
Furniture, Fixtures & Equipment		2,000,000
Total Project Costs:		$22,243,000
GRAND TOTAL/ CONSTRUCTION & PROJECT COSTS:		$77,290,000

Hanscomb

COLUMBUS CONVENTION CENTER
COLUMBUS, OHIO

MARCH 1989

ESTIMATE SUMMARY (PHASES I & II)

Building Area: 750,000 GSF

	$/SF	COST
Excavation & Foundations	7.06	5,295,000
Structure	19.04	14,280,000
Roofing & Waterproofing	4.54	3,405,000
Exterior Wall	7.50	5,625,000
Interior Partitions & Finishes	11.01	8,258,000
Specialties	2.57	1,928,000
Equipment & Furnishings	0.36	270,000
Vertical Transportation	3.66	2,745,000
Plumbing	3.70	2,775,000
Fire Protection	1.68	1,260,000
HVAC	10.40	7,800,000
Electrical	14.41	10,808,000
General Conditions (9%)	7.73	5,800,000
Escalation (bid Summer/Fall, '89)	0.00	0
Subtotal/ Base Building	93.66	$70,249,000
Demolition		328,000
Bridge to Ohio Center		1,093,000
Sitework		5,463,000
Auxiliary Parking Lots (CSX Lot or others		928,000
Maximum Construction Award Amount:		78,061,000
Project Costs:		
Construction Contingency (5%)		3,902,000
Owner's Contingency		3,902,000
Approximate Land Costs:		
- CSX Property (7.8 acres)		3,179,000
- Swan North to I-71 property		4,171,000
A & E Fees (6.9%)		5,384,000
C.M. Fee & Reimbursables (4.7%)		3,668,000
Testing & Inspections		150,000
Builders Risk Insurance		87,000
Bonds		475,000
Surveys		25,000
Furniture, Fixtures & Equipment		2,000,000
Total Project Costs:		$26,943,000
GRAND TOTAL/ CONSTRUCTION & PROJECT COSTS:		$105,004,000

Because of the extremely tight budget and our contrary desires to maximize the initial presence of the building within that budget, we have chosen to identify areas of our design we felt could be self-funding and exclude these from the stipulated Phase I budget. Chief among these are the projection hardware and software for the more extreme components of Industrial Light & Magic Co.'s lighting plans and the larger landscape gestures that are illustrated on the masterplan. We have included as separate items the costs for these elements of the overall design so that funding goals and targets could be created. We have preferred to think of these as an add-alternate situation, or "options" package deal, since the building impact would be more than adequate without them. As mentioned above, it was also felt that these particular components of the design would be the easiest to "sell" to outside funding sources so the burden for funding the basic building could alleviated slightly. A list of these "options" and their price tags would include:

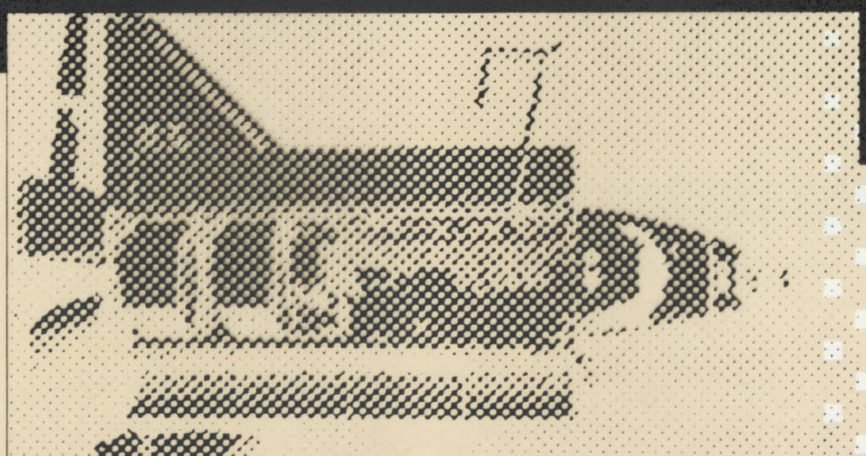
ILM hardware/software	$0.84 M/or 1.3
Change Kalwall to translucent glass curtain wall	$1.1 M
Landscaping	$ 4.2 M
Move roof ROD's into Phase I	$ 1.2 M
"Projection cube" marquees	$ 2.3 M
"Traveling" meeting room	$ 7.5 M
RODS on end walls	$ 2.6 M

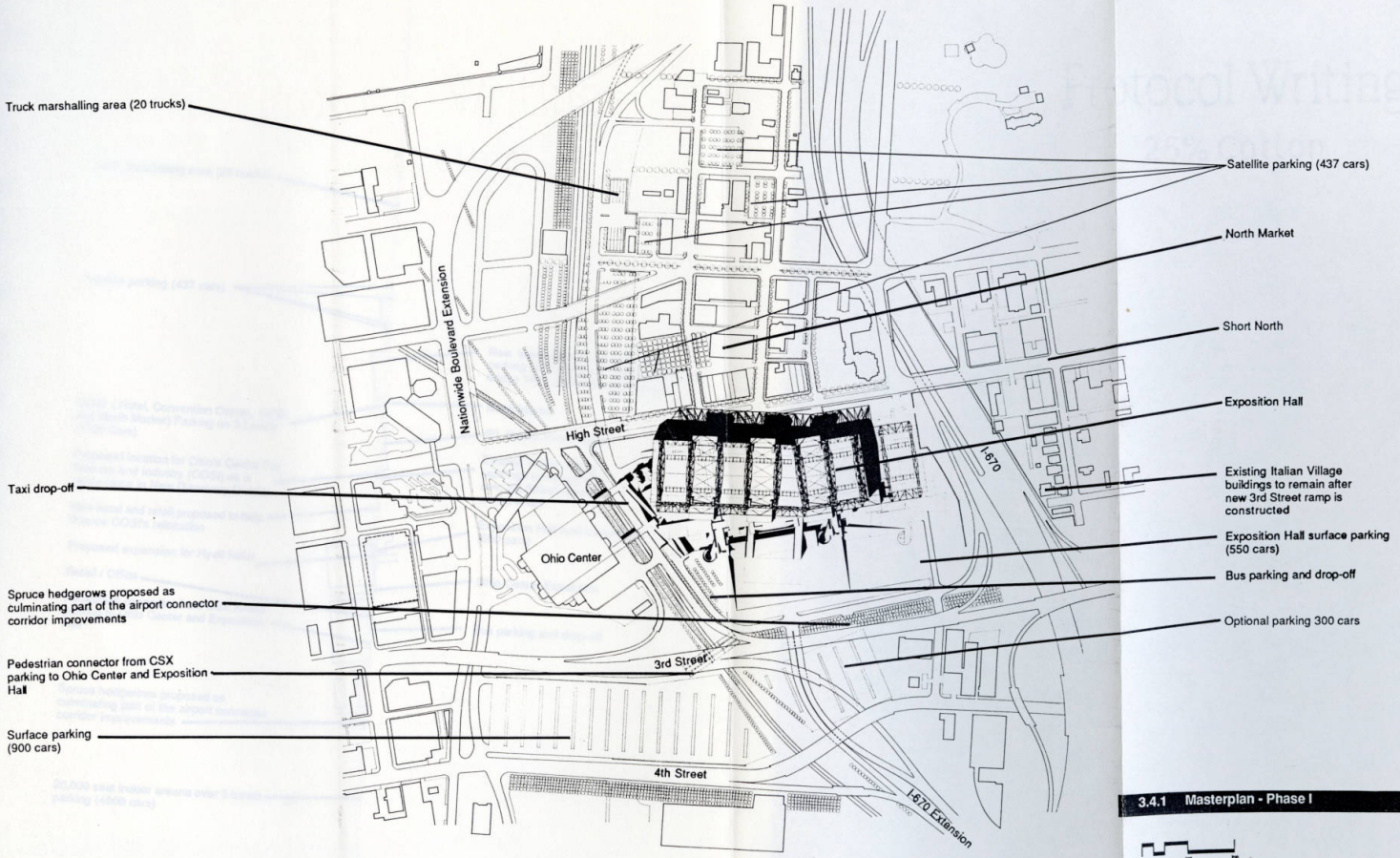
3.4 for the key to discovery is

It must be critical.
Critical as in important, and critical as in Critique. This project is important because of the impact its vast size and complex program will have within the future of the city; a measure of its sophistication is the degree to which it can offer its critique without alienation. All criticism contains the seeds of the change -- the future -- it proposes. In the context of this project, it is a call for a reasonable present vision of the future; an Architecture for a *present* in which can be discovered the *future*.

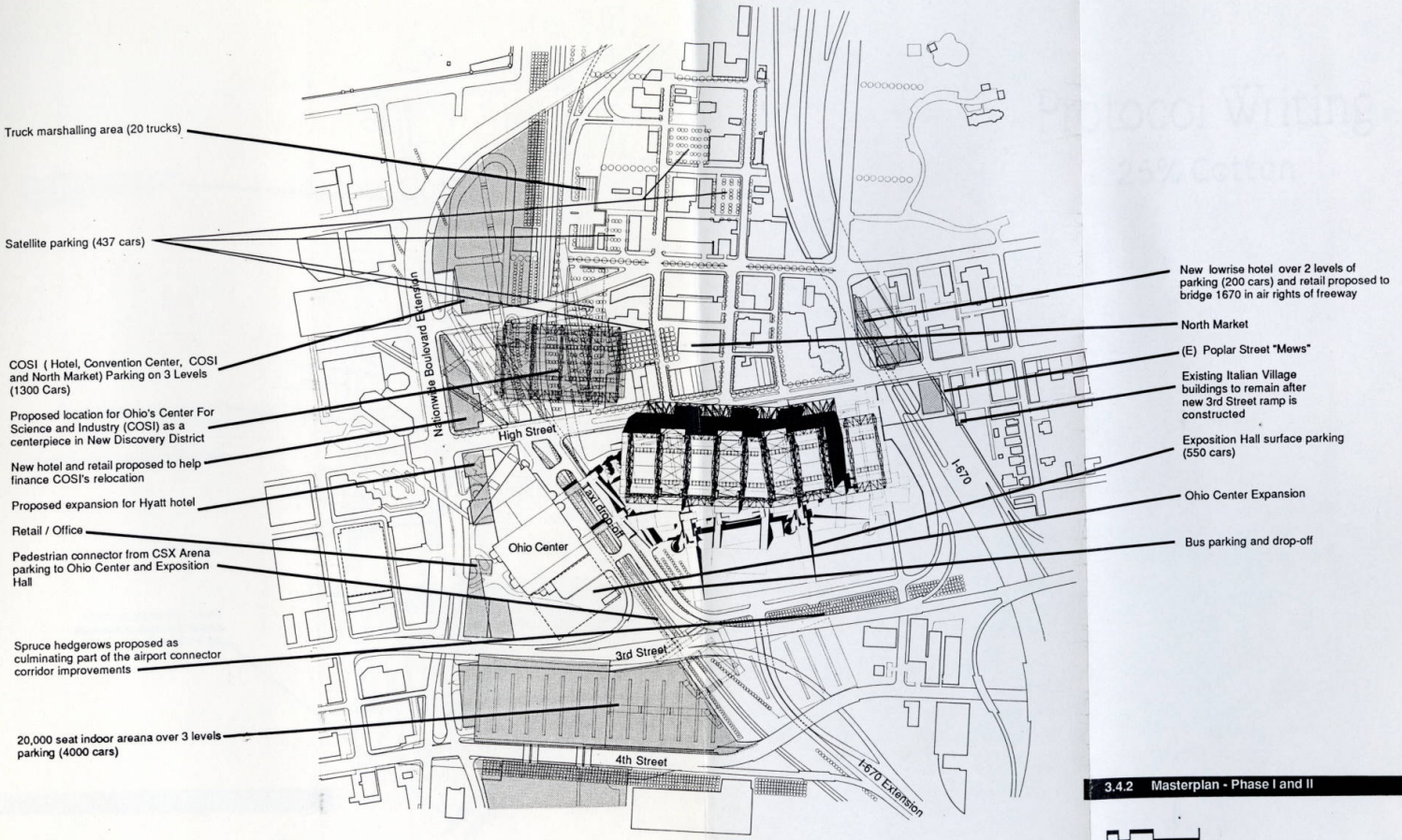
500 years ago Christopher Columbus boldly sailed over the horizon to discover a new world. Today, Columbus, Ohio has embarked on its own historic adventure, eyeing a horizon that defines the first rank of America's cities. Across this horizon lies the city's future: will it lead America into the next century or will it be left behind? The list of U.S. presidents, astronauts, inventors and sports heros Ohio has given to America attests to the reach of its vision and the strength of its heart.

And this is important, for the key to discovery is not the knowledge of what lies beyond this horizon, but the desire that takes you there.

