Edition Axel Menges GmbH Esslinger Straße 24 D-70736 Stuttgart-Fellbach tel. +49-711-5747 59 fax +49-711-5747 84



Opus 32 Frank O. Gehry, Guggenheim Bilbao Museoa

With an introduction by Kurt W. Forster und photographs by Ralph Richter. 56 pp. with 65 ill., 280×300 mm, hard-cover, English ISBN 978-3-930698-32-5 Euro 29.90, sfr 53.00, £ 24.00, US \$ 19.95, \$A 58.00

There is no doubt at all that Gehry's Guggenheim Museum in Bilbao is one of the most spectacular buildings of recent years. The building raised high expectations from the outset, as the central element in Bilbao's comprehensive urban renewal programme. Its

site between river, railway, bridge and new town makes it a symbol of the Basque metropolis that can be seen from a considerable distance. It is both the heart of the city and a testbed for the arts, representing both public presence and artistic change.

The process by which it was created demonstrates the most recent advances in computer-aided design, and in material manufacture. For a long time design and building were broken down into a large number of individual components. Gehry's museum unifies this process, and is thus able to create fluent links between architectural detail and urban impact.

But the innovations do not stop at technology, they also extend to the way in which the interior spaces are shaped; these are extremely varied in form, as the museum is not so much designed to house a permanent exhibition of the collection, but to enable artists to create installations. In contrast with the usual neutral gallery spaces, Gehry offers a whole variety of stages for artistic presentation. His artist friends have risen to the challenge of his architecture and are experimenting very successfully with this new way of showing their work to the public.

Kurt W. Forster studied art history, literature and archeology at the universities in Berlin, Munich and Zurich, rounding out his studies in Florence and London. He taught at Yale University (1960 to 1967), Stanford University (1967–82) and MIT (1982–84). He was the first Director of the newly established Getty Center for the History of Art and the Humanities in Santa Monica (1984–92). After that he taught again, now at the Eidgenössische Technische Hochschule in Zurich (1992–99). Then he was director of the Canadian Centre for Architecture in Montreal (1999–2001). Ralph Richter studied at the Fachhochschule in Dortmund. He rapidly made a name for himself as an architectural photographer. He has photographed buildings by Santiago Calatrava, Coop Himmelblau, Norman Foster, Volker Gienke, Uwe Kiessler and Alessandro Mendini. He also took the photographs for Opus 21: Norman Foster, Commerzbank, Frankfurt am Main.

Distributors

Brockhaus Commission Kreidlerstraße 9 D-70806 Kornwestheim Germany tel. +49-7154-1327-33 fax +49-7154-1327-13 menges@brocom.de

Gazelle Book Services
White Cross Mills
Hightown
Lancaster LA1 4XS
United Kingdom
tel. +44-1524-68765
fax +44-1524-63232
sales@gazellebooks.co.uk

National Book Network 15200 NBN Way Blue Ridge Summit, PA 17214 USA tel. +1-800-4626420 fax +1-800-3384550 custserv@nbnbooks.com

Opus

Architecture in individual presentations

Editor: Axel Menges

- 1 Rudolf Steiner, Goetheanum, Dornach
- 2 Jørn Utzon, Houses in Fredensborg
- 3 Jørgen Bo and Vilhelm Wohlert, Louisiana Museum. Humlebæk
- 4 Aurelio Galfetti, Castelgrande, Bellinzona
- 5 Fatehpur Sikri
- 6 Balthasar Neumann, Abteikirche Neresheim
- 7 Henry Hobson Richardson, Glessner House, Chicago
- 8 Lluís Domènech i Montaner, Palau de la Música Catalana, Barcelona
- 9 Richard Meier, Stadthaus Ulm
- 10 Santiago Calatrava, Bahnhof Stadelhofen, Zürich
- 12 Karl Friedrich Schinkel, Charlottenhof, Potsdam-Sanssouci
- 13 Pfaueninsel, Berlin
- 14 Sir John Soane's Museum, London
- 15 Enric Miralles, C.N.A.R., Alicante
- 16 Fundación César Manrique, Lanzarote
- 17 Dharna Vihara, Ranakpur
- 18 Beniamin Baker, Forth Bridge
- 19 Ernst Gisel, Rathaus Fellbach
- 20 Alfredo Arribas, Marugame Hirai Museum
- 21 Sir Norman Foster and Partners, Commerzbank, Frankfurt am Main
- 22 Carlo Scarpa, Museo Canoviano, Possagno
- 23 Frank Lloyd Wright Home and Studio, Oak Park
- 24 Kisho Kurokawa, Kuala Lumpur International Airport
- 25 Steidle + Partner, Universität Ulm West
- 26 Himeji Castle
- 27 Kazuo Shinohara, Centennial Hall, Tokyo
- 28 Alte Völklinger Hütte
- 29 Alsfeld
- 30 LOG ID, BGW Dresden 31 Steidle + Partner, Wacker-Haus, München
- 32 Frank O. Gehry, Guggenheim Bilbao Museoa
- 33 Neuschwanstein
- 34 Architekten Schweger+Partner, Zentrum für Kunst und Medientechnologie, Karlsruhe
- 35 Frank O. Gehry, Energie-Forum-Innovation, Bad Oeynhausen
- 36 Rafael Moneo, Audrey Jones Beck Building, Museum of Fine Arts, Houston
- 37 Schneider + Schumacher, KPMG-Gebäude, Leipzig
- 38 Heinz Tesar, Sammlung Essl, Klosterneuburg
- 39 Arup, Hong Kong Station
- 40 Berger + Parkkinen, Die Botschaften der Nordischen Länder, Berlin
- 41 Nicholas Grimshaw & Partners, Halle 3, Messe Frankfurt
- 42 Heinz Tesar, Christus Hoffnung der Welt, Wien
- 43 Peichl / Achatz / Schumer, Münchner Kammerspiele, Neues Haus
- 44 Alfredo Arribas, Seat-Pavillon, Wolfsburg
- 45 Stüler / Strack / Merz, Alte Nationalgalerie, Berlin
- 46 Kisho Kurokawa, Oita Stadium, Oita, Japan
- 47 Bolles + Wilson, Nieuwe Luxor Theater, Rotterdam



029.90 Euro

053.00 sfr 019.95 £ 039.00 US \$ 058.00 \$A 9 783930 698325



There is no doubt at all that Gehry's Guggenheim Museum in Bilbao is one of the most spectacular buildings of recent years. As the central element in Bilbao's comprehensive urban renewal programme the building raised high expectations from the outset. Its site between river, railway, bridge and new town makes it a symbol of the Basque metropolis that can be seen from a considerable distance. It is both the heart of the city and a testbed for the arts, representing both public presence and artistic change.

The process by which it was created demonstrates the most recent advances in computer-aided design and in material manufacture. For a long time design and building were broken down into a large number of individual components. Gehry's museum unifies this process and is thus able to create fluent links between architectural detail and urban impact.

But the innovations do not stop at technology, they also extend to the way in which the interior spaces are shaped. These are extremely varied in form, as the museum is not so much designed to house a permanent exhibition of the collection, but to enable artists to create installations. In contrast with the usual neutral gallery spaces Gehry offers a whole variety of stages for artistic presentation. His artist friends have risen to the challenge of his architecture and are experimenting very successfully with this new way of showing their work to the public.

Kurt W. Forster studied art history, literature and archaeology at the universities in Berlin, Munich and Zurich, rounding out his studies in Florence and London. He taught at Yale University (1960-67), Stanford University (1967-82) and the Massachusetts Institute of Technology (1982-84). He was the first director of the newly established Getty Center for the History of Art and the Humanities in Santa Monica (1984–92), where he inaugurated a broadly based programme of research and publications. After that he taught at the Eidgenössische Technische Hochschule in Zurich (1992–99). Before achieving his most recent position as director of the Accademia di Architettura in Mendrisio he was director of the Canadian Centre for Architecture in Montreal (1999–2001). Forster's research focuses on the art and architecture of the Italian Renaissance and the 20th century. Ralph Richter studied at the Fachhochschule in Dortmund. He rapidly made a name for himself as an architectural photographer. He has photographed buildings by Santiago Calatrava, Coop Himmelblau, Norman Foster, Volker Gienke, Uwe Kiessler and Alessandro Mendini. He also took the photographs for Opus 21: Norman Foster, Commerzbank, Frankfurt am Main.

