Underground Washrooms at Kadiköy Park
Istanbul, Turkey

I. Introduction

The underground washroom unit at Kadiköy Park is a remarkable urban space, which respects both people and the environment. The unobtrusive structure is nestled in its own natural setting within a busy and diverse urban environment. The building is a rare example of activist architecture that was realized through the initiative of the architect, the operator and Kadiköy Municipality.

II. Contextual Information

a. Historical background

Kadiköy, formerly known as Halkedon (land of copper) has been a major settlement since ancient times. Its natural port has embraced many civilizations. The earliest settlement, dating from around 4000–3000 BC, was at Fikirtepe, north of Kadiköy. Phoenicians, Greeks, Persians, Romans and later the Byzantines used Kadiköy as a major centre for commercial and strategic purposes.

After the conquest of Constantinople in 1453, the Ottoman emperor Fatih Sultan Mehmet appointed his first *kadi* (Arabic for judge) to Halkedon, prompting the new name, Kadiköy (village of the judge). Throughout the Ottoman period up to the proclamation of the Turkish Republic in 1923, Kadiköy, with its diverse cultural background, retained major socio-cultural and political status. Since the early 1900s it has been renowned as a fish and flower market.

b. Local architectural character

The area around Kadiköy Park features a mixture of architectural styles: interesting old stone buildings, including a mosque, exist side by side with less attractive modern concrete structures. The older buildings are distinguished from their contemporary neighbours, not only because they are better architectural expressions, but also because they are more sensitive to the environment. The old municipality building is perhaps the most prominent landmark in the area. Established trees help to create a natural environment, enhancing the urban square.

c. Climatic conditions

Istanbul and the area around the Sea of Marmara are subject to coastal climatic conditions, with strong prevailing winds from the sea in all seasons. Humidity varies from 40% to 70%. Summers are generally hot and humid, while winters are temperate and rainy. The city's climate is generally moderate with average temperatures of 27°C in the summer and 4°C in winter, when the temperature can drop to below zero.

Climatic data for Istanbul

Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Maximum temperature (°C)											
8	9	11	16	21	25	28	28	24	20	15	11
Minimum temperature (°C)											
3	2	3	7	12	16	18	19	16	13	9	5

d. *Site*

The project is located in the middle of Kadiköy Park, in the Asian part of Istanbul. The park, an urban island surrounded by busy roads, looks out to the sea along its north-western front and to the town along its eastern front. The park forms the district's main urban square. Kadiköy as it stands today is a bustling seaport. The main road arteries connecting the Asiatic and European sides of Istanbul fan out from its square, which also accommodates Haydarpasha Central train station, connecting Istanbul to Anatolia and the Middle East. The square itself is enhanced by a range of established deciduous and evergreen trees within the park setting. The level of landscaping and other facilities in the park is, however, somewhat crude and in need of upgrading.

e. *Site topography*

The site around the washroom unit is fairly flat. However, due to the subterranean nature of the project, an area had to be excavated to accommodate the building and the approaches leading down from two opposite directions.

III. Programme

a. *What conditions gave rise to the formulation of the programme?*

The previous public conveniences for Kadiköy Park were built above ground and were generally in poor condition and unhygienic. The old structure was unsuitable both in visual and functional terms. Kadiköy Municipality, owner of the old public washrooms, was interested in upgrading the facilities but did not have sufficient funds. Selahattin Teke, a private operator, approached the municipality with a proposal to fund a new facility with returns generated from charging an entrance fee, based on acquisition of the site for twenty-five years.

The operator also approached Gökhan Avcioglu Architects (GA Architects), who in turn agreed to design the building, free of charge, provided it was built to a high standard. The architects proposed that the new conveniences should be underground (below sea level), and create the minimum of interference above ground. Realizing the potential of the park, the architects also lobbied the municipality for the relandscaping of the whole site. Preliminary

landscape designs were submitted along with the washroom designs for approval. The new landscape proposal was favourably received by the municipality but was never implemented. Following final approval of the designs of the washroom facility, the operator demolished the old washroom facility and commissioned the architects to manage the construction of the new one.

b. *Objectives*

Kadiköy Park's need for new public conveniences eventually met with a positive response from the municipality, once financial issues had been resolved with the new operator. This opened an opportunity for considering the redevelopment of the park, where the new conveniences would exist within the context of an integrated urban landscape.

The architect's design objectives were for a 'place of purification'. Since ancient times public baths have been generators of social activity within city culture. The Kadiköy Park project, with its underground washrooms, stems from this tradition and seeks to reinforce it. The architect expressed his hopes thus: 'Our primary goal for this project is to convert a trivial urban passage into a place of uplifting memories.'

c. *Functional requirements*

The brief called for the provision of a washroom facility for use by the general public within an open urban park. The facility was required to function efficiently and hygienically with minimum interference and physical impact on the site.

