

SENTIENT CHAMBER

National Academy of Sciences
Living Architecture Systems Group

Philip Beesley, Rachel Armstrong, Collin Ellard, Rob Gorbet, Dana Kulić

This book documents the Sentient Chamber installation at the National Academy of Sciences, Washington. November 2, 2016 - May 31, 2016

Sentient Chamber is a new interactive installation exploring a revolutionary new kind of building, raising fundamental questions about how architecture might behave in the future. Might future buildings begin to know and care about us? Might they start to become alive? The installation is composed of towering transparent acrylic arches and flexible silicon, creating quilt-like patterns. Custom glasswork vessels and translucent filtering elements expand the skeleton to form hovering surfaces that interplay with shadow and light. Distributed sensors throughout the chamber are programmed with algorithms that mimic curiosity, giving Sentient Chamber the power to sense and perceive, reacting to the presence of visitors with delicate waves of light and soft murmuring sounds.

Sentient Chamber was created by a multidisciplinary group of architects, engineers, scientists, and artists from Canada, the U.S., and Europe working within the Living Architecture Systems Group, led by Philip Beesley, University of Waterloo. The exhibition was organized by Cultural Programs of the National Academy of Sciences (CPNAS) and The National Academies Keck Futures Initiative (NAKFI).

Essays, technical working drawings, and photographs of the complete installation and the process of construction are included.

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OF THE
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OF SCIENCES

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EDITORS: RACHEL ARMSTRONG, PHILIP BEESLEY,
COLIN ELLARD & DANA KULIĆ

Sentient Chamber

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Sentient Chamber: A Platform for Ideas

JD Talasek

The immersive and interactive environment created by the installation Sentient Chamber was on display at the National Academy of Sciences in Washington DC from November 2, 2015 to May 31, 2016. As the director of the hosting program, Cultural Programs of the NAS, I had the joy of observing the interactions that occurred during this six-month period. The visitor's response followed almost always the same pattern – a moment of wonder, of awe, or of sheer joy and amazement often followed by a quizzical tilt of the head and some variation of the question; "What is it?"

This is a profoundly important question. Not for what it asks but for the reason it was asked. Innovation – something truly new – is unfamiliar. And lacking immediate answers can be initially very uncomfortable for us. Sentient Chamber creates this fertile tension by simultaneously generating wonder and contemplation. This reaction and potential for discovery underscores the need for cultural displays as a platform for engagement and discourse – a space where we can discuss the possibilities of, in this case, architecture in the realm of big ideas and the

potential for great impact on our lives. What if, as Philip Beesley asks us to consider, architecture could become sentient? What if it could learn to not only respond to us but could learn to anticipate our needs, inspire us, or even care about us? It is one thing to read about these ideas in a book or to hear about it in a lecture or a conference. It is powerfully different to physically experience it.

The enthusiasm that Sentient Chamber received is a reflection of a broader cultural phenomenon. We are witnessing a growing number of efforts throughout our institutions that are creating spaces and opportunities to engage a larger audience around big ideas and big questions by bringing diverse teams of scientists, artists, and other creative practitioners together. David Edwards' The Lab in Cambridge, MA near Harvard and MIT is an incubator that brings together diverse teams to translate big ideas into reality – a process that often includes cultural display. The National Academies Keck Futures Initiative is a thirteen year-old think-tank that recently began inviting artists and designers to more deeply engage in problem solving. Leonardo: The International Society of Art Science and Technology, a fifty year old organization, is fostering an international network of regular salons (Leonardo Art Science Evening Rendezvous or LASR) hosted at institutions to promote dialogue and networking between diversely different communities of thought that might not otherwise engage with one another or the public. The National Academies of Sciences, Engineering and Medicine has embarked on a seminal report exploring the benefits of integrating STEM and arts/humanities education both in its impact on the work force and on our quality of life. The list of creative and innovative engagement involving artists and designers is rapidly growing and pushing us to think differently about the way we approach problem solving.

In this spirit, Philip Beesley takes Sentient Chamber a step further by making the creation process of the installation an opportunity for education and the sharing of ideas. In addition to the contributions of his team, the Living Architecture Systems Group – a network of collaborators and students from a diverse range of expertise and experiences – a workshop of local students and volunteers in the DC region were engaged not only to install the exhibit but to learn, engage, and explore ideas about the potential of architecture.

I'd like to thank the faculty and students who contributed very long hours of their time and energy. I'd also like to thank the NAS facilities managers and meetings office who provided support and to the catering office who provided nourishment and fuel to get the job done. A special thank you is extended to Drs. Ralph and Carol Cicerone for their support in actualizing Sentient Chamber. During Dr. Cicerone's tenure as President of the National Academy of Sciences, he and his wife were enthusiastic supporters of the arts programming at the NAS, allowing CPNAS to contribute to the important mission of the National Academy of Sciences. Ken Fulton, Executive Director of the NAS, has provided endless support, guidance, and enthusiasm for which I am very grateful. Many thanks are owed to Alana Quinn, my colleague and the very backbone of CPNAS. Most of all, I would like to thank Philip Beesley and his team for bringing his process to the NAS. Sentient Chamber is a culmination of all of their research and learned experiences and it will form the foundation for new ideas yet to be actualized.

JD Talasek
Director
Cultural Programs of the National Academy of Sciences

