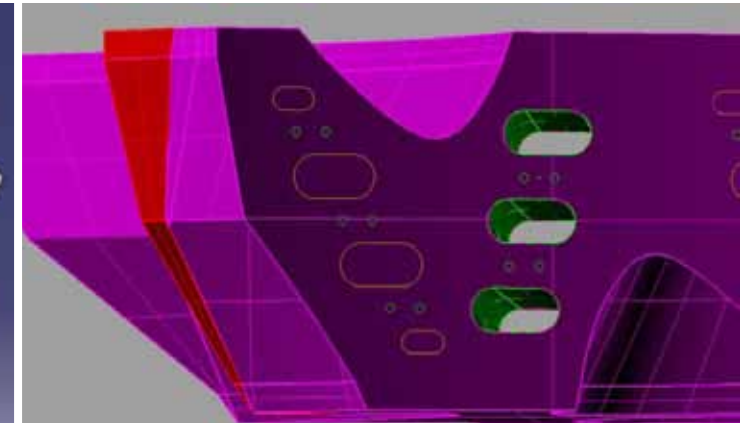
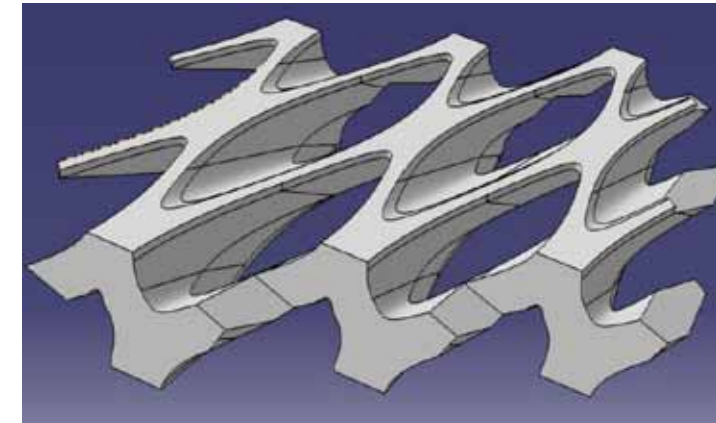




Gagotian Sculpture  
Architect: Frank Gehry



## CTC ENGINEERING, FABRICATION AND INNOVATIVE PROCESS REALIZES CREATIVE VISION OF COMPLEX ART PROJECTS

- Digital fabrication capabilities
- 5-axis CNC routers
- Complex geometry analysis and fabrication on metals, glass, concrete, FRP, and other materials
- CATIA, Rhino, REVIT, Solid Works capabilities
- Custom material development
- Structural engineering and design support
- Turn-key fabrication, including installation



