# Nicholas Desbiens

Work

2001-2021

# Greenpoint Library and Environmental Education Center

Design Lead / Project Architect

Provided design leadership and project management through design and construction phases of the DDC Design Excellence Award winning Brooklyn Public Library branch. `

Marble Fairbanks, 2016-2018











# Greenpoint Library and Environmental Education Center

#### **Design Lead / Project Architect** Created all major project design imagery, including still renderings, animations and diagrams.`



















## Advanced Ceramic Assemblies Workshop

Team Member / Computation Lead Presented by Boston Valley Terra Cotta with CMU School of Architecture and the University at Buffalo School of Architecture and Planning, the Architecture Ceramic Assemblies Worshop (ACAW) brings together professionals from the architectural industry and academia, offering participants the opportunity to explore innovative building solutions and further their understanding of architectural terra cotta for largescale assemblies.

KPF, 2019











## Gotham Whorl

#### **Competition Submission**

This entry to the 2018 **BetterBin** competition by the NYC Department of Sanitation and the Valen Alen Institute presented a unique shape that's clean, contemporary and instantly recognizable. Like New Yorkers, it's tough. It's forward thinking. Materially, it's simple. Stainless steel tubing is as home on NYC subway stairs as it is at MoMA. The hyperboloid shape keeps the connecting rods straight. Its mathematically driven form is a distinguished, modern update on the steel and mesh design New Yorkers have known for eighty years.

Des Des Res, 2017











## Fahz - It's your face in a vase!

#### Creator / Owner

Due to a successful crowdfunding campaign and unexpected media coverage, a personal project to explore parametric design, 3d printing and mass customization Fahz quickly became a company. Over the course of two years, over **2000 unique vases** were processed through the online portal at **www.fahzface.com**.

Each Fahz vase is a custom-fabricated contemporary take on *Rubin's Vase*, the classic figure/ground illusion where the negative space of two facial profiles determine the positive form of a vase. The generative system created to support the project automated the processing one to eight photos to create one unique, personalized object.

Des Des Res, 2015-2017













# Light Objects

Parametrically-generated custom light fixtures designed to integrate with off-the-shelf componentry. The various forms were made using custom generative algorithms and 3d-printed to specification. Custom attachments were created as necessary.

Des Des Res, 2016-present















# Women's Building

#### **Competition Lead**

Lead designer and project manager for Marble Fairbanks' submission to the invited Women's Building design competition. In 2016, the NoVo Foundation requested design proposals from a select group of architects and designers for the transformation of the abandoned Bayview women's prison on Manhattan's west side into a hub of activism and engagement for leaders working on behalf of girls and women.

Marble Fairbanks, 2016







#### **Generative Structure**

These images are part of a series of graphic investigations into the expressive potential of dynamic generative systems. Each exploration responds to a series of custom-coded rules and the results inhabit the fine line between structured order and productive chaos. More at **www.des-des-res.com**.

Des Des Res, 2016-present











#### Sharon House

#### **Project Architect / Project Manager**

Led all aspects of design, documentation and project management for a 4,000 square foot weekend home outside of Sharon, Connecticut. The client, a Fellow of the American Institute of Architects, and his wife desired a simple, elegant refuge in the country to welcome family and friends. The rectangular volume follows a clear structural logic and is split into a main house and guest wing that are positioned for a commanding view of the surrounding Connecticut forest landscape.

Architecture Research Office, 2016













### Ado's Mesh Set

This custom chess set was designed as a test of a generative design system. A system of physical forces was set up to act on a basic cylindrical mesh. By changing the connections and relative strength of the tensile forces within each piece, the overall shape could be manipulated. Because the different shapes are created using the same generative system, there are inherent formal affinities relating pawn to bishop, bishop to knight, knight to rook and so on. The different pieces work together to form a family of taut and distinctly modern sculptural gestures.

Des Des Res, 2017







pawn





### Riverdale Country School

#### Facade Optimization and Detailing

Joined the design team late in the design development phase to rationalize a recently conceived zinc and fiber cement rainscreen facade system. The entire facade was modeled procedurally using Python code, Grasshopper scripting and Microsoft Excel. The building's several thousand facade panels were arranged according to rules reflecting fabrication constraints and detailing considerations. Tables categorizing the various panel types and sizes were incorporated into the working drawings and became an integral part of the project's bid and construction documentation.

Architecture Research Office, 2015











# Knoll Flagship Offices, Showroom and Shop

**Project Team** Worked on all phases of the design with a focus on consultant coordination and construction administration.

Architecture Research Office, 2012-2013











### Kuwait Police Hospital

Computational Design Lead Responsible for integration of advanced analytic and generative computational techniques into design work flow in support of a networked project team located in four different cities. The Kuwait Police Hospital is a 500 bed facility incorporating a wide variety of medical specialties and in-patient functions. The project also includes two annex buildings housing the following program elements: a 300 seat auditorium, conference facilities, two class C4 shelters, housing for family members and visiting physicians and a 120,000 m<sup>2</sup> parking facility. Other associated buildings include a mosque, ambulance complex, medical waste unit and ancillary structures for electro-mechanical services. Parametric modeling and simulation techniques were used extensively in all phases to, for example, analyze and optimize building geometry for solar gain and patient views to the Kuwait Bay.

NBBJ, 2014











### Genetic Stair

Lead Designer Spearheaded research into generative design strategies and fabrication techniques. Managed all computational aspects of the sculptural stair project. Developed, documented and coordinated detailing from concept to fabrication. Produced all design documentation, including presentation renderings, animations, shop drawings and digital files for CNC fabrication.

Caliper Studio, 2008-2009









## Genetic Stair Fabrication

Fabrication Coordinator Oversaw daily operation of in-house fabrication process, including production of all shop drawings and sketches, design of all necessary jigs, coordination of components produced by others and creation of digital and physical models to streamline the installation sequence.

