

# Current Work

by Frank O. Gehry

*The fourth annual James Michelin Distinguished Visitor's Lecture took place on November 8, and was introduced, as has now become the tradition, by Vice Provost and physicist David Goodstein, who claimed that he teaches philosophy at Caltech and does research in condensed metaphysics. As usual, Goodstein thanked Bonnie Casbin, the distinguished fashion designer, who donated funds to support the series to foster creative interaction between the arts and the sciences. The series is named for Casbin's uncle, James Michelin, "a petroleum geologist whose ambition it was to attend Caltech. Although he was a brilliant geologist, enormously successful in his career, he never achieved his ambition to attend the Institute, and that's why he never lost his affection for us," said Goodstein, as he says every year.*

*But an opportunity for a new joke came when Goodstein noted that the evening's speaker, distinguished architect Frank O. Gehry, had won the Pritzker Architecture Prize, which he hastened to explain is like the Nobel Prize in architecture and not to be confused with the Pritikin diet, for which you only get the No-Belly prize. When the groans from the audience subsided, Goodstein went on to describe the significance of the fish motif in Gehry's work, tracing it to his Toronto boyhood, when he was allowed to play in the bathtub with the weekly live carp before it was turned into gefilte fish.*

*In addition to the Pritzker Prize, which he won in 1989, for his "significant contributions to humanity and the built environment through the art of architecture," Gehry won the Wolf Prize in Art (Architecture) in 1992, the Imperiale Award in Architecture from the Japan Art Association in 1994, and was the first recipient of the Dorothy and Lillian Gish Award for*

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*lifetime contribution to the arts. He has received six honorary degrees and has held named chairs at Yale and Harvard. The New York Times has called his buildings "among the most profound and brilliant works of architecture of our time."*

When I got out of school, city planning was what I really wanted to do. But it has always been very difficult to be an effective designer in the modern American city because of the complexities of our cities—and because of the dollar-driven priorities where visual quality is low on the wish list going in, but much pined for after the fact. Democracy creates cities in which there are so many constituencies pulling in so many different directions that it's very difficult to give a form to the city other than the chaos that we seem to have. Since I like democracy, and I don't want to change the government that we have, I'm optimistic that we can find a way of making better cities within these constraints, rather than looking backwards to, say, Europe in the 19th century, where a different political system enforced the form of the city. We have to try to work with what we've got.

The questions I get asked most often are: How do I concoct these crazy things? How do I talk clients into them? How do I do it? What I do has grown out of years of evolution of a way of thinking. It seems very ordinary and logical to me, but I know that isn't the way others see it. So I'd like to try to explain how my buildings evolve.

**The University of Minnesota in Minneapolis wanted an art museum not made out of brick like the rest of the campus. In a land of mostly gray skies Gehry's shiny stainless steel facade picks up the evening light.**



**Left: Gehry's own residence in Santa Monica typifies his work in the 1960s and 1970s—buildings that used rough, raw materials.**

**Far left: Furniture made of laminated cardboard was so popular that Gehry had to stop making it for fear he would end up designing furniture for a living.**

**Below: The Loyola Law School in Los Angeles was conceived as a kind of urban village with relation to the surrounding buildings.**



I started my architectural practice in 1962, and in those early days I couldn't get good craftsmen for the kind of budgets I was working with. The craft was starting to disappear, and I couldn't get the kind of perfection that I'd been trained by my Viennese teacher to try to achieve. At that time, my artist friends were making sculptures and paintings out of trash: Jasper Johns used coathangers and plumbing devices; Rauschenberg used old tires; Donald Judd was working with galvanized metal. The kind of raw beauty of this art, as well as the small budgets that I had to deal with, encouraged me to think that way about building and architecture, and I started optimistically working with what was available. I used rough materials such as the raw framing and lumber as it came straight from the lumber yard, one example being this house in Santa Monica, which I built for myself in 1978.

I also explored materials for furniture, such as corrugated paper or cardboard; I was interested in the strength of the material, and I was also interested in the finish. I wanted to make furniture that constituted one idea—that the structure and the finish were the same. Using the edge of the paper and laminating pieces together, I ended up with a soft corduroy-like surface that was pleasing to touch and still allowed all kinds of structural hi-jinks like double and triple cantilevers, which you can actually stand on and bounce. When this furniture found its way to Bloomingdale's in 1972 and was rather successful, it scared me because I was starting to find myself in a career in furniture design before I had become known as an architect. So I stopped the

**Right: Collaboration between architect and artist produced the Chiat/Day headquarters in Venice, California, better known as the “binocular building” for Claes Oldenburg’s sculpture at the entrance.**

**Below, top: Thinking of a house itself as a sculpture in the garden was the idea behind this guest house next to a Philip Johnson house in Minneapolis.**

**Bottom: This furniture factory in Sacramento of galvanized iron and copper is an “urban idea” in the middle of an industrial park.**



whole thing and took the stuff out of Bloomington's. I told them I didn't want to do that and got everybody mad at me. Then I made some furniture for myself that nobody would like.

