Oz

Volume 26 Article 9

1-1-2004

Circulatory Anomalies

Preston Scott Cohen

Follow this and additional works at: https://newprairiepress.org/oz

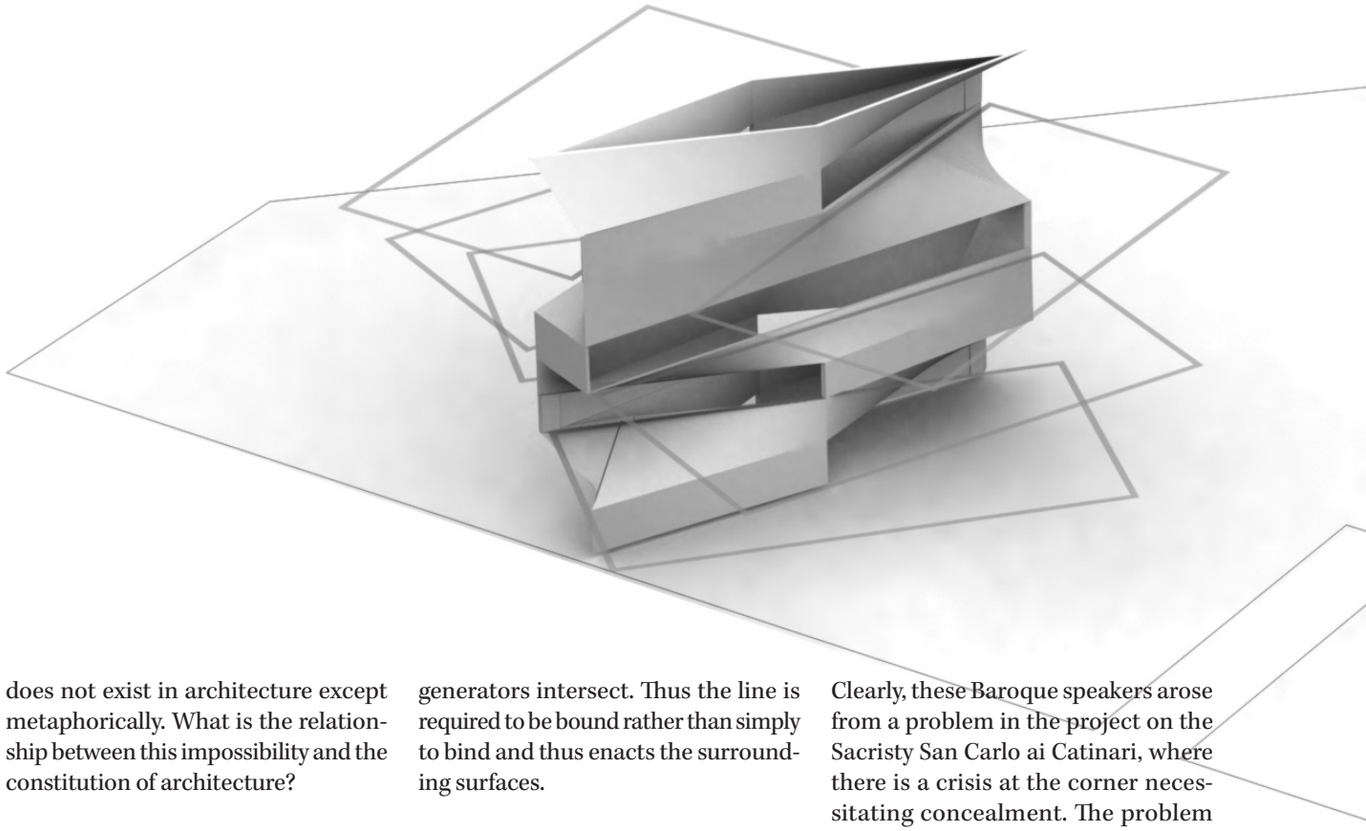
This work is licensed under a Creative Commons Attribution-Noncommercial-No Derivative Works 4.0 License.

Recommended Citation
Cohen, Preston Scott (2004) "Circulatory Anomalies," *Oz*: Vol. 26. https://doi.org/10.4148/2378-5853.1411

This Article is brought to you for free and open access by New Prairie Press. It has been accepted for inclusion in Oz by an authorized administrator of New Prairie Press. For more information, please contact cads@k-state.edu.

