



Spanning 66 feet, Constellation cascades nearly 3 stories through the Dena'ina Civic and Convention Center lobby.



Solid Concepts' QuantumCast™ process is a multistep method that applies vacuum, heat and pressure to process Advanced Formula Polymers (AFP's) that results in void-free, strong and stable pre-production or short-run components.

QuantumCast™ Process Helps Artist Ralph Helmick Create Sculpture for Dena'ina Civic and Convention Center

Solid Concepts provides hundreds of QuantumCast™ “creatures” for an award winning sculpture displayed in Alaska.

Renowned artists Ralph Helmick and Stuart Schechter enlisted Solid Concepts for the creation of the sculpture Constellation featured at the Dena'ina Civic and Convention Center in Anchorage, Alaska. The piece was selected from 128 artists' proposals through an open competition process and is now showcased in the main lobby.

Constellation is a reflection of the native land and animals around Anchorage and intends to challenge the viewer to meditate on the complexity of the natural ecosystem. Ralph Helmick and Stuart Schechter were inspired to create the immense sculpture from the “wonder of Alaskan wildlife around the Cook Inlet and the simple elegance of Athabascan fish traps” – a traditional cylindrical-shaped Alaskan fish trap.

“ Steve Johnson and his amazing crew got all our pieces to us in perfect condition and right on time. All in all, I could not be more pleased with the experience. From concept to design to fabrication, Tim and John made this project easy and enabled me to fully realize my artistic vision.”
– Ralph Helmick

Composed of 354 “creatures” suspended on dozens of fine steel cables, the piece is arranged according to the habitats of the native animals. A variety of fish and crustaceans reside in the lower region of the artwork. Above these are continuous overlapping layers of species that inhabit the shoreline and Alaskan land. Nearly 100 feet in the air at the highest region of the piece, a broad mix of avian life are suspended to complete the sculpture.

According to Ralph Helmick, “I worked closely with Tim Carroll and John Thiell to realize this project, and their impressive knowledge and skills were beautifully matched by their enthusiasm and flexibility. They worked tirelessly with me and my team to determine the perfect material for our project; they really had a thorough understanding of both the application and our desired end result.”

Helmick utilized Solid Concepts' QuantumCast™ process to produce each creatures. In this particular case, Stereolithography (SLA) was used to create master patterns of the creatures. A smooth semi-gloss finish was applied to the masters, which were then used to create platinum-cured silicone rubber

molds. From these molds each creature was cast with a U0080DC-L Water Clear Urethane. Helmick Sculpture specifically requested this material for the project and consequently broke away from the standard list of urethane options. The creatures were then finished and custom painted. The painting proved to be a greater challenge for Solid Concepts than a typical QuantumCast™ project.

Steve Johnson, Solid Concepts' Urethane Director, collaborated with the artists to design and finish the creatures as desired. The main obstacle that Johnson faced was achieving a uniform translucent color on the creatures that had thickness varying from a wing tip to a birds' body, for example. Several different finishing options that ranged in color and texture were tested before the final finish was chosen. Custom tinted matte clear paint over the clear urethane created a uniform transparent look. Johnson found that painting was preferable to casting in color, where varying thicknesses of the sculptures would result in different intensities of color and an uneven look. The unique painting process gave each piece the warm glow necessary to capture light and achieve the golden ambiance envisioned by the artist.

Since the success of the sculpture Constellation, Helmick has created another work of art that is laced with a similar theme. His new sculpture entitled Flock resides in the Advocate Lutheran General Hospital in Park Ridge, IL and is composed of various birds in flight. Helmick utilized the same QuantumCast process to create his new flock and chose a vivid blue color instead of the previous yellow tint. The addition of Flock marks another great accomplishment for Solid Concepts and Helmick Sculpture, and continues to open the door for new artistic opportunities by fusing innovative creativity and groundbreaking technology.

Photographs by Clements/ Howcroft and James Steinkamp/OWP/IP

Solid Concepts Inc.

Solid Concepts Inc. is a supplier of rapid prototyping, direct digital manufacturing, tooling and production molding services. Capabilities in PolyJet, SLA, SLS, QuantumCast™ cast urethanes, CNC and FRP prototypes and short run production parts. Tooling and Molding expertise to bring your project through to completion. ISO 9001 and AS9100 certified.



Helmick Sculpture of Newton, Mass. created CAD models of 27 different creatures, which were manufactured by Solid Concepts in various quantities.



The sculpture Flock was created with Solid Concepts' QuantumCast process. Unlike Constellation, this piece is solely composed of birds in flight.