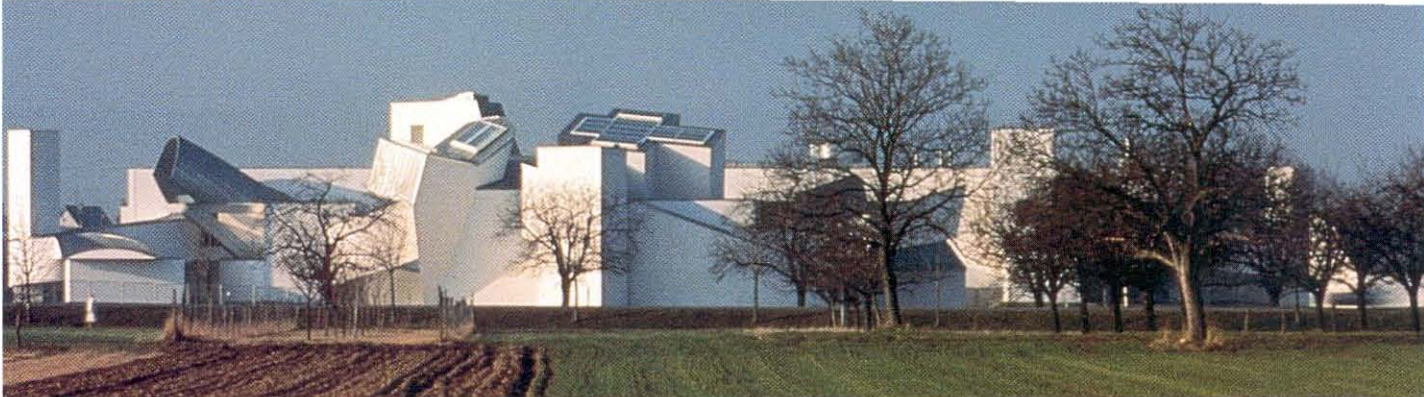
My first large local commission (not that large—about \$4–5 million) was the Loyola Law School in 1978. I liked the idea of making the building itself a kind of urban village, and I was also interested in including the neighborhood; all of the surrounding buildings became part of the composition. Students and faculty had asked that it look like a place to study law, so I used minimal decorative elements such as columns, to evoke this.

Another local building, the Chiat/Day headquarters in Venice, California, is also an urban idea. I believe that eventually our cities have to be some kind of collaboration between different thoughts, different ideas, and different constituencies. And here I collaborated with the artist Claes Oldenburg and his wife, Coosje Van Bruggen. Before this project, artists were usually given a plaza in front of a building and told to make a little mud pie of their own there; this has become affectionately known as “plop art.” I thought it would be a great experiment not only to bring the artist into the building as a major part of it, but to put him front and center—give him the entrance. After I started down this path and Claes and his wife made the first gesture, I realized how good it was going to be. Then I became a little worried that some magazine would cut my parts out and just show the Oldenburg entrance, which actually did happen: two

architectural books came out with just that on the cover. But by that time I was so identified with the project (I think of it as the “binocular building” project) that I was able to survive the ego problem. I really think architects have to be able to play together—maybe not always in a small building like this one, but I think that doing a Rockefeller-Center-scale project single-handedly is antithetical to today's culture.

It has been noted that I'm interested in fish. Years ago, Norton Simon had a Shiva figure from India on loan for awhile. When he showed me this figure, he commented, “frozen motion.” I remember looking at it and looking away, and I was sure that it had moved. So I tried to design a trellis for his house using that idea of frozen motion, which confused the hell out of him, and he, being a prudent businessman, stopped me. My “unfinished symphony,” he called it. But I continued to pursue it in other work, because the idea of inert materials having a sense of motion appealed to me. In the end it becomes another kind of decoration. Buildings need *something*, and whether movement is important or not, time will tell. But the idea seems to have some logic in our fast-moving society.

I started with the fish because my colleagues were starting to regurgitate the past. A few years ago modern architecture was abandoned in favor of a rebirth of Greek temples with pediments and so on. I didn't like this trend and thought, “Well, if we're going to go back in time, why don't we go back further—to fish, which existed 300 million years before man?” So I started drawing these fish as a symbol of my anger.



**Above and right:** One of Gehry's first attempts to use curvy shapes (before computers) was in this furniture museum in Weil am Rhein, Germany. **Below:** Gehry's first fish was a lamp that emerged from broken pieces of another lamp—and from his anger at architectural regression.



Then somebody asked me to make something with Colorcore formica. Because this material is translucent, I made a lamp with it. But when I didn't like the way it turned out, I threw it down; it broke into a bunch of pieces and I made a fish.