Circulatory Anomalies

Preston Scott Cohen



In the following projects, conflicts between architecture and geometry are resolved by unanticipated forms and functional scenarios. The resolution of discordance requires a synthesis that produces hyper coherency, an unanticipated regulative principle that reabsorbs the anomalies. The solution leads to perverse functionality, the condition in which something unusual performs its function even better than it would have had it been unexceptional. In each instance, unusual form arises from a technique of sublimation, a self-imposed imperative to reconcile a geometric problem by means of disguising it as a solution.

In practical terms, geometry is unified with architecture. But, what is unified in practice is separated in theory. In a geometric method, a postulate or axiom is a necessary fiction. Methodology derives from step by step construction in which the subsequent builds on the previous. Method provides the basis for knowledge. Error is verifiable. Needless to say, this is not the case in architecture with its manifold criteria and conventionally based processes of negotiation that lead to interpretations and derivations. Architecture is the betrayal of geometry. Yet according to a naïve but unfortunately widespread view, the geometry/architecture relationship is conceived of in terms of the importation of shapes or models from the first into the second. Nonetheless, the distinction remains: in geometry, there is a potential for verification that does not exist in architecture except metaphorically. What is the relationship between this impossibility and the constitution of architecture?

In Wu House, the self imposed imperative is to create a sinuous line that terminates on itself; the problem is to do so by means of primitive geometries, elliptical cones and cylinders , as exclusively as possible. The cones and cylinders are joined at points normal to the intersection of select generators. In order for the line of intersection to terminate on itself, flat surfaces (vertical or near vertical walls) slice the cones in half, preventing one segment of the intersection line from continuing beyond the point where the generators intersect. Thus the line is required to be bound rather than simply to bind and thus enacts the surrounding surfaces.

Though part of a larger systematic field, the line establishes a minimum number of periods to establish its permutability. The result: three vaulted volumes. And what of the perversely functional hypothesis? Interestingly, the cones that connect the vaults produce a dialectic between two modes of spatial communication: sonically connected vs visually disconnected spaces. This is particularly fitting for the client who asked for a house in which he could be heard but not seen from one space to another.

Clearly, these Baroque speakers arose from a problem in the project on the Sacristy San Carlo ai Catinari, where there is a crisis at the corner necessitating concealment. The problem involved an embrasure at an interior diagonal corner that, if extruded normally (perpendicularly), would have pierced through an exterior pilaster. Thus, the normal embrasure is presumed to have rotated, producing the anomaly: a cylindrical void piercing the corner of the building. This hypothesis instigated a geometric operation that produces patterns and congruencies among the classical elements that effectively conceal the anomalous episode as a normal one, producing

a rarity in the classical architectural canon that arguably raised the canon to a higher level.

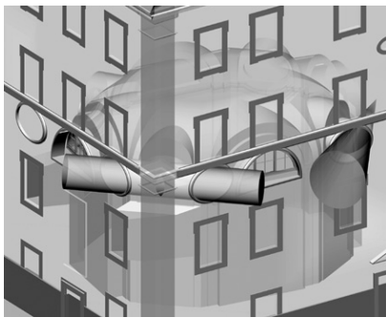
The cylindrical intersections with the facades introduce ellipses that imply a cross-over to a discipline, projective geometry, that until now had evidently not been deployed to produce such forms in Roman Baroque architecture. Moreover, Rome's only building with a pierced corner produces another astonishing category error; spatially, the rotated cylinder is more like a speaker between two interior spaces than it is like a light source between two discrete conditions, one interior the other exterior.

Finally, the sacristy demonstrates perverse functionality since, on the interior, the concealment of the light source was the primary purpose of deep embrasures and the rotated embrasure transmits light even more stealthily than a normal embrasure would.

Perhaps the Sacristy void analysis provides the most effective introduction to the following series of Toroidal projects, Torus House, Goodman House, and Eyebeam Museum. Taken together, these produce spatial and categorical errors. Spatially, unlike the Sacristy, they do not possess inaccessible poché but rather are membranes that evoke solidity and depth. Categorically, the torus is a unity that is already dual, a singular duality. Its core evinces a congruent duality between interlocking, mutually exclusive spaces of equal weight, each appearing from the other to be a solid mass from which the other is scooped out. Alternating between appearing to be inaccessibly solid and being inhabitable, all of the space —thermally outside and inside —is therefore conceptually interiorized.