## Gagosian Sculpture

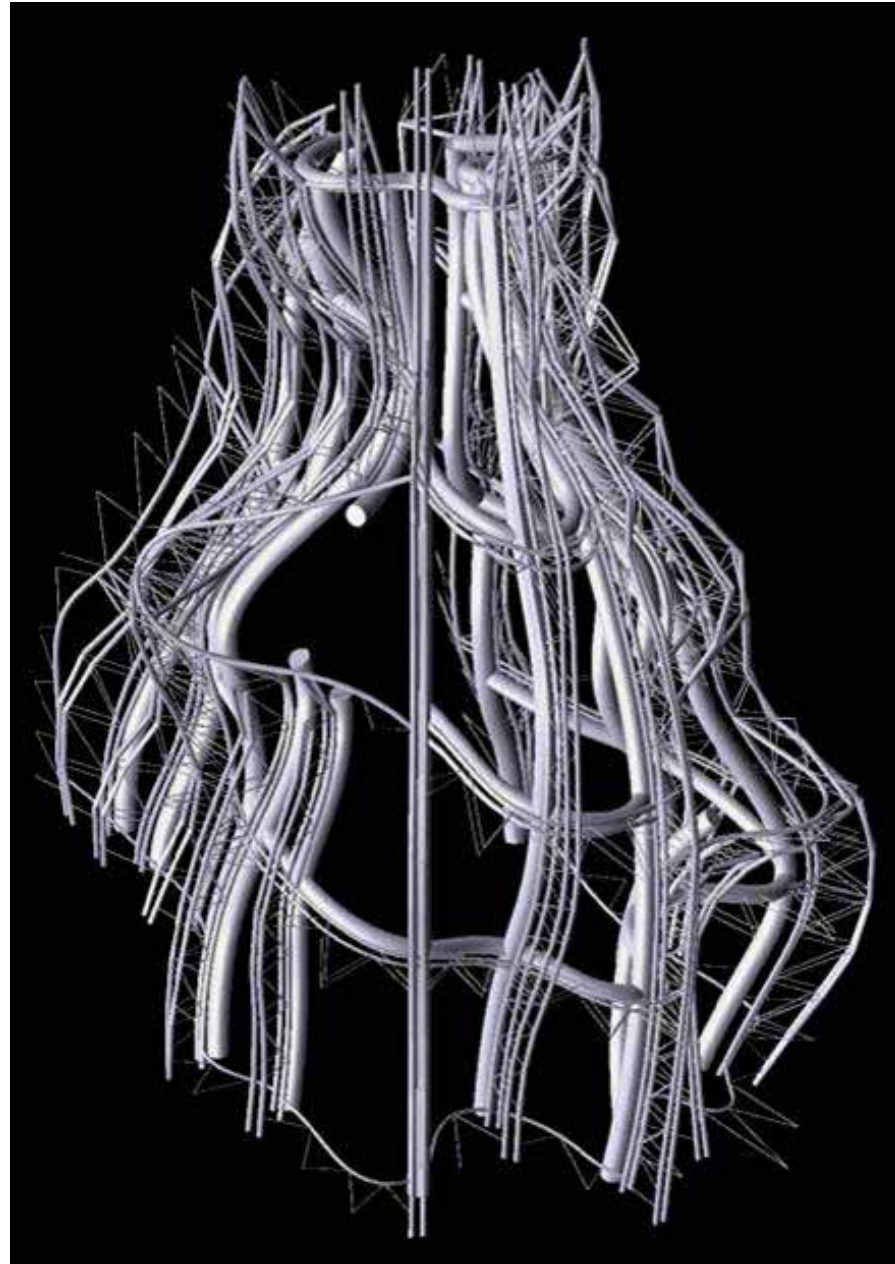
### Vision for a sculpture exhibit:

Continuing with the exploration of materials and complex sculptural forms, Frank Gehry designed one of the many Horse's Heads – a self supporting, 45-foot high sculpture. He wanted minimal use of structural elements in order to achieve the desired visual affect. The sculpture was originally designed for exhibit at the Guggenheim Museum in New York; it became the centerpiece of the 2001 Frank Gehry retrospective at the Museum of Contemporary Art in Los Angeles.

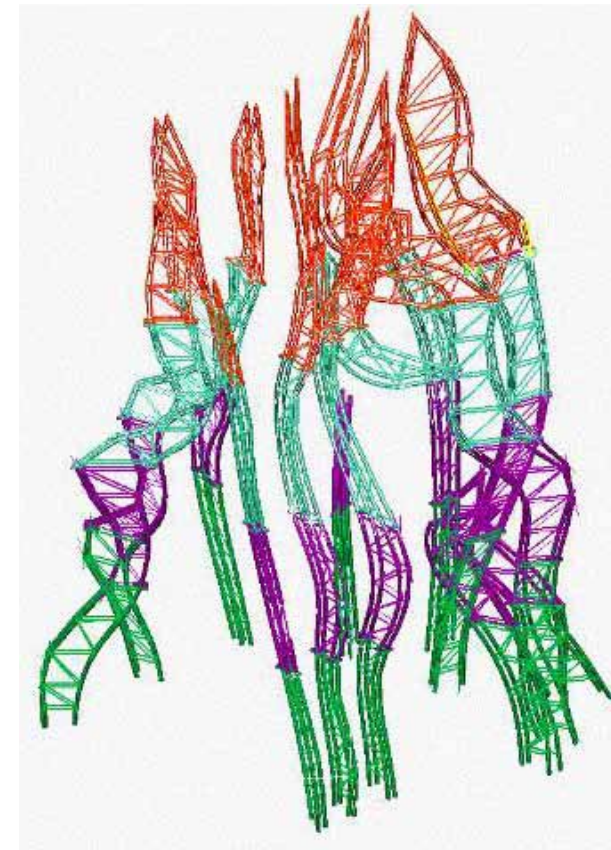
### Process:

As with other projects by Frank Gehry, it was critical that the sculpture's fabricator was well versed with the use of CATIA. Gehry's office provided CTC the 3D CATIA models to analyze, revise, and fabricate from.

