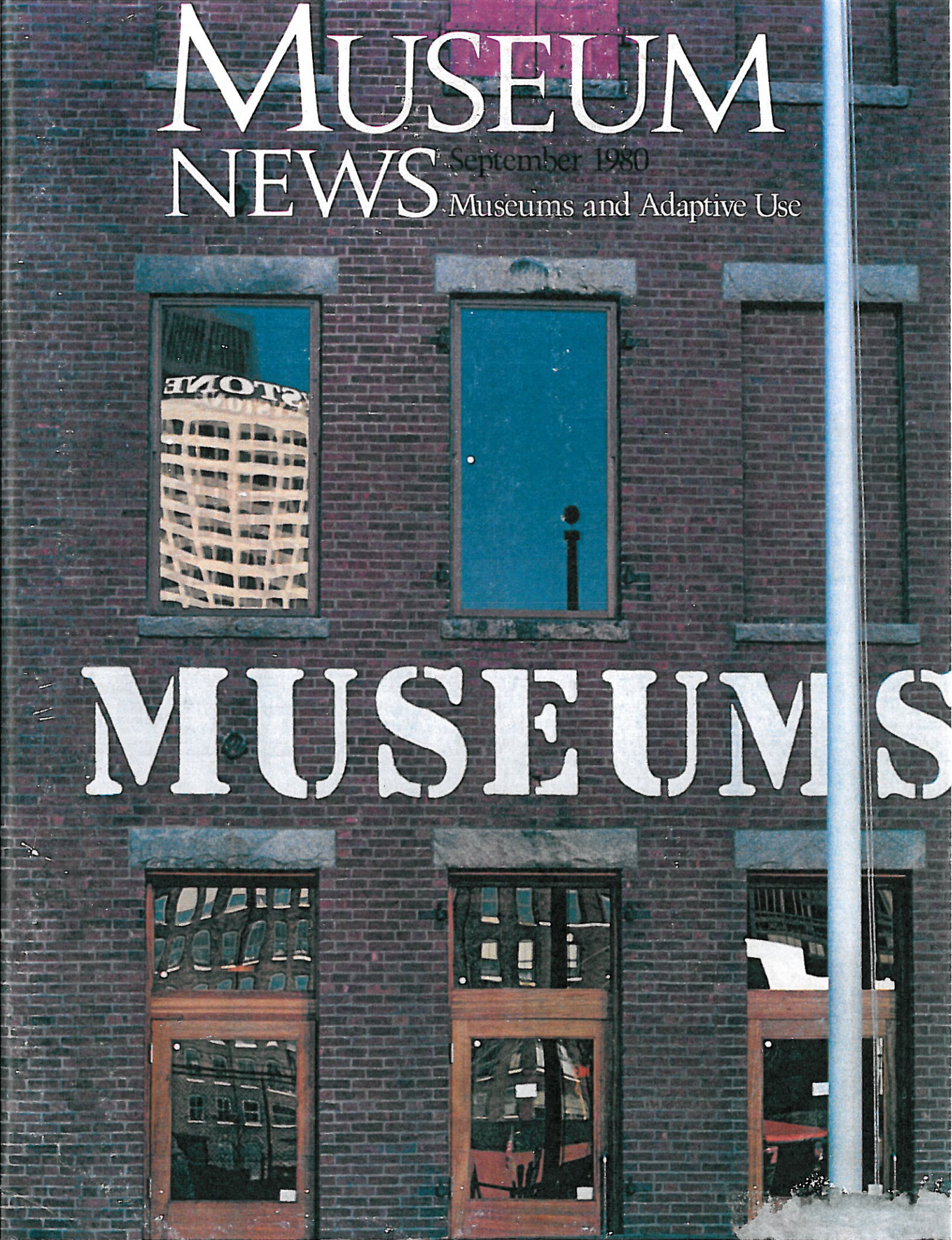
MUSEUM NEWS

September 1980

Museums and Adaptive Use



MUSEUMS

A Joint Venture

Museum Wharf

THE CHILDREN'S MUSEUM
THE MUSEUM OF TRANSPORTATION
Boston, Massachusetts

Building Owner:
Joint ownership by the two museums

Former Use:
1888 brick and timber wharf warehouse; used for many years as a wool storage facility

Location:
"Museum Wharf," 300 Congress St., Boston, Mass.

