

MS. KARMI-MELAMEDE: Michael Arad holds a bachelor's degree from Dartmouth College and received a master's degree in architecture from the Georgia Institute of Technology. Growing up as the son of a diplomat, he has lived in London, Mexico City and Washington D.C., and in between, served in the army.

Michael was working as an architect for the New York City Housing Authority when his design, Reflecting Absence, was selected for the World Trade Center memorial competition.

Since 1999, he has lived in New York City. His first position was with Kohn Pedersen Fox. There he worked on several major projects, including the Union Station Tower, a mixed-use 108-story skyscraper in Hong Kong, and Espirito Santo Plaza, a 37-story tower in Miami that won the New York AIA Award in 2001.

The Lower Manhattan Development Corporation launched the international World Trade Center Site Memorial Competition, probably the largest competition ever launched. There were 5,201 entries received from 63 nations and 49 states, and these proposals were evaluated by a 13-member jury.

Reflecting Absence was originally designed by architect Michael Arad, with subsequent collaboration by landscape architect Peter Walker, who was here a few years ago.

The proposed space is located in a field of trees that is interrupted by two large voids containing recessed pools. The pools and the ramps that surround them encompass the footprints of the Twin Towers. A cascade of water that describes the perimeter of each square feeds the pools with a continuous stream. They are large voids,

---

open and visible reminders of the absence.

In a recent article about Louis Kahn published by the Boston Globe, my brother was quoted as saying that two Jewish architects came to Jerusalem. The first, Louis Kahn, was invited here to design the Hurva Synagogue, and he came like Moses, full of fire in the desert. The second was Frank Gehry, who was commissioned to design the Museum of Tolerance, and who appeared here like the fiddler on the roof. The fiddler won.

Michael, you are the third Jewish architect going from Jerusalem to New York reflecting absence, hopefully, in a poetic way. Thank you for coming.

MR. ARAD: Thank you very much for inviting me. I am very grateful for this opportunity to be here. I was a little worried about speaking to such a large crowd, but I can't see any of you so it's much better.

I should talk about what led me to become involved in the competition. For me, it was being in New York on September 11, witnessing the event first-hand, and experiencing life in the city in the weeks and months that followed.

What affected me was how so many people came together and supported one another in a city usually thought of as very private and insular and brusque. You saw memorials and shrines instantly coming up everywhere.

This is a picture of the pastry shop on my block. I remember being very shocked and surprised when I first saw this cake in their window. It says, We will never forget 9-11. Dare I say, this is in very bad taste. But I went by it day after day, and I thought I could actually understand what led somebody to do this, to find a way to react to what has happened to the city.

In a similar way, I started sketching. The very first idea I had was for a

---

memorial that would be out of the Hudson River. I imagined these two voids that would be carved in the surface of the river with water flowing to them constantly but that would never fill up. They would remain empty.

The idea of absence and loss worked into that. That was what I was trying to find a way of expressing. The fact they would be nearby but unapproachable, unreachable, was appropriate to describe that.

I took these sketches and worked them out for a while, and tried to think about how to do this. How do you take a sheet of water and carve two holes into it? I wasn't sure if I could do it, and I decided to build a model to explore these ideas. You see that model here.

Throughout this process, I got help from many people who were very enthusiastic and giving in many ways. When I decided to build a model, it was about a year after the event. I was taking some time off from work because my work visa had expired and I was studying for exams.

So I had the opportunity to spend some time studying this idea further, and I went to Jimmy Jamil, a Syrian model-maker. I didn't realize that at that time, but I knew him through KPF. I went over there and said, Can I borrow the laser cutter for half an hour. I'll be in and out. And then I proceeded to stay two days and got a lot of help from the people working there.

This guy basically sat down, and together we put the model together. It wasn't just a study fountain. It was a working fountain. I wanted to show pictures of process. It looks like a simple sheet of water, but it's two tanks and a pump in it which I ripped out of a small desktop fountain and put in there.

---

This was first moment we filled it up. Just seeing that moment of the water slowly rising up and then falling into these two voids, and hearing the water -- I didn't really know what it would look like till we got to that second.