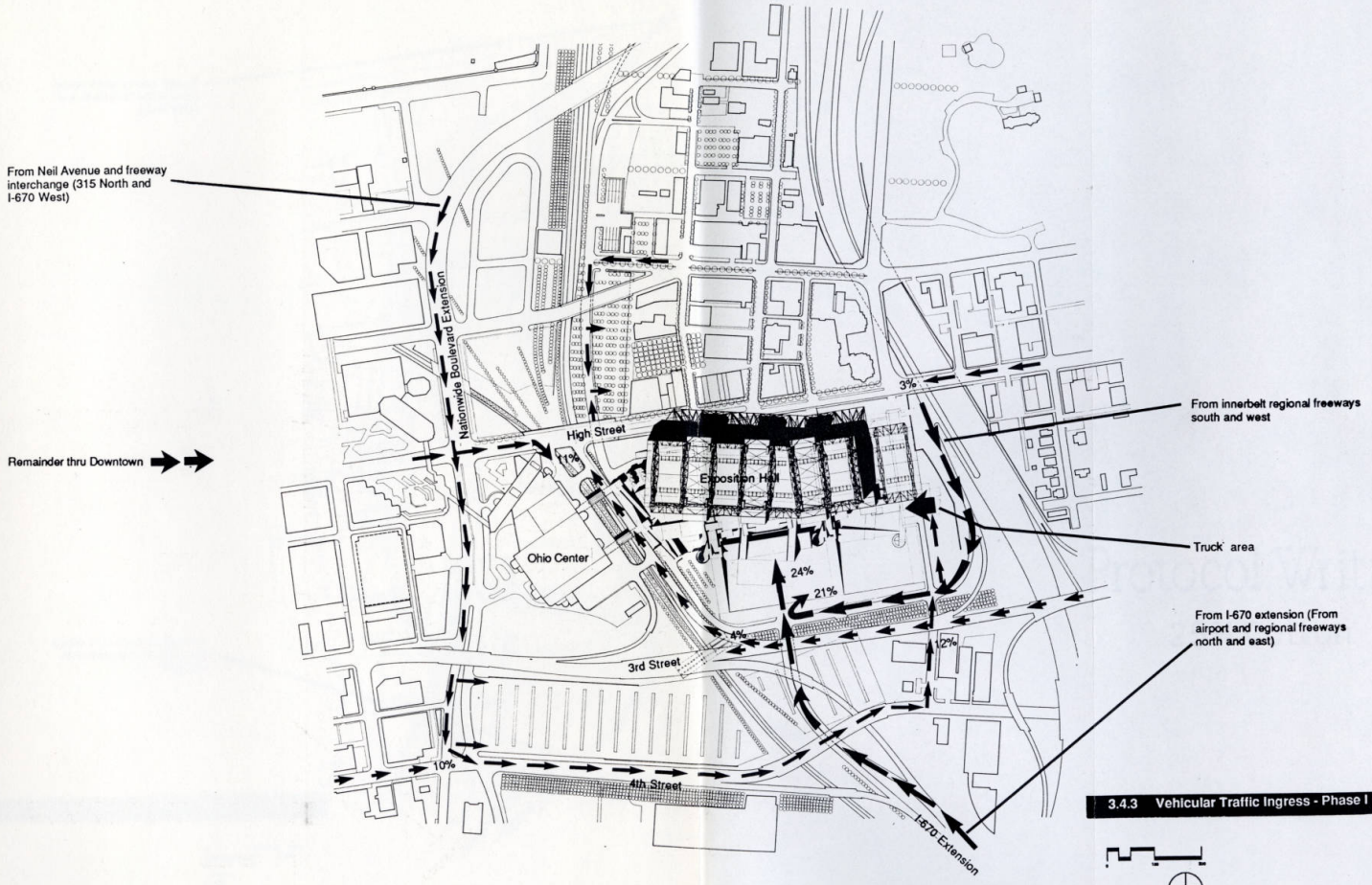




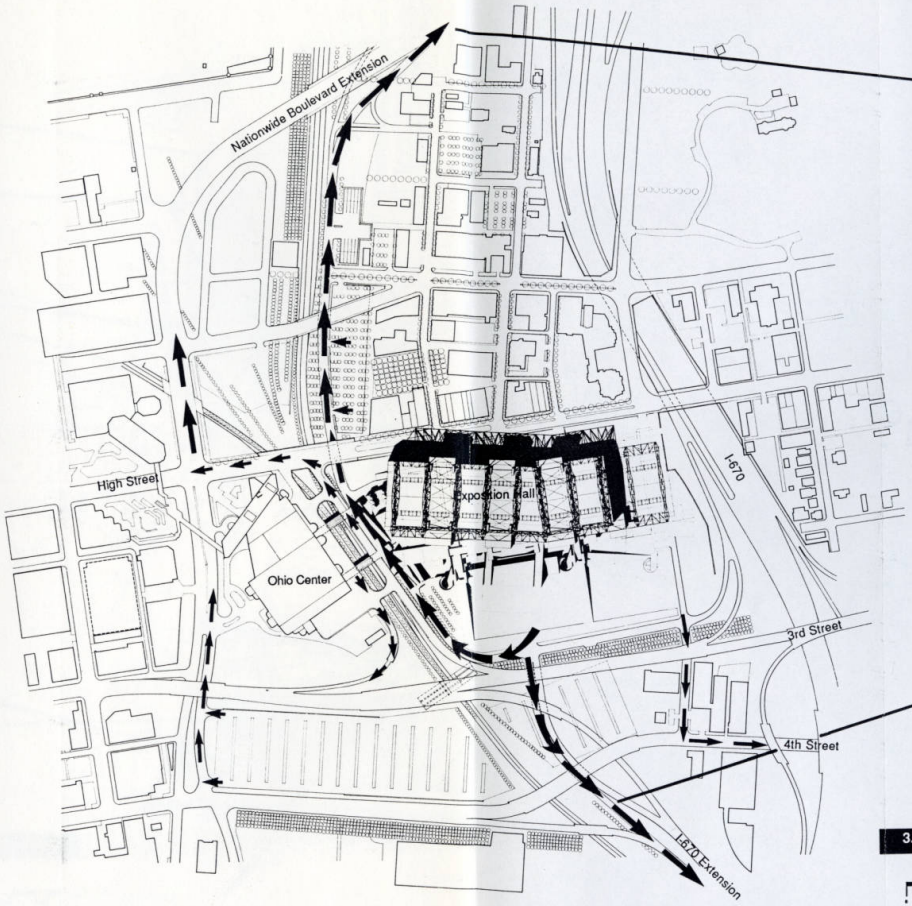
3.4.1 Masterplan - Phase I



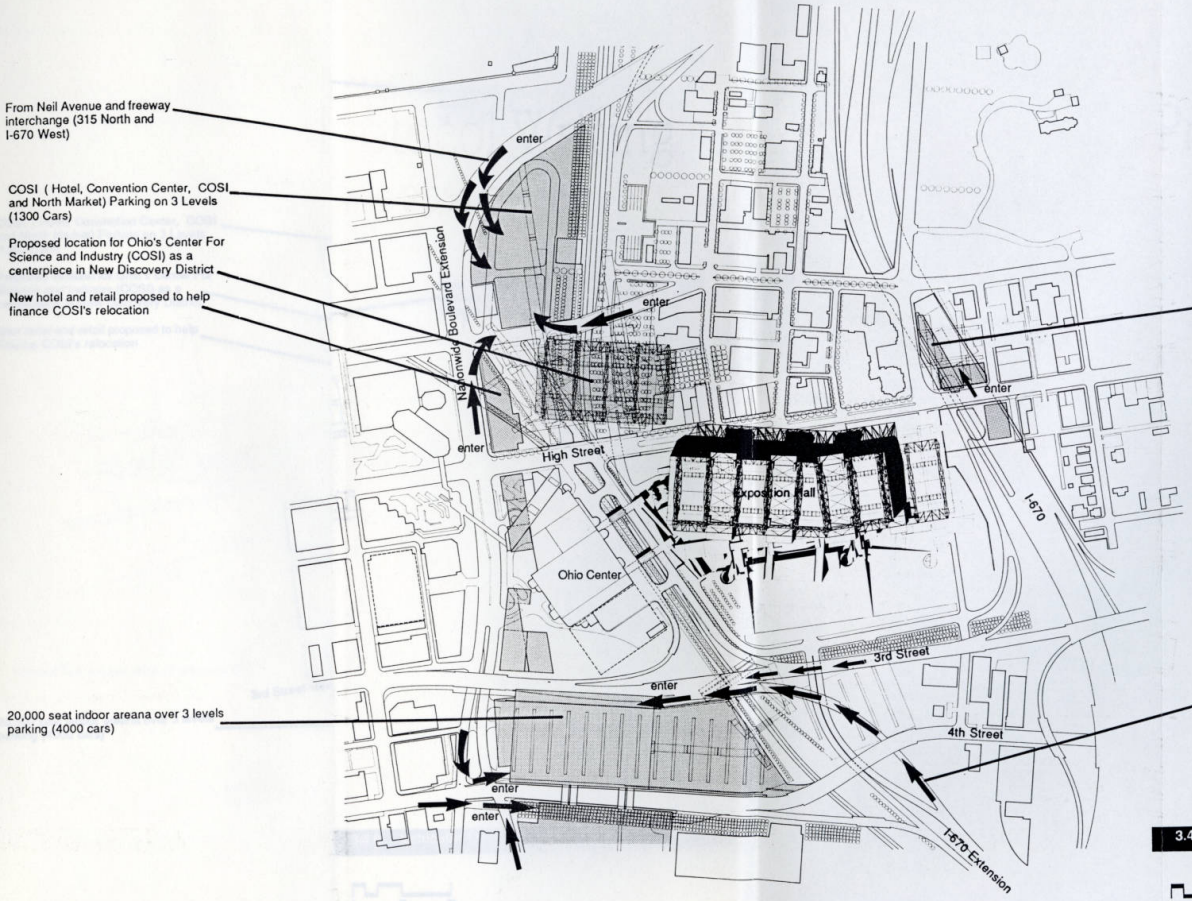
3.4.2 Masterplan - Phase I and II



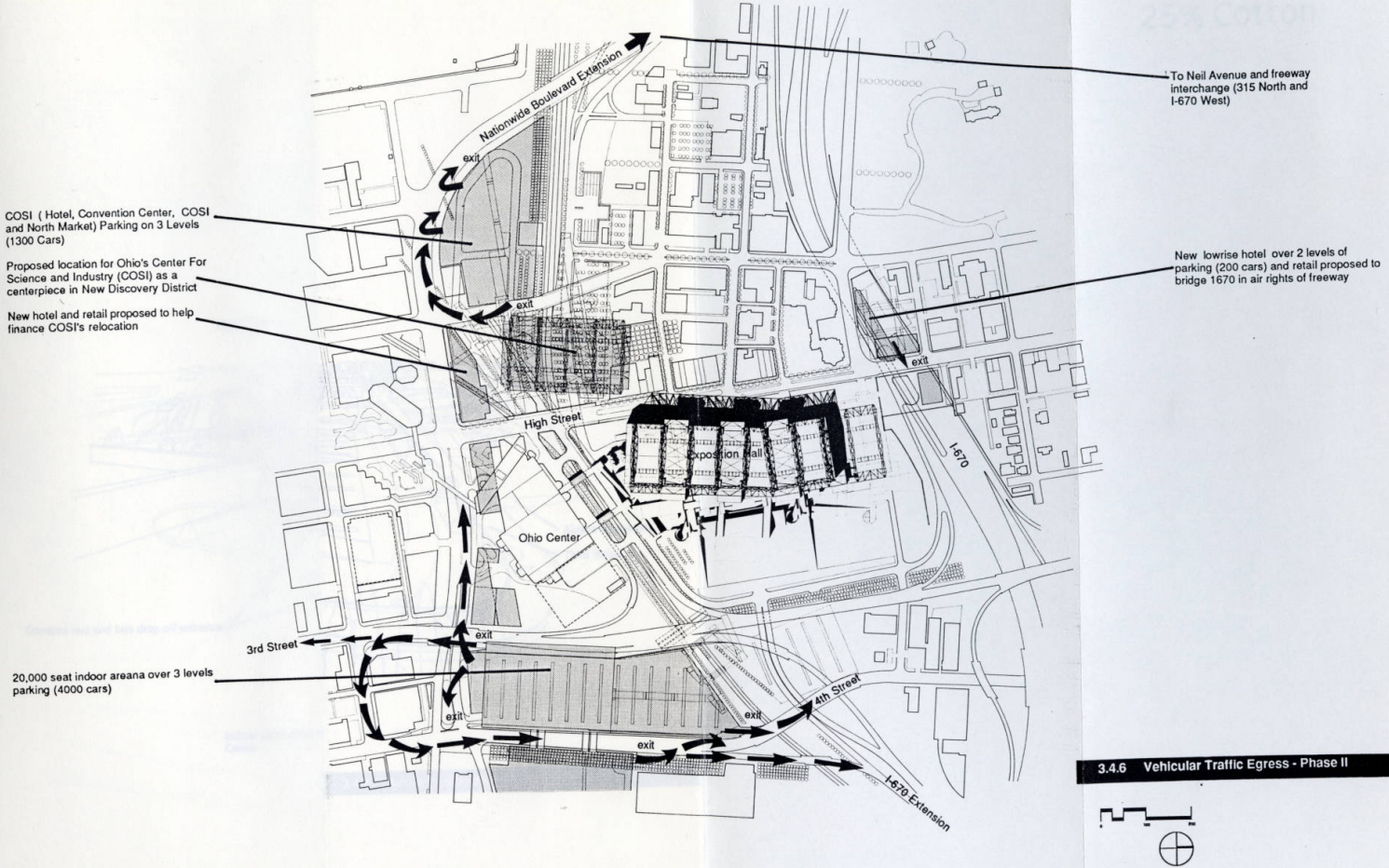
3.4.3 Vehicular Traffic Ingress - Phase I



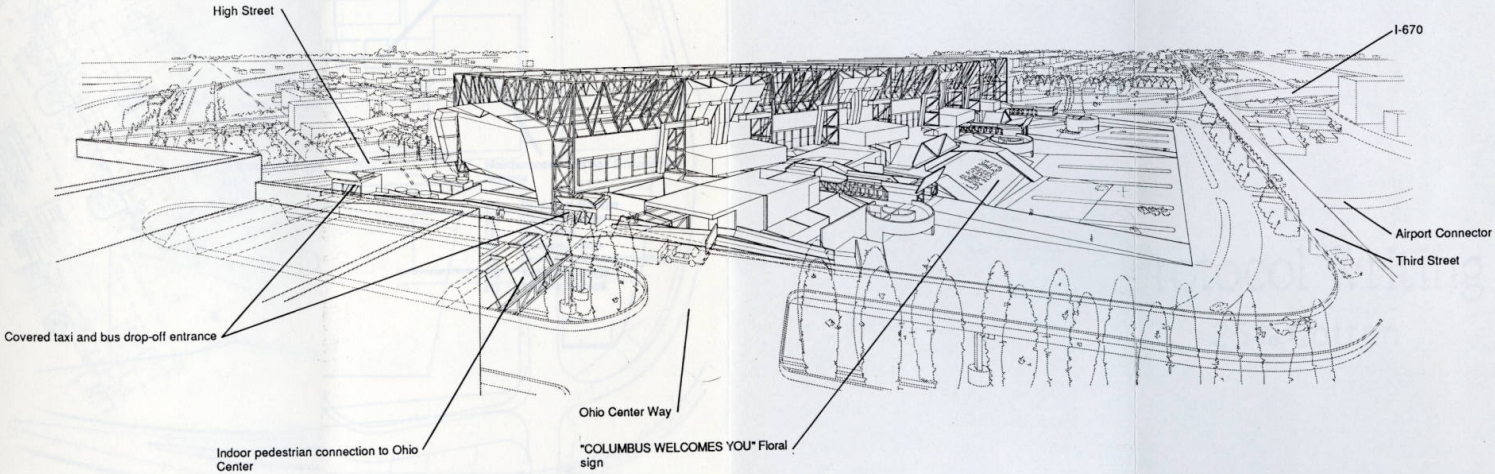
3.4.4 Vehicular Traffic Egress - Phase I



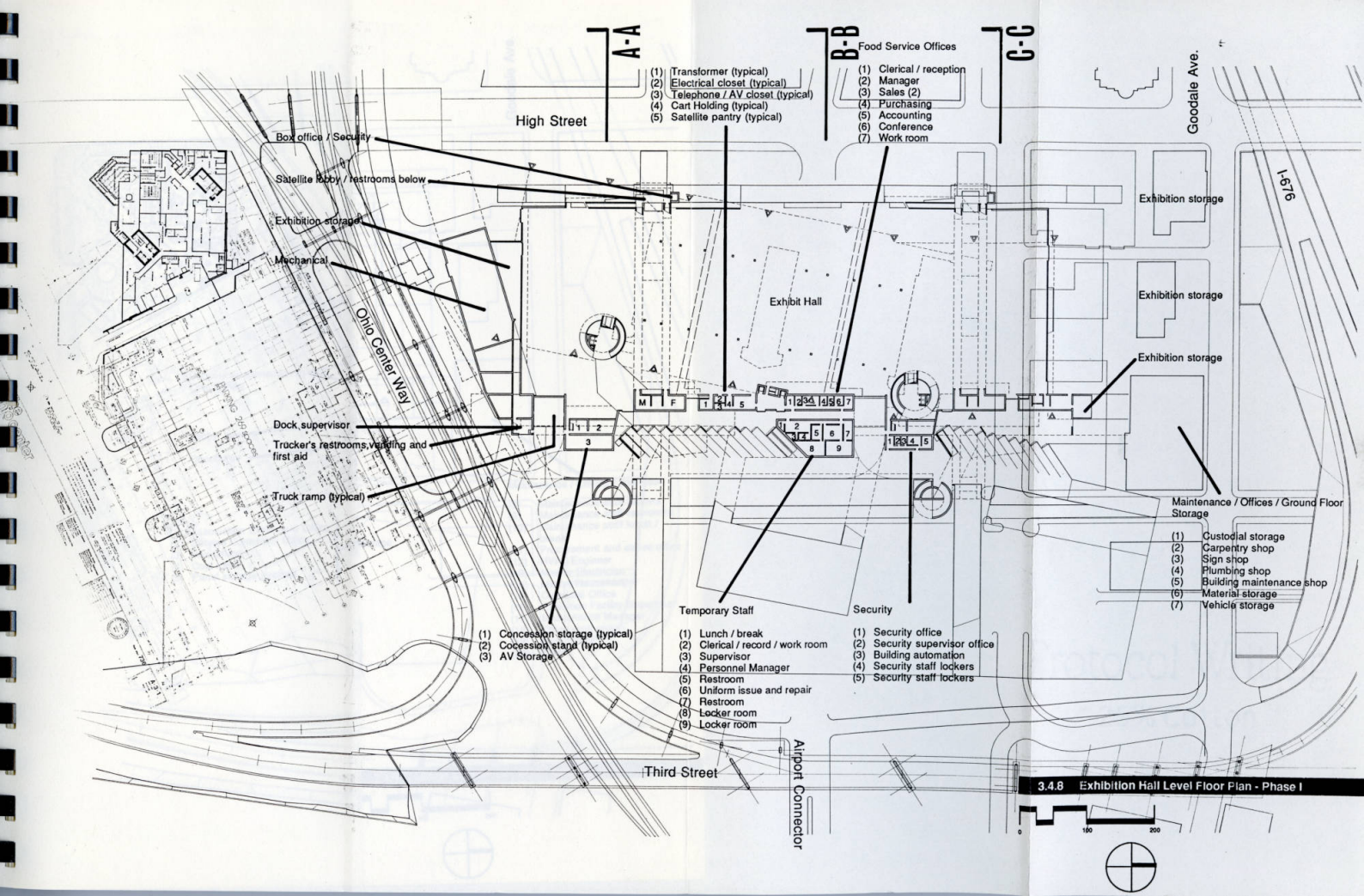
3.4.5 Vehicular Traffic Ingress - Phase II