Size:
144,000 sq. ft.; six levels

Cost:

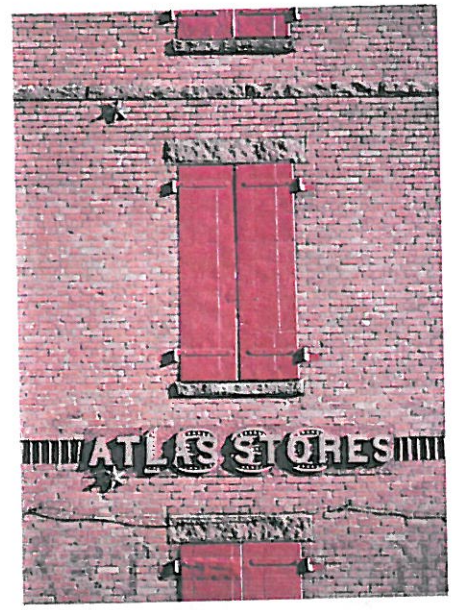
Building and land acquisition	$1,000,000
Construction	
rehabilitation of building (93,000 sq. ft.) and park	$4,200,000
the remaining 51,000 sq. ft. to be developed as additional capital is raised	
Exhibit and program installation	
Children's Museum	$1,000,000
Museum of Transportation	$ 400,000
Joint administration, maintenance, planning, interest, fund raising, grand opening	$1,600,000

Construction Schedule:
Begun October 1978
Completed July 1, 1979

Master Planning:
Cambridge Seven Associates, Inc., Architects, Cambridge, Mass.

Construction Manager:
G. Daniel Prigmore, CDM, Inc., Boston, Mass.

Architect:
Dyer/Brown and Associates, Architects, Boston, Mass.



Museum Wharf, seen from Summer Street Bridge

Museum Wharf is the brainchild of two totally independent Boston museums that had outgrown their largely inaccessible, separate suburban locations. After each had tried unsuccessfully to locate an affordable downtown building with rehabilitation potential, the Children's Museum and the Museum of Transportation decided in 1975 to jointly purchase and rehabilitate a run-down brick wharf warehouse in an industrial and largely unoccupied section on the edge of South Boston.

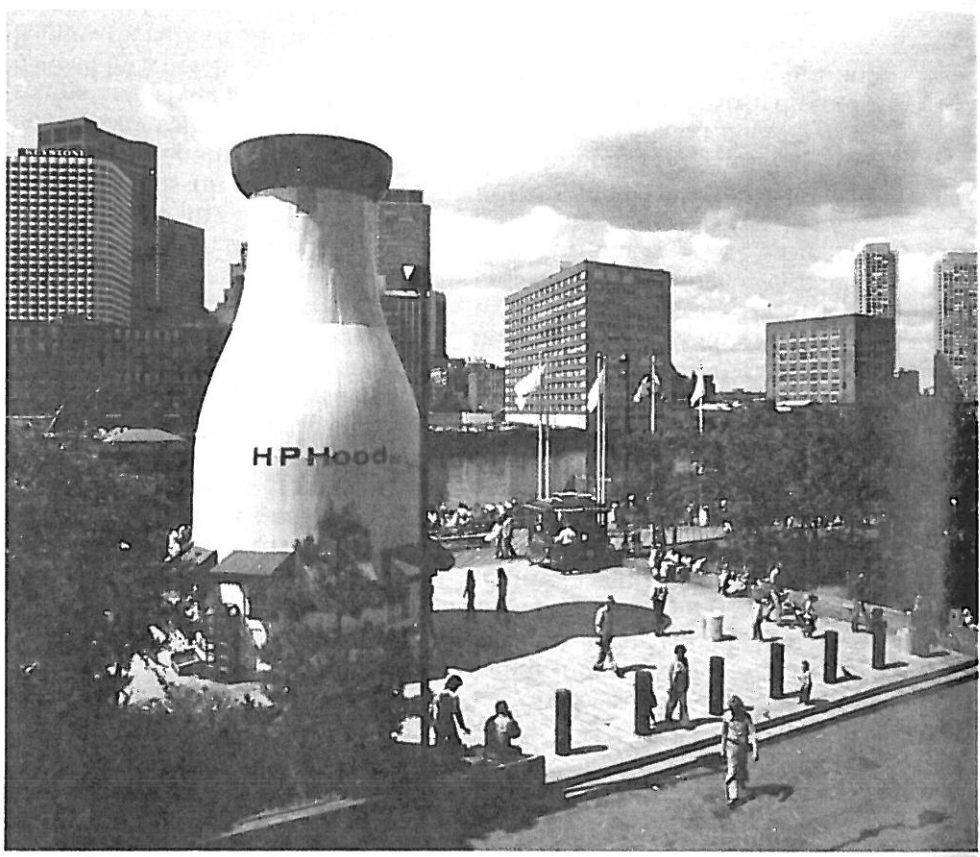
Open since July 1, 1979, Museum Wharf is already experiencing impressive benefits from its warehouse conversion. The two museums now share a building enhanced by a newly created boardwalk park overlooking the Fort Point Channel and downtown Boston. The rehabilitation has provided greatly increased and extremely attractive operating space for both museums at a cost substantially below that of new construction. Michael Spock, the director of the Children's Museum, says, "The sense is that we're running at about half [the cost of new construction] for heated, air-conditioned space."