It was a really radical moment when I thought, I have something really beautiful or remarkable here. But I wasn't sure what I would do with it, so I set it aside and looked for work. It took a while to find work because New York was in a recession.

Here are a couple of images, the idea of a reflection of the city in these two voids. These were taken from my rooftop looking north, not south where the World Trade Center was.

A year later, a master plan was selected that Daniel Libeskind proposed. In reaction to that master plan, I started think about how to actually build a memorial on the site.

When I first started to think about the memorial, the site was one of ruin and devastation, and I couldn't imagine building there when bodies were being pulled out and flames were still rising. When it became clear that this would become part of the city again, I wanted to react to that and be part of that process.

In Daniel Libeskind's master plan, there were a few strong design memorials which I thought worked very well as a re-introduction of Greenwich Street and a reintroduction of Fulton Street, which cuts east-west across the site. This is Fulton Street and this is Greenwich Street.

They took the entire 16-acre site, subdivided it, and brought the street grid back into the city. And there was the possibility of reconnecting the site with the surroundings. Here are some images of the proposal that Libeskind suggested.

However, what I found disturbing about the Libeskind master plan was that the

---

enormous space it suggested for the memorial was a large depression. The whole site was pushed 30 feet below street level, and I felt it was an overwhelming space that wouldn't allow for the intimate experience of memory which I was hoping to achieve.

So it was really in reaction to that master plan that I started thinking about how to bring forward these ideas I proposed for a river on land, so to speak.

In sketching the site, I was thinking of placing two large depressions in it which would mark the footprints and allow the entire perimeter of the plaza to be linked to the city. You could have people walking up above and looking down into the bottom of each pool.

You could also have subterranean spaces and empty spaces you could look out through, and that's where the names would be inscribed. So there were many influences which propelled me into looking in this direction.

The first intuition I had was to flood the whole site and mark those voids, but I felt that was negating its presence and the possibility of it being part of the city. I wanted the space to be occupiable.

These images of quarries were some of the ideas in my head as I was thinking about the design, a very, precise, square geometry incised here, water and trees, and simultaneously, ruins and rebirth happening on the site.

This is a project I saw recently. It's funny. Once you start looking for square depressions, you find them everywhere.

The competition guidelines were fairly strict and changing, but when applying, I never really considered the guidelines all that closely because I felt I really should bring the site up to grade. I should find a way to let the footprint be open to the sky. So I decided I would just propose something and send it out.

---

This was the board I put together. On it you see the basic design of the memorial, which is the creation of a flat plane and a carving of two voids in it, both above ground open to the city, and spaces below ground, and more private and international.

Some images of the site plan, the plaza level and below, the space of the memorial by each pool, a band of names and water. This was on the board.

I wanted to talk a little about the influences of other architects which I found to be particularly evocative. Some of these were things I looked at years ago, and others I looked at more recently, trying to think about the memorial.

This is Ada Campbell's art gallery and art museum in Ft. Worth, Texas. The light is brought in in a very precise and controlled manner. This is actually with the baffle on at the very top. The whole thing can be opened, but even when there's just a narrow opening, the whole wall is washed with light. The heavy quality of concrete and the light quality of light together were important things to me.

This is the Modern Art Museum, again concrete and light brought together very beautifully. I was very fortunate to hear Ada lecture in New York. She showed this beautiful building, and also talked about the idea of materiality, light and geometry.

One other element that was very important to me was the idea of a sense of excavation and monolithic construction. In this project, you again see that juxtaposition of very heavy elements and a very light tracery of light.

Finally, the use of water was very important to me. This is a project I found leafing through books, and I had a moment of, aha, it's been done. I don't have to worry about whether we can do that. But I don't know. It's probably premature to say that.

Water being used as a screened enclosure on one side which shields and

---

protects. It doesn't allow views in, but when standing behind it, it's very open and transparent and allows views out. It is crucial to a memorial that it be sheltering, but not stifling, and that it creates space for the viewer.

A few years ago, when I was a student preparing for my thesis, I was very influenced by highway structures on a monumental scale. I think about most public architecture as experienced by a pedestrian. But if you think about the scale of these spaces and the incredible nature of the materials and the way the light comes through, these images are very evocative. Coming back a few years later, I saw what I could take from it.