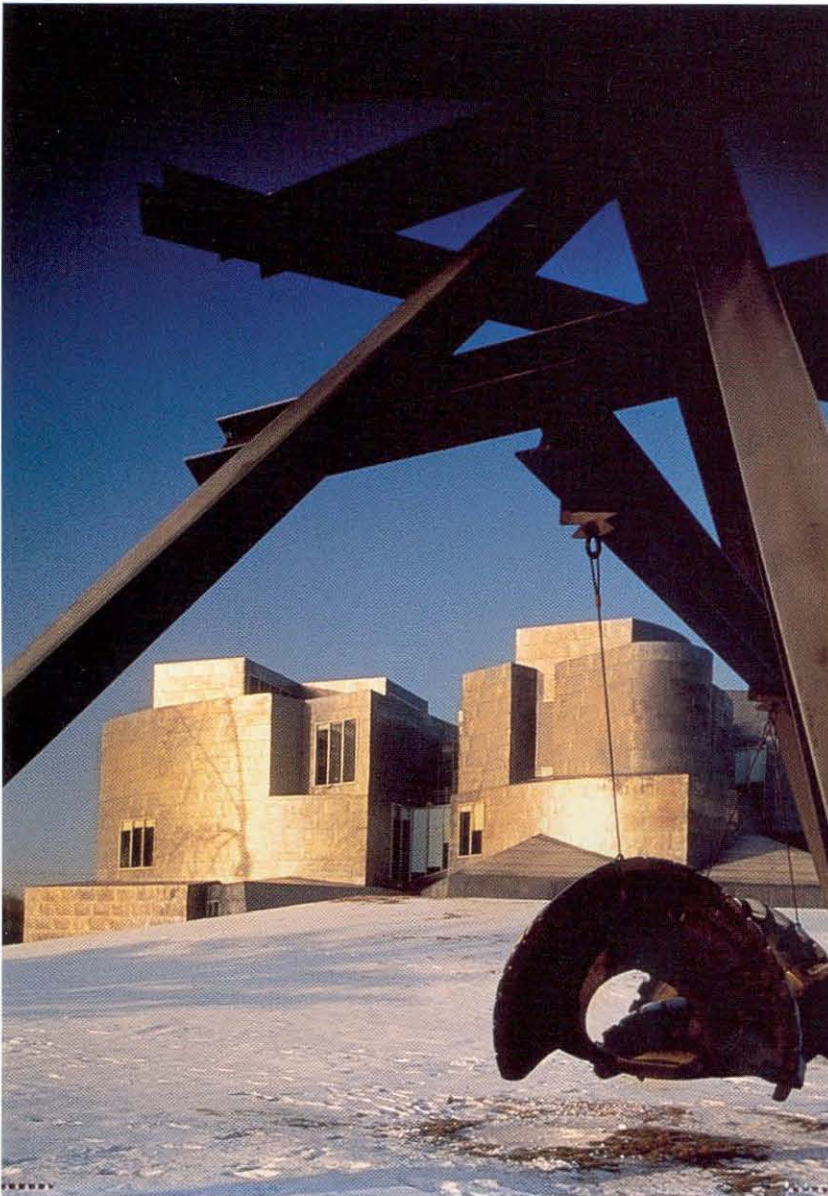
This led to many other fish stories. I made one that was 25 feet long, in wood, for an exhibit in Florence, and when I stood beside it, it had the same effect that the Shiva had had, and I thought, "Eureka, I've found it!" So I started to make forms of buildings by cutting off the tail and head, because they're kind of funny to make buildings out of, and then started to see how minimal the abstraction could be, while still keeping the form. Out of this came a lot of study and work, which led to the realization of some double-curve forms. These curves seemed almost impossible to build (or at least very expensive), and I spent the next years learning how to do it. The furniture museum in Switzerland shown above is an example of one of my first attempts to use these curvy shapes. You can see how awkward it was—not because of the workmanship but because of the primitive descriptive geometry techniques for drawing such things before computers offered us better tools. Oldenburg was already there, so I didn't have to bring him; I just nuzzled up beside him.

Sometimes it's more difficult to nuzzle up to what's already there—for example the art school that we were commissioned to build next to the Toledo Art Museum. How do you make a building that attaches itself to something that's so strong and classical, with its light marble, and

colonnades and columns? Most architects with commissions like this try to copy it and usually fail. As in the Salk Institute in La Jolla, the new addition can't *really* be like what Louis Kahn did, so everything that mimics Kahn's work trivializes it. We didn't do that in Toledo. Since the museum is an expansive long building, we decided to make the opposite—a compressed building. I wanted it to look like compressing a piece of coal into a diamond, pushing it together as tightly as I could, so that it looks as if it would just spring apart if you pulled the plug.

We also did an art museum at the University of Minnesota. Since the campus is all brick, the president of the university asked me not to make another brick "lump." He wanted the building to attract attention, because until this point the art facilities at the University of Minnesota were not in anybody's consciousness. So we used stainless steel. I agonized about using this shiny stainless. But I spent a lot of time there looking at the site, watching the light. The winter Minnesota skies are pretty gray, so we angled the facade to the west, where it picks up the sunset—or whatever light remains. Inside, the galleries are very simple, with skylights above eye level.