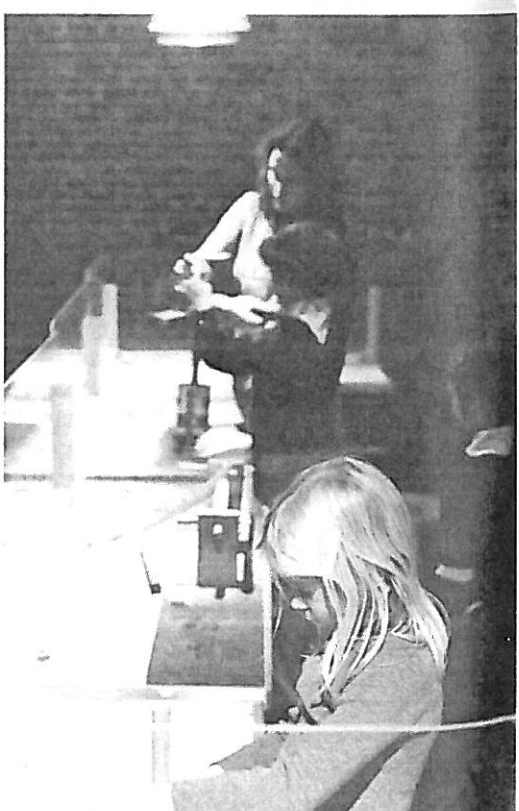
Superb accessibility and overwhelmingly favorable public reception have caused attendance figures to soar: the Museum of Transportation reports that attendance has quadrupled and the Children's Museum projects its first-year attendance at Museum Wharf will be triple that of the previous year. By sharing admissions, lobby, heating and cooling systems, building management, security and cleaning and maintenance, the museums claim substantial operating economies.

To Begin: Two Separate Searches

The task began, for both museums, well before the wharf warehouse was ever located and before the museums contemplated a joint venture. Each institution, in seeking a downtown site to rehabilitate and move into, had begun with a detailed, written analysis of the collections and functions to be housed in a new location. The analysis included a definition of the kinds and amount of space needed, program functions that would have to be accommodated, projected traffic flow, desired location, building type and more. Each museum had considered and rejected numerous potential sites, the Children's Museum having inspected over a dozen.

When Duncan Smith, director of the Museum of Transportation, first came upon the old wharf building, he saw immediately that it met a great many of his museum's criteria. He saw also that the size of the scope of the rehabilitation project would be beyond the museum's means. And so the collaborative effort between the two institutions began.





Museum personnel were faced with changing the building's industrial image and establishing a good relationship with South Boston community leaders. A 40-foot-high milk bottle, a 1930s roadside dairy stand now leased as a yogurt bar, provides revenue and serves as a promotional landmark (center right). Below: Small Science exhibit.