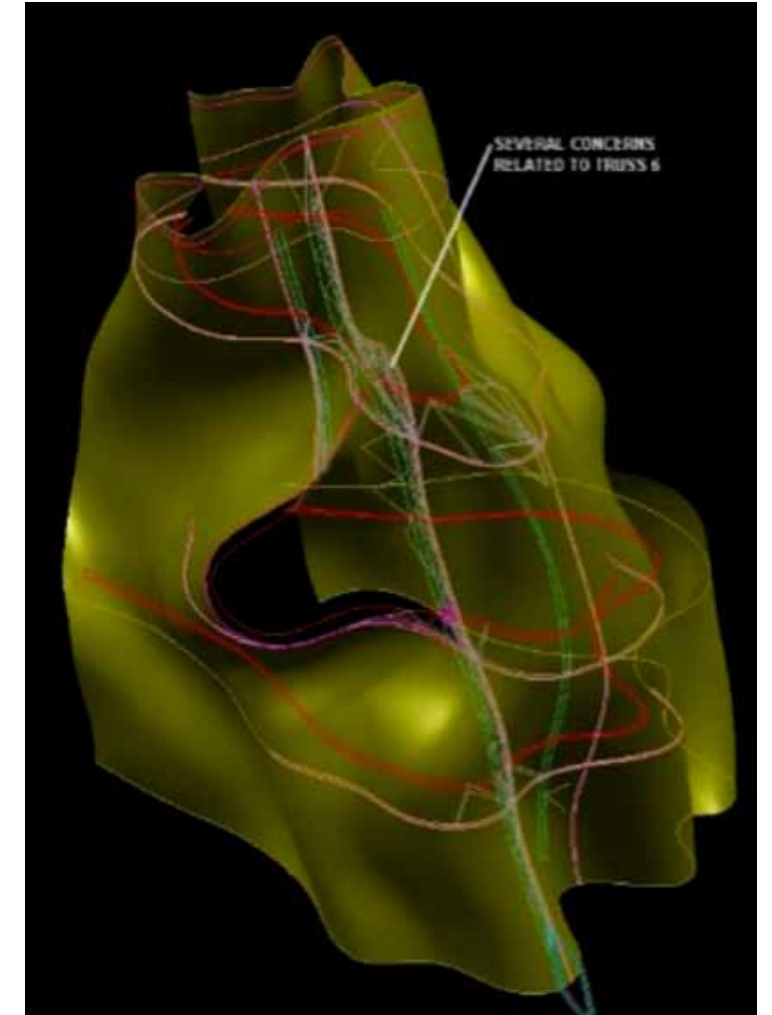
A rapid prototype of the sculpture was created, as well as a model of the interior of the Guggenheim Museum, to analyze the proportions and fabrication processes and make sure the project could be realized. Through this process, a decision was made to fabricate the sculpture in sections that could be assembled inside the museum. CTC began the structural engineering analysis to accomplish this task.



*Fine Element Analysis of the structural properties of the material was critical for its successful execution.*



*The struts engineered by the CTC team created spaghetti structure that held the skin in the envisioned complex curved shape.*



*New technology was developed for this project, a modular 'building skin'.*



## Columbus Cloud Sculpture

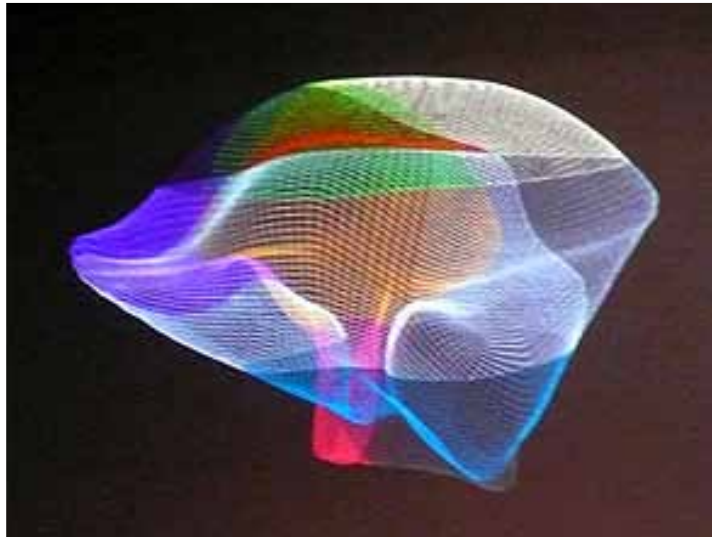
- **Location:** Cincinnati, OH
- **Owner:** Talix Gallery
- **Artist:** Inigo Manglano
- **Material Type:** FRP, Titanium Cladding

### Process:

To fabricate a storm cloud digitally recorded by the artist.