IV. Description

a. *Project data*

The project is a one-storey underground building with a total covered area of 225 square metres. The main mass of the building protrudes only 1.1 metres above ground level. On the south-east side, covering the women's entrance, a small, lightweight steel and glass structure projects over the basic mass to a height of 2.5 metres above ground level.

The covered area of the building occupies 4 per cent of the 5,500-square-metre site. Outdoor areas servicing the building and leading down to it occupy an additional 46 square metres.

The underground facility has two parts, for male and female users respectively. Each section provides toilets and a proportionate number of washbasins, with urinals in the male section. The unit has two entrances: a covered staircase to the east for women; and, to the west, two external staircases for men and a ramp for wheelchair users. Other underground accommodation includes a separate toilet for disabled people, storage, mechanical services, a water tank and a staffed kiosk for entry control.

b. *Evolution of design concepts*

The architect's design approach was inspired by early Ottoman *hammams* (public baths), which were typically cube-shaped buildings crowned by a dome. The architect chose to transform this feature, inverting the dome over a cubic space gorged out of the ground, to create a concave circular roof.

In Anatolian mythology, grottoes are associated with water and lunar goddesses, with nymphs, prophecy, birth and passage through the subterranean realms of rebirth. These themes suggest invisible but often audible forces – flowing subterranean water with suddenly appearing springs. The designer interpreted these ideas in this modern grotto by surrounding the concrete soffit of the inverted dome where it rises above ground level with a curtain of opaque glass, suggesting the concealment of 'hidden secrets' beyond.

c. *Structure, materials, technology*

The shape of the roof structure was influenced by the long structural span, lateral loading requirements, the height of the ceiling, lighting requirements and daylight angles. A reinforced-concrete shell-like structure, the roof is supported by reinforced-concrete walls and serves as a deep basin for the planting of a bamboo garden above ground. The edges of the roof are cantilevered from the various points of support, so that its circular form appears to float above the ground. Below ground the peripheral structure is a rectangular box, made up of reinforced-concrete retaining walls and floor-slab, which are tanked with a damp-proof membrane between double layers of wall.

Structural contrasts are at play in the building. The underground part is of rigid and heavy concrete construction, reminiscent of the air-raid shelters built in Gallipoli during World War II, while above ground are transparent elements inspired by Dan Graham's 1989 installation entitled *A Two-Way Mirror*.

Hardy and sterile materials – concrete, stainless steel, African granite and laminated glass – were chosen in the interests of hygiene, resistance to vandalism and durability. As with all urban public facilities, vandalism was a major concern for the owners and architects. It is typically at its worst in male washrooms. Whereas concrete walls will bear the scars of vandalism, materials such as stainless steel are more resilient.

An obvious attention to detail on behalf of the project team led to some innovative solutions during both the design development and execution phases of the project. One example is the placing of a strip of white pebbles along the edges of the walls to solve the transition between black granite flooring and varnished concrete walls. Such attention to detail was based not only on aesthetics but also on practical sanitary considerations.

The design team obviously reconsidered the conventional building methods and systems associated with this type of facility throughout the building process. Specific site instructions supported by intricate structural details governed the development of each aspect of construction.

d. *Origins of technology, labour force, materials*

The light structure that caps the building is in direct contrast with the heavy fair-faced concrete that makes up the main body of the washrooms. This necessitated a construction combination of *in situ* casting of the subterranean section and light assembly of standard components above ground.

Stainless steel doors, WC cabins, sanitary fittings in porcelain and stainless steel, and various accessories are customary 'hi-tech' components, some of which were imported, while others were locally manufactured.

Part of the project management service provided by the architect was the tendering of various elements of the project to subcontractors (in other words craftsmen), including door makers, glaziers, concrete casters, plumbers and electricians.

V. Construction Schedule and Costs

a. *History of project, with dates*

Work on the project was completed in January 1996, within a total construction time of one year. The timetable for realizing the project was as follows:

Commission:	1994
Design:	August 1994–January 1995
Construction:	January 1995–January 1996
Occupancy:	1996

b. *Total costs and main sources of financing*

The total cost of the project is USD 120,150. This figure does not include the cost of land, which was provided by the Kadiköy Municipality. The project was entirely financed by a local entrepreneur, Selahattin Teke, who is also the operator. By prior arrangement, Mr Teke will have use of the land for twenty-five years and share with the municipality net revenues generated by charging an entrance fee to the conveniences (approximately USD 0.20 per user).

c. *Qualitative analysis of costs*

The average cost per square metre of floor area is USD 534.