Frank O. Gehry Guggenheim Bilbao Museoa

Text Kurt W. Forster

Photographs Ralph Richter Editor: Axel Menges

© 1998 Edition Axel Menges, Stuttgart/London ISBN 3-930698-32-3

Third, revised edition

All rights reserved, especially those of translation into other languages.

Printing: Druckhaus Münster GmbH, Kornwestheim Binding: Großbuchbinderei Fikentscher GmbH, Seeheim-Jugenheim

Design: Axel Menges

- 6 Kurt W. Forster: The museum as civic catalyst
- 12 Plans
 - Floor plans 12 sections 16 elevations 20
- 22 Pictorial section
 - General views 22 Detail views 28 The atrium 38 Galleries 50 Final view 54
- 56 Credits

Kurt W. Forster

The museum as civic catalyst

Museums emerged as public institutions in the early nineteenth century. As long as only one wing of a noble residence, or even an entire building, was designated as a picture gallery, the museum in the modern sense of the term had not yet taken form, for only as an independent structure on a prominent urban site could it begin to play its role as cultural protagonist. Not unlike the grand theater buildings that preceded the museum, and the railroad stations that followed it, the first shrines of art made their appearance in a number of cities within an astonishingly short time. Karl Friedrich Schinkel's Altes Museum (1823 to 1830) in Berlin's Lustgarten combined an eminently educational purpose with a location in the privileged ambit of the royal palace. Its colonnaded facade and ample vestibule lured visitors from the Lustgarten, leading them through an elegant escalier royal toward an elevated balcony: from on high, framed by grand Ionic columns, a panoramic view of the city opened up before them, while, behind them, on the walls of the vestibule, the story of human civilization unfolded in a single sweep with a series of painted scenes.

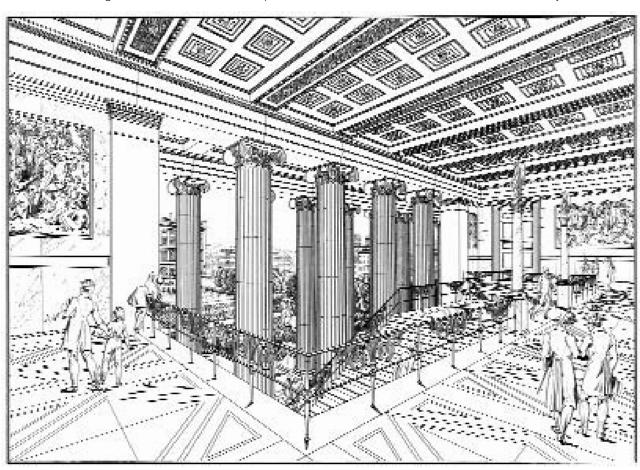
With his programmatic siting of the museum, Schinkel brought a new bourgeois institution face to face with the royal palace, which in turn would face up to the new presence of the public within a domain previously reserved for the monarchy. Flanking the cathedral on the island of the Spree, and acting as a foil to the prospect from Unter den Linden, Schinkel's museum was ideally placed and designed to serve the purposes that the Berlin philosopher Georg Wilhelm Friedrich Hegel had attributed to the temple in

Greek antiquity: »among these single and double colonnades that lead immediately into the open, we see the people move freely, in casual groups or alone ... In this way the impression of the temple is at once simple and grand, but also serene, open, and pleasant inasmuch as the entire building is apt to offer a place to stroll, to assemble, to come and go at will.«1 No more effective site and no more compelling scheme could be imagined for the display of historic schools of painting in galleries and selected works of sculpture in the central rotunda. In this way, Schinkel brilliantly inaugurated the dual purpose of modern museums by creating a grand public effect upon the city on the one hand, and offering a point of observation from which the cityscape assumed a new coherence and significance on the other.

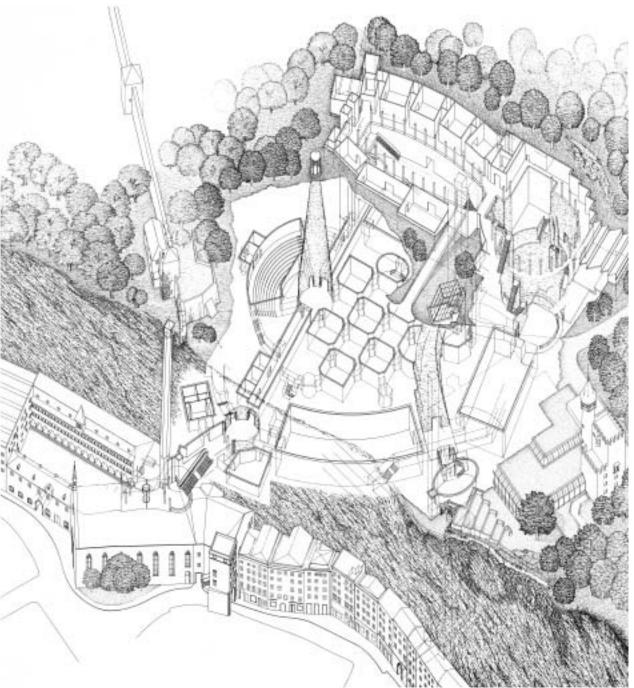
While the history of collecting is long and complicated, the museum is a relatively recent institution and yet it has already witnessed dramatic transformations.² Museums found their initial identity in the royal treasure house and the private cabinet of curiosities. They gradually expanded to accommodate ever larger accumulations of artifacts and increased public access through the nineteenth century; only recently have they assumed a much more spectacular role in cultural life.³ What had been a place of contemplation, where rigorously selected works of art were held up to public admiration as models for aesthetic judgment, in due course began to welcome the likes of photography, cinema, and video to its collections, but above all, museums adopted the idea of performance as a way of overcoming their past identity as dusty repositories.

In the twentieth century, a new kind of exhibition inspired by the experience of temporary exhibitions at the world's fairs of the nineteenth century came into

- 1. Karl Friedrich Schinkel, Altes Museum, Berlin, 1823 to 1830.
- 2. Renzo Piano and Richard Rogers, Centre national d'art et de culture Georges Pompidou (Beaubourg), Paris, 1971–77. (Photo: Richard Einzig.)
- 3. Hans Hollein, Guggenheim Museum, Salzburg, 1989, project.







being. The »loan exhibition« burst onto the scene, stirring the public with its theatrical nature and its often nationalistic or otherwise partisan purposes. Although rare and ephemeral at first, loan exhibitions have completely transformed the modern museum and permanently altered the public's perception of art in general. Only a handful of museums remain aloof, refusing to lend works of art and abstaining from showing anything but their own permanent holdings, while the special exhibition has almost become the standard form by which museums keep rekindling the interest of their public. What has happened, in effect, amounts to a reversal of the museum's original purpose. No longer is its primary mission to uphold the exclusive value of highly select works of art; rather it propagates knowledge of many diverse and often competing - if not mutually exclusive - artistic practices. Such changes in their role did not leave the form of museum buildings unaffected. If museums were initially conceived to display finite bodies of individual works, they began to present ever larger

masses of specialized artifacts, only to assume gradually an identity far closer to that of theaters. Today, museums have become venues for exhibitions of works from far and near, assembled according to ever different ideas and standards, and put on display for a short season or sent on tour to different cities.