The cladding was done with titanium paper only found in Japan.

This sculpture was exhibited in Cincinnati, New York, Los Angeles and other museums.



## Cinerama Dome Project

- **Material Type:** Laminated Glass
- **Owner:** Robertson Property Pacific Theaters
- **Artist/Designer:** Gensler and Associates

### Project:

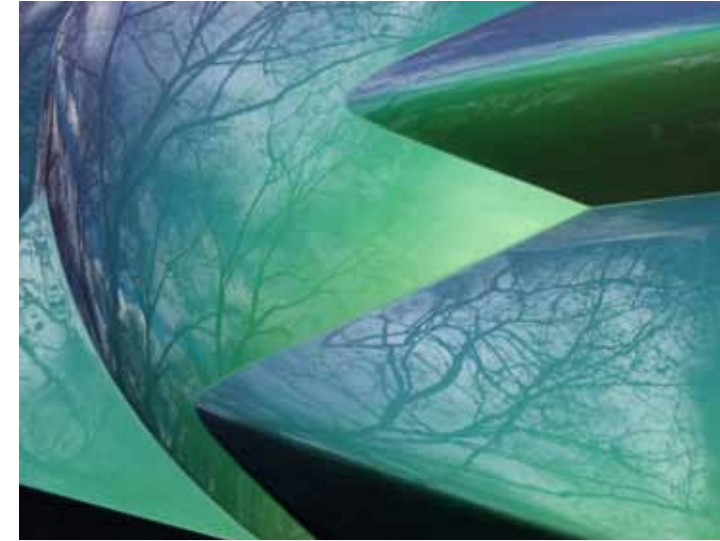
To design, manufacture and install the Glass Boulders for a public display, where the design specified only the approximate size of the boulders and location.

The only true specification was that these 'boulders' were meant to serve as additional seating in the outdoor plaza for the newly remodeled Cinerama Dome, a Los Angeles Icon and landmark located in Hollywood, CA.



## Salt Lake City Library Art Glass

- **Material Type:** Compound Curved Glass
- **Owner:** Binnie Sucec & Day Christensen
- **Architect:** Moshe Safdie and Associates



## 2001 Cube Sculpture

- **Material Type:** FRP, Structural Steel, Automotive Paint
- **Owner:** 303 Galleries, Regen Project
- **Artist:** Liz Larner

### Process:

The sculpture is the first from a series of three that were fabricated for Liz Larner. The first installation was exhibited at the Museum of Contemporary Art in Los Angeles, California.

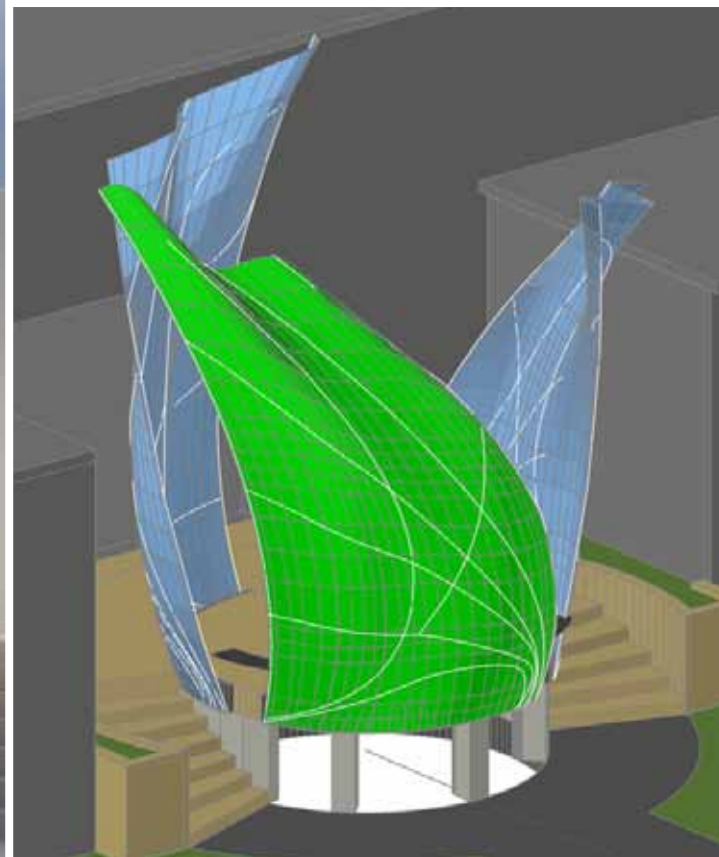
This 6-sided, 8' high sculpture rests on its edge by its natural center of gravity. No additional floor mounts are required.