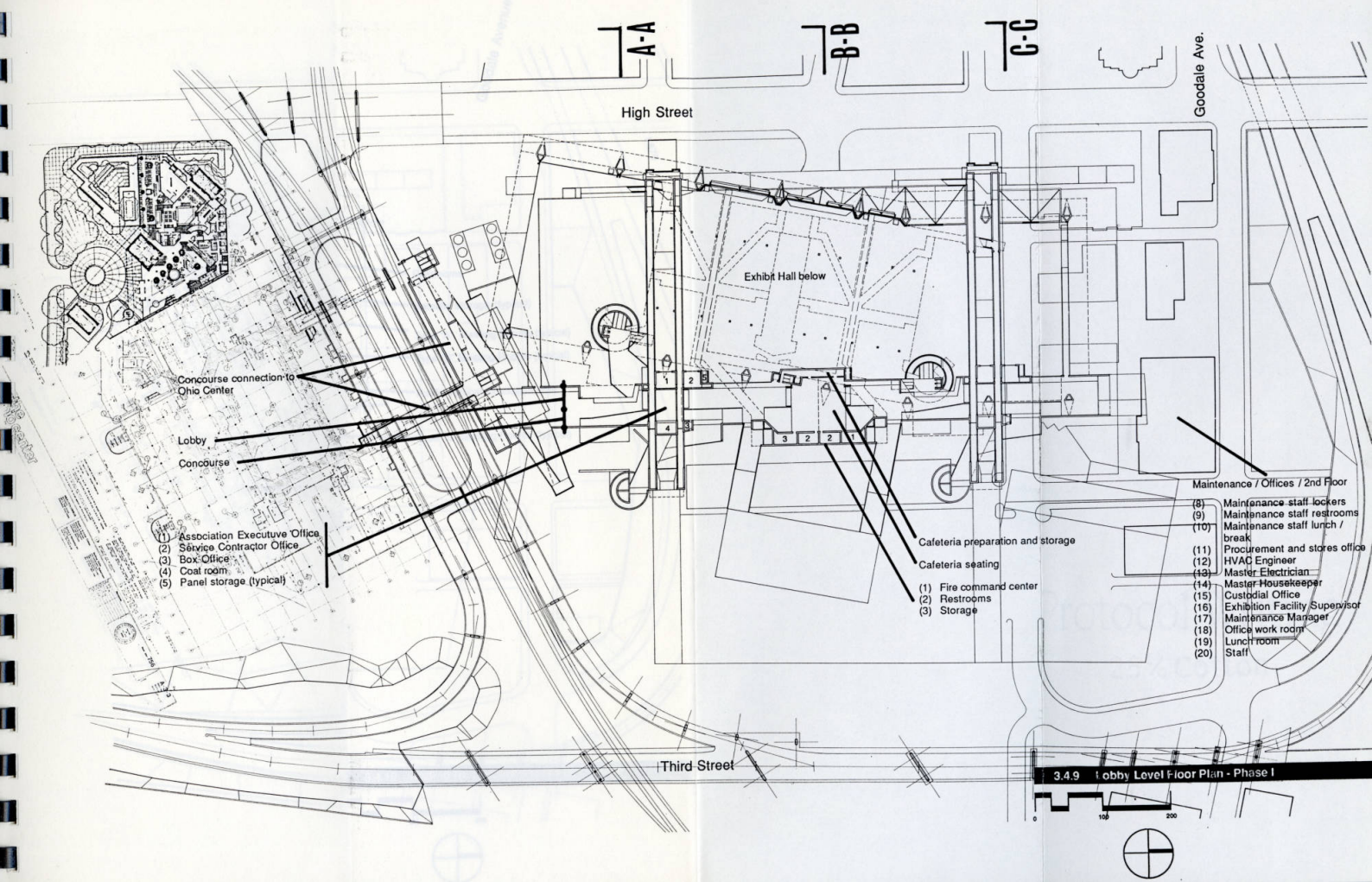
3.4.6 Vehicular Traffic Egress - Phase II



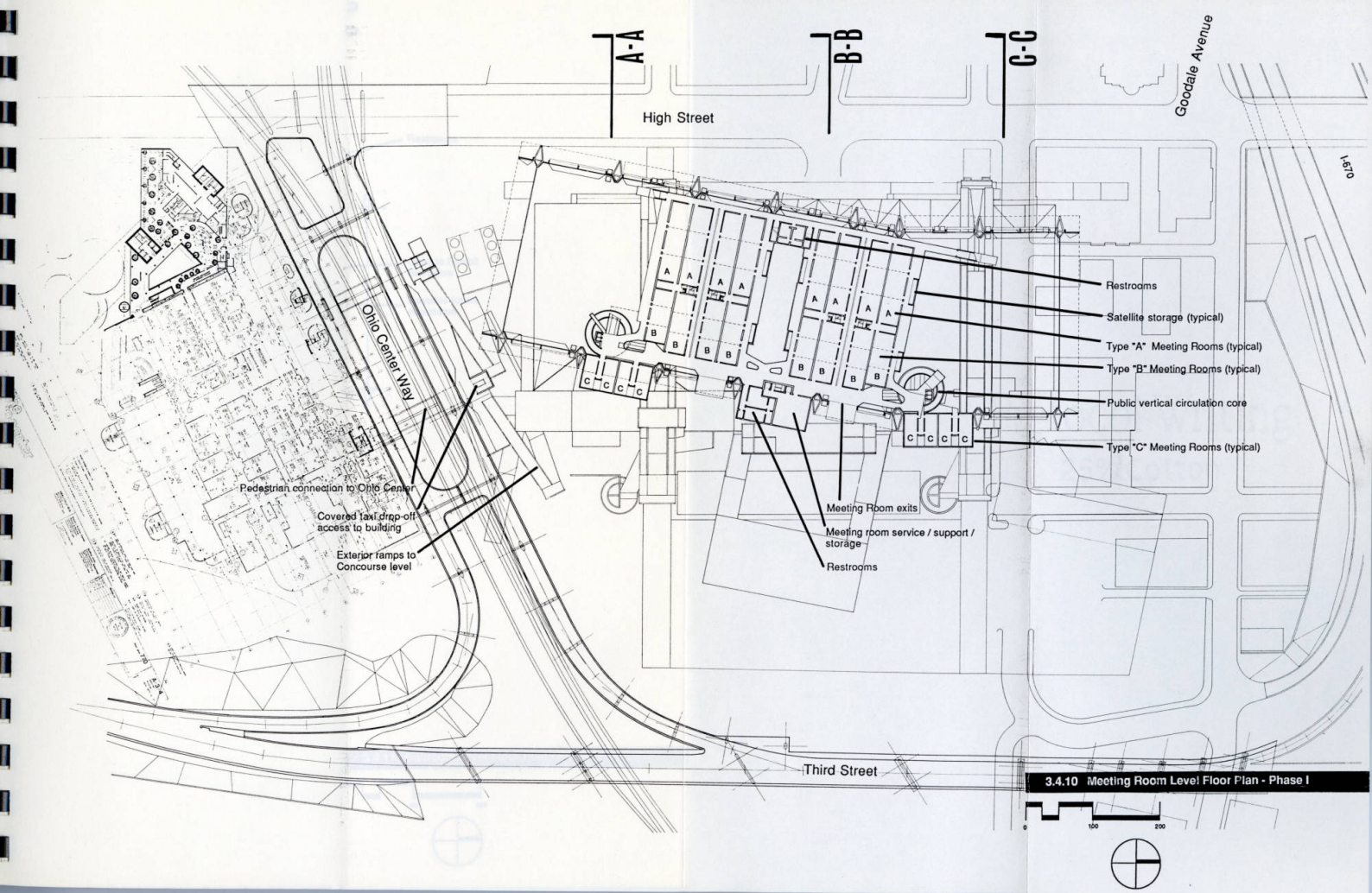
3.4.7 Aerial Perspective



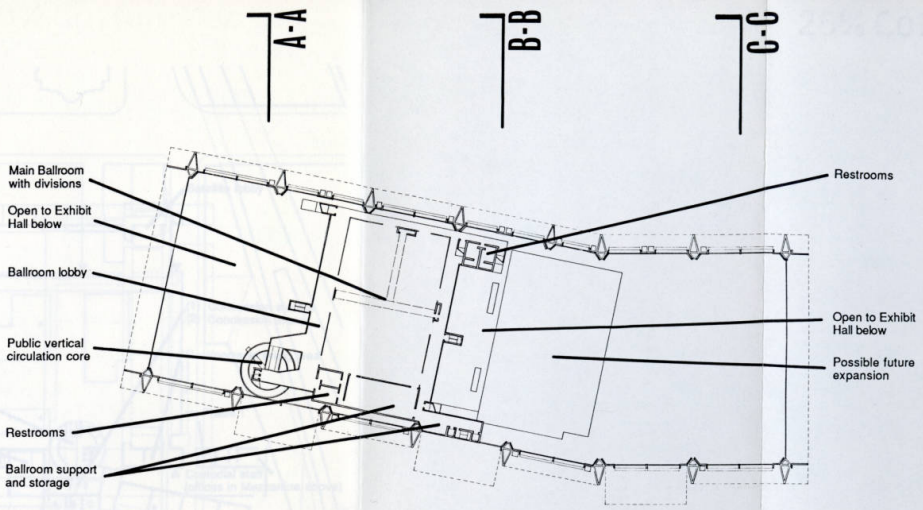
3.4.8 Exhibition Hall Level Floor Plan - Phase I