The dramatic changes that have transformed the purposes of the museum did not entirely overwhelm its origins, but they have certainly changed the nature of its operations. The maintenance of permanent collections and the fairly frequent modification of their display remain central to many institutions, yet the presentation of a museum's traditional core collection has been deeply affected by recent events. The Guggenheim Museum in Bilbao extends this general development a step further: conceived to form a link in a possible chain of institutions under the aegis of the Guggenheim Museum in New York, Bilbao becomes the test site of an entirely novel museological concept. After Peggy Guggenheim's death, her private

museum in Venice reverted to the mother house in New York in 1976. Director Thomas Krens began to envision further expansion of its ambit to yet other cities: in 1989, he tested the waters in Salzburg, and, after Hans Hollein's operatic project for a museum hewn from a rocky cliff failed to materialize, Krens moved on to open a temporary branch of the Guggenheim in Berlin and laid the groundwork for an affiliated museum in Bilbao.

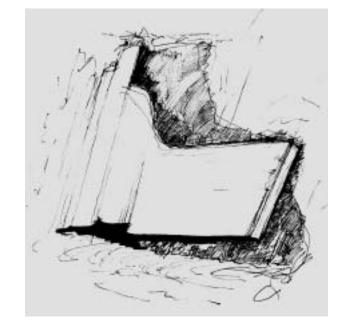
The »modern« idea of developing a chain of museums is both startling – when considered in light of the innate conservatism of museums – and disarmingly simple. If museums are indeed the unsuspecting heirs of the theater, then the idea of a chain of houses is only a logical consequence of their new condition. Instead of confining works of art to the place where they have found a permanent home, more often than not as a matter of accident rather than design, they would be periodically rotated, shown in changing assembly and under differing local conditions. Over time, the growing body of a set of collections would begin to form a larger pool of works than any single museum might ever hope to acquire for itself. The

practice of loan exhibitions has not declined to the degree that was often prophesied, because modern methods of conservation and shipment manage to contain, to a degree, the negative effects traveling exhibitions can have on works of art, and, in any case, the ability to obtain loans depends as much on reciprocal lending as on the curatorial and logistical soundness of exhibition projects. Major loan exhibitions continue to be planned well into the next century, and the idea of linking up several museums on different continents for the purpose of endowing each one of them temporarily with works they could otherwise rarely - if ever - display may well be realistic. This new »franchising« of museum collections represents one response, and a precisely calibrated one at that, by which museums might react to the conditions that define their operation throughout the world.4

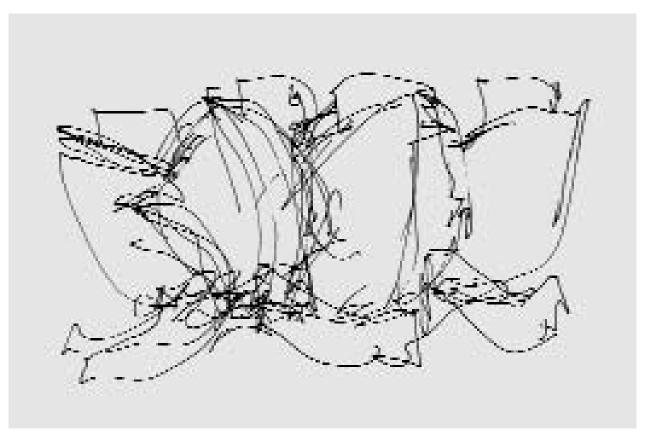
These expectations for the Guggenheim Museum in Bilbao surely played a role in its architectural conception. In 1991, Thomas Krens invited three architects to Bilbao, asking them to sketch out their ideas for a museum building in keeping with this novel pur-

- 4. Frank O. Gehry, Guggenheim Bilbao Museoa, 1991 to 1997. (Photo: Ralph Richter.)
- 5. Alvar Aalto, Essen Opera House, 1959–88.
- 6. Francesco Borromini, Collegio de Propaganda Fide, Rome, 1646–66. (Photo: Harry Seidler.)
- 7. Frank O. Gehry, Walt Disney Concert Hall, Los Angeles, 1988, project.









pose. Hans Hollein had already imagined a fantastic grotto carved from the Mönchsberg in Salzburg, and Arato Isozaki, another contender, already had several museums in Japan and the United States to his credit. Coop Himmelblau, the only match for Frank Gehry in terms of the theatricality of their previous projects, had built a pavilion for Alessandro Mendini's Museum in Groningen (1989/90), but they had not yet managed to secure a major commission for a metropolitan museum. Their experience with temporary installations and studio buildings for artists like Anselm Kiefer argued in their favor.

Thomas Krens's choice of architect was tempered by his previous experiences with museum projects and the ways their architects had of conceiving of them in terms of their recent typology and urban role. Almost two decades earlier, the opening of the Beaubourg museum in Paris marked the advent of museums that owe their identity less to permanent collections than to viceral impact. 5 Intended from the beginning as the venue for highly diverse events, the Beaubourg has lived up to its promise, and remains today the preferred exhibition site for visitors and Parisians alike. Never mind its obvious shortcomings – inadequate as the building may be for the display of paintings, unsound as it may be in its physical maintenance, and unsung as it is in the inconvenience it imposes on its staff – the Beaubourg fulfills the new museum's purposes above all by dint of its urban prominence. Comparable to an »aircraft-carrier of culture«, the Beaubourg berthed the idea of the »maison de la culture« in one of the neglected precincts of Paris, playing up its purpose as an attraction for the uninitiated as well as sophisticated elites. Just as Les Halles were once the place where the bourgeoisie went for oysters and champagne at midnight, the new cultural tourism now finds its mecca among collections dedicated to industrial design, film, video art,

and a spectacular rooftop view of Paris thrown in for good measure. The Beaubourg's success is primarily one of urban function and cultural image, along the lines of the postwar Citroën and high-speed trains, and it also promised to vindicate French culture in the face of the worldwide expansion of the American avant-garde.

Ever since the Beaubourg opened in 1977, not only do new museum buildings need to stand the test as adequate repositories of art, but they are also expected to act as catalytic agents of urban transformation. These new museums help induce campaigns for the revitalization of derelict urban territory, as on the South Bank in London⁶ or in the Amsterdam harbor, where Renzo Piano's new Metropolis Museum of Science opened in 1997. Already in 1988, with his winning entry in the competition for the Walt Disney Concert Hall in Los Angeles, Frank O. Gehry ushered in a decisive stage in the evolution of cultural buildings.

Two major art institutions herald equally definitive moments: Richard Meier's Getty Center in Los Angeles and Frank Gehry's Guggenheim Museum in Bilbao. In both instances, the architect was asked to conceive work on a scale and in a location that perilously challenged the limits of any living architect's ability. Significantly, the institutions behind these projects had thrived in the expansionist era of the 1980s, when art as enterprise and spectacle called for buildings that were so intensely of their moment that they were unlikely to have many successors.⁷

Gehry's project for the Walt Disney Concert Hall and the Museum in Bilbao are both located in what had become derelict urban zones, places scored by traffic and trade arteries, criss-crossed by major sight lines, but lacking in any clear manifestation of character. In Los Angeles, the concert hall was expected to serve as the centerpiece in a scheme to rebuild a

grand municipal complex of museums and hotels. These were envisioned in the midst of future corporate and private development. In Bilbao, where heavy industry and fluvial warehouses had long been abandoned, a swath of raw embankment along the Nervión River was slated for redevelopment. The latter site is not only cramped by rail and street corridors alongside the river, but also by its marginal location and an inclined suspension bridge that plunges from the east over steep river banks right into the ensanche. Between the bifurcating ramps of the bridge, the slope, and the river, a large irregular site was set aside for Gehry's project. The compromised conditions of the site make an apt metaphor for the complex circumstances under which the commission was precipitated by the regional and municipal governments in negotiations with the Guggenheim Museum in New York.8

Such grand projects as the Bilbao Guggenheim place extra burdens on the traditional institution of the museum. Museums increasingly find themselves implicated in a host of new and highly publicized activities, but they have also become the preferred sites of the bravura architectural performance, as, for example, with the extension planned for the Victoria and Albert Museum, and the new wing of the Berlin Museum by Daniel Libeskind. As museums have been forced to find new ways of financing themselves, they resort to the kind of gambits with which Phineas Taylor Barnum filled his circus tents. The exaggeration of the public status of museums – not in all cases dependent on new buildings, though rarely accomplished without them – has also led to important changes in their architectural character. New museums require a grand and ever more impressive public presence, and equally inventive and varied interiors. The achievement of volumetric presence on the outside and a spatial expansiveness on the inside calls for dramatic transitions, even magical transport, of the vistor's experience.