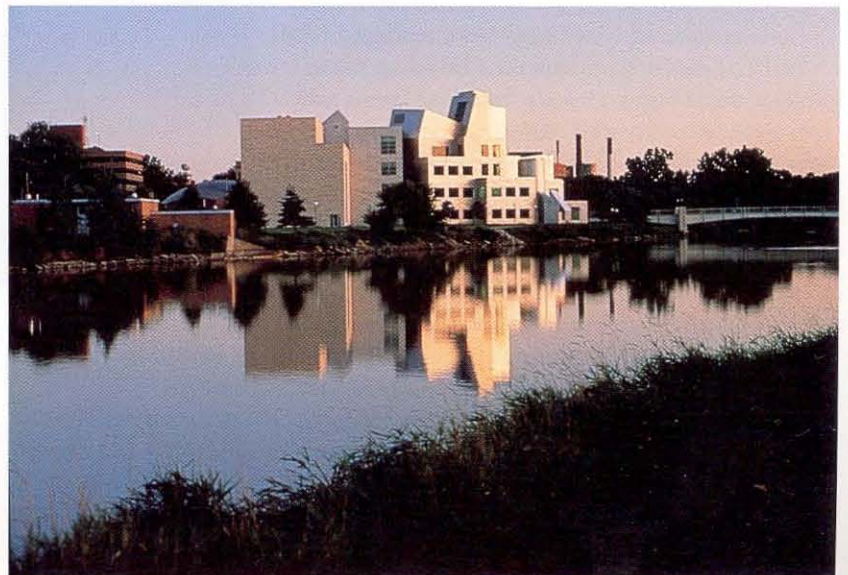
In Basel, Switzerland, we were hired to build an office building, a headquarters for a furniture manufacturer next to a factory of theirs. (This was the same client for whom we did the furniture museum.) We kept the main offices simple and rather stodgy, because this place sells furniture. We were afraid that if we made a wiggly-wobbly building the customers would say, "Well, your furniture looks good in this building but we



**Left: For the art school, the Center for the Visual Arts, attached to the Toledo Art Museum, Gehry built a tightly compressed building, in contrast to the long, classical colonnades of the museum. The exterior of the building is lead-coated copper. Below: The headquarters of a furniture manufacturer in Basel, Switzerland, has a fairly straightforward building for the offices and a “wiggly, wobbly” conference center.**



**Right: The offices of the laser laboratory at the University of Iowa are intended to be somewhat “crystal-line,” while the support facilities, which are mostly pipes and require no windows, allowed Gehry to design the sculptural shape below.**



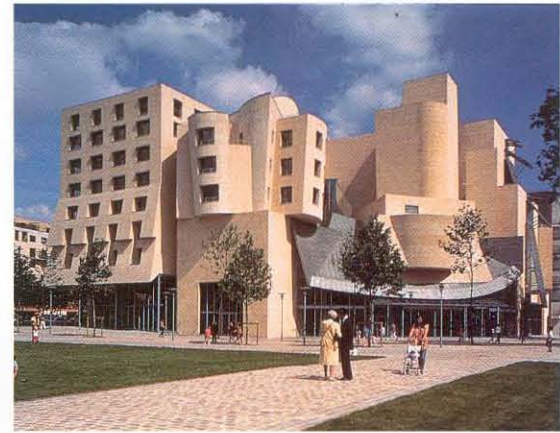


**Right: In the American Center in Paris, Gehry wanted to embody the different parts of the center's programs in the sculptural energy of the building. Left: Not just metaphorical energy but real energy here—a local energy company in Bad Oeynhausen, Germany. The scale of the building was carefully planned to fit into the neighborhood—even the heavily trafficked street.**

don't have a building like this." So we made a very simple backdrop and put all the sculptural qualities in the conference center. Bridges lead from the conference center back across into the offices. In the future, other wings will be added to the office building. The building works contextually—the shapes are different from the nearby office building and housing, but the scale of the pieces is designed to fit into the neighborhood. Quite often when I do things like that, by the time the building's built, all the other buildings have been torn down and my building is standing there alone.

I built the American Center out of my love for Paris, where I lived for a year in 1960. I loved the limestone of the city and what I call the "cleavage" of the 19th-century Parisian buildings—the rooftops. I had the opportunity here to make a building along a street and then opening the building into a park. The Center contains housing, a theater, and a language school, so the building has many parts to it. I wanted to give it a sculptural energy to represent the different parts of its synergistic program. But on the back, it's very simple to match the surrounding buildings. When I started, all of these surrounding buildings looked Parisian, and when I finished, the new buildings around me looked like social housing in Copenhagen.

In Bad Oeynhausen, Germany, we designed a building for a local energy company. The client, the head of this company, told me when he met me that energy was not just what people thought it was; it was also musical energy, art energy, and so on. He got off onto a wonderful toot with me



on this building. Again, there's a contextual quality in the relationship of the pieces to the neighborhood, even though the building looks a little strange in comparison. The pieces have been carefully planned to be in the same scale with the houses nearby. The most exciting thing about this context is that about a hundred huge trucks go by this site every minute. When you sit in the little cafe across the street, the trucks blend in with the architecture.

Inside, there's an exhibit, designed by Craig Hodgetts and Ming Fung, on energy and saving energy. It has lots of gadgets in it, including a device that brings sunlight into the room, which then goes through a kind of Rube Goldberg contraption before coming down to a tiny, one-inch magnifying glass. This burns a hole in a turning piece of wood, so that at the end of a day you can see how many times the sun came out.