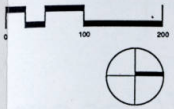
3.4.9 Lobby Level Floor Plan - Phase I

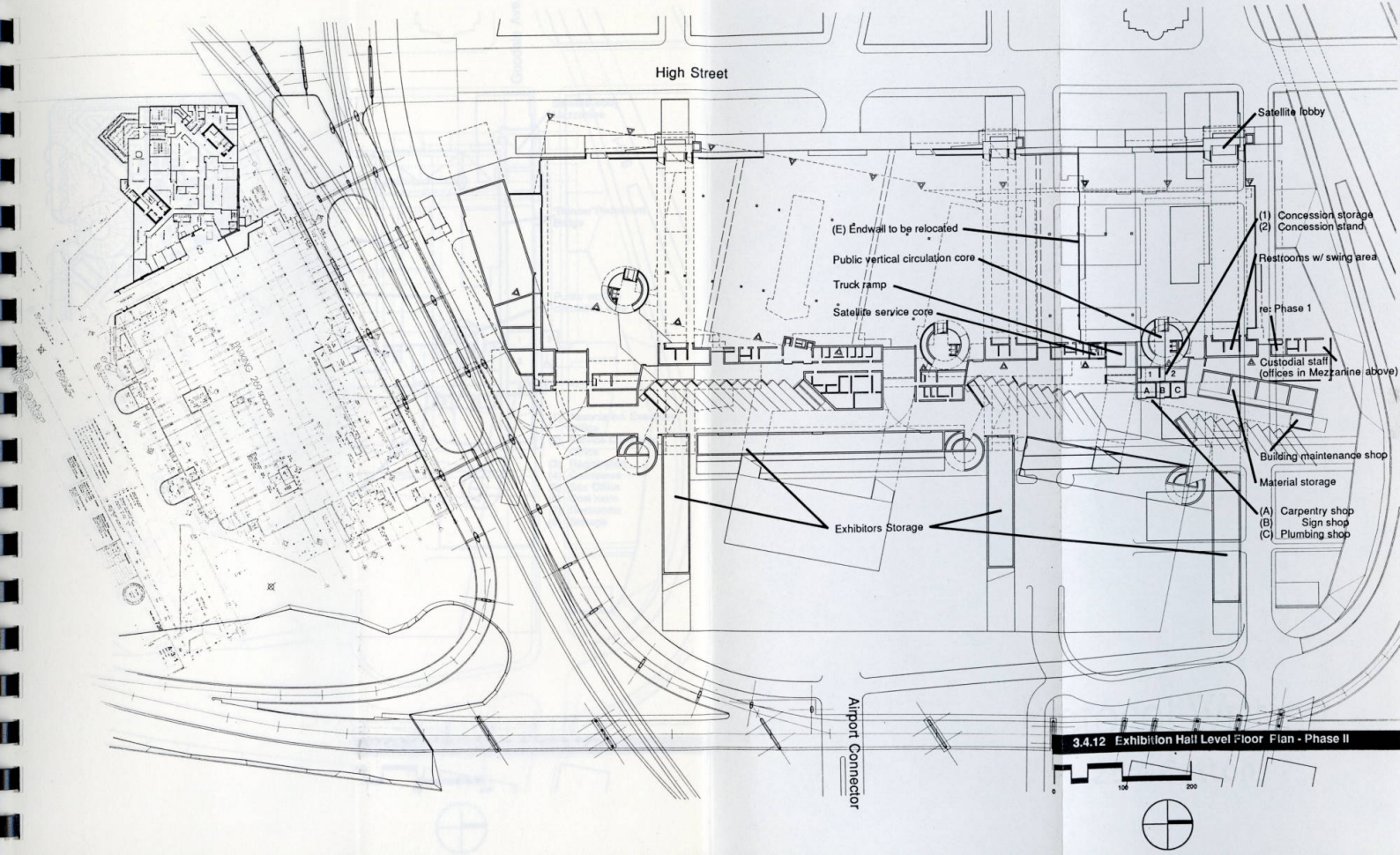


3.4.10 Meeting Room Level Floor Plan - Phase I

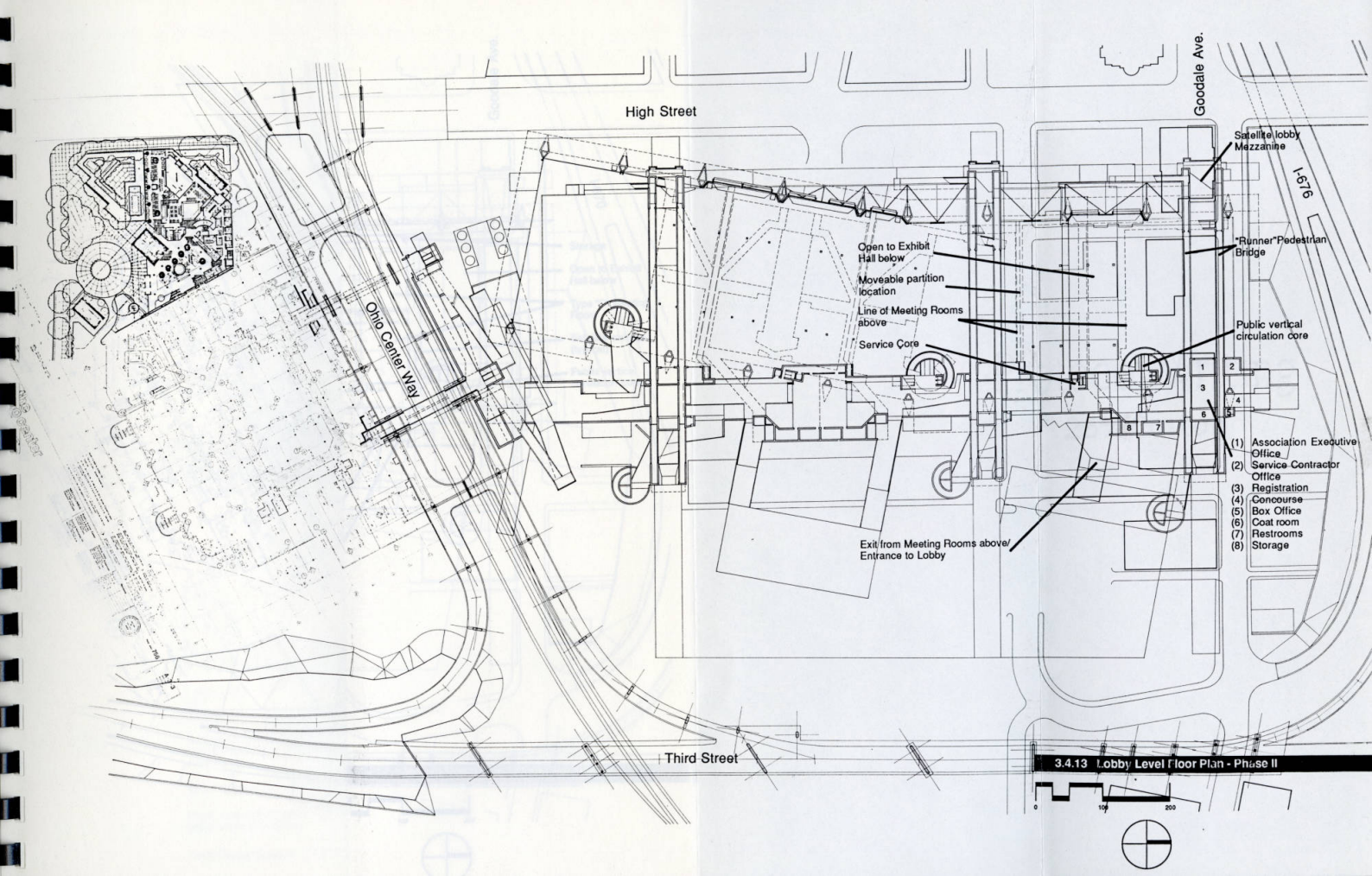


3.4.11 Ballroom Level Floor Plan - Phase I

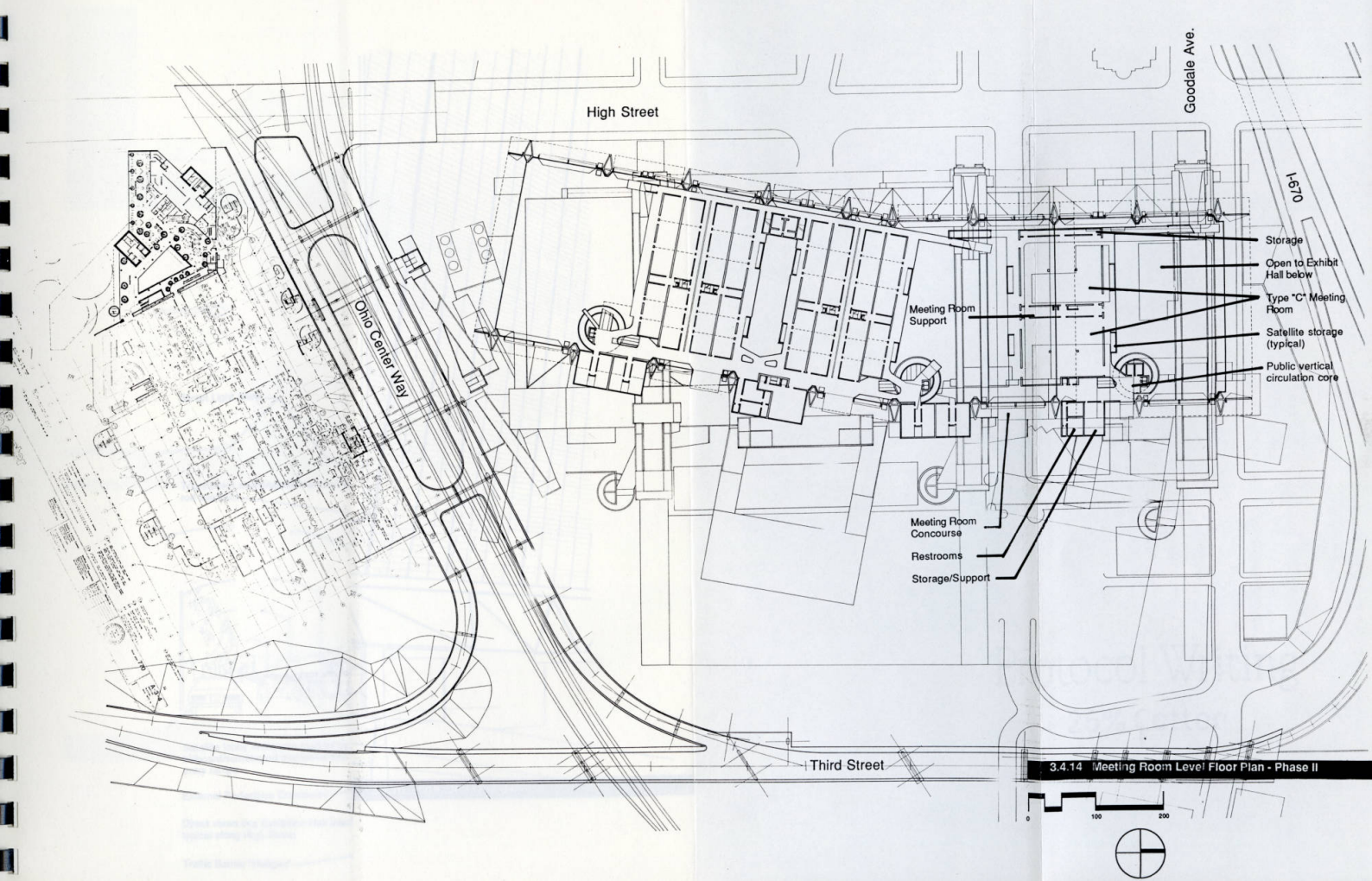




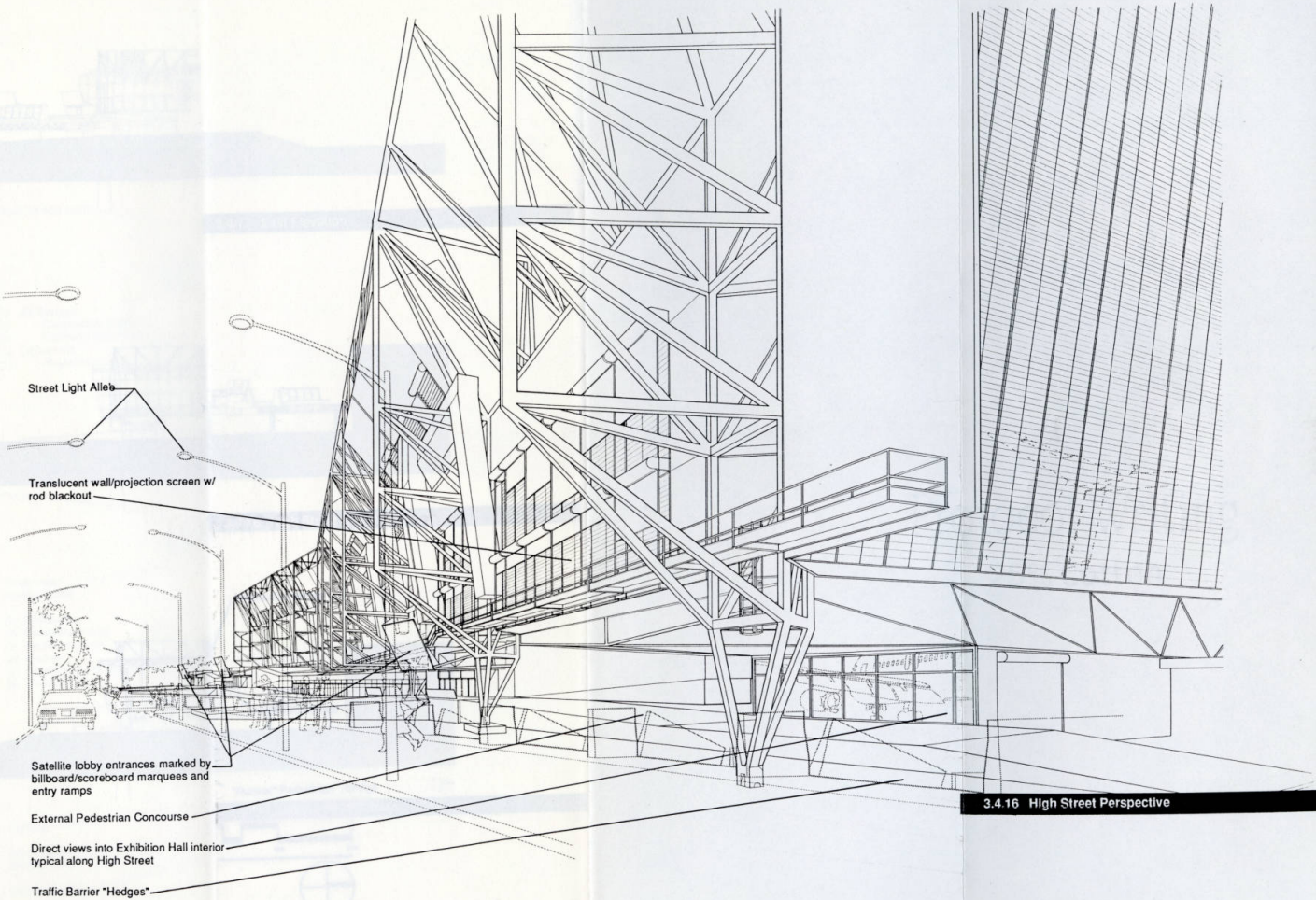
3.4.12 Exhibition Hall Level Floor Plan - Phase II



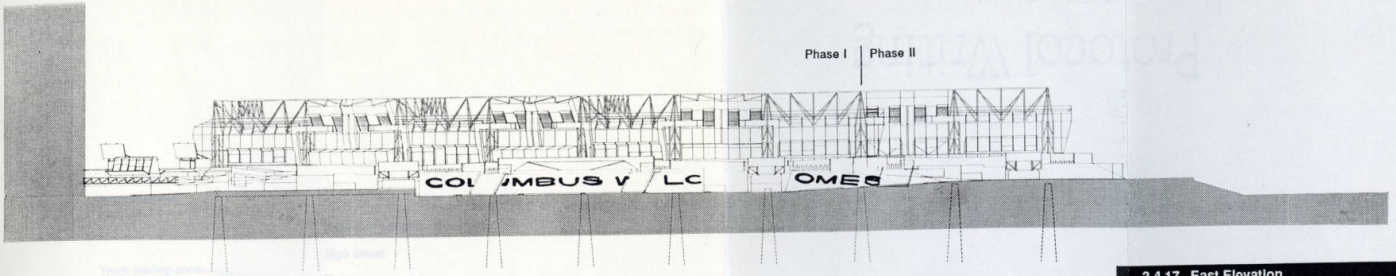
3.4.13 Lobby Level Floor Plan - Phase II



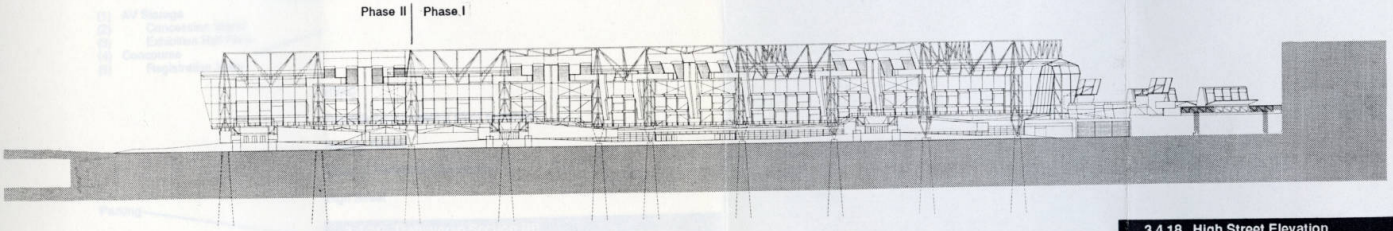
3.4.14 Meeting Room Level Floor Plan - Phase II