In his late works, Alvar Aalto molded spatial relationships into a constantly varying continuum, as if space were able to break free of Cartesian abstraction and assume a viscous state. After the Second World War, Le Corbusier increasingly confronted the abstraction of »space« with the volumetric presence of bodily shapes, curving ramps, and shell-like alcoves. But the antinomy of body and cage, which he had put to analytic purpose in his paintings since the late 1920s, was progressively »resolved«, or rather suppressed, with the unchecked ascendancy of the cage over the body after Le Corbusier's death. As an abstraction reinforced by economic imperatives, the skeletal structure of buildings became so pervasive after the War as to make a virtual prisoner of the body. Not so for Alvar Aalto and Hans Scharoun, whose explorations left their mark on Gehry's thinking. Like Aalto, Gehry began early to mold volumes in fluid contours and sweeping curves; like Scharoun, he advanced more rapidly toward his goal in complex but flowing interiors, in which continuous rather than segmented deformations became the rule. As Gehry gained a new freedom in shaping surfaces, he moved beyond the stage of Aalto's Essen Opera House (1959

With his buildings of the 1980s, Frank Gehry returned to an architecture possessed of powerful cor-

poreal qualities. He does not think of the volumes of his buildings within the confines of abstract space (which is also the space of economics); rather, he engages these volumes in intimate relationships with one another. In short, he sets the bodies of his buildings in motion as a choreographer does his or her dancers. One need only observe Gehry's manner of drawing to gain an immediate sense of his way of thinking: the pen does not so much glide across the page as it dances effortlessly through a continuum of space. Gehry's studio practice recalls nothing so much as performance rehearsals, days and weeks of choreographic invention and refinement that reguires all dancers to be present all of the time. The architect's affinity for the transitory and his conjurer's grasp of minute displacements are fueled by his knowledge of performance art and enriched by his collaborations with artists. For years now, his friendship with Claes Oldenburg has moved well beyond occasional collaboration – as in the Chiat-Day-Mojo Building in Venice, California (1986–91) – toward a give-and-take that only artists with a keen sense for both collective performance and individual invention are able to develop.

At Bilbao, Gehry has been planning with and for artists, providing spaces for specially commissioned installations as well as flexible galleries for the inevitable variety of exhibition displays. The building complex includes generously proportioned areas for public events and unforeseen opportunities that vastly expand the purposes of contemporary museums. 10 It is entirely purposeful that the museum has been anchored in the cityscape of Bilbao like a vast circus tent surrounded by a congerie of caravans, for the variety of events anticipated to take place there requires large and ever varying venues. Subsidiary spaces are clustered together, squeezed through the bottleneck between river and embankment, made to duck under bridges, and finally allowed to soar over the building's core in a spectacular canopy. All this implies motion induced by internal tension and external compression and gives rise to the towering and seemingly revolving space of the central hall. If it is possible to speak of a spatial realm that lacks figural contours yet possesses powerful bodily qualities, if ambulation can unlock the complexities of a building's order beyond the outlines of the plan, then the Museum in Bilbao reawakens an architecture that has lain dormant for centuries. The suggestion may sound extravagant, but the reality of this building, which has been fashioned from segmented shells, surely bears it out. If one examines historic architecture in search of buildings that might presage what Frank O. Gehry has been able to achieve, one is likely to pay attention to Francecsco Borromini. One will do so not only because some of the same terms come to mind as one describes the salient traits of Borromini's and Gehry's buildings, terms such as »undulation« and »undulating and zigzagging forms«. 11 Whatever the critical suppositions may be, the terms that get affixed to an architecture that so clearly defies both the traditional nomenclature of its parts and the experiential categories of its impact, is bound to meet as much criticism as acclaim. Because the sheer effect of the Bilbao Guggenheim overwhelms and continues to intrigue, not unlike the fascination Borromini's buildings held for

his fellow architects and even his sometime-employer

Notes

¹ Georg Wilhelm Friedrich Hegel, *Werke*, ed. by E. Moldenhauer and K. M. Michel, Frankfurt a. M., 1986, XIV, p. 320. Hegel repeated his »Vorlesungen über die Ästhetik«, from which this passage is taken, throughout the 1820s, and Wilhelm von Humboldt and Johann Wolfgang von Goethe were sanguine in their approval of Schinkel's plans for the Museum. See also: Walter Hochreiter, *Vom Musentempel zum Lernort. Zur Sozialgeschichte deutscher Museen 1800–1914*, Darmstadt, 1994, esp. pp. 9–57.

² Compare: Krisztof Pomian, *Der Ursprung des Muse-ums*, Berlin, 1988; Horst Bredekamp, *Die Geschichte der Kunstkammer und die Zukunft der Kunstgeschichte*, Berlin, 1993; Ekkehard Mai, *Expositionen. Geschichte und Kritik des Ausstellunsgwesens*, Munich and Berlin, 1986.

³ See: Kurt W. Forster, »Shrine? Emporium? Theater? Two Decades of American Museum Building«, *Zodiac*, 6 (1991), pp. 30–75.

⁴ The following offer useful surveys: Heinrich Klotz and Waltraud Krase, *New Museum Buildings in the Federal Republic of Germany*, Frankfurt a. M. and Munich, 1985; Josep M. Montaner, *Museums for the New Century*, Barcelona, 1995; »Contemporary Museums«, *Architectural Design*, London, 1997.

⁵ See: Nathan Silver, *The Making of Beaubourg:*A Building Biography of the Centre Pompidou, Paris,
Cambridge, MA, 1994.

⁶ In 1996, Richard Rogers won a competition to renovate the South Bank area altogether. He proposed a huge canopy under whose undulating, glass-clad roof the existing buildings, such as the rather coarse Hayward Gallery, assume the appearance of architectural cliffs washed by the gentler waves of a new era of elegance and luxury.

⁷ Kurt W. Forster, »A Citadel for Los Angeles and an Alhambra for the Arts«, *a+u. Architecture and Urbanism*, 11, 1992, pp. 6–15. Compare Meier's own account of his experiences: Richard Meier, *Building the Getty*, New York, 1997.

⁸ The evolution of the Museum in Bilbao has been chronicled by Coosje van Bruggen in her book *Frank O. Gehry: Guggenheim Museum Bilbao*. New York, 1998

⁹ See: Kurt W. Forster, »Monstrum mirabile et audax«, in: *Daniel Libeskind. Extension to the Berlin Museum with Jewish Museum Department*, exhibition catalogue, Berlin, 1992, pp. 17–23. Another museum by Libeskind, the Nussbaum Museum in Osnabrück, is currently under construction.

¹⁰ See note 3.

11 Francesco Milizia, *Memorie degli architetti antichi e moderni*, Bassano, 1785, 4th ed., II, p. 159 passim. It will be remembered that Milizia so characterized Borromini's work in order to decry it and warn architects and patrons of its corrosive effect on good taste – an altogether familiar litany also echoing from contemporary criticism of Gehry.