Advanced digital technology transfer allowed for minimal seams – a visual eye sore to any artists vision.



## Glazer Memorial

- **Location:** Culver City, CA
- **Scope of Work:** Design Consulting, Engineering, Glass/Steel Fabrication, Installation
- **Material Type:** Compound Laminated Glass, Stainless Steel Structure
- **Owner:** Mr. & Mrs. Glazer
- **Architect/Designer:** Nadel Architects
- **Structural Engineer:** CTC & Desimone
- **General Contractor:** Luna Park



## Ship in a Bottle

- **Material Type:** Simple curved glass
- **Owner:** City of Long Beach
- **Artist:** Mark Dion

### Project:

CTC made this piece from 1" thick laminated glass and stainless steel. The 2,400 pound watertight bottle is filled with 3,500 lbs of crushed glass. It's an unusually challenging project designed by artist Mark Dion called "Ship in a bottle" demonstrating our glass technology.

The bottle is made from overlapping seams which are laminated together with high precision, making it a monolithic permanent glass structure without silicone.

## Waltz of the Polypeptides

- **Material Type:** Steel and FRP
- **Artist:** Mara G. Haseltine



## ISIS Chandelier

- **Material Type:** Aluminum Tube
- **Owner:** ISIS Pharmaceuticals
- **Architect:** DGA