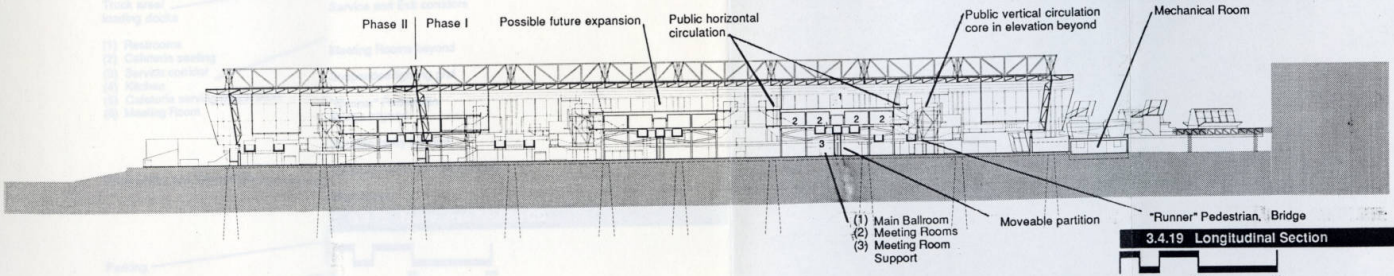
3.4.16 High Street Perspective



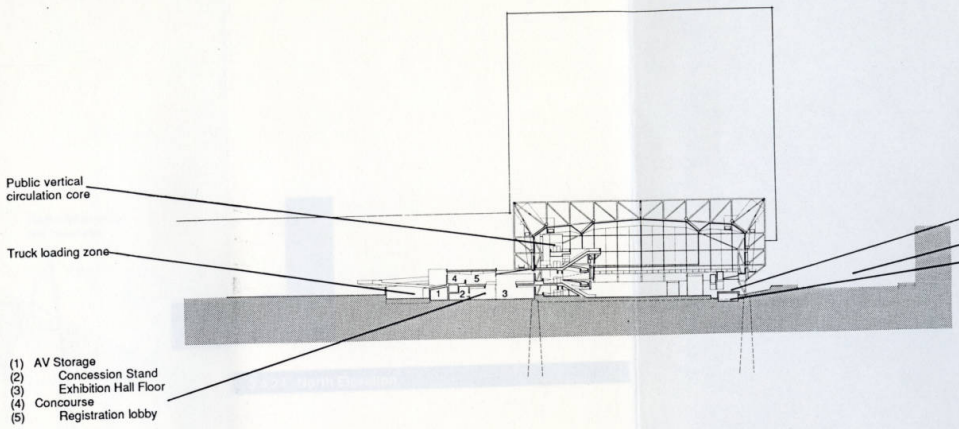
3.4.17 East Elevation



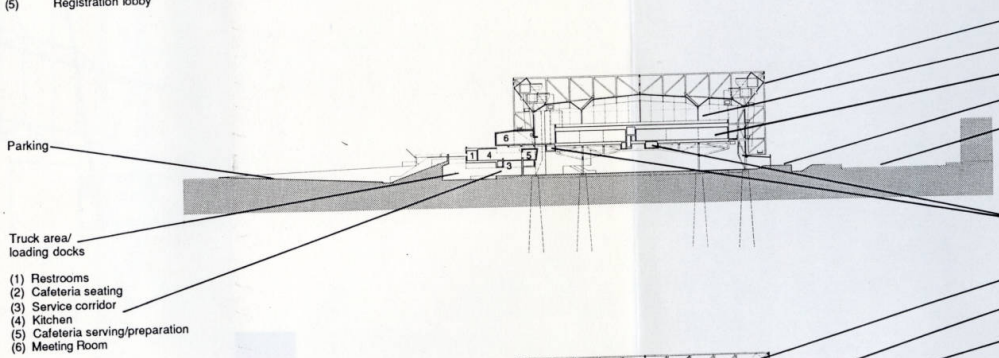
3.4.18 High Street Elevation



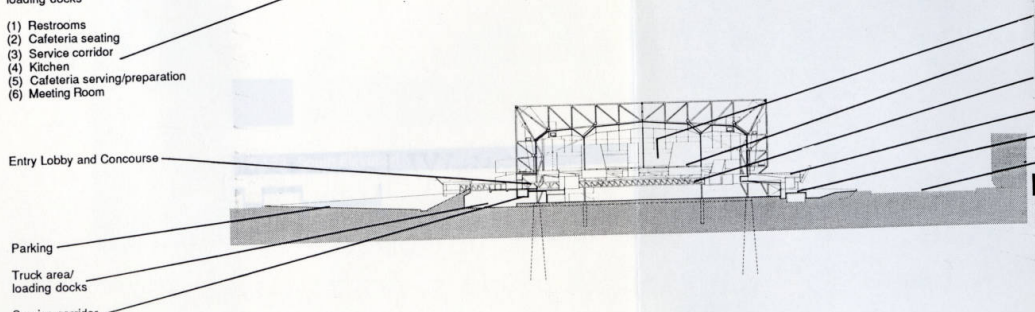
3.4.19 Longitudinal Section



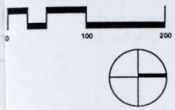
3.4.20 Transverse Section AA

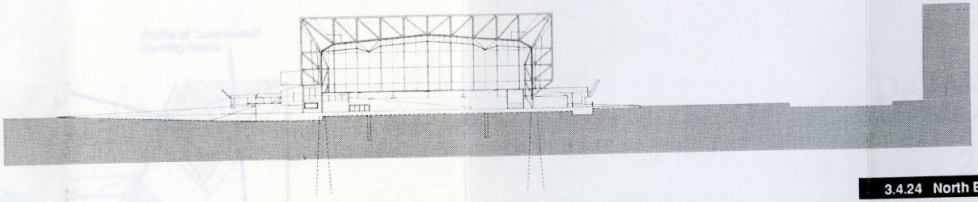


3.4.21 Transverse Section BB

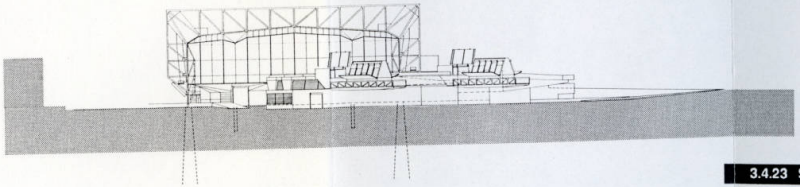


3.4.22 Transverse Section CC

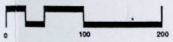


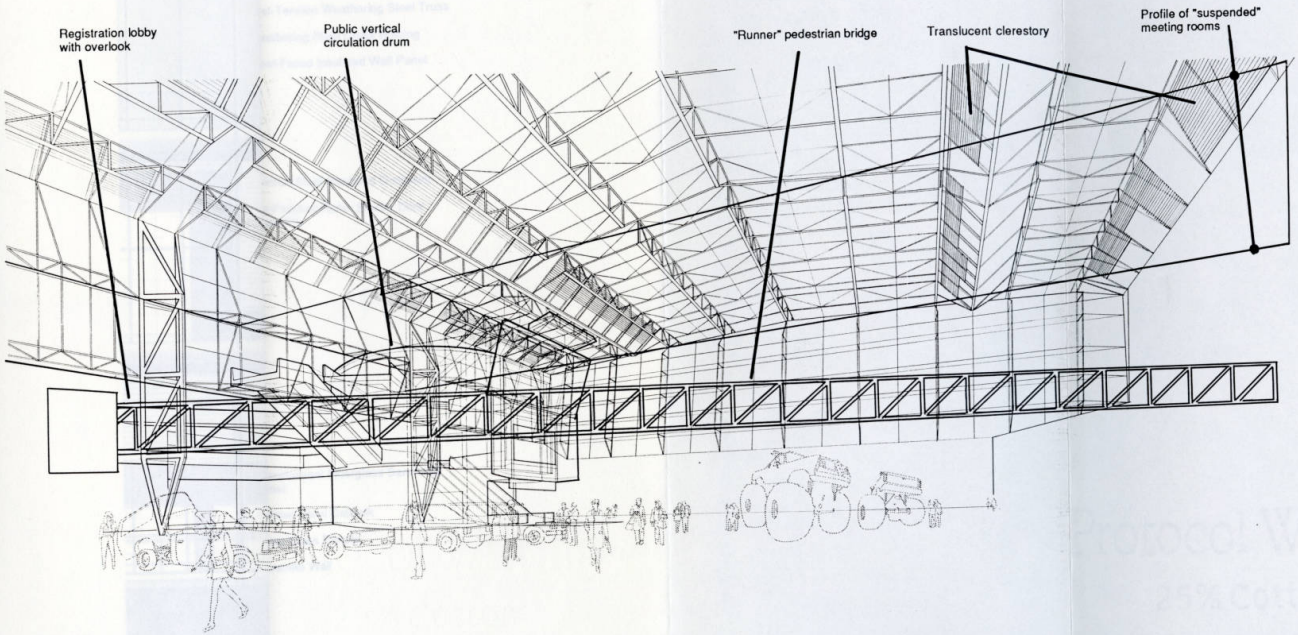


3.4.24 North Elevation

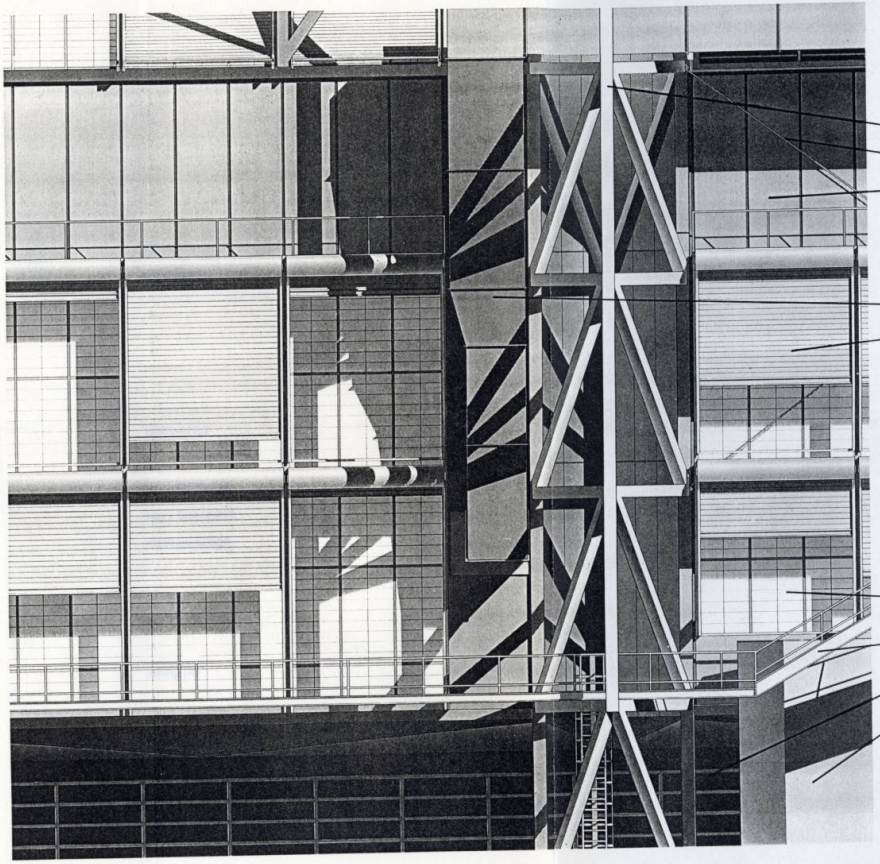


3.4.23 South Elevation



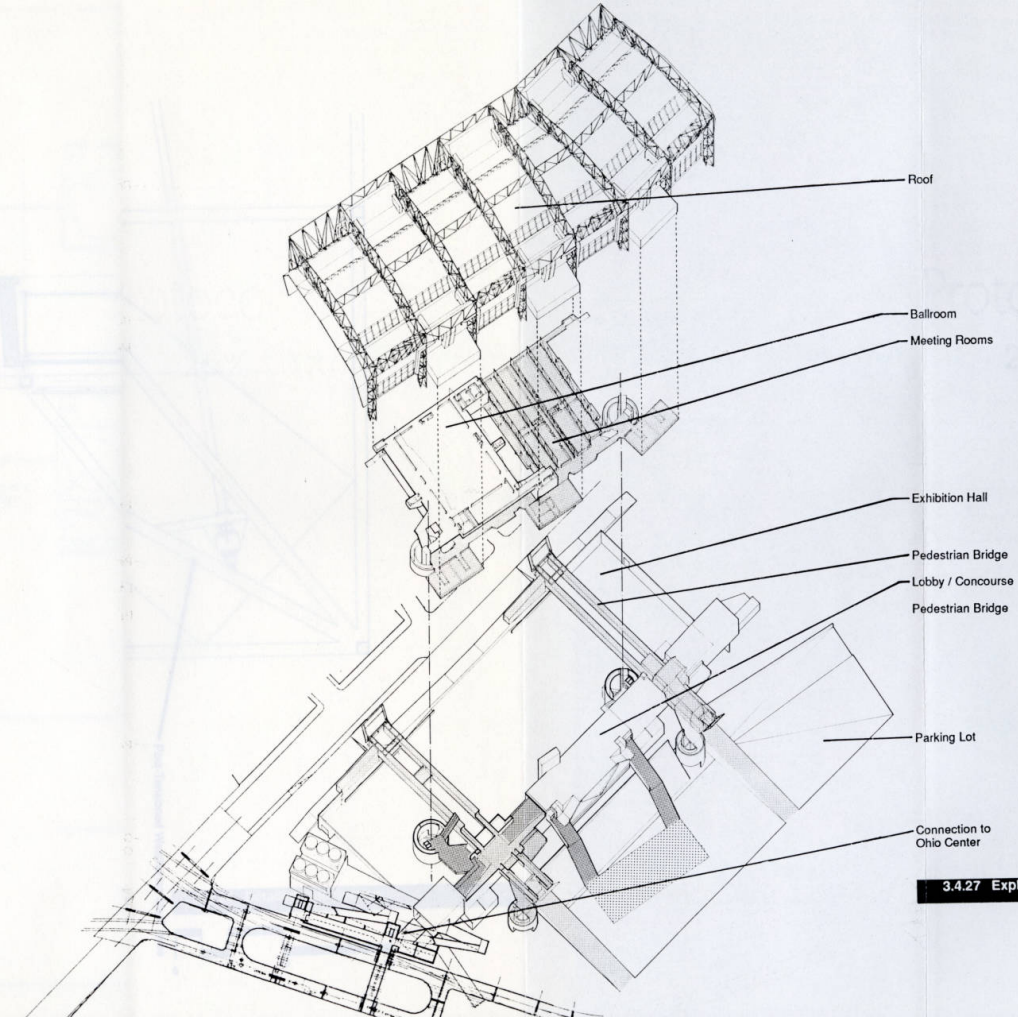


3.4.25 Exhibition Hall Interior Perspective

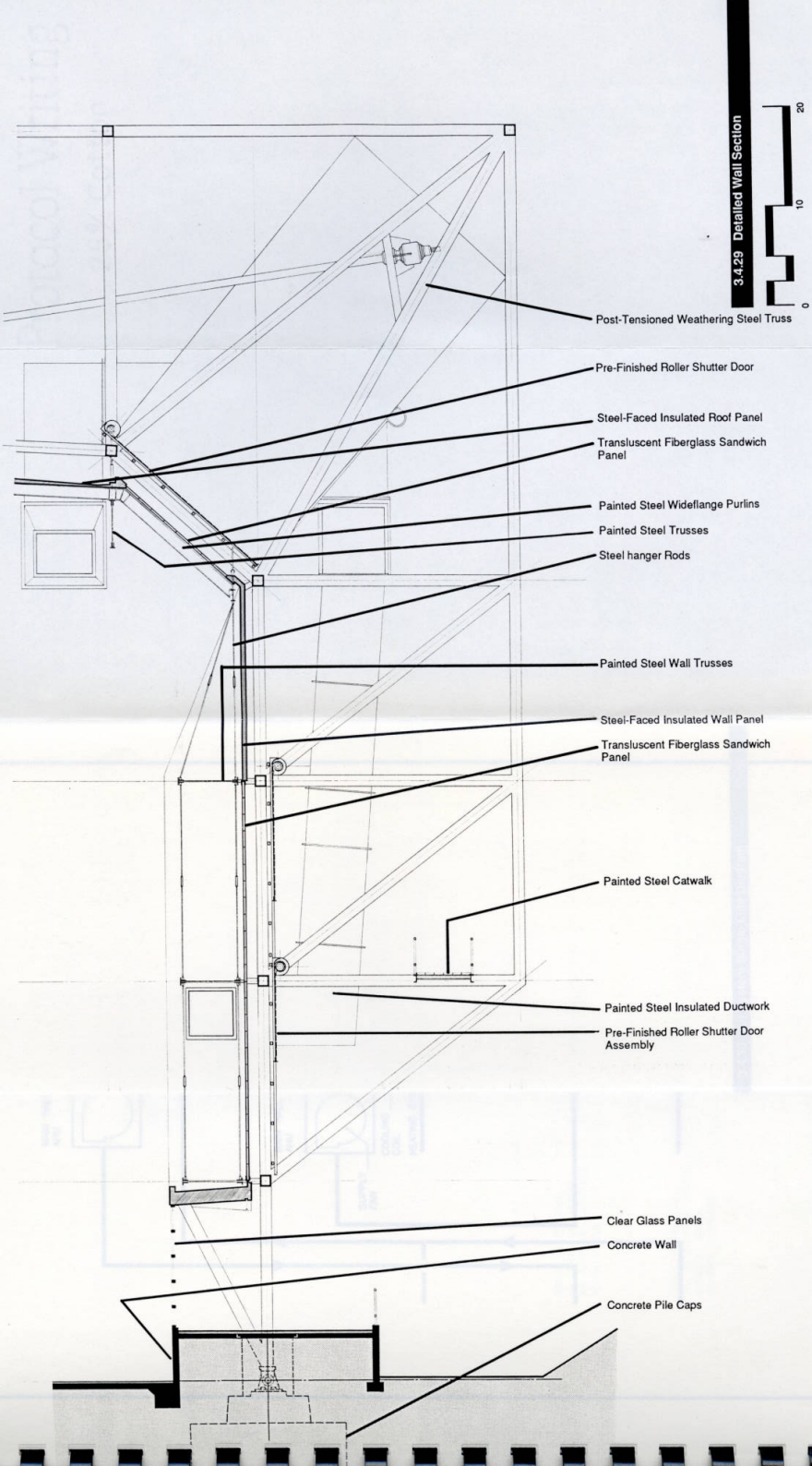


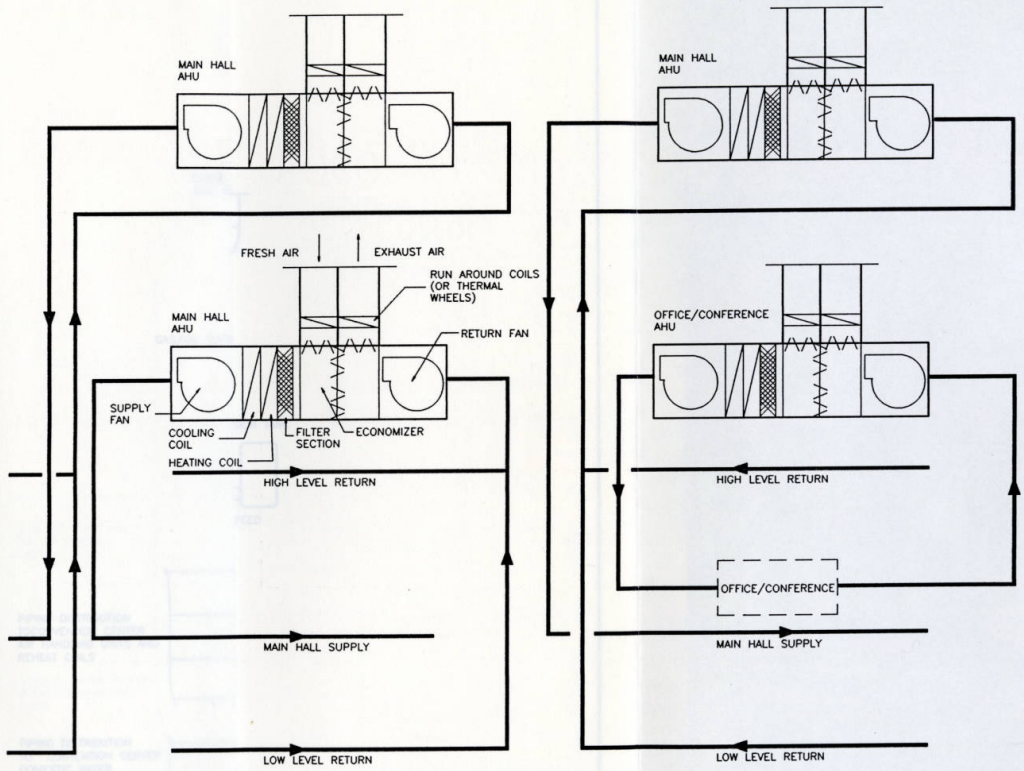
3.4.26 Detail Elevation

0 10 20



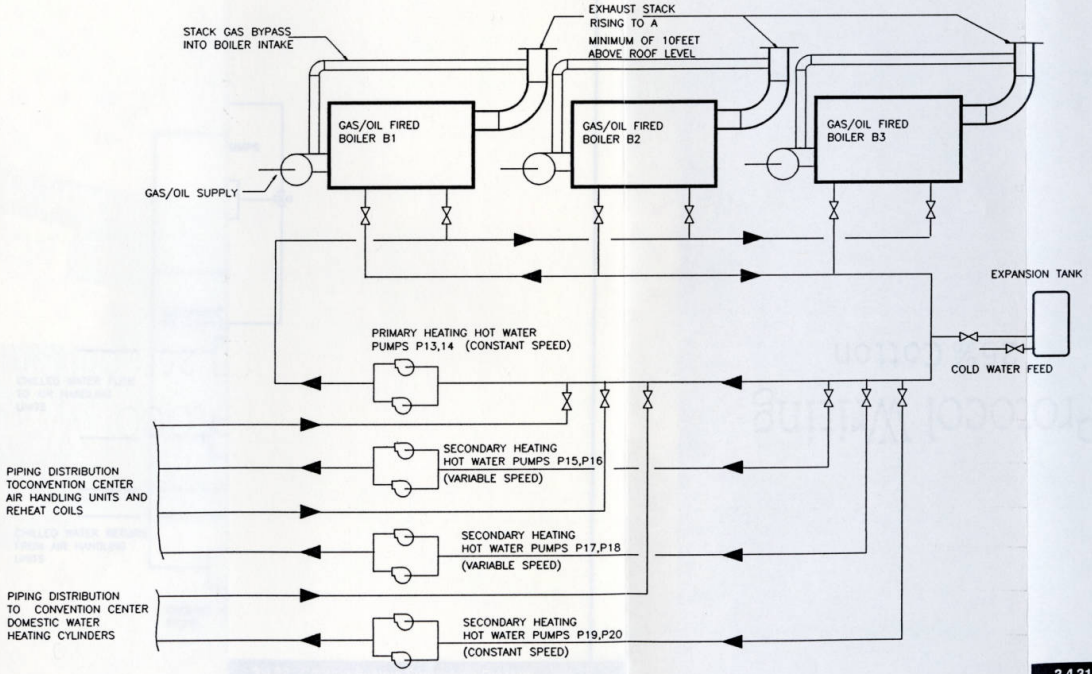
3.4.27 Exploded Axonometric


3.4.29 Detailed Wall Section
20
10
0
Post-Tensioned Weathering Steel Truss
Pre-Finished Roller Shutter Door
Steel-Faced Insulated Roof Panel
Transluscent Fiberglass Sandwich Panel
Painted Steel Wideflange Purlins
Painted Steel Trusses
Steel hanger Rods
Painted Steel Wall Trusses
Steel-Faced Insulated Wall Panel
Transluscent Fiberglass Sandwich Panel
Painted Steel Catwalk
Painted Steel Insulated Ductwork
Pre-Finished Roller Shutter Door Assembly
Clear Glass Panels
Concrete Wall
Concrete Pile Caps

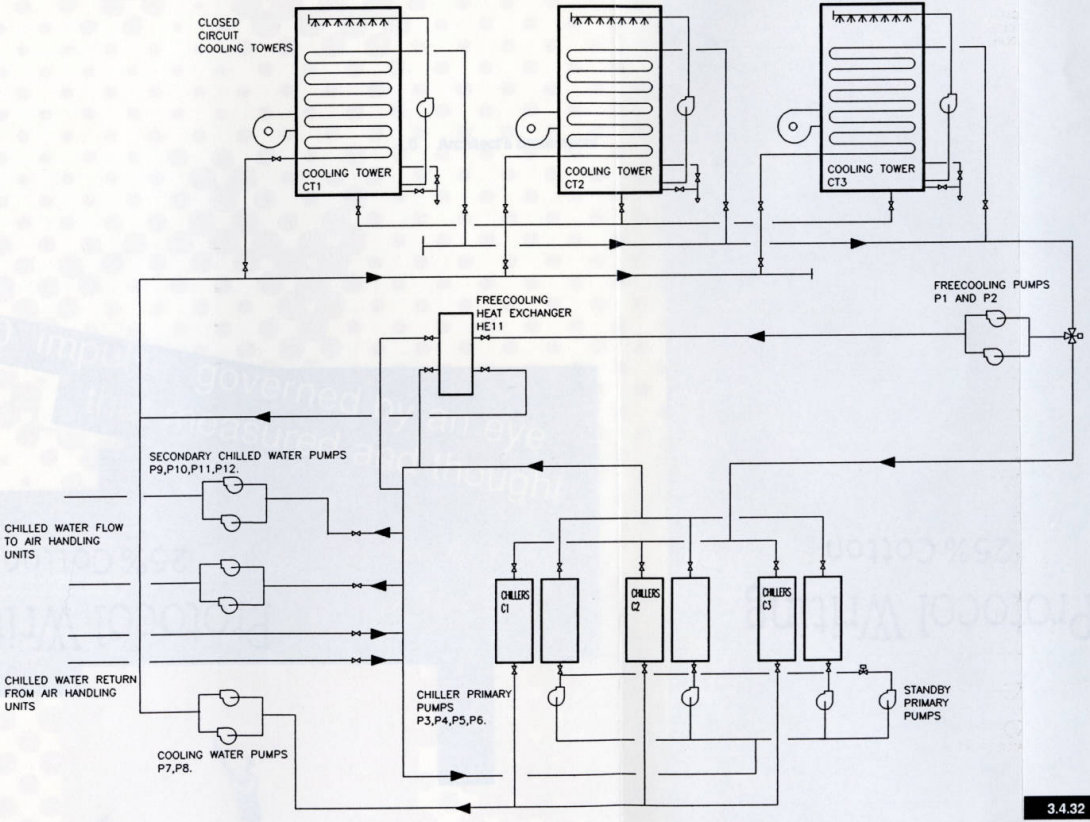


TYPICAL AIR HANDLING ROOM

3.4.30 Air System Single Line Diagram



3.4.31 Heating Hot Water Single Line Diagram



3.4.32 Cooling System Single Line Diagram

4.0 impulse, governed by an eye that measured and thought

...the question was understandably posed: 'What was the process of construction?' Here our opinions became tangled. My reply was that our creations had to spring from an irresistible impulse, governed by an eye that measured and thought with but one goal: the final result. The work was thus 'that which has been rendered conscious.'

Erich Bucholz, *Begegnung mit osteuropaischen Kunstlern*

Holt Hinshaw Pfau Jones
Architecture

New Tivoli
480 Green Street
San Francisco
CA 94133

Telephone
415 392 0204

8 March 1989

Competition Jury
Franklin County Convention Facilities Authority
c/o Mid-Ohio Regional Planning Commission
285 East Main Street
Columbus, Ohio 43215-5272

RE: COLUMBUS CONVENTION CENTER
ARCHITECT'S BUDGET & SCHEDULE STATEMENT

Members of the Jury:

Holt Hinshaw Pfau Jones Architecture, in accordance with the Competition Program, has examined the competition facility programs and addenda thereto, and state that we are aware of their contents. To the best of our professional judgment, knowledge and belief, and taking into account the changing nature of the information actually known as of the date of this statement, we believe that the building proposed and described in our submission can be competitively bid and constructed for the amount budgeted, and per the time schedule, subject to the requirements and comments set forth in the Competition Program and accompanying materials provided during the course of the competition by the Franklin County Convention Facilities.

Sincerely,
HOLT HINSHAW PFAU JONES

Marc Hinshaw

MCH/BG
CCCBSS

CONCEPTUAL ESTIMATE
FOR
COLUMBUS CONVENTION CENTER
COLUMBUS, OHIO
MARCH 15, 1989

CLIENT

HOLT HINSHAW PFAU JONES
NEW TIVOLI
480 GREEN STREET
SAN FRANCISCO, CA 94133

COST CONSULTANT

HANSCOMB ASSOCIATES INC.
750 BATTERY STREET, SUITE 400
SAN FRANCISCO, CA 94111

SF/

Hanscomb

INTRODUCTION

This cost estimate has been prepared to reflect the anticipated cost of construction of the proposed Columbus Convention Center in Columbus, Ohio. Hanscomb Associates have worked closely with the design team throughout the preliminary design process and our estimate is based on our understanding of the project from it's conception and the subsequent drawings produced by the Architect.

The cost is based on current prevailing price levels in the area.