The fish kept getting bigger and bigger, and the one shown on the opposite page, in Barcelona near the Olympic Village, nearly got away. It's made of stainless steel, and we ran into great difficulty trying to describe the curved structure that had to be built underneath. By some miracle someone in our office discovered a program called CATIA used by the French firm Dassault Systemes. They make the Mirage fighter plane. To avant-garde scientists this program is probably old-hat, but it's a pretty good system for us—to allow us to take some of these curved shapes, demystify them, and explain them to real builders who build real buildings. We were able to use the computer to make the shop drawings, actually cut the steel, make the

**Below: Difficulties describing the curved structure that supports the metal mesh of this fish—the biggest one of all—in Barcelona led to use of a computer program for designing aircraft that henceforth enabled Gehry to incorporate wavy shapes into his buildings relatively easily and economically.**



**Left: This bus stop in Hannover, Germany, was designed and built quickly and on a low budget with the help of computers.**

shapes, and put in the bolt holes. It was wonderful to see it being put together and the holes actually lining up. When I say “we,” I mean the colleagues in my office. I still do not even know how to turn a computer on. (Later I did play with the computer a bit and actually used it to design some of the shapes for the residence in Cleveland shown on page 20). Artists and people like me who worry about how things look hate computer imagery. I can’t stand looking at the screen; the images drain all the juice out of your ideas. But I tried it. It was like putting my hand in the fire to see how long I could stay on the screen. I logged about three and a half minutes before I had to run out of the room. But it’s promising, and I’ll be able to do it some day.

But regardless of my own problems with it, the computer has been very helpful to us. We built a little bus stop in Hannover, Germany, that was all done very quickly on the computer. All the pieces and shapes were cut and made within a very tight budget—I think it was \$120,000. Without the computer program I would have just squared it, but the computer allowed us to be daring and still stay within the parameters of a reasonable budget.

One thing that has not stayed within the parameters of a reasonable budget is the Walt Disney Concert Hall for Los Angeles. I talk about it reluctantly because I want it built; but it’s not all up to me. The clients asked us for a surround hall like the Berlin Philharmonie, but they wanted to have the sound of the Boston Symphony Hall, which is a shoebox. We met with the selected acoustician, Dr. Nagata from Japan, who told us that the hall should be narrow at the stage end and widen as it went out to the audience. When we went to Berlin to look at that hall and we met the Berlin acoustician, he said that the ideal hall should be *wider* at the stage end. This left us a bit confused, so I had the great idea to get the two acousticians together over dinner and listen to how they discussed this disparity with each other. The German guy was really cranky; Dr. Nagata was very polite, and I’m afraid in the end he won just by being extra polite. We then settled for a wood box that was wider than Boston. The people of the Los Angeles Philharmonic also wanted a hall with no balconies, because they thought balconies created second-class citizens—even though everybody knows that in every great hall in the world the best sound is in the balconies.

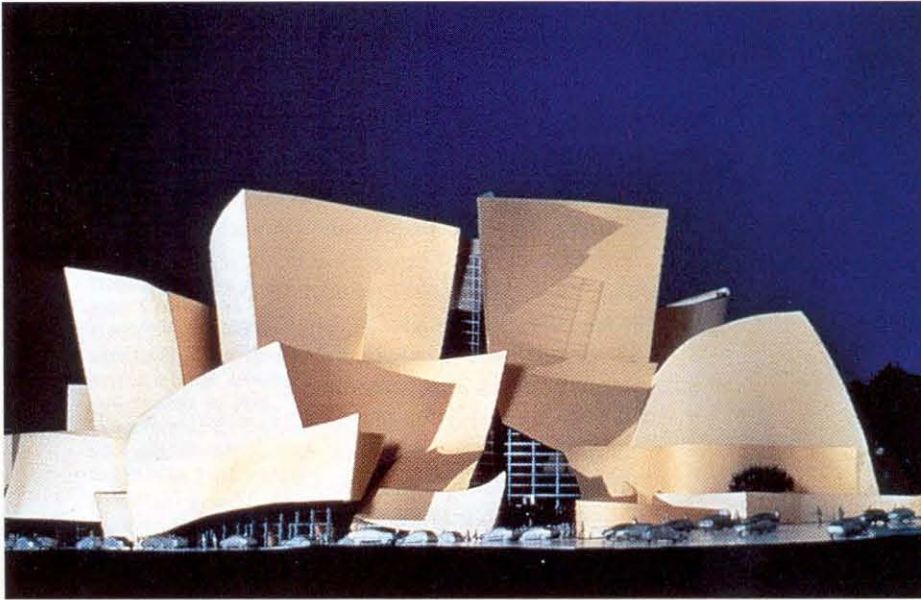
In the end, to get the number of seats, we had to put in some very shallow balconies. Dr. Nagata and his crew came and tested every seat. They had comparative data, by the same method



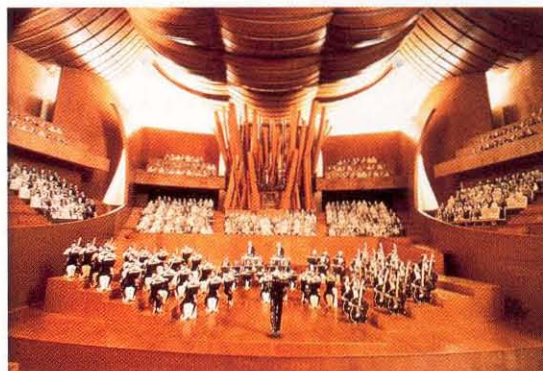
of testing, from all the great halls, and after they were finished, told us that this hall would sound better than any of them. They even played a Mozart sonata for me, which they digitized into what it would sound like in the hall. It was quite extraordinary, although I don't believe it. In working with musicians, I have learned a lot of things about sound. One of them is that people like to be in a wooden room to listen to music. Also musicians can come into a space and understand it acoustically. Sometimes they move the orchestra seats around and can, I think, modify the sound as much as 30 percent.