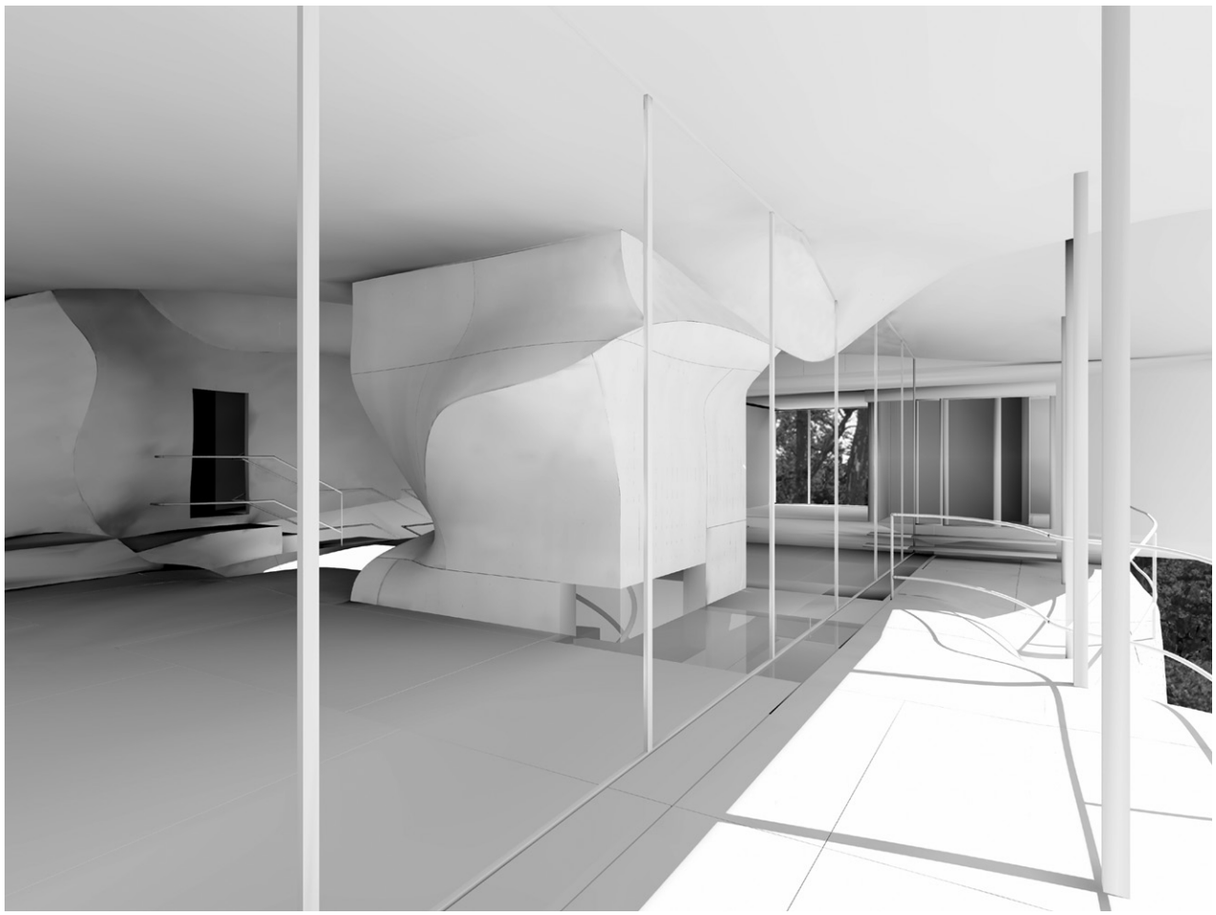
The spatial and categorical impasse of the doubly evacuated toroid leads to exceptional functional and circulatory scenarios. Unusual circulation devices are deployed to connect and make useful both sides of the membrane. For example, in Torus House, a self-terminating line produces continuity between floor, walls and ceiling that implies that the main interior space is a non-orientable toroid. The core is neither sized nor functions exclusively as a compluvium, lightwell, stairwell or courtyard.

Rather than reproducing the common scenario of a house that becomes the interval in a threshold between front and back yards —where guests are invited to pass through an empty interior on their way to a party at the rear—the sequence through the Torus house core implies that the whole space is the interval in a threshold between ground and roof landscapes. It is particularly suited



to the client, painter Eric Wolf, who entertains and paints on his roof. The stair in the center of the Torus House rotates the guest's passage 90 degrees while allowing glimpses of the interior more fitting to a voyeur. The interior of the house is concretized as an interval surrounded laterally by intricately linked daily functions, services and a studio.