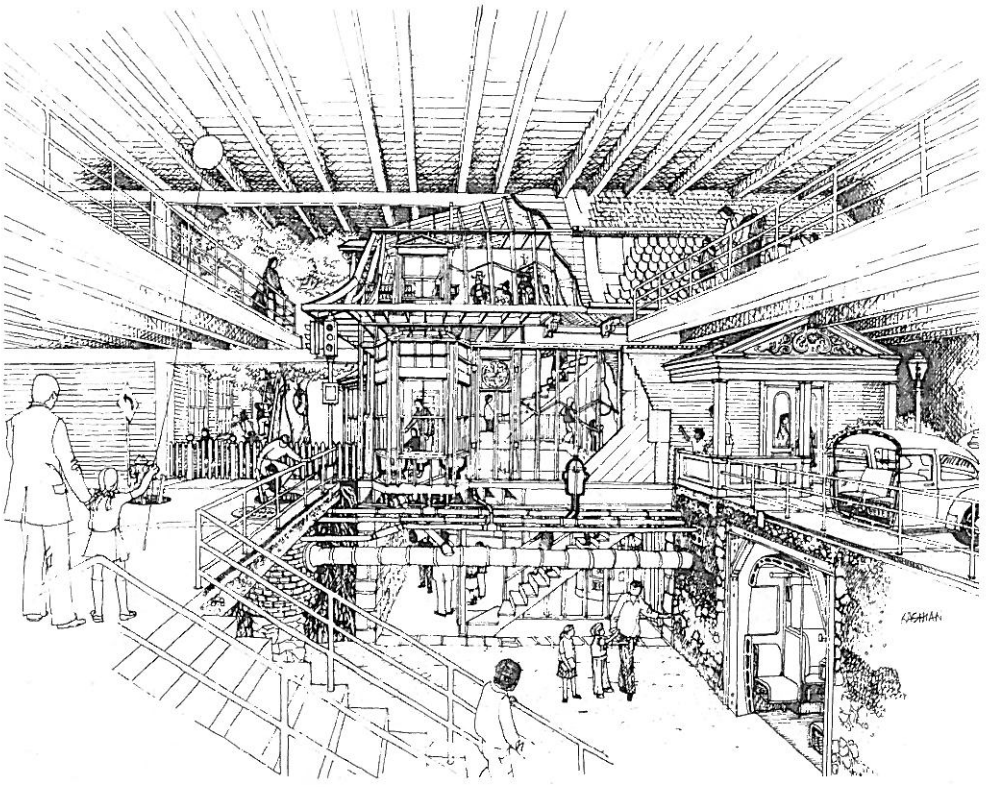
Matching the Most Important Criteria

The building as Smith found it was a structurally sound, brick warehouse, 360 feet long and 70 feet deep, situated lengthwise along Boston Harbor's Fort Point Channel. The rear of the building faced an alley, and the structure stood just across the Summer Street Bridge, about 90 feet into South Boston.

Inside, each of six floors was divided into six bays about 70 feet square. These natural modular spaces were defined by brick fire walls original to the building. The structure had no heating system, little electrical service and minimal natural light. Rows of window openings had been originally situated along the building facades. Since the structure was used as a warehouse, however, the windows were not needed and had been bricked up almost a century ago.

From the standpoint of both museums' criteria lists, the building had great advantages. As Smith commented, its location, overlooking the channel and standing away from the downtown, "gave it a kind of potential as a public site that no building locked into a city block grid could get." Its brick and timber materials offered just the sort of simple, rough-hewn atmosphere both museums sought. The structure's size seemed just about right to accommodate the two museums, and the natural modular nature of the structure, created by the 36 bays on six floors, promised great flexibility in design. It also provided the option of "staged" development of the building, allowing deferred completion of some bays until financial resources were available. Ultimately, the

Entrance foyer of the Children's Museum shows the multi-floor vertical spaces that were created to accommodate "City Slice," a three-story cutaway exhibit of a full-sized Victorian house and surroundings.



museums developed all but 51,000 of the building's 144,000 square feet in completing the first phase of construction.

Public accessibility to the building was considered excellent: it is just two blocks from a subway stop, and the wharf area itself is well connected to highways, bus and rail lines and to the harbor. The site is also just a short walk from the highly successful Faneuil Hall Marketplace rehabilitation and not far from other adaptive use projects in wharf areas stretched along the harbor.

Of critical importance was the low cost of acquiring the building: $1 million. At the price, the site seemed an extremely good real estate investment for the two museums. Smith projects that "25 years from now, when the whole harbor is finished off as water-related spaces and has a very elegant edge, that 370 feet of water face [which the museums ultimately purchased] will be worth more than the building, all its improvements and half the collections values of the museums."