Then, of course, the orchestra has to be good, the music has to be good, and *The Los Angeles Times* critic has to have a good seat. The orchestra has to practice and learn to use the hall for a year or so, and the audience has to be understanding and compassionate. And then after 30 years, when the hall has become older, and the great musicians of the world have conducted there, and great recordings have been made there, nobody will dispute that it's the greatest hall in the world. When you go to Boston Symphony Hall today, and the brass section is a little louder than it should be, and you sit in the orchestra and get blasted, you don't mind because you've been told that it's the greatest hall. So you believe it. It's precarious to do one of these things, but I'm hopeful.

Disney Hall's exterior, on the other hand, has been relatively easy. All of the part that looks as if it would have been way out of our reach was within budget. We had been told that the building had to be stone, and we selected a beautiful limestone from Vicenza. When we finished the design and turned it over three years ago to other executive architects to do the drawings, we were told that it was all on budget. Our office maintained control of the exterior, because it was wiggling and wobbling, and we didn't think anybody would know how to do it. A year or so ago, when the project collapsed, this was the only part that was still on budget, because of the computer work. The gadget for digitizing the shapes allows us to take the shape of a particular piece right off the model. Each piece of stone is analyzed; the computer pretends to cut it and makes a program; then that program is given to the stonecutter in Vicenza, who, with no hands, makes that piece of stone. On Disney Hall the most complicated piece of stone is fairly flat. The larger shapes come out of the subtlety of the cutting. When you look at the building you don't understand it as a bunch of rather flat blocks—it just aggregates into those shapes. All the stone for Disney Hall was quarried and ready

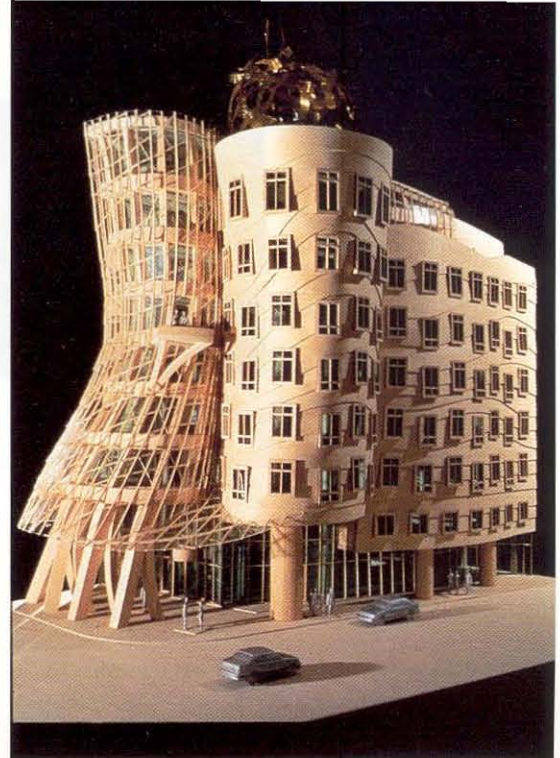


**The exterior of the Walt Disney Concert Hall, which has yet to begin construction in downtown Los Angeles, is made of an Italian limestone, cut by computer into sweeping, curved components. The interior finally ended up a wide, wood box with shallow balconies.**



**"Fred and Ginger,"** as this building was dubbed by the Czechs, was made to fit in with the buildings along the Prague riverfront (right) but not copy them. What Gehry calls "implied towers" pick up the look of the 19th-century neighborhood, and floor-to-ceiling windows correspond to the busier texture and higher ceilings of the older buildings. "Ginger" sticks out from "Fred" so that the street will curve into the bridge, a feature requested by the city.

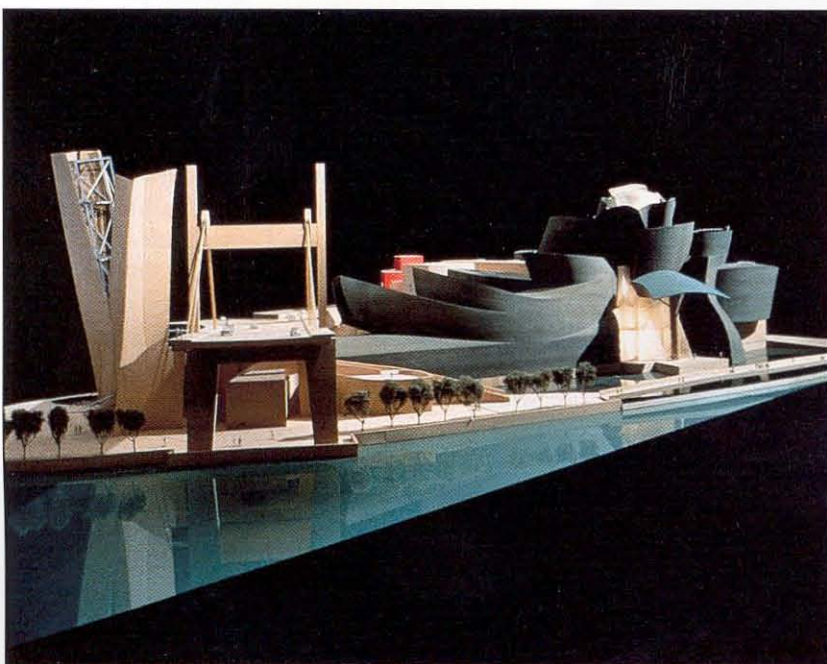
**Below: The Guggenheim Museum in Bilbao, Spain, was done, like Disney Hall in Los Angeles, on a fast track, using computer technology. Computer fabrication of the steel shapes came in under bid. This model was also milled out by a computer with special tools.**



to cut when we stopped.