Actual costs for the various disciplines, as provided by the architect, are broken down as follows:

Infrastructure:	USD 30,150.
Construction:	USD 50,625.
Fitting and interior:	USD 31,950.
Landscaping:	USD 7,425.
Professional fees:	Free of charge.

VI. Technical Assessment

a. Functional assessment

In practical terms, the building is well suited to its site. It is easily identifiable by passers-by, despite the fact that it is underground. Signs indicating the entrances are placed on the glass structure projecting over the female section. When lit, the glazed ring around the roof also serves to identify the building.

The layout of the facility, within the confinement of an underground bunker, is well planned and therefore well controlled. The placement of the entry kiosk in the middle, with visual access to both entry points, is practical and cuts down on staff allocation.

The designer has also dealt with the services aspect of the building in a rational and subtle way. The main water supply passes through a cold-water tank located unobtrusively underground. Waste and surface drainage is at both ground and underground levels, assisted by special pumps.

b. Climatic performance

The underground washrooms are placed under a concrete saucer covered by a garden of bamboo (*saz* in Turkish) and pebbles. The concave roof admits ample daylight around its periphery to both male and female facilities. At night, light radiating from the inside of the building forms a glimmering circle within the surrounding garden. This arrangement creates an interplay of light between the indoor and outdoor spaces.

Because of the open nature of the facility, the building is not heated. However, because it is an underground structure, it is sheltered from the cold wind and is therefore not particularly cold in winter. In summer, this helps to keep the space cool.

A ventilation system assures proper air exchange with fresh air from the outside. Air is exhausted mechanically from the building and expelled 4 metres above ground level.

c. Ageing and maintenance

Despite heavy use of the building, the elements exposed to handling by the public are quite hardy and resilient. Vandalism remains the biggest concern. However, even after five years of intense use the building has suffered little damage, except for some deterioration of the satin finish on the stainless steel cabins.

d. *Design features*

The features that are apparent to the public eye are not necessarily those that characterize the building conceptually and structurally. Above ground the facility appears as a glazed ring with a protruding glass box bearing the project signage. A steel chimney-like ventilation shaft, projecting to a height of 4 metres above ground, marks the site of the facility. A longitudinal lily pond over the entrance to the male section reinforces the linear direction of the ramp within the dynamic composition of the building above ground.

e. *Impact of the project on the site*

The project's graphic imposition on the existing landscape is provocative, albeit for good reason. The small yet important urban park has good potential for relandscaping. However, the decision to set the building underground has benefited the site, allowing green planting to continue over the building.

The present operator will run the project for a period of twenty-five years, after which it will return to the hands of the Kadiköy Municipality. Regular maintenance of the washroom is essential for its proper upkeep, functionality and image. Here, the decision to enforce an entrance fee on users guarantees a return that allows the facility to cover the required overhead expenses and operational costs.

The general theme adopted in the choice of fittings and accessories is in keeping with the dynamic and hygienic image of the project. Easily cleaned surfaces, non-absorbent materials and the assembly of components in a clear and simple manner, are homogeneous with the architecture.

VII. Users

a. *User profile*

The facility is open to the general public of all ages. It caters for the intense pedestrian traffic between Kadiköy ferry-boat station and the market place, from the early morning hours until late in the evening.

b. *User response*

Five years after its completion the facility is still not perceived by the general public as an integral part of the public park. This is possibly because the building cuts across the park along its east-west axis and is located next to the main pathway through the park. Physically, the building needs to be better integrated within the general composition of the park, hence the architect's suggestions that the existing landscape of the site should be reviewed. On another note, the project has taken on an alternative role within the local urban community. During the day, the lily pond, which collects rainwater, is used for irrigation by flower sellers around the park. The bamboo garden formed by the roof is used as an alternative playground,

a 'hide-and-seek' place for children playing in the park during the day, while at night it shelters the homeless.

VIII. Project Personnel

In addition to Mr Gökhan Avcioglu, the design team included architects Hüseyin Önder, Yalim Gülercan, Asli Sener and Oguz Cankan.

Consultants included landscape architect Dilek Ayman Rodrigue, structural engineer Celal Erdem, mechanical engineer Mehmet Sezeral and electrical engineer Süleyman Akim.

There was no main contractor on the project. The architect's office carried out project management services during construction and, with the help of the project sponsor, Selahattin Teke, various subcontractors were appointed to carry out the work. These were as follows:
Vahit Kalfa: concrete.
CEBSA/Geberit: substructure/sanitary installation.
Rafet Usta: stainless steel.
Zeki Babur: finishing.
Alaaddin Bey: glass.
Kadiköy Municipality Team: landscaping.

Akram Abu Hamdan
May 2001