In the Goodman House, a single space as devoid of partition as possible and a single surface as continuous as possible contain a pre-existing structure, a nineteenth century Dutch barn frame that was disassembled, moved, re-erected and installed in the house like a guitar in its case.

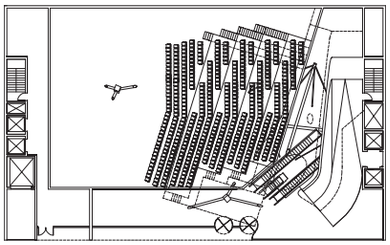
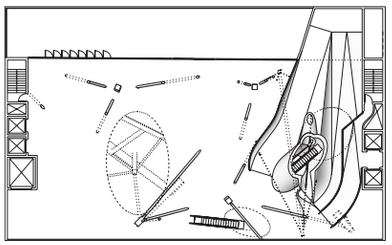
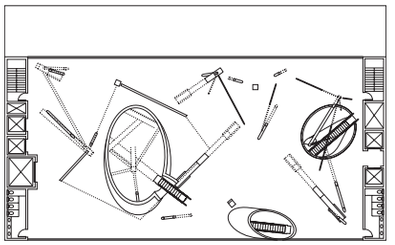
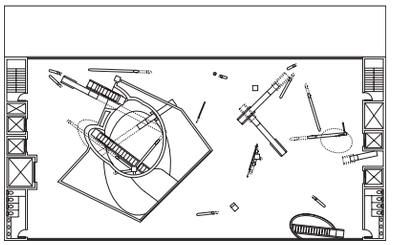


The exterior image of the historic barn had once been its gabled form. But today, an exposure fantasy has inverted this condition; while the gabled form is now taken for granted, the once hidden hay-filled interior and structural frame becomes the primary element. Thus, the Goodman house turns outside in: the interior and exterior are as if two mutually exclusive, interlocked spaces. The outer surface of the new gabled encasement extends into a hollow core that traverses the width of the house. This core, the primary threshold and circulatory device, alternately serves as a breezeway in summer and a winter garden by means of giant Tambour-like roll-up doors at each end.

The breezeway justifies an anomalous bay added to the original four-bay barn at the beginning of the twentieth century. This bay is simultaneously as wide as an aisle and as high as the nave of the original barn. Therefore, this bay is the conceptual equivalent of the aisle and nave fused and rotated 90 degrees, a premise made evident by the new breezeway void that presently occupies it.

Thermally ambivalent, the breezeway/winter garden saves energy costs while allowing visual access from the main interior living space to the upper reaches of the unheated fifth bay. As a subtext, the rotation of the barn's primary axis into the breezeway void unwittingly Anglicizes the Dutch barn.

The Goodmans consider the primary function of the main interior space to be that of a dining hall. Hence, all other spaces are compact and contained in an aisle. The breezeway sets into motion an orbital plan in which the compartmentalized spaces are distributed to the margins. Moreover, the clients' desire for an excessively lit and predominantly undivided interior would not allow the reintroduction of the mezzanines and partitions that had previously stabilized the barn from within. Thus, lateral structural stability is reintroduced in the form of a steel cage surrounding the barn. It is as