Project:	Date:	Sheet No.:
COLUMBUS CONVENTION CENTER COLUMBUS, OHIO	MARCH 15, 1989	

Since Hanscomb has no control over the cost of labor, materials, or equipment, or over the contractor's method of determining prices, or over competitive bidding or market conditions, the opinion of probable construction cost provided for herein is made on the basis of professional experience and qualifications. The opinion represents Hanscomb's best judgment as a professional construction consultant familiar with the construction industry. However, Hanscomb cannot and does not guarantee that proposals, bids, or the construction cost will not vary from opinions of probable cost prepared by them.

Project:	Element:	Sheet No.:
COLUMBUS CONVENTION CENTER COLUMBUS, OHIO	SITE PREPARATION	1
	Date: MARCH 1989	Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Site clearance	800,000	SF	0.05	40,000	
Grade and compact top 6" over site	640,000	SF	0.30	192,000	
Demolition of (E) building	1	LS	175,000.00	175,000	Not buildings N. of Goodale, as assumed to be part of separate contract. DEMOLITION SECTION
Backfill to basements	1	LS	125,000.00	125,000	DEMOLITION SECTION
			Estimated Cost $	532,000	

Hanscomb

Project: COLUMBUS CONVENTION CENTER
COLUMBUS, OHIO

Element: SITE UTILITIES

Date: MARCH 1989

Sheet No.:

Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Water, including fire hydrants	1	LS	74,000.00	74,000	
Sanitary sewer and storm drainage system to parking area	1	LS	172,490.00	172,490	
Gas supply	1	LS	16,560.00	16,560	
Power supply	1	LS	66,500.00	66,500	
Telecommunications	1	LS	42,560.00	42,560	
Site lighting, allow.	1	LS	75,000.00	75,000	
Site utilities to parking area	1	LS	235,000.00	235,000	AUXILIARY PARKING LOT
Modification to (E) site utility lines, allow.	1	LS	50,000.00	50,000	
			Estimated Cost $	732,110	

Project: COLUMBUS CONVENTION CENTER
COLUMBUS, OHIO

Element: SITE IMPROVEMENTS

Date: MARCH 1989

Sheet No.:

Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Asphalt paving, complete on base, includes parking	666,000	SF	2.00	1,332,000	AUXILIARY PARKING LOT -$614,000
Pedestrian bridges, prefabricated type, non-rated	4	EA	265,000.00	1,060,000	
Spiral concrete ramps, complete with connections to structure	2	EA	100,000.00	200,000	
New loading docks with ramps, structure	22	EA	5,800.00	127,600	
Parking equipment, allow.	1	LS	100,000.00	100,000	
Ramps to pedestrian bridges, asphalt paving on earth fill	20,160	SF	8.00	161,280	
Miscellaneous modifications to (E) hardscape, allow.	1	LS	100,000.00	100,000	
Structure of (N) concourse to connect to Ohio center, allow.	20,000	SF	20.00	400,000	BRIDGE TO OHIO CENTER
Allowance for landscape and irrigation	1	LS	200,000.00	200,000	
			Estimated Cost $	3,680,880	

Project: COLUMBUS CONVENTION CENTER
COLUMBUS, OHIO

Element: EXCAVATION AND FOUNDATIONS

Sheet No.:

Date: MARCH 1989

Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Driven steel piles, 100' long, 89#	60,000	LF	35.00	2,100,000	
Pile caps, reinforced, complete	1,770	CY	300.00	531,000	
Ties, 7 #12 bars wrapped in bitumen impregnated tape in 6" plastic pipe	106,624	#	1.00	106,624	
E.O. for pipe, concrete, etc.	2,176	LF	12.00	26,112	
8" slab on grade on 8" gravel base	223,000	SF	4.00	892,000	
4" slab on grade on 8" gravel base	24,000	SF	2.80	67,200	
			Estimated Cost $	3,722,936	

Project: COLUMBUS CONVENTION CENTER
COLUMBUS, OHIO

Element: STRUCTURE

Date: MARCH 1989

Sheet No.:

Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Structural steel trusses, beams, bracing to entire structure	4,797	TON	1,550.00	7,435,350	
3" metal deck	257,060	SF	1.35	347,031	
Fireproofing, allow.	1	LS	250,000.00	250,000	
Concrete fill to metal deck, complete with mesh	257,060	SF	2.00	514,120	
Steel catwalks, exterior	2,000	LF	200.00	400,000	
Miscellaneous metals, allow.	1	LS	100,000.00	100,000	
Structure to mechanical and electrical building, "Butler-type" building construction	25,000	SF	40.00	1,000,000	
			Estimated Cost $	10,046,501	