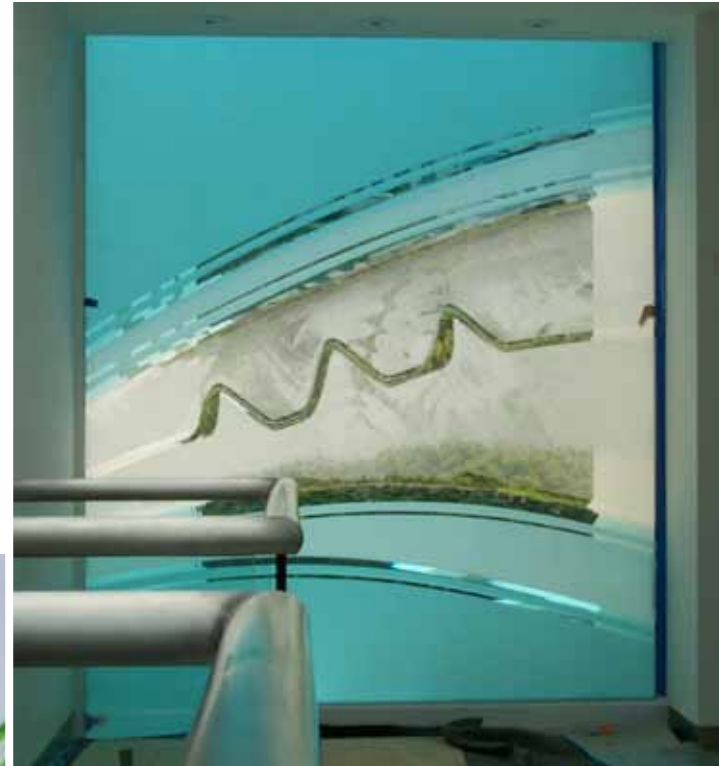


## Manger Door

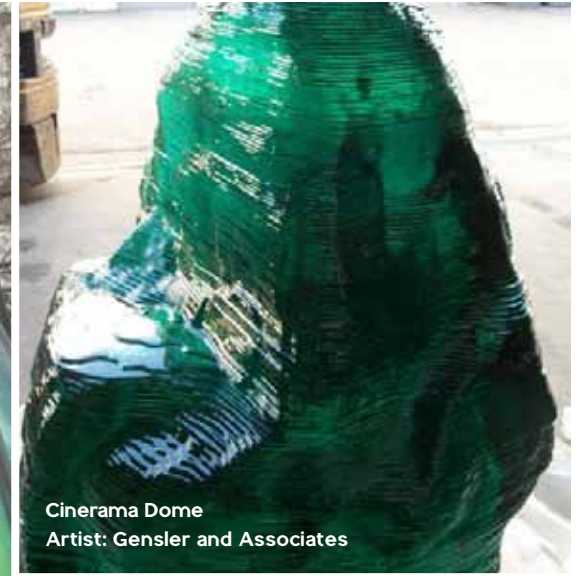
- **Material Type:** Laminated Glass
- **Designer:** CTC

### Project:

**Design build:** custom hinge mechanism. 2" thick multi-layered laminated art glass.



2001 Cube Sculpture  
Artist: Liz Larner



Cinerama Dome  
Artist: Gensler and Associates



Robert Gram Sculpture



Waltz of the Polypeptides  
Artist: Mara G. Haseltine

## Mobius Bench

- **Client:** David Wasserman, Stanwood/Wasserman Development
- **Artist:** Vito Acconci, Acconci Studios

### Project:

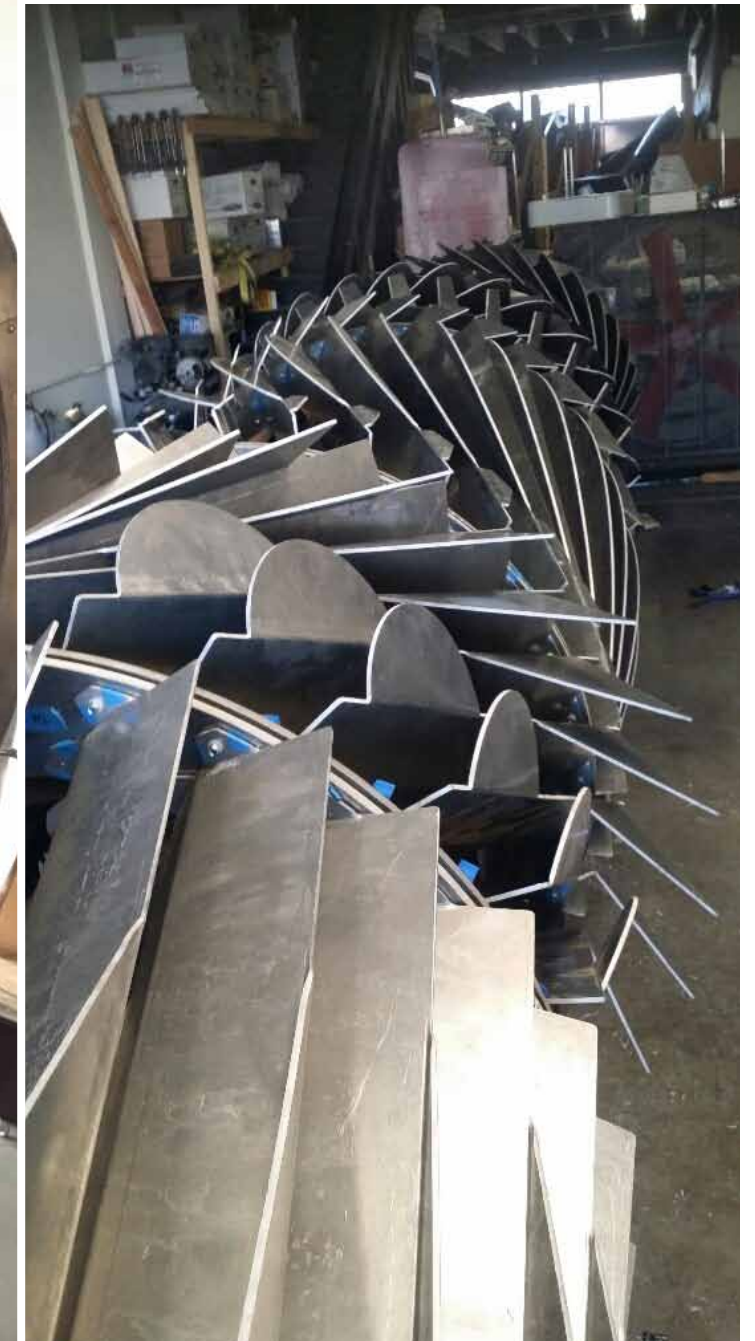
#### Geometry Studies + Analysis, 5-axis CNC Machining

Digital surface modeling allows for smooth lines to express each important curve. These details are manually 'cleaned up' in the digital surface file to ensure accurate milling by the 5-axis Router machines.