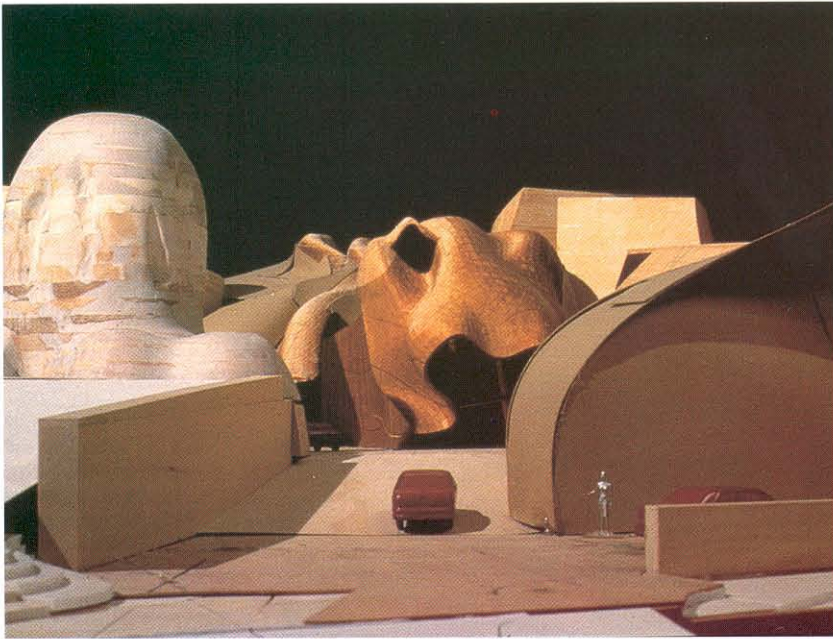
One building that wasn't stopped is the office building in Prague, shown above. President Havel lives here, next door to our building; his grandfather designed it a long time ago and liked it so well he even built two identical buildings. In 1945 an American bomber accidentally dropped a bomb on this site, and Mr. Havel, when he became president, asked that it be fixed. I was recommended through a Dutch company, and when I met with Mr. Havel, he asked me to make a building that fit into the site with its 19th-century neighbors but that didn't copy them. Unfortunately, Mr. Havel's wife was a friend of Prince Charles, and she was horrified that I was chosen. When the Czechs saw the models in the earlier stages, they named the building "Fred and Ginger." Articles appeared in the press about "Fred and Ginger," blaming me for bringing Hollywood kitsch to Prague, even though *they* had invented the names. This created such a fuss that the building was actually put to a public referendum. We got 68 percent of the vote. It should be finished this month.

In Bilbao, Spain, we're building the Guggenheim Museum. Bilbao, cradled in a lovely green valley, is a beautiful town with a character like a section of Paris. The main city, sort of blocky with a "tough" aesthetic, was mostly built in the 19th century. The industrial development along the river is now being converted into cultural facilities. Originally, the museum site had been designated in town, but that didn't work. This was a competition that we had won, and when we were taken on a tour of the city and asked where

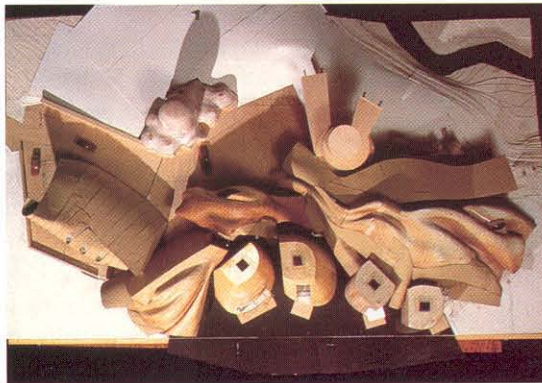




**Left: The molecular biology laboratory at the University of Cincinnati Medical School is made of brick to match the campus and for reasons of cost, but Gehry selected the particular brick for its warm glow in the Cincinnati light. The building is in the shape of a simple cross, with offices in the center and the labs pulled out to the sides.**