12 Critique often cuts closer to the nature of certain phenomena than praise, and Bernini's somewhat envious description of Borromini's way of invention is very much to the point when he characterized Borromini's methodical search as "dentro una cosa cavare un'altra, e nel altra l'altra, senza finire mai." For a more detailed comparison of Borromini's and Gehry's method of evolving ar-

chitectural forms, see the forthcoming monograph on Gehry: Francesco Dal Co and Kurt W. Forster, eds., Frank O. Gehry, New York, 1998. Cf. also: Christof Thoenes, "Die Formen sind in Bewegung geraten – Form has been set in motion", Daidalos, 67 (1998), pp. 63–73.

¹³ For this and other experiences, see the forthcoming publication: Kurt W. Forster, ed.: *Gehry in Conversation*, Stuttgart, 1998.

¹⁴ Hal Iyengar, Larry Novak, Robert Sinn and John Zils, »The Guggenheim Museum, Bilbao, Spain«, *Structural Engineering International*, 1996, pp. 227–229. Bernini¹², the phenomenon of its excessive nature deserves some consideration.

Explanations can frame Frank Gehry's design of the Guagenheim Museum in Bilbao within the recent design of museum buildings and trace its extraordinary emergence from his earlier – if unbuilt – projects like the Disney Concert Hall. What cannot be easily explained, much less argued into existence, is the sheer exhilaration that this building gives off, the jubilant excess of its presence. Before it can be considered anything else, the Bilbao Guggenheim must be reckoned overweight, overdone, and overwhelming. Its excessive qualities are precisely those that enable it to assume several different roles at once. It is an immovable pile in the city and a sinuous creature draping its body along a narrow ledge above the river. As a luminous cave on the inside, and a metallic mountain from without, the museum appears to be both a perfect fit and a perfect stranger in its site. Excess designates the state of the building, exuberance its true nature.

As with any other building, there is a history to this project that brings together the many strands of its real and imaginary origins, but there is also a paleohistory to it, a tale that precedes its own story. The events surrounding Gehry's project for the Disney Hall in Los Angeles mark a period in the architect's life that can be compared to an area of chilled volcanic rock. Destructive and barren at first, it later turns into fertile ground, laden with minerals that give it new life. In evolving the project for the Disney Concert Hall, Gehry turned his »winning ticket« into a license to embark on a voyage into the unknown. From his bold but still beholden entry into the competition, he went on to reshape all of its parts and mold them into a huge new creature of a building. The project ceased to resemble a group of distinctive characters, as he had cast them in several of his earlier projects, turning instead into a single, multiform, and many-limbed entity. The wonderment with which Gehry describes the many-armed Shiva he first saw in the collection of Norton Simon invokes the ideal of animation he sought to achieve for himself. 13 The project for the Concert Hall that he exhibited at the Venice Biennale in 1991 had just begun to run into serious trouble at home when instead a new prospect dawned over Bilbao

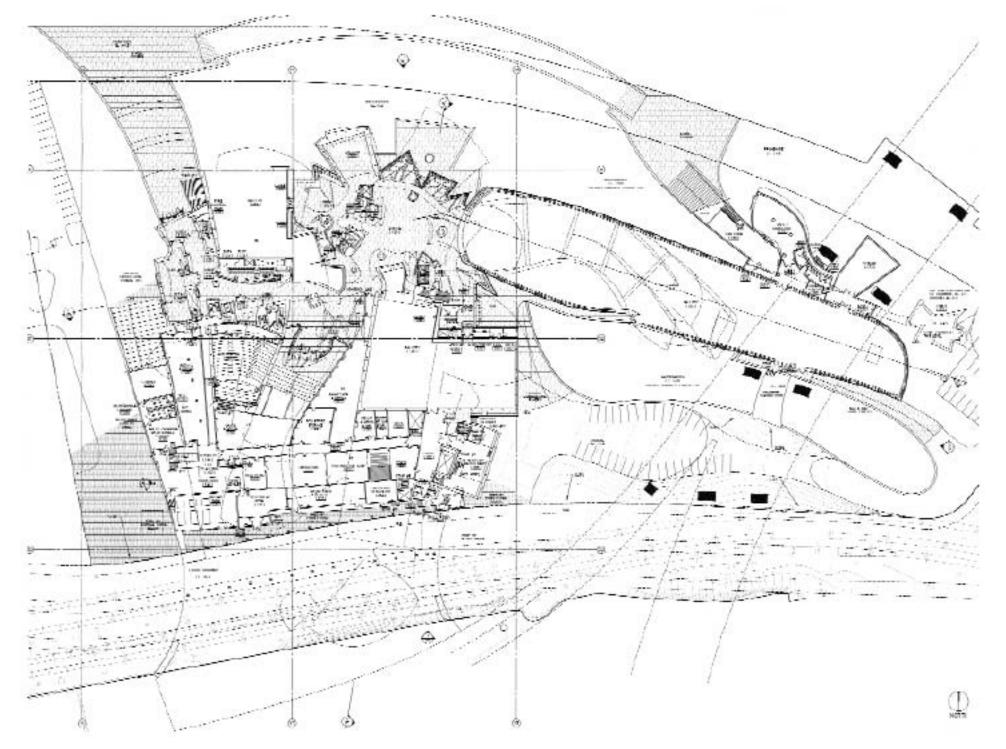
The vigor and resolve with which Gehry attacked the Bilbao project sprang, initially and violently, from his disappointment over the Concert Hall. He had been passed over so many times for significant jobs in Los Angeles that he almost turned into his own best excuse for yet another defeat. When the Disney project fell to him, it afforded Gehry a release of extraordinary effect. In the space of less than two years, he transformed his improvisational method of working with rickety models of paper, plastic, wood, and sticks into a highly sophisticated process. For a number of years, he had been manipulating his models, bending and locking their walls, cutting and pasting their parts, but now he began to shape them into ever more fluid forms. He could only hope of turning these curvilinear shapes into actual buildings if the process by which they were invented could also be applied to the method of producing them. Gehry learned to transfer plastic shapes to and from the screen. Again, the Concert Hall had been the test case, and its limestone walls the demonstration piece for a stonecutting process also governed by computer. Almost within the space of a single project, Gehry managed to take his intuitive approach to a level of technical definition that brought such idiosyncratic buildings within economic reach.

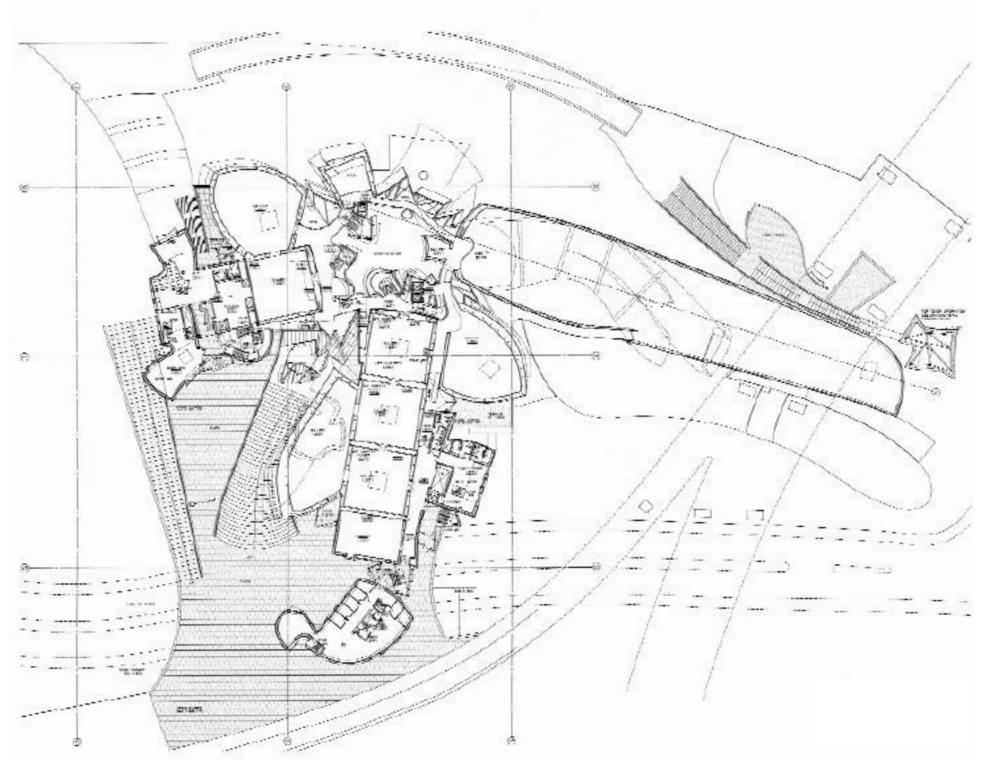
When it became clear that years might pass before the concert hall would be built, Gehry was saved from an all-too-familiar decline into resentment by the even more challenging opportunity in Bilbao. Instead of trimming his sails, he plowed straight into the wind and imagined a building more adventurous, grander, and more profligate than even the Disney Concert Hall. Perhaps inspired by a reckless kind of courage, he decided to carry on where he had been forced to lay off, rather than begin again at the beginning, as it were. From the very start, the sketches for Bilbao seemed to have a capacity to soar. They expanded energy as if it were free, and this freedom not only generated forms previously thought to be impossible, but also unfit for integration into a complicated site.