But the building was far from ideal in every respect, especially as it had to match two different criteria lists. As Smith explains, "If the issue is the adaptive reuse of buildings, what you have to be able to do is see a building opportunity that's plausible and then do a very fast rewrite of the basic criteria. Otherwise, you will walk by the building that would work."

Changing the Industrial Image

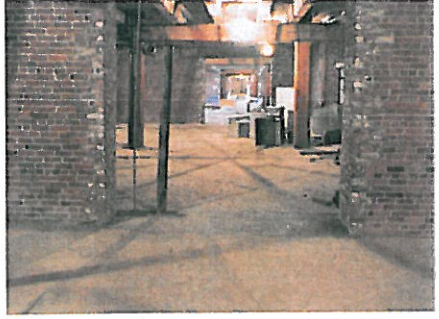
One of the most obvious problems with the building was its largely industrial image. In spite of good transportation connections, South Boston's factory and industrial area is not considered by many Bostonians to be comfortable "common ground" to visit.

The museums have vastly improved the building's visual image by chemically cleaning the exterior masonry and creating a pleasant boardwalk park that will eventually run along the entire water frontage. Just outside the museums' joint entrance has been installed an unusual landmark: a 40-foot-high milk bottle, first built in the 1930s as a roadside dairy stand, now refurbished and leased as a yogurt bar. The milk bottle reflects the Museum of Transportation's thematic approach, but, more important, it has become a unique symbol for Museum Wharf. It is hard to miss a 40-foot milk bottle, the presence of which says immediately, "Something new is happening here." The image of the bottle has been used extensively in Museum Wharf promotional materials, including directional signs on all roads leading into the Museum Wharf area.

In addition to making the public see that the wharf area was becoming a desirable place to visit, the museums worked hard to be good neighbors to South Boston community leaders, who were not initially ready to accept the presence of the museums on their "turf." Acceptance by the South Boston community was more than a public relations effort, according to Smith. "If you can't make the people who think you are on their ground accept you, then they will reject you. . . . If they reject you, you get vandalism. You get the destruction of the personal property of staff members. You get the destruction of the viability of the project through creation of fear and apprehensive climates."

Fortunately, Museum Wharf has suffered from none of these things. A positive relationship with the local community leaders has been developed. The museums have made a special effort to provide programs for area schools and other local groups, and the partnership between the two museums and South Boston continues to evolve.

Right: During renovation, 8-by-8-foot portals were carved into the bay walls to permit the unobstructed movement of large objects throughout the museum. Far right and below: Museum Wharf before and after rehabilitation.



Inside: Layering the Building

The basic division of space inside the modular structure proved a major decision. The original plan was to divide the building vertically, creating two side-by-side museums. But duplicating provisions for vertical visitor circulation became far too costly. Well into the planning, the museums realized it would be more economical to "layer" the building, assigning space by whole floors. Thus the first floor was designed as a common entrance lobby, with a joint admissions desk, the Museums' Shop and retail rental space. A grand stairway leads from the lobby to the Children's Museum, which occupies the second and third floors and a portion of the fourth. The remaining portion of the fourth floor and the fifth and sixth floors are assigned to the Museum of Transportation.

This "layered" approach proved to be cheaper and allowed the two museums to maintain completely separate identities in the visitor's mind. It also suited their different exhibit schemes. The Museum of Transportation's primary exhibit, "Boston: A City in Transit," depicts the role of transportation in shaping the city of Boston over the years. The exhibit is installed in chronological sequence, stretching the length of one entire floor and onto part of another. In the Children's Museum, multifloor vertical space was needed for the exhibit "City Slice" house. The Children's Museum has used the same attic. Removal of some of the warehouse floorboards has resulted in a three-floor vertical space large enough to accommodate the whole

"City Slice" house. The Children's Museum has used the same kind of multifloor vertical space for the recent installation of a full-sized Japanese house that was transported in sections from Kyoto.

Locating the Museum of Transportation on the upper floors, however, posed a hugh challenge: how to move the public to the museum in an exciting way. The solution is innovative. A six-story, free-standing elevator on the exterior of the building now moves 80 people at a time from the lobby to the museum's entrance. And they get a terrific view of Boston Harbor en route. Placing the elevator on the outside of the building, rather than inside it, has reserved the maximum interior space for exhibits and precluded complex structural and construction problems. During off hours, the elevator is used to transport exhibits and freight. Its cab dimensions—8 by 20 feet—were determined by the size of the antique autos in the museum's collection.