Finally, the site. In talking about materiality, I think the truth or the reality of the actual items at the site is another important element to bring into the memorial. This is an idea that Daniel Libeskind suggested before.

My first reaction was, I don't know. But when you actually go to the site and see it first-hand, it has such a presence and such a strength that I subsequently tried to modify the scheme after the selection to include it.

Here is a picture of the site today. Another element, an artifact of the site, which I thought was important were these sawed-off columns of bedrock at the top of the foundation slab. These led up to the towers and down to the foundation, and this is what remains of them today.

They are a sort of mark, something that, in a way, can't be substituted. And these too will be incorporated into the spaces of the memorial.

I found out in a sort of curious way that I was a finalist. They tried to reach me by phone, but I had changed my number and I was unreachable. Our son was born six weeks before they called and my life was in a lot of turmoil, so I wasn't checking e-mail all

---

that frequently.

They sent me an e-mail message that sat around for a few days before I found it, and a very quirky question came out about submission. I thought I must have done something wrong. Then I was told that I was a finalist, and I was given two months to develop the scheme much further for presentation to the jury.

I was given much more information about the site, and subsequently, I had a period in which to take the design further. This time I went back to Jimmy as a paying customer, and we built a couple of models together.

I wanted to show the process of that because so many of these decisions are made as you work, and to be working with such incredibly patient and generous people was a great gift. I probably would have torn my hair out every night if it hadn't been for their calming presence. That's Nabil, and Jimmy on the right.

We tried to incorporate running water into the models to demonstrate the void. I just wanted to show the models taking shape over a period of a few days. My wife came to visit me at the model-making shop. We were supposed to be done in two days, and she said, Is that going to be the model?

But it took shape very quickly, and it was a process of deciding how we wanted the trees to look around the model and putting everything together.

This was the model as finally presented. The guidelines were very specific as to what the model had to show. It was cut right at the edge of the site, which didn't really show the context. But you see where it began to address the issues of grading across the site, setting a high point at this corner and creating a monumental stair at the south end.

The instructions called for the addition of cultural buildings or a space for

---

cultural uses on the site, and so this was suggested as a diagrammatic volume which would shield the site from West Street, a highway running along the west side of the site.

In the spaces below the ground, the landscaping is very sparse and minimal. The idea was of tall eastern white pines. In addition to the model, I was working with a couple of graduate students over at MIT who helped me with the rendering in that dimension. That was also a great experience, because I had never worked professionally for anyone.

The process of saying, I think we should change this, became, What do you think about this, and I had to convince the two about everything that was happening. It was like having a constant pair of jurors critiquing every step along the way.

I wanted to show the sequence of entry into the memorial, the descent, turning a corner, continuing the descent to the level of the memorial, then finally coming right up to the edge of each pool which is where the names will be inscribed.

I saw this as the moment of greatest empathy in the memorial, standing there and seeing the hundreds and hundreds of names which would surround each pool, and the sheer size of each pool marking the footprint of the tower. Then having only this very sheer curtain of water falling down and a band of names separating you from the pool, and seeing the water flowing ceaselessly away to the center of the pool and disappearing into a void at its center.

Here is a short animation which we put together for that presentation. The music on that is by a Japanese composer. I heard him when I was working on the presentation. It's a ten-minute piece. It was hard to find something short enough, and then chasing down the copyright for it all at the last minute. There were 1001 things I had to struggle with. I never thought I'd be dealing with music copyrights in this process.

---

Another model, a slice through the project showing a section, descent, circulation space, the plaza space above, and the water flowing away towards the center. This model is on display at Winter Garden as part of the exhibit of the eight finalists.

I didn't realize it would be under very hot lights, and the water evaporated fairly quickly out of the model. Once a week I had to come in and pour two gallons into the model. It was behind a glass enclosure, and I felt like an animal on display, walking in and pouring water in and people taking pictures. The first time I was very self-conscious. I thought I should have a franchise, since I was using that water every week.

The reaction from the jury was mixed. They saw some things they thought were very positive, but had issues with other things. A process began where I would get comments from the jury, questions and clarifications.