If one were to seek a single index for the historical standing of this building, one need only consider the novel applications of computer technology in its making. For the Bilbao Museum, Gehry tapped the full capacity of computer-assisted design. Leaving its auxiliary role far behind, he and his collaborators made use of programs that were originally developed for the design of airplane fuselages, but which in this case provided the matrix for the shaping of every part and the refinement of every element in the design and construction of the museum. The age-old distinction between the hands that design and the instruments that execute has been overcome: the separate phases and techniques of conceiving and executing a building here were woven into an unbroken »loop«. Every volume has been shaped in three dimensions, tested and modified by computer plotting, just as every part of its physical assembly - steel frame, cladding, and all - was fabricated on the basis of computer-generated construction documents. 14 Only in this way can the inaccurate fit among the conventionally separate phases of invention, transcription, and execution be perfected, and the exponential degree of geometric complexity of such a structure be realized without costly trial and error.

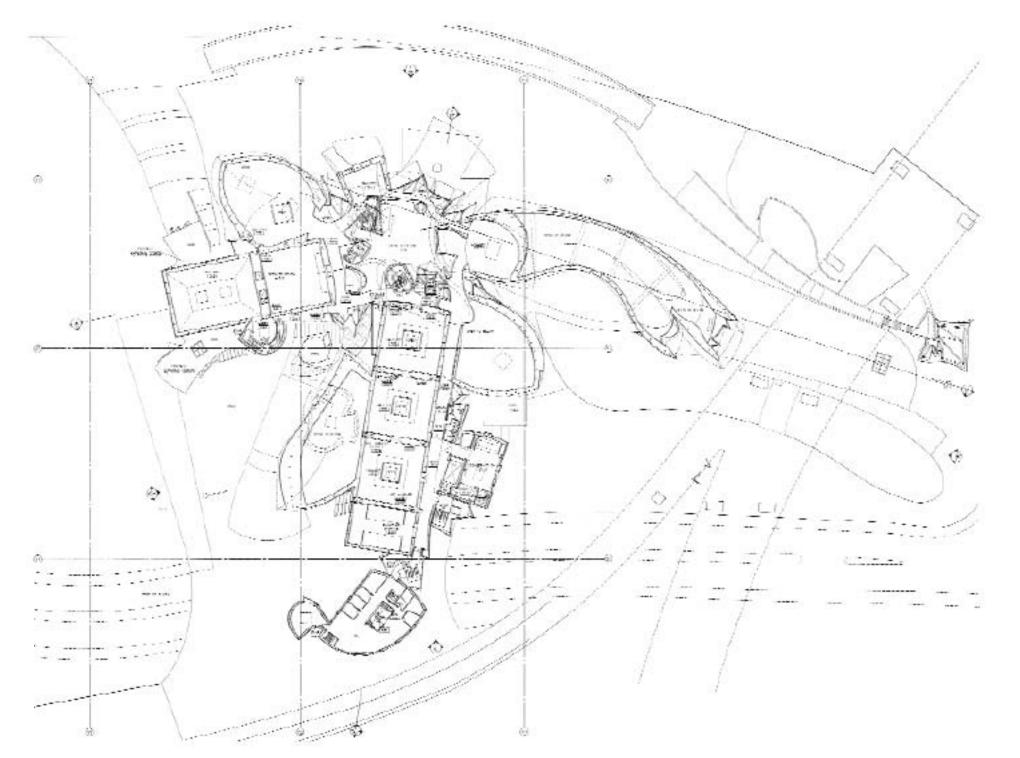
Not only will the Bilbao Museum go down as one of the most complex formal inventions of our time, but it will also stand as a monument to the productive capacities that are now at our disposal, insofar as an architect like Gehry pushes them to new heights of imaginative use. When complexities of an order commensurate with our understanding of the world can be restored to architecture, we shall no longer have to be content with the subsistance diet dictated by economics any more than with the impoverished aesthetics of an earlier era.

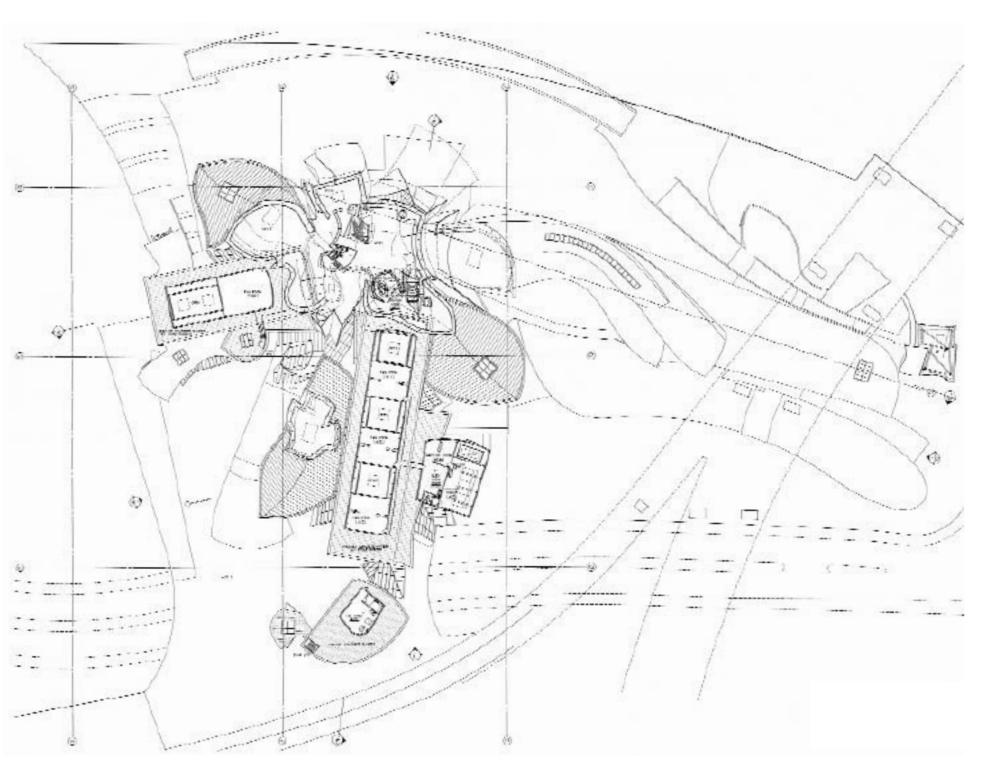
The Museum in Bilbao is a building that elicits superlatives: beginning with its immense scale and intricately ramified setting, and ending with one of the most complex spatial experiences to be had anywhere, its architectural qualities are virtually unique in our time.