Caliper Studio, 2009











### Nitehawk Cinema

**Project Architect** Worked on all aspects of architectural design, visualization, documentation and construction administration for the integration of a new three-screen cinema into an existing warehouse building in Williamsburg, Brooklyn. Managed project team during design phase and served as point of contact for the client and contractor during construction.

Caliper Studio, 2009-2011











## Metropolitan Apartments

Design Team Member Worked on all aspects of architectural design, visualization, documentation and construction administration for apartment portion of mixed-use development in Brooklyn, NY. The nine apartment units were built atop an existing warehouse building (since renovated to house the Nitehawk Cinema). All units are provided with access to outdoor space in the form of private roof decks at the penthouse level and shared courtyard access for the floors below.

Caliper Studio, 2005-2011











## Nitehawk Cinema Façade

**Design Lead and Fabrication Coordinator** Zinc and cast glass LED rainscreen façade system. Developed and implemented generative computational design techniques. Created parametric, procedurally generated digital model to coordinate detailing, fabrication and installation.

Caliper Studio, 2005-2010







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- 2. Electrical conduit
- Continuous galvanized steel angle for mounting panels
- 4. Air barrier

3

- 5. Zinc window header
- 6. 20 inch galvanized steel angle mounted to stud
- 7. 3-diode LED module
- 8. Custom cast glass lens with frosted back
- 9. Zinc building trim
- 10. Zinc window jamb
- 11. Zinc window sill
- 12. Pre-weathered zinc cassette pane



### Artist's Studio and Residence

Project Team Member Worked with small team on the extensive restoration and renovation a major twentieth century artist's private residence and art studio. The residence is still home to the artist's widow, while the studio is shared by the artist's estate and the foundation that was created to preserve the works and legacy of the artist. Transforming the aging roofs into a quiet landscape of wall to wall sedum plants, the renovation creates an urban sculpture garden, framed by the tall rugged buildings of Manhattan's west side. Responsibilities included overseeing the detailing and fabrication of the two distinctive skylight elements, which were built by spraying four inches of concrete over precision CNC milled formwork.

Caliper Studio, 2009-2011











## Reflective Tiled Sculpture

Lead Designer Developed and implemented experimental generative computational design process by which a complex, reflective surface was articulated using a restrained set of fabrication techniques including cutting and bending. Responsible for all design, visualization and fabrication documentation, including the production of shop drawings and digital files for laser cutting.

Caliper Studio, 2008







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### West 29th Street Cantilever

Design Team Member and Facade Designer Responsible for production of all architectural documentation from schematic design through design development. Managed first implementation of Building Information Modeling (BIM) method of project documentation at Caliper Studio. Conducted research into generative design methods for design of innovative rainscreen facade.

Caliper Studio, 2005-2006











Sixth Floor



Fifth Floor



Fourth Floor



# Upper East Side Wine Store

Lead Designer and Fabrication Coordinator Managed design and detailing decisions. Responsible for production of all architectural and fabrication documentation. Implemented automated design and documentation for the production of files for over four hundred laser cut components locating thousands of holes for precision assembly.

Caliper Studio, 2007-2008











# Landscape (Triptych)

Computational Design Consultant Abruzzo Bodziak Architects were chosen as one of seven firms to take part in the 2012 New Practices New York exhibition at the Center For Architecture. As part of their exhibit, the firm proposed a luminous installation. Integral to the project development was a custom-coded interactive digital form-finding environment, which allowed the team to explore the design potential of tensioned cable systems.

The interactive form-finding tool was built in the Processing coding environment using the Verlet physics engine developed by Karsten Schmidt of toxiclibs. The user interface was created with Panel4P by Volatile Prototypes and PeasyCam by Jonathan Feinberg.

With Abruzzo Bodziak Architects, 2012









# ProjectNY

**Computational Design Consultant** This research was carried out with Abruzzo Bodziak architects as a central part of their *Air Rights-of-Way* proposal sponsored by Audi Urban Future Initiative during the Festival of Ideas for the New City.

Abruzzo Bodziak's project investigates the role played by the New York City Zoning Code in the production of architectural form. The translation from abstract rules to three-dimensional building volumes was entirely automated, giving the designers the ability to see the potential effects of even minor zoning alterations to the overall make-up of an entire section of New York City.

With Abruzzo Bodziak Architects, 2011









# Digital Knit

**Computational Design Consultant** Project-based scripting instruction with a focus on procedural modeling of textiles, specifically traditional knitwork.

With FAD Studio, 2008-2011













# Elizabeth Academic High School

Design Team Member Worked in a small group from concept design through design development. Responsibilities included programming studies, schematic design, two-dimensional drafting, threedimensional modeling (Revit) and physical modeling. Worked with SOM technical team to develop and document exterior wall design package.

Skidmore, Owings and Merrill, 2004-2005























# Light Sculpture

Student Project Member of four-person design team during an Advanced Research Studio taught by Cecil Balmond. The final review was a design competition with the winning team being employed by Facilities and Real Estate Services at the University of Pennsylvania to develop an art installation to reanimate an under-used university building. Responsibilities included coordination with the Arup Advanced Geometry Unit to rationalize the structural system and documentation of materials and components for competitive bid.



University of Pennsylvania, 2004











**Student Project** Proposal for modular deployable music pavilion to be used in conjunction with the annual Weimar Arts Festival.

Bauhaus-Universität, 2003











# Exercise Facility

**Student Project** First semester studio project investigating ideas of human scale and motion.

University of Pennsylvania, 2001













# Market Theater

**Student Project** Hybrid programmatic elements are housed in discrete volumes that interlock in both plan and section.

University of Pennsylvania, 2002







Cross Section