One of the things they raised was that they felt the landscaping of the plaza was very sparse and bleak, and that it was over-dedicated to memorial uses.

I could understand that criticism because bringing the plaza up to grade was intended to link it to the city, providing space both to the memorial and so that the city people working in the office tower nearby could come down at lunch to eat.

Also, people coming to visit the memorial once in a lifetime could take two minutes to sit on a bench before going on to another site. So I tried to think about how to relate to that criticism.

I was also trying to achieve certain goals with the selection of those trees. I found eastern white pine trees to be very beautiful and sculptural. The idea was to bring back a tall verticality to the site where you'd have to crane your neck and look upwards. I thought it was very important to bring that to the site.

---

The other issue was with the paving underfoot. They thought it was very hard. I was talking about the use of moss which could have been problematic, though I was surprised to see that, like everything in New York, you can buy it. You can just get moss on a tray and lay it out.

If there are only three visitors to the memorial, you can do something as beautiful as this. But since we're talking about five to ten million visitors, we have to look at other surfaces underfoot.

I started thinking about other surfaces and mixing hard and soft skins in different patterns. It could be harder in some areas and softer in some areas. That was very important to me.

At this point in the process, I started talking to Peter Walker. I had always admired his work. Working at KPF, I didn't have the opportunity to work directly with him, but I knew of projects that he was working on, so I asked him to join.

This is a project by Roberto (?) in Brazil, a complete counterpoint to where I was. But in this project you also see the idea of incised squares and pattern making processes.

I thought, How do you preserve the intent of this open plaza with two voids very clearly marked, but find a way to bring in more vegetation.

This image of glacially-formed landscape was interesting to me because it talked about the Jeffersonian grid forming this rectangular road of networks across the site which sits on top of a completely other geometry formed by glaciers as carving elements. And I came back to that.

One way of thinking about bringing more vegetation to the site was just to add

---

more in a random pattern. But what I thought would be more interesting would be to find a way to set up a system of order that was secondary to first setting up the flat plane with two voids in it.

I was consulting with Peter, and with Doug Allen, a professor at Georgia Tech, who made some cryptic comments. What if you think of the plaza as a tablecloth that can be adjusted?

So the idea of filling up a set of bands which would run across the site came up. I thought I could use the bands to mark significant edges, like the edge of the pool and the edge of the ramp, and they would run all across the site unifying the entire surface of the plaza.

Like an abacus, you could almost take the bands and use them as an ordering device, placing trees randomly across them. Trees would line up in one axis, north-south. On the other axis, they would appear completely random, like a natural forest.

The order and disorder which was present in that earlier image was something I was trying to work with here. We ended up rotating the bands east-west, which I felt worked better with the site and the context of New York.

I wanted to show you this image because I think it talks about very clearly marking this flat open plane underneath your feet. The ground plane is very clearly registered. It was interrupted by these vertical elements which, in repetition, create a screening effect. I thought something working in this level of density would work on the site.

This is a project, I think in Granada. It's a courtyard, and here the trees are organized in rows. But I was hoping to show the idea of a plane being established under your feet, another plane being established over your head by the canopy of trees, and you

---

occupy the interstitial space of the tree trunks.

It's a screening by short and medium distance which is actually very open, and you can see right through it. The idea is of these trees coming up overhead and enclosing you. These are London plane trees in New York, and they can be trimmed in a variety of shapes. Here you can see them as vertical attenuated shapes, and the sculptural quality of the tree is very important.

I took some of the ideas which were in that initial pass and tried to modify them. I also started thinking about different materials underfoot, not just moss, but perhaps other ground covers.

This is a project by Robert Irwin, the Museum for Contemporary Art. He uses perforated paving that allows grass to grow in. You see a mixture of both hard and soft, and you can see how it changes in the various seasons as well. It has a single reading.

It's one density across the whole site. The idea is shifting that density so that, in some areas, the paving underfoot would be very hard where you have the largest volume of circulation around each pool and the entranceways. In other areas, you have much softer paving, so to speak, more grass and less stone.

This is an image I showed the jury, talking about the idea of different screening effects you can achieve through the density of the planting of the trees.