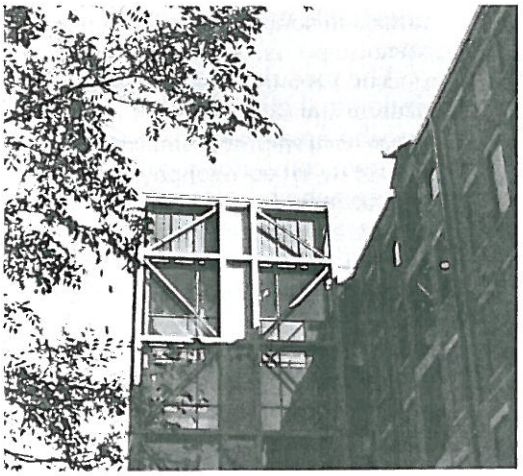
Accommodating the movement of large museum objects also necessitated a significant alteration in the interior of the building. In each of the bay walls has been cut an identically positioned 8-by-8-foot portal. During the day, the public walks from one exhibit bay to the next through these openings; after hours, large objects can be easily moved through the spaces. The portal size was determined, once again, by the size of the museum's antique autos. New poured-concrete lintels have been added above the openings, which also serve as fire doors.

A shared loading dock and freight area was set up on the alley side of the building, out of public view. A freight elevator, used also for handicapped access, was positioned in an existing elevator shaft in nonpublic space.

36 Climate Zones

Because the building contained virtually no heating or cooling systems, the museums had to plan climate control from scratch. That was an advantage. "Oddly enough," Duncan Smith observes, "the fewer systems that are in the building when you buy it, the better off you are. It's a lot easier not to have any systems and put them in than it is to trash out one system and put in a new one. It's less costly."

Below: Museum Wharf's glass elevator. Below: The two museums share more than space. Common functions include the lobby information area, security and maintenance, and the kid-oriented gift shop.



Early analyses of the salt and sulphur content in the outside air ruled out the possibility of using that air for direct ventilation. An air-filtration system was installed to protect the collections and building from the air pollution

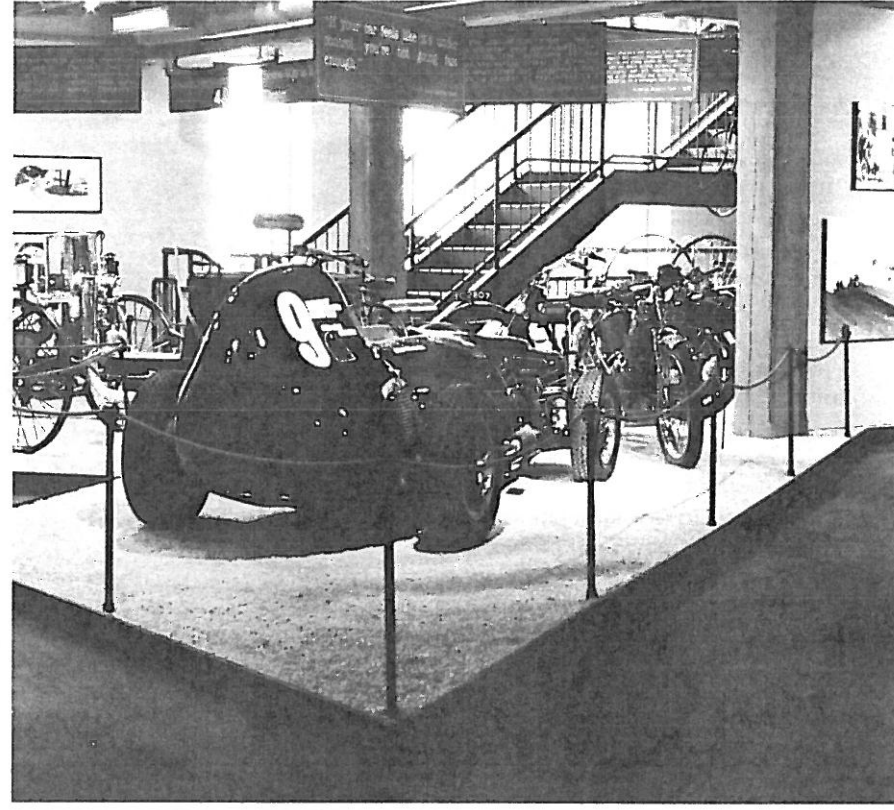
The Children's Museum

A group of university and school science teachers first organized the Children's Museum, back in 1913, to supplement natural science programs in their schools. Today the museum is a national research and development center for nontraditional forms of education.