Project:	Element:	Sheet No.:
COLUMBUS CONVENTION CENTER COLUMBUS, OHIO	EXTERIOR CLOSURE	
	Date: MARCH 1989	Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
"Kalwall" system to exterior walls	56,750	SF	18.00	1,021,500	
Overhead rolling doors over Kalwall for blackout	35,840	SF	28.00	1,003,520	
Studs for metal panel wall	142,550	SF	2.00	285,100	
Metal panel system walling	142,550	SF	6.50	926,575	
Hollow metal doors, complete with frame and hardware, allow.	38	PR	2,500.00	95,000	
Allowance for sealants and caulking	1	LS	100,000.00	100,000	
Storefront wall system, allow	20,700	SF	28.00	579,600	
Paint to exterior ductwork, allow.	1	LS	50,000.00	50,000	
Miscellaneous metal, allow.	1	LS	100,000.00	100,000	
Paint soffit of upper structure at overhang	1	LS	20,000.00	20,000	
			Estimated Cost $	4,181,295	

Project: COLUMBUS CONVENTION CENTER COLUMBUS, OHIO	Element: ROOFING AND WATERPROOFING	Sheet No.:
	Date: MARCH 1989	Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Premanufactured metal panel roofing system, complete	188,100	SF	4.80	902,880	
Kalwall system at roof sections	43,200	SF	25.00	1,080,000	
Gutters, galvanized metal, allow.	1	LS	30,000.00	30,000	
Downpipes, ditto, allow	6,000	LF	10.00	60,000	
Allowance for flashings, copings, sheet metal	1	LS	50,000.00	50,000	
Built-up roofing to lower level structure	21,200	SF	2.50	53,000	
Dexotex walkable roofing system with insulation	25,620	SF	8.50	217,770	
			Estimated Cost $	2,393,650	

Project:	Element:	Sheet No.:
COLUMBUS CONVENTION CENTER COLUMBUS, OHIO	INTERIOR CONSTRUCTION Date: MARCH 1989	Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
The following areas follow the program and rates include the total fitting out of these areas, i.e. drywall, floor, wall and ceiling finishes:					
Exhibit hall	216,000	SF	7.00	1,512,000	
Restrooms	8,000	SF	23.00	184,000	
Storage and service closets	23,000	SF	10.00	230,000	
Lobby entry/registration	25,400	SF	23.00	584,200	
Box offices	300	SF	23.00	6,900	
Check and First Aid rooms	1,335	SF	16.00	21,360	
Offices	4,290	SF	18.00	77,220	
Restrooms (staff)	260	SF	23.00	5,980	
Concourse	20,000	SF	16.00	320,000	
Food service	26,000	SF	23.00	598,000	
			Estimated Cost $		

Project: COLUMBUS CONVENTION CENTER
COLUMBUS, OHIO

Element: INTERIOR CONSTRUCTION

Date: MARCH 1989

Sheet No.:

Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Meeting rooms and support	76,700	SF	13.00	997,100	
Ball room and support	32,500	SF	15.00	487,500	
Loading docks	0		0.00	0	No Finishes
Dock offices	300	SF	13.00	3,900	
Restrooms	300	SF	23.00	6,900	
Security	1,400	SF	14.00	19,600	
Storage and shops	17,700	SF	10.00	177,000	
Restrooms	200	SF	23.00	4,600	
Offices for services	5,100	SF	14.00	71,400	
General circulation	15,100	SF	16.00	241,600	
Glazing at ballroom	8,580	SF	30.00	257,400	
			Estimated Cost $	5,806,660	

Project: COLUMBUS CONVENTION CENTER
COLUMBUS, OHIO

Element: SPECIALTIES

Date: MARCH 1989

Sheet No.:

Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Large moveable wall in exhibit hall, 32' high	8,580	SF	40.00	343,200	
Moveable partitions in meeting rooms, 15' high	13,000	SF	35.00	455,000	
Toilet partitions and accessories, allow	1	LS	100,000.00	100,000	
Fire extinguisher and cabinets, allow	1	LS	10,000.00	10,000	
Graphics and signage	1	LS	250,000.00	250,000	
Acoustical treatment, allow	1	LS	100,000.00	100,000	
Miscellaneous specialties, allow	1	LS	100,000.00	100,000	
			Estimated Cost $	1,358,200	

Project: COLUMBUS CONVENTION CENTER
COLUMBUS, OHIO

Element: VERTICAL TRANSPORTATION

Date: MARCH 1989

Sheet No.:

Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Passenger elevator	4	EA	70,000.00	280,000	
Service elevator	2	EA	55,000.00	110,000	
Escalator	10	EA	100,000.00	1,000,000	
Straight metal pan fill ramps	2	EA	70,000.00	140,000	
Steel circular ramps with concrete fill	2	EA	100,000.00	200,000	
Stairs, complete with handrails etc., metal pan with concrete fill	20	EA	10,000.00	200,000	
			Estimated Cost $	1,930,000	

Project:	Element:	Sheet No.:
COLUMBUS CONVENTION CENTER COLUMBUS, OHIO	Date: EQUIPMENT AND FURNISHINGS MARCH 1989	Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Assumptions made as per Turner estimate of Dec. '88. re: items included in this budget					
Loading dock equipment	1	LS	130,000.00	130,000	
Trash compactors	4	EA	15,000.00	60,000	
			Estimated Cost $	190,000	

Project:	Element:	Sheet No.:
COLUMBUS CONVENTION CENTER COLUMBUS, OHIO	PLUMBING Date: MARCH 1989	Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Equipment and Fixtures					
Water heater:					
general gas/oil	2	EA	20,000.00	40,000	
kitchen	2	EA	25,000.00	50,000	
Pump:					
DHW recirc.	2	EA	1,000.00	2,000	
sump/misc.	6	EA	5,000.00	30,000	
Grease interceptor	1	EA	15,000.00	15,000	
Fixtures w/piping	450	EA	1,600.00	720,000	
Drain:					
floor/sink	60	EA	500.00	30,000	
roof/overflow	200	EA	160.00	32,000	
Misc. equipment	1	LS	10,000.00	10,000	
Exh. outlet:					
floor W/G/CW w/piping	650	EA	800.00	520,000	
wall G/CW	70	EA	500.00	35,000	
			Estimated Cost $		

Project:	Element:	Sheet No.:
COLUMBUS CONVENTION CENTER COLUMBUS, OHIO	PLUMBING Date: MARCH 1989	Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Misc. Pipe and Accessories					
Pipe:					
storm	27,500	LF	15.00	412,500	
gas	1,000	LF	30.00	30,000	
Valves and specs.	1	LS	25,000.00	25,000	
			Estimated Cost $	1,951,500	

Hanscomb

Project: COLUMBUS CONVENTION CENTER
COLUMBUS, OHIO

Element: H.V.A.C.

Date: MARCH 1989

Sheet No.:

Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Equipment					
Boiler:					
HW/gas/oil/2500 mbh	3	EA	20,000.00	60,000	
steam/kitchen	2	EA	15,000.00	30,000	
Chiller, centrif. 500 tons	3	EA	150,000.00	450,000	
Cooling tower, 650 tons	3	EA	35,000.00	105,000	
Pumps:					
HW/primary/secondary	6	EA	5,000.00	30,000	
CHW/primary/secondary	10	EA	6,000.00	60,000	
cond.	3	EA	6,500.00	19,500	
oil	2	EA	2,000.00	4,000	
Water treatment	1	LS	12,000.00	12,000	
Tank:					
expansion	2	EA	1,500.00	3,000	
oil u/g	2	EA	25,000.00	50,000	
oil/ day	2	EA	1,500.00	3,000	
Misc. accs.	1	LS	50,000.00	50,000	
AHU, 85000cfm/S fan/H&C coil/ filts	12	EA	90,000.00	1,080,000	
			Estimated Cost $		

Project:	Element:	Sheet No.:
COLUMBUS CONVENTION CENTER COLUMBUS, OHIO	H. V. A. C. Date: MARCH 1989	Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
AHU, mtg. rooms/kit. etc.	4	EA	50,000.00	200,000	
Make-up air/kitchen	2	EA	15,000.00	30,000	
Fan:					
toilets, etc.	15	EA	2,000.00	30,000	
kitchen	6	EA	5,000.00	30,000	
misc.	10	EA	2,500.00	25,000	
Misc. equipment	1	LS	100,000.00	100,000	
Ductwork and Accessories					
Ductwork and accs.	375,000	#	3.25	1,218,750	
Air outlets, etc.	1	LS	250,000.00	250,000	
Pipework and Accessories					
Pipe:					
steam and condensate	1	LS	50,000.00	50,000	
HW w/ins.	1	LS	350,000.00	350,000	
CHW	1	LS	450,000.00	450,000	
condenser	1	LS	75,000.00	75,000	
oil	1	LS	35,000.00	35,000	
			Estimated Cost $		

Project: COLUMBUS CONVENTION CENTER
COLUMBUS, OHIO

Element: H. V. A. C.

Date: MARCH 1989

Sheet No.:

Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Valves and specs.	1	LS	200,000.00	200,000	
Controls/Test					
Control system	1	LS	350,000.00	350,000	
Test	1	LS	60,000.00	60,000	
Balance	1	LS	75,000.00	75,000	
			Estimated Cost $	5,485,250	

Project:	Element:	Sheet No.:
COLUMBUS CONVENTION CENTER COLUMBUS, OHIO	FIRE PROTECTION	
	Date: MARCH 1989	Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Fire sprinkling system	527,512	SF	1.60	844,019	
Fire pump	1	EA	40,000.00	40,000	
Fire pump jockey	1	EA	3,500.00	3,500	
			Estimated Cost $	887,519	

Hanscomb

Project: COLUMBUS CONVENTION CENTER
COLUMBUS, OHIO

Element: ELECTRICAL

Date: MARCH 1989

Sheet No.:

Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
SITE UTILITIES					
EXCLUDED FROM THIS SCOPE					
SERVICE & DISTRIBUTION					
13.8kV substation 2 pos	1	EA	26,000	26,000	
4.8kV substation 6 position	1	EA	47,000	47,000	
Chiller substation					
main switch	1	EA	6,500	6,500	
2.5 Mva xfmer	1	EA	36,000	36,000	
5 kv ckt breakers	3	EA	7,500	22,500	
Unit substation 1.5 Mva	1	EA	72,000	72,000	
Unit substation 1.0 Mva	4	EA	62,000	248,000	
Emergency generator 600kw	1	EA	125,000	125,000	
Auto transfer switch, 400a	4	EA	8,500	34,000	
Distribution panels					
480/277v 800a	17	EA	4,600	78,200	
208/120v 800a	17	EA	5,600	95,200	
emergency	4	EA	7,500	30,000	
225kva transformer	17	EA	7,200	122,400	
Motor control centers	10	EA	15,000	150,000	
			Estimated Cost $		

Project: COLUMBUS CONVENTION CENTER
COLUMBUS, OHIO

Element: ELECTRICAL

Date: MARCH 1989

Sheet No.:

Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Motor connections					
chiller	3	EA	7,500	22,500	
200hp	3	EA	1,500	4,500	
100hp	3	EA	750	2,250	
to 60hp	20	EA	610	12,200	
to 40hp	40	EA	350	14,000	
to 15hp	25	EA	150	3,750	
to 5hp	75	EA	110	8,250	
Safety switch, ave	150	EA	450	67,500	
Panels					
42 ckt 225a mlo 480/277v	35	EA	2,850	99,750	
42 ckt 225a mcb 208/120v	50	EA	1,700	85,000	
30 ckt emerg	15	EA	1,500	22,500	
Feeders					
12kv	4,000	LF	45	180,000	
5kv	5,000	LF	27	135,000	
480v	19,000	LF	12	228,000	
208v	15,000	LF	8	120,000	
Service & Distribution, subtotal				2,098,000	
			Estimated Cost $		

Hanscomb

Project: COLUMBUS CONVENTION CENTER
COLUMBUS, OHIO

Element: ELECTRICAL

Date: MARCH 1989

Sheet No.:

Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Exhibit Hall					
Floor boxes, 120v	650	EA	125	81,250	
Floor boxes, 480v	70	EA	400	28,000	
Misc outlets	700	EA	75	52,500	
Branch circuits	30,000	LF	8	240,000	
Lighting support grid	10,000	LF	15	150,000	
400w mv hibay lighting units	400	EA	550	220,000	
175w mv lo bay lighting units	175	EA	275	48,125	
Exit signs	75	EA	150	11,250	
Fluorescent ltg units	125	EA	200	25,000	
Flood light clusters	20	EA	6,000	120,000	
Lighting controls	14	EA	5,000	70,000	
Lighting circuits	42,000	LF	5	210,000	
Exhibit Hall, Subtotal				1,256,125	
Ballroom					
Lighting	25,000	SF	3.50	87,500	
Dimming system	1	LS	50,000.00	50,000	
Misc devices	25,000	SF	2.50	62,500	
Panels	1	LS	20,000.00	20,000	
Ballroom Subtotal				220,000	
			Estimated Cost $		

Project: COLUMBUS CONVENTION CENTER
COLUMBUS, OHIO

Element: ELECTRICAL

Date: MARCH 1989

Sheet No.:

Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Meeting Rooms					
Lighting	59,000	SF	3.50	206,500	
Dimming system	1	LS	50,000.00	50,000	
Misc devices	59,000	SF	2.50	147,500	
Panels	1	LS	40,000.00	40,000	
Meeting Rooms, Subtotal				444,000	
Food Service					
Lighting	20,000	SF	2.50	50,000	
Equipment	20,000	SF	3.00	60,000	
Branch circuits	20,000	SF	2.25	45,000	
Communication	20,000	SF	1.25	25,000	
Misc devices	20,000	SF	1.75	35,000	
Food Service, Subtotal				215,000	
Misc Areas					
Lighting	187,000	SF	3.00	561,000	
Misc devices	187,000	SF	2.00	374,000	
Panels	1	LS	40,000.00	40,000	
Meeting Rooms, Subtotal				975,000	
			Estimated Cost $		

Project: COLUMBUS CONVENTION CENTER
COLUMBUS, OHIO

Element: ELECTRICAL

Date: MARCH 1989

Sheet No.:

Estimate:

Description	Quantity	Unit	Unit Rate	Estimated Cost	Remarks
Storage - Service Area	20,000	SF	8.95	179,000	
Systems					
Audio system, exhibit hall	216,000	SF	2.00	432,000	
Audio system, meeting rooms	59,000	SF	3.00	177,000	
Audio system, ball room	25,000	SF	4.00	100,000	
Video system, exhibit hall	216,000	SF	1.00	216,000	
Video system, meeting rooms	59,000	SF	2.00	118,000	
Video system, ball room	25,000	SF	1.25	31,250	
Fire alarm system	527,500	SF	1.20	633,000	
Security system	1	LS	200,000.00	200,000	
Telephone system	527,500	SF	.55	290,125	
Miscellaneous costs	1	LS	15,000.00	15,000	
Systems Subtotal				2,212,375	
			Estimated Cost $	7,599,500	

ASSUMPTIONS AND QUALIFICATIONS OF ESTIMATE FOR COLUMBUS CONVENTION CENTER

GENERAL

The general conditions do not include:

1) Land costs
2) Testing and inspection
3) Architect/Engineer design fees
4) Builders risk insurance
5) Bonds
6) Surveys
7) FF&E
8) Construction financing costs
9) Escalation
10) Design Contingency

DEMOLITION

1. The estimate covers demolition of those buildings within the footprint of the proposed Convention Center. An allowance for backfilling basement areas is included.