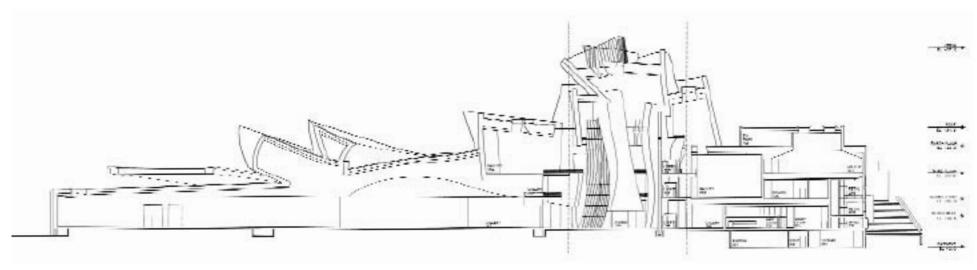


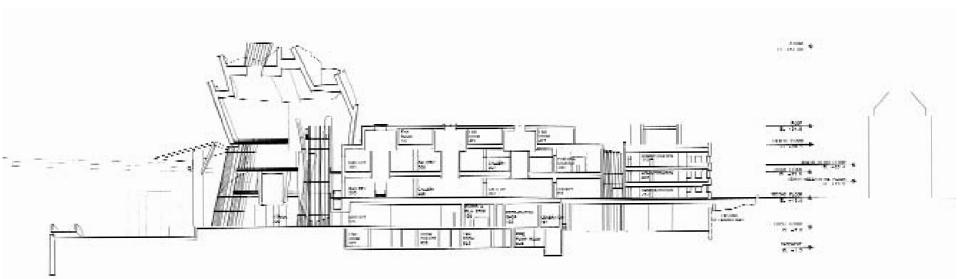
- 3, 4. Floor plans (3rd floor, 4th floor).
- p. 16/17 5. Partial floor plan (3rd floor).