The museum's "please touch" exhibits—designed for children from preschool through early teen years—help young people to understand some basic aspects of their immediate world. "City Slice," the museum's most imaginative and extensive exhibit, is a three-story mansard house presented in cross-section. It displays exposed construction, a telephone manhole, a sewer catch and a cutaway car. "What If You Couldn't?" is a try-it-out look at handicaps that lets children maneuver a short path in a wheelchair, see through lenses that impair vision and hear what it's like to be hard of hearing. At WKID-TV, an impressive little closed-circuit studio lets children present their own news on television. The museum currently has some 15 inventive exhibits in which kids can participate.

The museum's widely used Resource Center lends and rents exhibit-related books, objects and audio-visual materials and kits to teachers, community workers and museum members. It also conducts workshops on museum themes.

A permanent staff of 55, plus 15 additional intern-exhibit staff operate the Children's Museum. The annual budget is $1.5 million, sources for which are admissions, building lease income, gift shop sales, research and development grants and contracts, and private donations. The museum has more than 4,000 members. This year attendance at the Children's Museum is projected to be about 500,000.



Bicycle exhibit at the Museum of Transportation

inevitable in an industrial seacoast area.

The modular bays made possible individual climate control for exhibit areas: each bay contains its own computer-regulated heat pump, which heats and air conditions. Separate metering of each "zone" was sacrificed to cost savings, so utility bills come jointly to the two museums and are proportionally divided.

All mechanical systems are exposed, and in some cases color coded. Enclosing ductwork, electrical conduit and mechanical equipment was never considered because the existing nine-foot ceilings were too low to be dropped. More important, the "bare bricks" atmosphere created by exposed walls and oak timber ceilings, columns and beams—all of which were cleaned by sandblasting—was specifically desired by both museums.

Since exterior windows had been bricked in at the time the building was constructed, the museums could enjoy some flexibility about the admission of natural sunlight. Controlled outside lighting, particularly in areas adjacent to exhibits, was the goal. Michael Spock explains, "If you have straight sunlight coming in, it puts so much of a lighting load in the area—to say nothing of maybe fading objects in the collections—that the artifical lighting you are using on the exhibits gets washed out. If you don't want to have to put very high wattage exhibit lighting in, it makes sense to suppress the amount of [outside] lighting coming in, and still [retain] a sense of outside light."

To meet this objective, cargo doors on the front facade of the building were double-glazed with solar glass, which admits only 50 percent of the sunlight. Solar glass controls entering light, but it also provides visitors with an occasional glimpse of the outside, helping them to orient themselves within the building. Additional small windows were opened up and solar-glazed in staff office space to admit additional light there. On the alley side of the building, which has no real view, all of the cargo doors were left closed and the windows left bricked.

Museum of Transportation

Known since the 1940s as the Antique Auto Museum, the Museum of Transportation was renamed and expanded in 1970. It has since added to its original collection of carriages and cars a vast array of vehicles and artifacts relating to every aspect of transportation development in the United States.

The primary exhibit of the museum, "Boston: A City in Transit," traces the role of transportation in shaping the city's evolution, both physically and socially. A series of mini-galleries present nine stages of development, ranging from the transportation issues of the American Revolution to a 1940s "strip zone" complete with garish neon signs and a fully equipped roadside Howard Johnson ice cream bar. Period paving materials have been used in the chronologically arranged exhibit to distinguish one transportation era from the next. Additional exhibits include a selection of elegant motor cars, bicycles and water-related artifacts.

A professional staff of 23 plus 30 additional intern-exhibit staff work with an annual operating budget of $946,000. The museum's membership numbers 400 persons; 1980 attendance is projected to be 250,000.

Artificial lighting installed in exhibit spaces is largely track lighting in the Museum of Transportation and a combination of track lighting and inexpensive industrial fluorescent fixtures in the Children's Museum. Spock explained that in the Children's Museum, "dramatic" lighting effects are not as important as in some other museums' exhibits and that yellow reflectors built into the fluorescent fixtures warm the quality of the "wash" light considerably. The fixtures also have electrical outlets that can provide power to exhibition areas.