So I went back to the job, and very quickly, in a couple of days, they knocked out a few images which started to talk about the idea of bringing in trees and banding the paving underfoot. You see that here happening in the underground, and the trees creating a space overhead.

In addition to presenting to the jury, I also used this as an opportunity to build

---

another model. Again I went back to Jimmy and built another model for free, because he wasn't that busy that week. So I was lucky. It started to show this idea of banding across the site.

What I really wanted to show in this model was also the scale of the space relative to its surrounds, which I don't think the jury really had an opportunity to appreciate in the other model because it was cut off right at the edge of the street.

I decided to build a model of the entire surrounding site, all five towers being proposed. All of a sudden, this enormous plaza didn't look that big. It looked the right size relative to being across the street from the world's tallest building in the middle of New York.

This was the model, in addition to those two renderings, that I presented to the jury. Sometimes they presented just one question which you could deliberate over for a week.

It was a difficult process because I didn't want to reply in the affirmative to everything. There were elements in the design I felt could not be changed, and other elements I felt could be changed in response to the criticisms from the jury that would not negate it, but actually reinforce it.

In addition to working on these modifications to the design, I became aware at this time of how important the idea of bedrock -- the bottom of the excavation -- was to family members. That was already the end of the search for the remains, and that's where many remains were found.

So bedrock had this significant meaning to family members, and I thought there might be a way for me to incorporate that into the design.

Initially, the design stopped at this point -- or I should say the memorial

---

stopped at this point -- with the water flowing down from the plaza into the large pool across and into the void at its center.

I took the bottom out of the center void and created a channel to gather the water and create a room down at bedrock open to the sky above. That room would be a space belonging to family members and friends, a more private realm within the memorial, something belonging to them and not necessarily open to the general public.

In thinking about the space, I was influenced by projects like these, where light and geometry are used to delineate space very minimally, but very forcefully. The development of that idea was symbolic at its center. The cracked foundation slab is underfoot. The sawed-off columns would be present here. It was really a space which would be more intimate and private.

When I was told that they selected our scheme, we had one week to take these sketches and chipboard models and present them to the public. In that one week, we also had to do a lot of reconciliation between the design I suggested and the changes from the master plan.

We had a few very intense days of talks of design. This model was in the office, and we started to talk about where you place these cultural buildings still unidentified by use. They might be a museum for science or for children's art or an opera building. So how do you place such a building on the site?

You may recall, I was showing it in the southwest corner, this corner here, in part because it was the largest of the four quadrants so that a mass could reside in it without feeling too contained and crowded. But mostly I thought this is the primary entrance into the site.

---

This is the Freedom Tower, the Performing Arts Center. This is that additional square footage for a cultural level. In setting this as a high point of the site and carrying that across -- and this was always the primary entrance point into the site -- I thought that might not be the best place for it, and definitely not as large a volume.

So we had this back and forth about what shape it should take, and it evolved slowly. This was the shape we agreed upon a few days later. It was really all happening incredibly fast, a day or two before the construction of the final model which was presented to the public.

Again, back at Jimmy's, and the model as presented to the public back in January, and some renderings which show the space.

Since then, in the last two months, I've had the opportunity to work with a lot of architects and engineers on defining the programmatic and spatial needs of the memorial, taking the idea from the level of renderings and models to working drawings which started to identify areas of conflict with other uses on the site.

For example, the train station is right here, but below ground you can see the concourse. For example, this area or that area marks areas in which we overlap. How do we resolve these issues?

Other issues that have come up are very prosaic, like fire stairs and the number of toilet fixtures, whereas other things are much more meaningful to the experience of the memorial -- how the site is set, at what grade.

And there is so much fluctuation in this process because there are so many different parties involved. In addition to the train station, there are these cultural buildings and the Freedom Tower across the street, the Port Authority and the DOT.

---

Getting everybody together is a difficult process, but it's really the only way in which this will move forward.

I would like to end on this note, that the strength of the design, to me, is really about marking an absence, of creating a space that will allow people to come together to experience what is really a very private and individual experience.

I think that, if I am successful in doing that, I will be very happy with the project. Thank you.

MR. SPECTOR: Thank you, Michael, for a very exciting lecture. I'm sure it meant a lot to all of us.