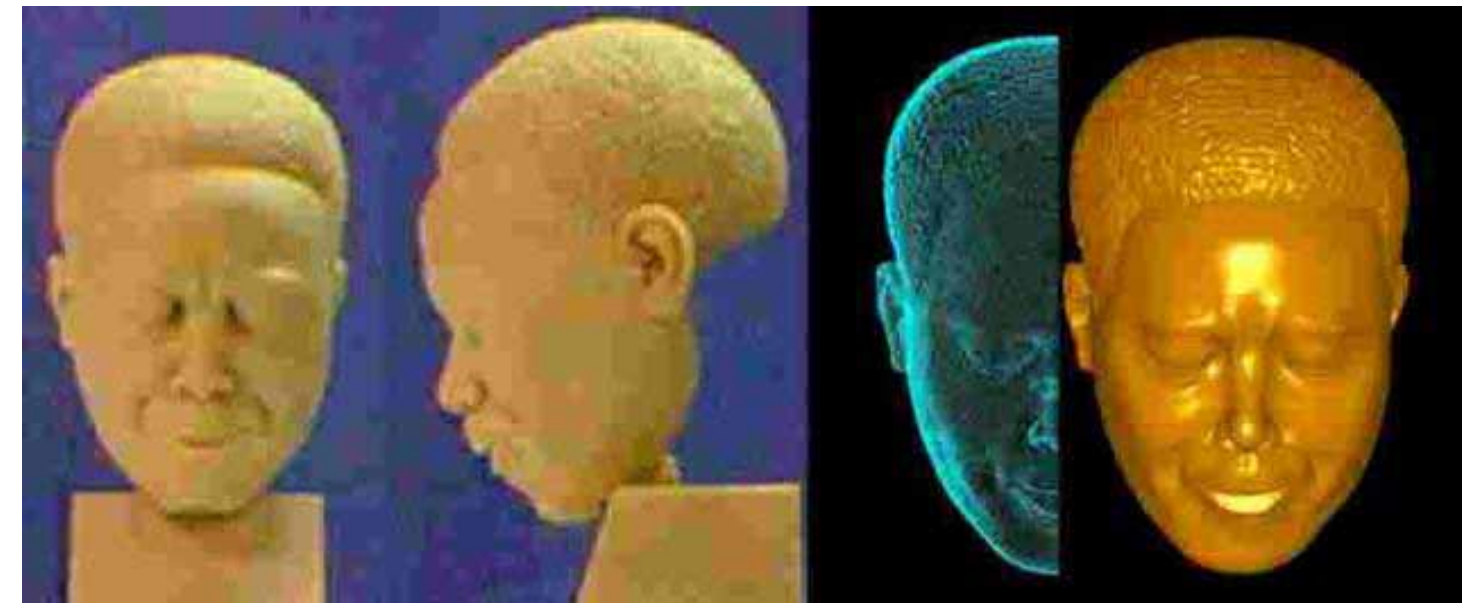
## Walnut Creek Sculpture

- **Material Type:** Steel, Aluminum and Concrete
- **Owner:** The Art Office
- **Artist:** Phillip Smith
- **Completion Date:** In Progress





Sculptures from Robert Gram



## Summary

CTC's experience working with renown artists and sculptors around the world, as well as the team's expertise in fabricating, material definition and design, has made the company one of the most accomplished fabricators in the United States.

CTC excels at collaborating with artists, bringing their visions to life within their budgets through clever engineering and innovation. We are able to accomplish this due to our background in automobile and aerospace manufacturing, cutting edge engineering technology and material understanding. The design background of the management team also aids in developing tasteful solutions to our clients' design challenges.

1. CTC excels in digital fabrication.
2. We are experts in a large palette of materials and have a great deal of experience combining materials (i.e., metal and glass, metal and FRP), creating hybrid art work that involves very detailed engineering.
3. Our process starts with the design concept and includes installation. We specialize in turnkey solutions, in an all encompassing budget.
4. We interpret artist's designs, and bring visions to reality within budget constraints. Problem solving and critical thinking are cornerstones for our success.