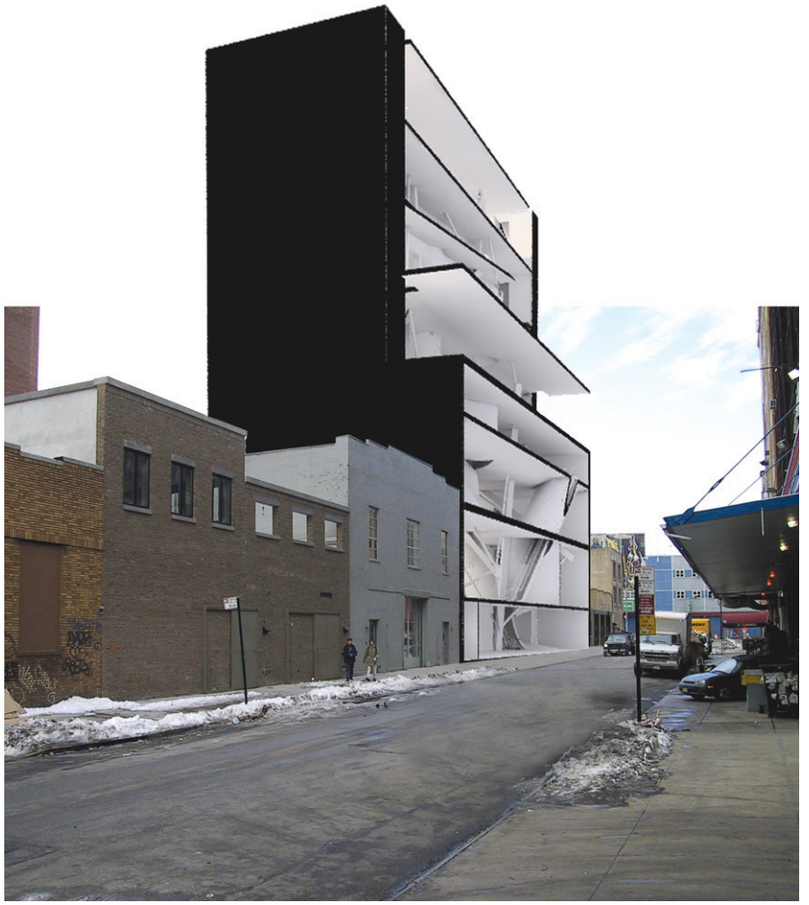
if nostalgia causes the emergence of a Modernist paradigm of construction, the curtain wall/free facade, more fitting to a commercial building than to a house. Normally structure and discrete aperture have a relationship of non-interference. But here, interior structure and exterior view are framed alike by windows that straddle the boundaries between structural bays and reinforce the singularity of the whole surface.

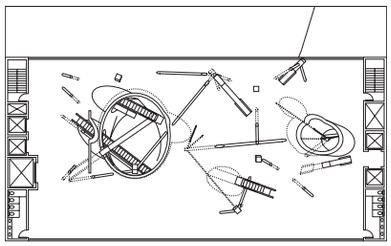
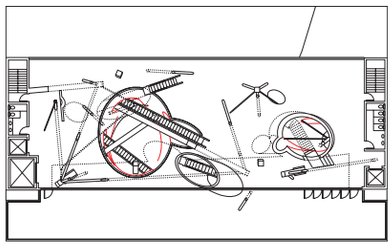
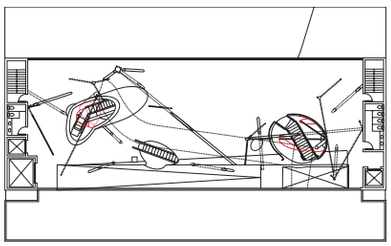
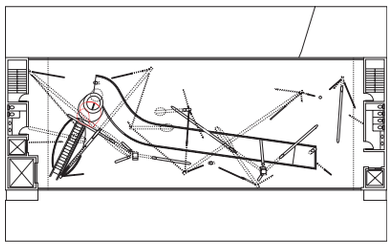
In the Eyebeam Museum of Art and Technology project, the program demanded the singular duality. Educative and exhibition programs would be mutually exclusive but constantly contiguous, but at a scale that precludes the development of a single surface, as in Torus or Goodman, or single intersecting lineament, as in Wu. In other words, Eyebeam required permutational proliferation of singular dualities defining incidents in the larger context of two mutually exclusive sequences. The circulation works like this: a series of escalators pass through every other floor on the way up. A ramp on top leads to the first in a series of escalators down allowing visitors to catch the other half of floors on their way back down. Unlike Wright's Guggenheim, for example, where the ascent/descent bifurcation is defined by an elevator vs. a spiraling gallery, at Eyebeam the two sequences are essentially equal.