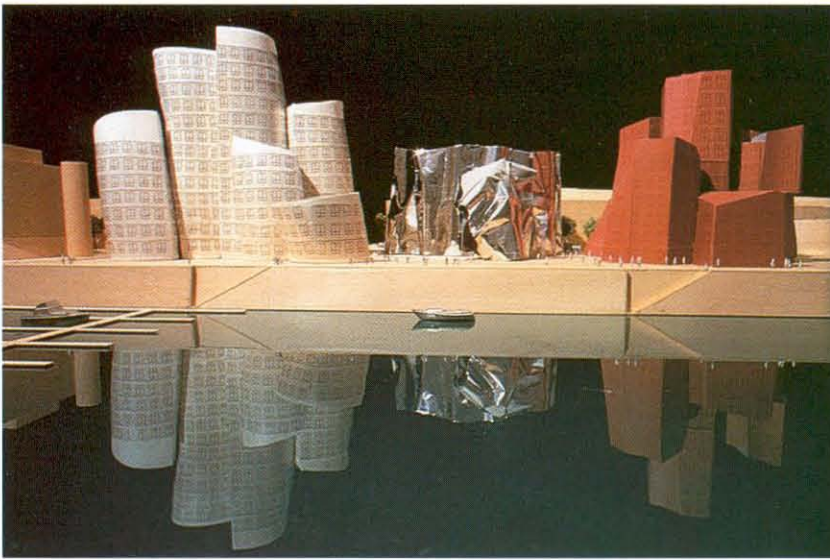
**This residence in Cleveland was an experimental project, from which many ideas emerged, but it will never be built. Gehry actually interacted with the computer himself to design some of the shapes.**



we wanted to build, I picked out this site. The site also includes a piece that stretches under and past a large bridge. We threaded the building through the bridge tower to the other side, making a relationship with the heart of the city down river.

When I saw the site for the first time, I made a sketch that looks a lot like the finished building. Whenever I do that, it makes me wonder why I have to work so hard. Why can't I just *do* it? But it took two years to go from the initial sketch through rough models and various computer-generated models to the finished design. We work in several model scales at the same time in order to insure that we don't get fixated on the particular scale that we're working on. You can become enamored of your drawings and your models as you're working, and lose sight of what you're doing in a scale sense. Shifting back and forth between several different scales forces you to think of the real building. This building was done in the same way as Disney Hall—on a fast track, using computer technology. In this case our office was able to do *all* the drawings, but since it's thousands of miles away in a country with a different language, it was still a complex project. There aren't many straight lines in it. It's just as complicated as Disney Hall, but it's all being built right on budget. By using the computer, the steel fabrication came in 18 percent under the budget as bid. So it *can* be done.

When I started this project, I was reacting to the space created by Frank Lloyd Wright in the Guggenheim Museum in New York. Over the years I had witnessed the trouble people had



**Above: Gehry decided to make this office building in Düsseldorf, Germany, three buildings instead of one, in order to fit in with the street pattern and break down the scale. The three are sculpturally related yet have separate identities. This model was also developed with the use of computers.**

**Below: The practice rink for the Mighty Ducks hockey team was commissioned by Disney and struck a particular chord for hockey-fan Gehry. (Photo courtesy of Erich Ansel Koyama)**

hanging shows in that space, and so I was trying to be “polite” on the inside and make it easier on the artists. But my client, Tom Krens, director of the Guggenheim Museum, told me, “Now, I want you to be more cantankerous than Mr. Wright; I want you to outstrip him, take him on.” He said that some of the best shows they’ve had in New York were shows in which the artists were reacting to or interacting with Wright’s space. So my atrium is twice the height of the one in New York. And the artists, at least the living ones, can interact with three shaped galleries. The dead artists, who can’t defend themselves, will get the stodgy galleries plus the rectilinear galleries that can be sliced out of the long, straight exhibition hall if needed.

The piece of the building that’s along the river was envisioned as evocative of the river and the boats, and the back side, facing the city, would develop a relationship with the city. The entrance to the museum is down a ramp into a glass enclosure; the ramp lines up with the city street, and as you come from town you’re sort of swept into the entrance. I’m hoping to put a hologram of Frank Lloyd Wright standing there in the entrance sneering at us. The building’s exterior skin will be titanium, a metal mined in Russia and Australia that has only recently become available for building use. We’ve spent a year studying the materials for this building and working with the factory to get the right finish on the titanium. The nice thing about the material is that in the rain it doesn’t look metallic; it has a warm glow. In Bilbao, which gets a lot of rain and cloudy days, it will be a very friendly facade.

We’ve been asked to do another museum in Seoul, Korea. Because it’s on a very complicated urban site next to office buildings, our first ideas related to the office buildings, and the shapes became part of those buildings. Then we realized that this wasn’t appropriate; a museum should have its own language. There are some palaces and small-scale buildings near it, and we decided to relate to those in scale, but I still needed to find myself in Korea and find a language that has some relationship to the place. We started with blocks and sketches, and found inspiration in the beautiful Korean landscape paintings and screens that we looked at. Unfortunately, Seoul has a lot of bad copies of American and European buildings. The city has been built fast, and what’s left that is beautiful is the landscape. With this building I’m trying to make a relationship with that landscape. The design isn’t finished yet; we are still in the early struggles of getting ideas and figuring out how to start.

I’ll close with a hockey rink in Anaheim. Three years ago, when I turned 63, I decided to start playing ice hockey. My kids had been playing hockey, and these rinks are cold at 5 a.m. when you go to practice. So when Michael Eisner asked us to do the Mighty Ducks practice rink, I loved getting involved with it. I wanted to use a lot of wood, because I knew how cold it could get. Disney (not the Ducks) challenged us to a hockey game. We beat them 11-5. □