2. Demolition and clearance of asphalt areas is included.

ASSUMPTIONS AND QUALIFICATIONS (Cont'd)

FOUNDATIONS

1. The foundation system is based on driven steel piles, 100' long, pile caps and tie rods between caps.
2. The slab on grade is to be 8" thick on an 8" gravel bed.
3. A secondary system of piles and pile caps supports the meeting and ballroom columns.

STRUCTURE

1. The structure is rigid steel framed with main frames every 120' spanning across 270'. Main roof trusses are at 30' on center with W14 purlins at 10' on center and steel roof decking.
2. The height of the top steel structure is 120' with a depth of frame of 24'.

ASSUMPTIONS AND QUALIFICATIONS (Cont'd)

STRUCTURE (Cont'd)

3. Meeting rooms are situated in two separate locations at an elevated level within the main space. A live load of 100 psf is assumed and stability provided by attaching the trusses to the sides of the main wall.
   These meeting rooms have a separate column system with trusses at 40' on center and ballroom space is situated above one of the meeting room areas.

4. Fireproofing has been allowed to lower areas. It is assumed that the height of the structure will eliminate the need for fireproofing all the steel work.

5. Cross bracing at sides and roof is included.

6. 2,000 LF of exterior steel catwalks has been allowed at $200.00 per linear foot.

7. The mechanical and electrical building is of "Butler" type system construction.

ASSUMPTIONS AND QUALIFICATIONS (Cont'd)

EXTERIOR CLOSURE

1. "Kalwall" system to exterior walls with overhead rolling doors for blackout condition.

2. Metal panel wall system similar to Versawall by Robertson, premanufactured site assembly complete with insulation.

3. Storefront wall system at low level on long sides of building at entryway.

4. Included are 38 pair of hollow metal doors and frames.

ROOFING AND WATERPROOFING

1. Main roofing system is to be Robertson Versawall or similar, premanufactured, insulated panel system.

2. "Kalwall" insert panels provide light penetration along the length of the building.

3. Rainwater goods are of galvanized metal.

4. Lower level roofs are of built-up roofing on metal deck and concrete fill.

5. Dexotex walkable roofing is used as a finish to areas of accessible roof.

ASSUMPTIONS AND QUALIFICATIONS (Cont'd)

INTERIOR CONSTRUCTION

1. The exhibit hall area has a hardened concrete floor and the roof and walls are open structure, painted as necessary.
2. Restroom walls and floors are of ceramic tile with painted gypsum board ceilings.
3. Meeting rooms have basic finishes, carpet flooring, painted structural ceiling, painted gypsum board walls.
4. Office space is finished with carpet, painted gypsum walls and acoustical tile/gypsum board painted ceilings.
5. The walls to the ballroom are glazed along both sides, the floor is carpeted and the ceiling painted structure.

SPECIALTIES

1. An allowance has been made for acoustical treatment.
2. Graphics and signage are assumed to be covered by a $250,000 allowance.

ASSUMPTIONS AND QUALIFICATIONS (Cont'd)

SPECIALTIES (Cont'd)

3. The moveable partitions in the meeting room areas are included.

4. A large moveable wall divides the exhibit space into smaller usable areas. This wall is beneath one of the meeting room positions.

EQUIPMENT AND FURNISHINGS

1. In this section we have made the same assumptions as are incorporated into the Turner estimate, i.e. FF&E is by the owner.

2. No food service equipment is included.

3. No stage equipment is included.

VERTICAL TRANSPORTATION

1. 4 passenger elevators are included and two service elevators.

2. 10 escalators serve three levels.

ASSUMPTIONS AND QUALIFICATIONS (Cont'd)

FIRE PROTECTION

A sprinkler and standpipe system will be provided per NFPA 13 local codes and insurer underwriters requirements.

ASSUMPTIONS AND QUALIFICATIONS (Cont'd)

PLUMBING

1. Plumbing Fixture

   Restroom fixture will be provided for a total occupancy of 20,000 people.

2. Domestic Cold and Hot Water

   Water will be supplied to each plumbing fixture, to make up system for heating water boilers, make up for cooling towers, etc. Cold and hot water will be supplied at each floor utility boxes.

   Hot water will be generated at the building's central plant and will be distributed to each point of use. The hot water system shall be single pipe with electric trace heating.

   Domestic hot water for concession/restroom area will be by electric hot water heaters.

3. Sanitary Drainage

   A full sanitary system will be provided for restrooms, kitchen and at each floor utility boxes in exhibition hall.

4. Rainwater System

   A complete roof drainage system with all horizontal piping insulated with overflow drains connected to the storm drain at high level will be provided.

5. Fuel Oil System

Two 10,000 gallon underground fuel oil storage tanks and piping system will be provided to serve the fire pump, emergency generator and hot water heating boilers.

6. Compressed Air

The system will include three air compressors rated at 175 CFM, and auxiliary equipment to provide air for control and at each floor box.

7. Natural Gas

Natural gas will be provided by domestic water heaters and wall boxes distributed along walls in main hall.

ASSUMPTIONS AND QUALIFICATIONS (Cont'd)

MECHANICAL

1. Air Handling

The convention center will be heated, cooled and ventilated by air handling units located on the building perimeter, within mechanical air handling rooms.

Each air handling unit will contain supply and return fans, heat recovery coils, heating coil, cooling coil, 30% prefilters, 85% final filters, economizer section and anti-vibration mountings.

Supply and return duct will distribute vertically and horizontally on the exterior facade of the building.

Air will be supplied at 25 feet above finished floor level through high velocity nozzles. Air will be returned at 10 feet above finished floor level and at high level.

It is unnecessary and wasteful in energy terms to cool or air condition the full volume of the space. The aim of the heating, ventilation and air conditioning system within the convention center is to satisfy the comfort of the occupants. Occupants are generally on the main floor, the meeting rooms and conference areas, offices and cafeterias.

ASSUMPTIONS AND QUALIFICATIONS (Cont'd)

MECHANICAL (cont'd)

The system supplies air at 25 feet above the finished floor level. By using high velocity nozzles a satisfactory air flow and comfort conditioned can be achieved to approximately 120 feet across the width of the building. Return air at low level reduces the possibility of stagnant air. Return air at high level uses the natural convection forces, of heat rising, to return air to the air handling units.

Separate air handling units will be provided for cafeterias, offices, meeting rooms, and convention areas. The air handling units will be located within the mechanical air handling rooms.

Hot water unit heaters will be provided within the loading dock and storage areas.

The high level return air system will be used, in conjunction with automatic roof mounted smoke vents, to remove smoke in the event of a fire.

2. Central Mechanical Equipment

The intention is to provide a separate structure to house the central mechanical equipment such as the chilled water generation equipment, low pressure hot water equipment, the emergency generator and electrical substation, fire pumps and water and oil storage.

ASSUMPTIONS AND QUALIFICATIONS (Cont'd)

MECHANICAL (cont'd)

The chilled water generation equipment will consist of 3 500 ton centrifugal chillers, a constant volume primary pump serving each chiller (one additional standby pump connected to the primary circuit as a standby), two secondary pump circuits with two variable speed pumps each rated at 60% maximum capacity.

Three cooling towers will be located on the roof of the central plant building. Each cooling tower will be rated at 600 tons.

One set of cooling water pumps will be provided, run and standby to circulate water through the towers, chillers and free cooling heat exchanger.

Free cooling is provided by passing cooling water through the free cooling heat exchanger. The heat exchanger cools the chilled water circuit when the external wet bulb temperature drops below a preset value. The system reduces the use of the chiller in periods when a cooling load is required but when the external conditions provide a low wet bulb temperature (usually spring, winter and fall seasons).

The low pressure hot water generation equipment will consist of 2 dual (gas/oil) fired boilers, primary constant volume run and standby pumps and two secondary pump circuits with two variable speed pumps each rated at 60% maximum capacity.

Project:	Date:	Sheet No.:
COLUMBUS CONVENTION CENTER COLUMBUS, OHIO	MARCH 15, 1989	

ASSUMPTIONS AND QUALIFICATIONS (Cont'd)

MECHANICAL (cont'd)

Chilled water will be circulated at 42F flow and 56F return temperatures to each air handling unit coil. Low pressure hot water will be circulated at 182F flow and 142F return temperature to each air handling unit coil, variable air volume terminal box in office areas and unit heater coil. The cooling and heating coils will be provided with two port modulating valves.

Each system will be provided with chemical treatment. The chilled water and low pressure hot water systems will be provided with expansion vessels.

3. Control System

A direct digital control system will be provided to control, monitor and analyze the mechanical system operation.

The system computer and visual display unit will be located within maintenance room located within the Central Plant Building.

ASSUMPTIONS AND QUALIFICATIONS (Cont'd)

MECHANICAL (cont'd)

The system shall provide the following functions using remote direct digital control panels.

a) Operate valves, dampers, pumps, air handling units, chiller and boilers.
b) Monitor alarms.
c) Load shedding on chillers, boilers and free cooling system.
d) Load shedding on generators.
e) Energy analysis.

4. Energy Consumption

The energy consumption for the building has been estimated on the following assumptions:

ASSUMPTIONS AND QUALIFICATIONS (Cont'd)

MECHANICAL (cont'd)

Design Conditions External:

Summer	90F DB 75F WB at 2-5% range
Winter	5F saturated

(Based on Ashrae)

Conference Rooms	70-78 F
Internal Mtg Rooms	70-78 F
Offices	70-78 F
Cafeteria	70-78 F
Convention Hall	78 F
Degree Day (Heating)	5211
Average Winter Temperature	40 F

Operational Times:

Conference Areas	9am to 5pm 5 days a week
Meeting Rooms	9am to 5pm 5 days a week
Offices	9am to 5pm 5 days a week
Cafeteria	9am to 5pm 6 days a week
Convention Hall	9am to 5pm 6 days a week

ASSUMPTIONS AND QUALIFICATIONS (Cont'd)

ELECTRICAL

1. Distribution scheme is based on single line diagrams provided by Mr. Jacob Chan of OVE-ARUP on 3/06/89. These schematic drawings were amplified by us through telephone conversations with their author.

2. Lighting design for entire building was conceived via telephone conversations with Jacob Chan of OVE-ARUP. Assembly hall lighting is based on 400W metal halide hi-bay lighting units mounted on a 30' by 30' unistrut grid. Supplemental lighting is achieved by banks of 1000 watt metal halide floodlights. Other areas were based on costs for previous projects, considering the type of usage of the area.

3. A concealed floor box power distribution scheme based on a 20' by 30' grid was used for the exhibit hall.

4. Costs for the systems area were based upon past projects considering the type of usage of the area.

Notes to Holt Hinshaw Pfau Jones' Manpower Worksheet

1. Project principal is San Francisco based and factored as a 250 hour allowance over this project. This individual is Paul C. Holt for entire project life.

2. Project manager is San Francisco based, but travels to and from Columbus. This individual was primary working contact with local entities during design phases; this individual is Wes Jones. As project becomes more production-heavy, he will be superceded by a production/construction administration (CA) oriented project manager, who will remain throughout the subsequent life of the project.

3. CA/JC1 is a Columbus based job captain (JC) working in San Francisco during construction document phases, and returning to Columbus at end of envelope CD to take up CA duties. This individual will have primary responsibility for "skids and runners", including foundation work.

4. PD/JC2 is a San Francisco based project designer/job captain responsible for issues of high roof enclosure, beyond overall responsibilities in schematic design (SD).

5. JC1 and JC2 together form the core drawing control group to achieve end of envelope CD by 12/16/89.

6. PD/JC2 is a San Francisco based project designer/job captain responsible for meeting room/ballroom/entry/interiors issues.

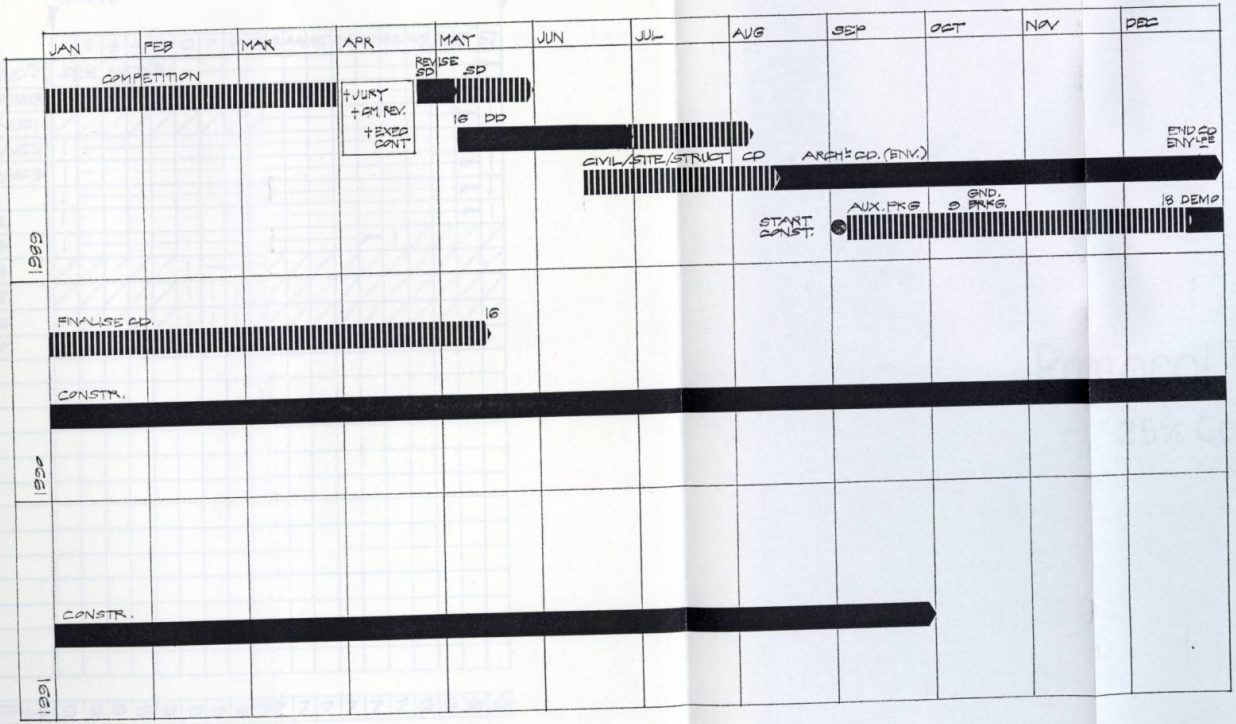
7. Each job captain has independent consultant interface and is responsible to project manager.

8. Two (2) of the seven (7) draughtspeople will be Columbus based, working initially on CD in San Francisco and returning to Columbus with JC1 at end of envelope CD.

Holt Hinshaw Pfau Jones

Architecture

PROJECT SCHEDULE



Holt Hinshaw Pfau Jones
Architecture

New Tivoli
480 Green Street
San Francisco
CA 94133

Telephone
415 392 0204

8 March 1989

Competition Jury
Franklin County Convention Facilities Authority
c/o Mid-Ohio Regional Planning Commission
285 East Main Street
Columbus, Ohio 43215-5272

RE: COLUMBUS CONVENTION CENTER
ARCHITECT'S OWNER/ARCHITECT AGREEMENT STATEMENT

Members of the Jury:

Holt Hinshaw Pfau Jones Architecture, in accordance with the Competition Program, has examined the proposed draft Owner/Architect Agreement, AIA Document B141/CM and supplemental conditions to the same, and are aware of their contents. We are prepared to enter into this agreement in substantial accordance with its terms and conditions, without additions or modifications thereto, subject to the requirements, comments and clarifications set forth in the Competition Program and accompanying materials provided during the course of the competition by the Franklin County Convention Facilities.

Sincerely,
HOLT HINSHAW PFAU JONES

Marc Hinshaw

MCH/bg
CCCO/AA