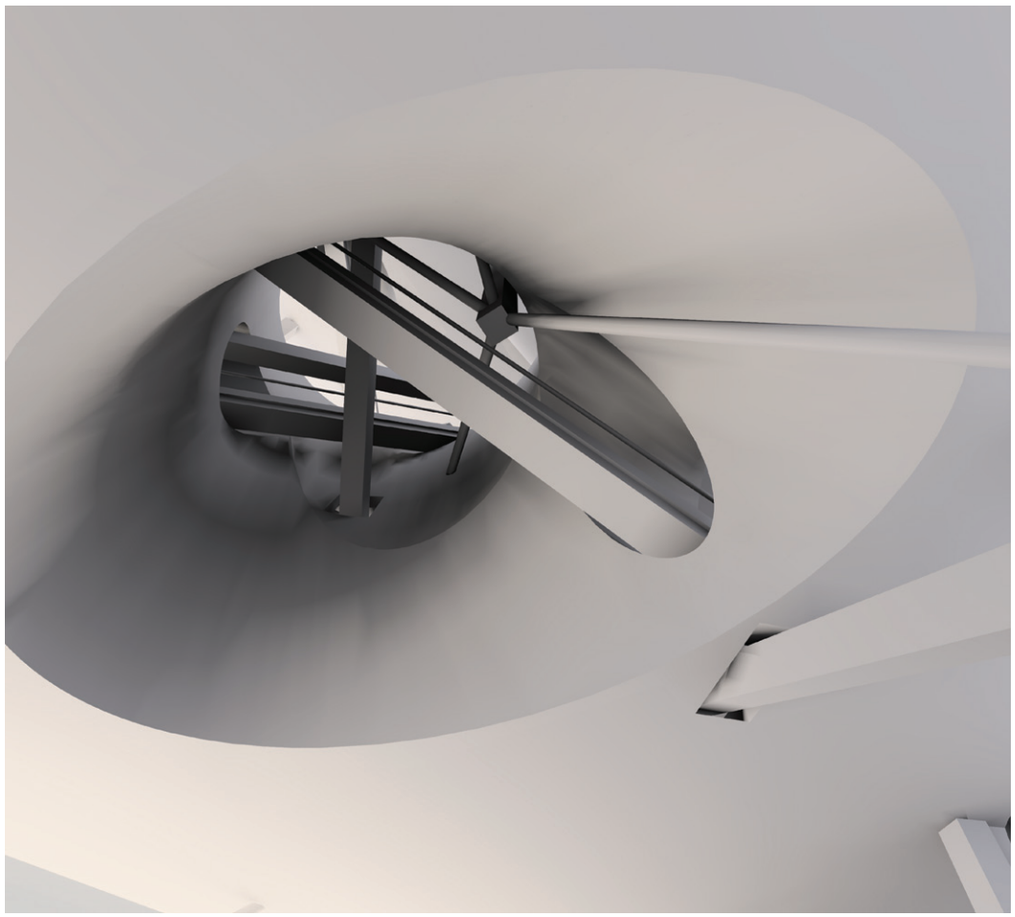
Eyebeam is a series of Wu House-like forms rotated 90 degrees, multiplied, separated and held apart together according to the geometry of a structure based on Kenneth Snelson's tensegrity. The floors are as if cutting planes or planes of projection. The faces of multiple toroidal tubes are perpetually inversive: perceived from either side they are perceived as either inside or outside, solid or void. Yet, interior space is everywhere. Exceptional surfaces and floor planes alike appear to conceal poché where in fact there is none.

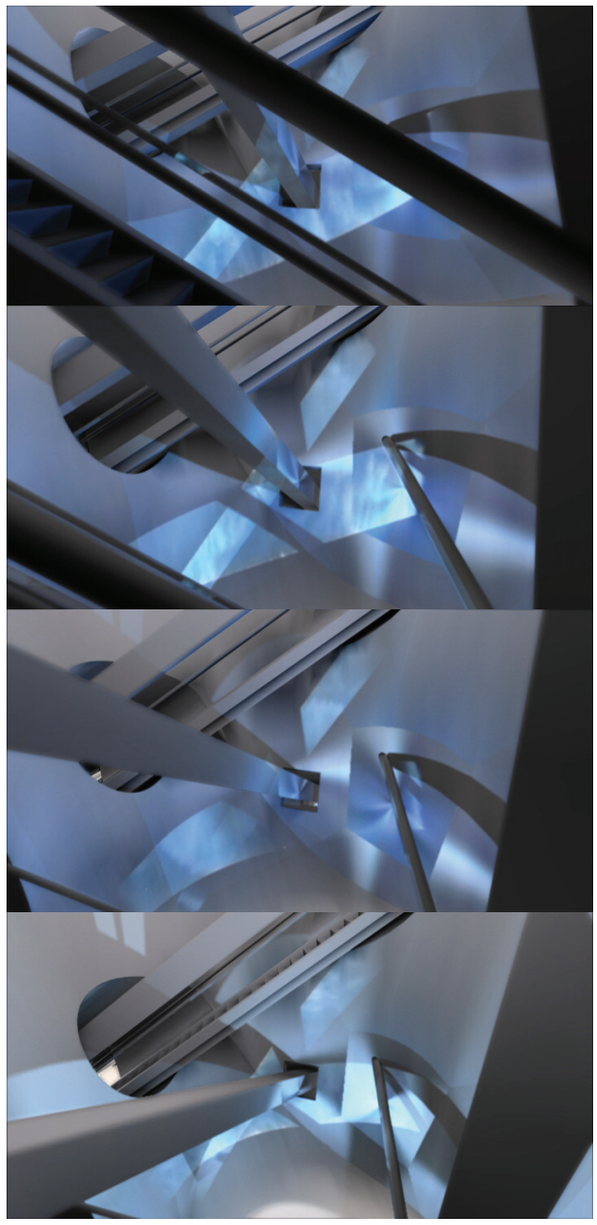
In the New Building for the Tel Aviv Museum of Art (TAMA), we are back to the Torus House analogy with a compluvium, a hole in the roof. The opening is extrapolated downward by ruled surfaces into a light shaft, vortex, or twisting funnel, more cestoidal than toroidal. But like the Sacristy, this surface is required for other purposes: it reflects light to the lowest reaches of a building that, due to the size of its site and program, is required to be submerged halfway underground.