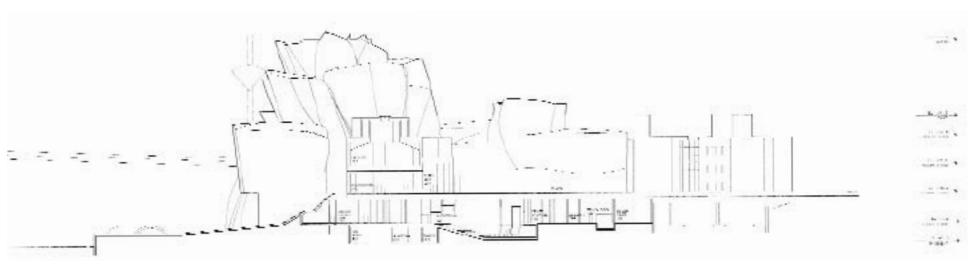


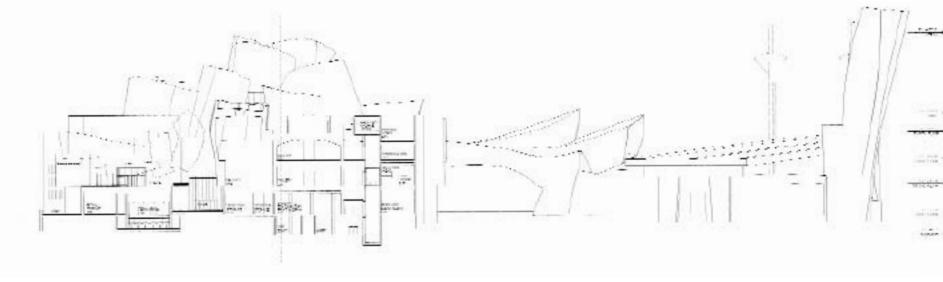




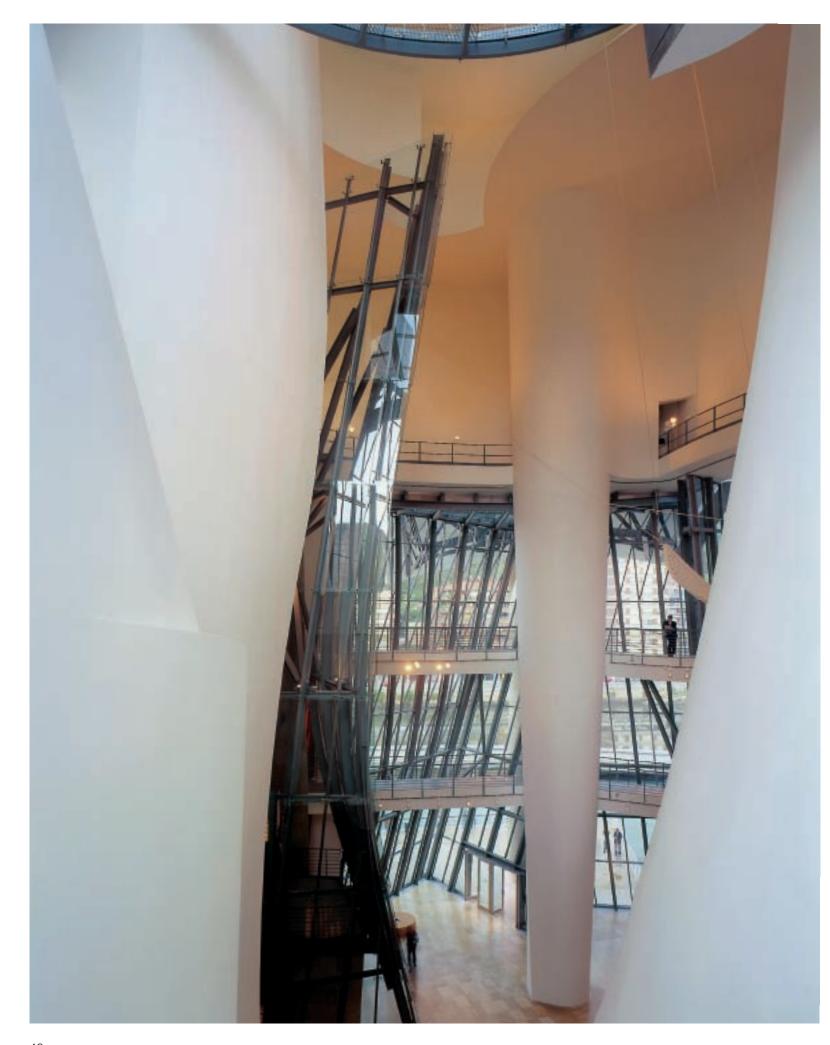






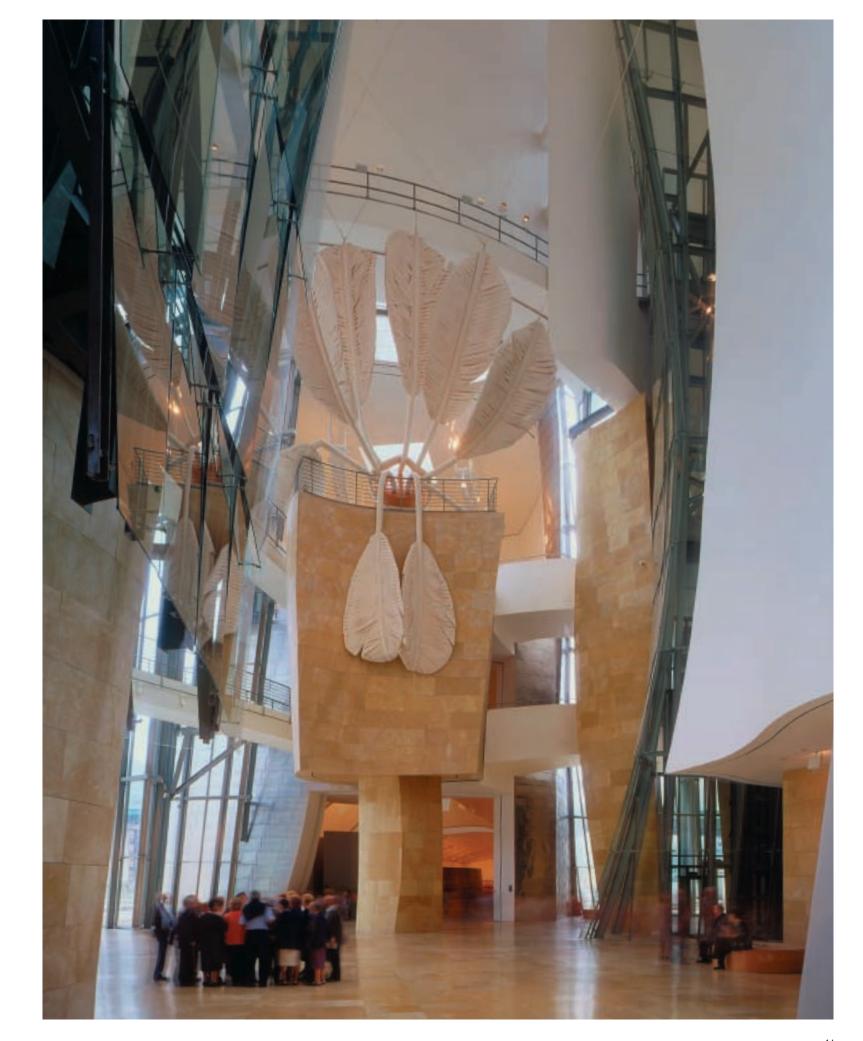






20. The atrium looking north.

21. The atrium looking east with sculpture by Claes Oldenburg and Coosje van Bruggen.





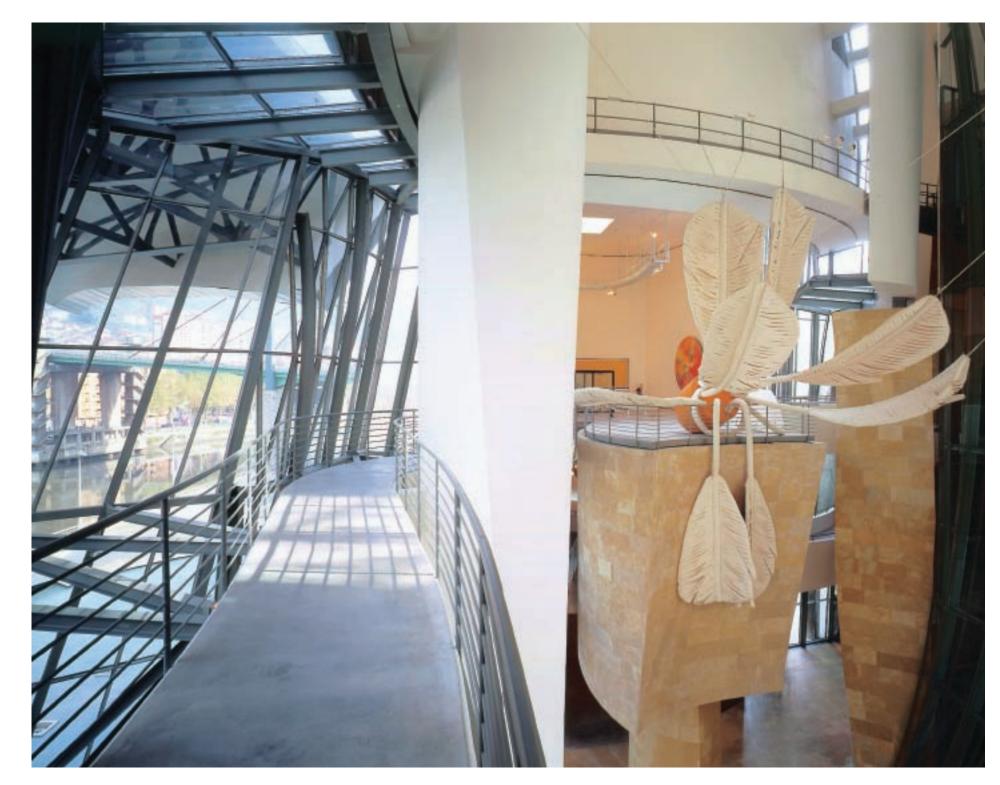
22. The atrium looking south-east.

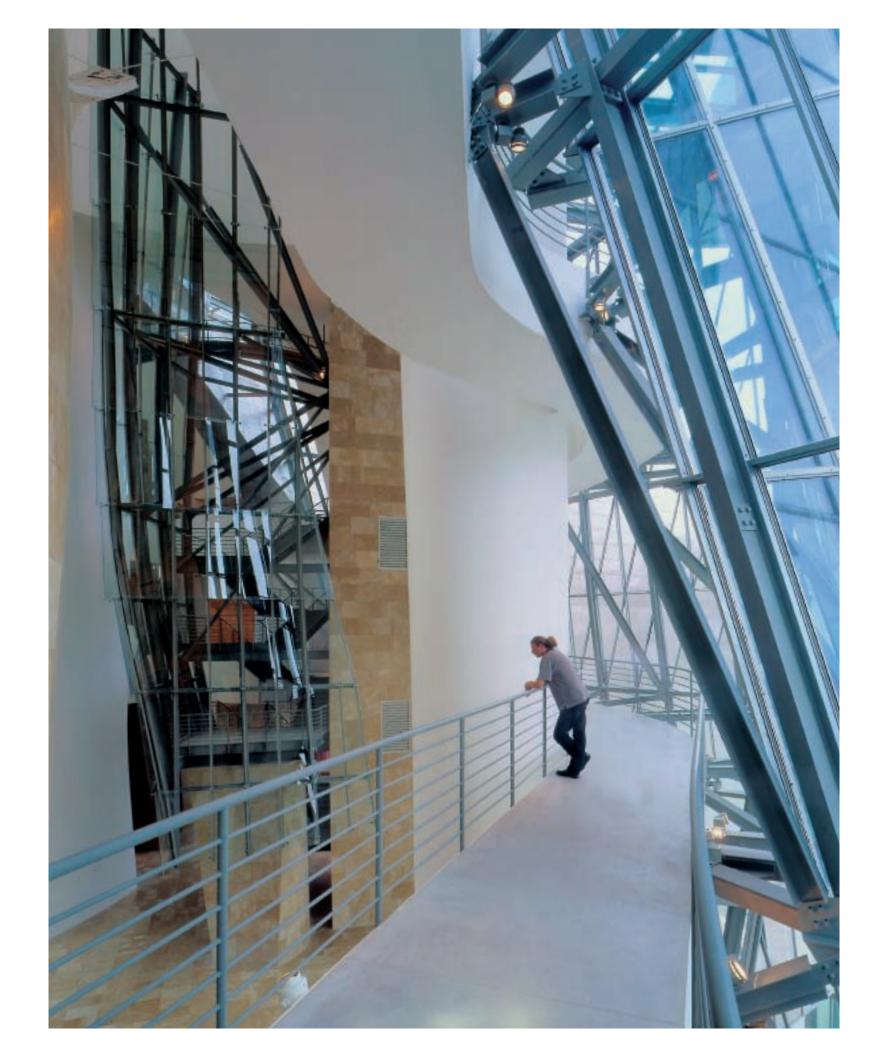
23. The atrium looking south-west.



- 26. The north section of the atrium looking east with sculpture by Claes Oldenburg and Coosje van Bruggen.
 27. The north section of the atrium looking west.

- p. 48/49 28. The atrium looking into the sky.





31, 32. The east gallery looking west and east with sculpture by Richard Serra (© TAMCB Guggenheim Bilbao Museoa,1998) and wall painting by Lawrence Weiner.

p. 54/55 33. General view from the north-west.