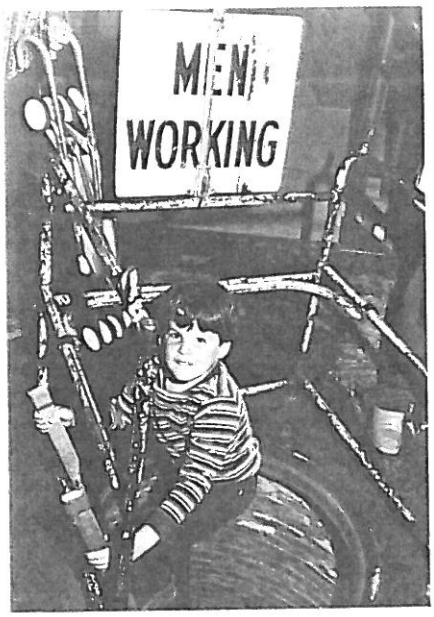
Handicapped Access: Moving beyond Elevators

Museum Wharf was designed with total handicapped access in mind and is equipped with elevators to all floors. But, Smith cautions, "Handicapped access is much more profound than just elevators. It's a total design sensitivity through the entire fabric of the museum, and across the landscape of people's heads. . . . The issue now is program access; it's moved past the business of physical access." Smith states that handicapped access must enter into planning at the institutional level and take into consideration such things as the layout of aisles, the nature of wall installations and the height of labels. Special directional symbols throughout the museum aid handicapped visitors.

Both museums take pride in their active program for special-needs visitors. In the Children's Museum the awareness of young people is heightened by an exhibit called "What If You Couldn't?" It lets kids "try out" certain impairments such as distorted vision, loss of hearing and the difficulties of moving about in a wheelchair. The Museum of Transportation has tour staff trained in signing for the deaf.

Sharing More Than Space

Participating in a joint planning and construction project from the moment of partnership purchase, the two museums share much more than physical space in the building. They have developed a workable system of "cross-servicing" for such common needs as cleaning and maintenance, security, switchboard operation, lobby and ticketing (tickets are separate but identically priced). In each case, one of the museums assumes responsibility for the function, servicing and billing the other for it.



A young visitor emerges from the depths of a "City Slice" manhole in the Children's Museum.

Further partnership is evident in the leasing (at $10 per square foot per year) of first-floor commercial space, which provides valuable income to both museums. In addition to the shared entrance lobby and ticketing area, the first floor houses two commercial restaurants and the Museums' Shop, a delightful, kid-oriented gift shop managed by the Children's Museum on behalf of both groups. Space for two restaurants provides an important service to the museum complex: there are few other restaurants in the immediate wharf area. Outdoors, the Bottle—serving yogurt, salads and fruit juices—is also leased space on the boardwalk park.

The cross-servicing, partnership arrangement seems to be working very well, according to both Smith and Spock, who added this thought: "Any collaboration takes a lot of work and energy, and there are always trade-offs, because you tend not to have exactly the same styles."

The Bottom Line

Soaring visitation figures in both museums seem to say it all about public reaction to the finished building. In fact, tripled visitation at the Children's Museum has resulted in unexpected and unprecedented wear and tear on the hands-on exhibits. Exhibit designer Andy Merrill worries about how the staff will keep up with repairs, but such is the price of success, it seems.

The museum staffs, too, seem quite pleased with Museum Wharf, although Michael Spock wishes he could have invested more money in staff office space: "The thing we've compromised the most, because we've so depended on income from the exhibit areas, is behind-the-scenes space. That's a problem every museum complains about, and that always does get short changed." Future office expansion into undeveloped bays will help alleviate some of the current cramped staff quarters, especially in the Children's Museum.

Spock maintains that being in a rehabilitated building has been a great advantage in fund raising for the project. All capital costs are being met through support from corporations, private foundations and contributions. The only public money in the project has been $210,000 in direct and challenge grants from the National Endowment for the Humanities to the Museum of Transportation, for the design and installation of its primary exhibit.

The bottom line points to the assets of partnership and adaptive use. As Spock puts it, "It's really working out. . . . There's fine tuning that needs to be done, but it's really working. Basically, I'd go and do it all over again."