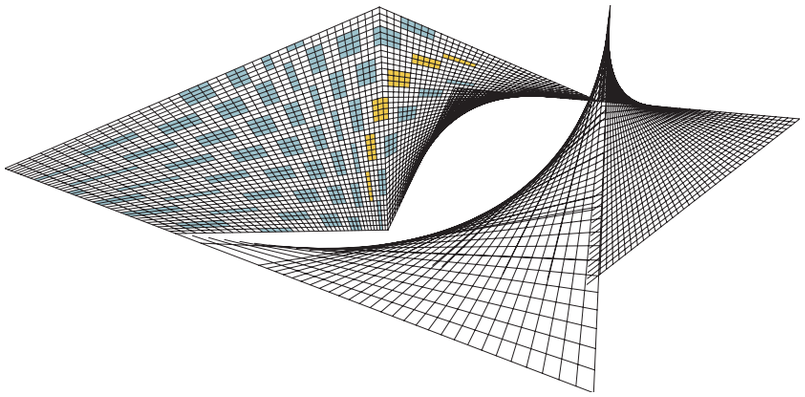
Under the rubric of the old fashioned dome, the relationship between surface and structure in TAMA is the equivalent to the relationship of its compluvium shaft to the galleries that rotate around it. The vortex is produced according not only to the problem with light but moreover a constraint imposed by the