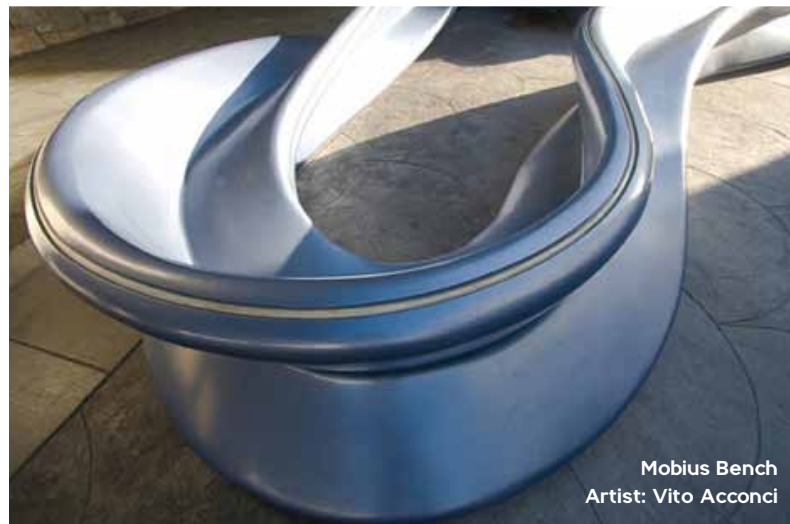
"We are engineers who pay attention to detail and have a proven track record. Since we take care of the art project from beginning all the way to final installation, artists trust us and know in advance their piece will turn out great," says Eric Adickes, president of Creative Teknologies.



Gagotian Sculpture  
Architect: Frank Gehry



Columbus Cloud Sculpture  
Architect: Inigo Manglano



Mobius Bench  
Artist: Vito Acconci



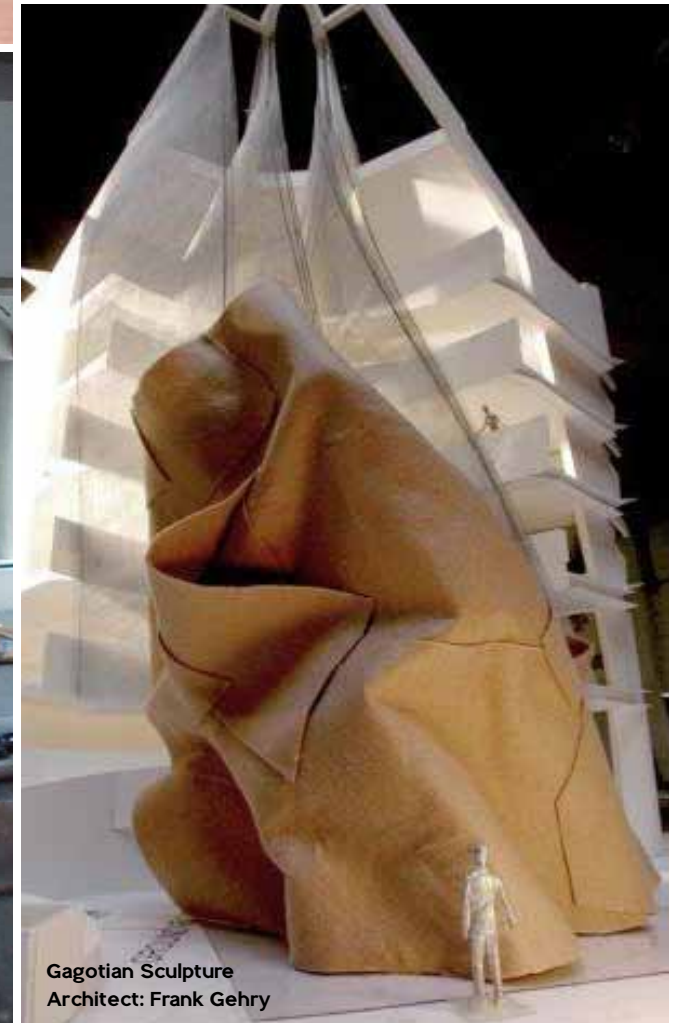
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Sculpture



Gagotian Sculpture  
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