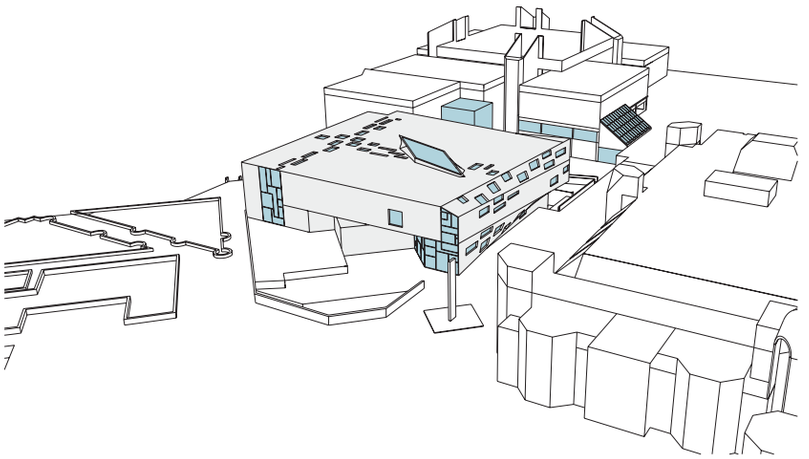




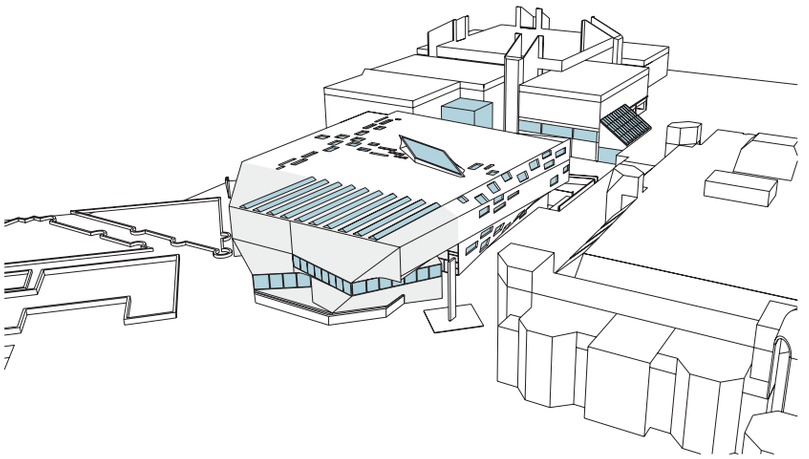






site: the need to fit large rectangular galleries into a triangular site without creating a clamorous confrontation with the orthogonal geometry of the existing museum. The discrepancy between galleries distributed along three angles produces ruled surfaces on the inside and outside of the building—shifting functional space out from under the dome to the interval between its two surfaces—the interior vortex and the facades.

The project does not rehearse the bifurcated sequence of Eyebeam. One enters mid-way up the vortex and ascends or descends while viewing into it. Sky and bottom pass by the central space as if it is a lantern suspended. It is the more direct descendent of the perversely functional, site-specific embrasure of the Sacristy than it is of the willfully concocted fiction of the Torus House. But whereas in the Sacristy, the anomalous space dedicated to the transmission of light jumpstarts a geometric procedure that produces forms and techniques that fall outside of the then conventional architectural palette of discrete elements and their functions (embrasures, ovals and the like), at TAMA the solution produces effects at the scale of the whole.



Project Credits:

Goodman House

Pine Plains, NY

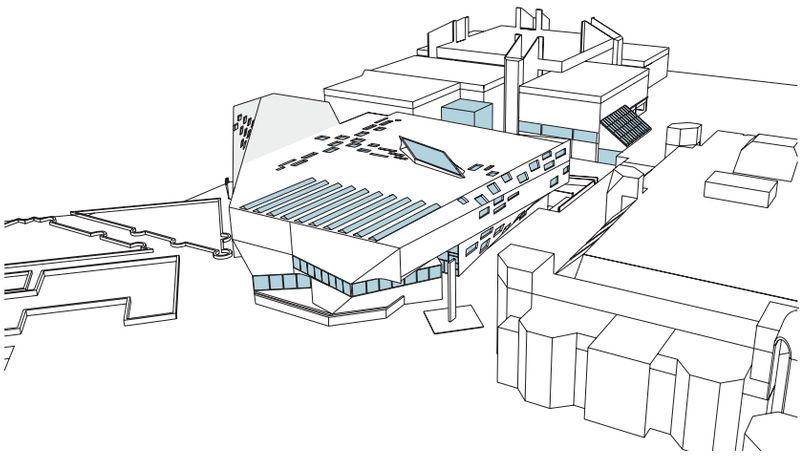
Arnold and Elise Goodman, Clients; Preston Scott Cohen (design); Phil Wu, Kay Vorderwuelbecke, Wynne Mun, Aaron D'Innocenzo, (project team); Jack Sobon (Dutch Barn restorer); Bill Bishop (Structural Engineer); Light This (lighting consultant); Mike Kubik, A to Z Construction (general contractor).

Museum of Art and Technology, Eyebeam

540 West 21st Street, New York, NY

Proposal for second stage of invited competition, 2001

Project Team: Preston Scott Cohen (design) Cameron Wu, Chris Hoxie (project team); CR Studio Architects (Associate architects, Lea Cloud, Victoria Rospond, principles) Jon Dreyfous, Jay Stancil, Sally Zambrano-Olmo, Kristin Enderlein, Adrienne Broadbear, Feliz Skamser (team assistants); Visualization: Chris Hoxie, Cameron Wu; Model: Cameron Wu, Aaron D'Innocenzo; Animation and production design: K+D Lab, Dean D. Simone, Joseph Kozinski (principals), Brandon Hicks (assistant); Virtual installation: metaphrenie.com; Video production: Robert Michaels; Consultants: Robert Heintges (curtain wall), Guy Nordenson (structural).



Tel Aviv Museum of Art

First Prize Winning Design in the Herta and Paul Amir International Competition, 2003

Project Team: Preston Scott Cohen; Competition Stage3–Janny Baek-Canobbio, Andrew Saunders, Andrew Witt; Competition Stage 2–Erik L'Heureaux, Leonard Ng, Cameron Wu; Animation:Ted Ngai; Presentation Assistants: Stage 3–Chung-Ping Lee, Jonathan Butt; Consultants: Structural–Ove Arup & Partners, Caroline Fitzgerald,Tom Dawes; MEP–Ove Arup & Partners, Mark Walsh-Cooke