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Abstract

On an elevated plinth of west Texas prairie grass land, in a visually isolated corner of the Chinati Foundation grounds, sit two unfinished examples of Donald Judd's final experiment in uniting art, architecture and nature. These imaginative and enigmatic concrete building shells have the same spare material expression, rigid proportioning system and the unnerving structural thinness that one would expect from Judd's three-dimensional work. These buildings are part of a larger geometrically ordered complex of ten buildings designed specifically to house twelve works of art, unsurprisingly, also created by Donald Judd.

Disciplines

American Art and Architecture | Architectural History and Criticism | Architecture | Contemporary Art

Making Marfa: Technical Encumbrances and Creative Resistance in Donald Judd's Ten(?) Concrete Buildings

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On an elevated plinth of west Texas prairie grass land, in a visually isolated corner of the Chinati Foundation grounds, sit two unfinished examples of Donald Judd's final experiment in uniting art, architecture and nature. These imaginative and enigmatic concrete building shells have the same spare material expression, rigid proportioning system and the unnerving structural thinness that one would expect from Judd's three-dimensional work. These buildings are part of a larger geometrically ordered complex of ten buildings designed specifically to house twelve works of art, unsurprisingly, also created by Donald Judd. *(Image 1 goes here, 2 columns wide)*

These relatively unknown projects are Judd's only freestanding buildings and present a bold departure from the architectural qualities he incorporated in the rest of his work at Chinati. In these *ten concrete buildings* Judd attempts to create architecture with a "singleness" in aesthetic honesty and a perfection in fabrication congruent with his art. But the first two buildings fell short of these standards, mostly due to structural and construction issues mandated by the dramatic aesthetic proposed. This paper will examine how Judd's philosophical desire to create unified environments of art, architecture, and nature have influenced the design and production of these buildings.

"Somewhere a portion of contemporary art has to exist as an example of what the art and its content were meant to be. Somewhere...a strict measure must exist for the art of this time and place." -- Donald Judd.ⁱ

Over the last two decades of his life and with the assistance of initial funding from the Dia Art Foundation, Donald Judd created this "somewhere" on a 340-acre abandoned military garrison outside of his recently adopted hometown, Marfa, Texasⁱⁱ. This new kind of museum challenged conventional exhibition standards and sought a model artistic existence where the creation and permanent display of work was specifically crafted for this particular place. Judd saw this opportunity to design a sympathetic permanent installation for his work not only as the answer for many long-standing concerns he harbored, but as a necessary condition for achieving the "singleness" and clarity of expression he explored in his work. According to Chinati Foundation director, Marianne Stockebrand, this broad authority of authorship provided Judd an opportunity to "unite art, architecture, and nature in an embodiment of his own philosophical outlook, which sought to avoid fragmentation and promote coherence."ⁱⁱⁱ Judd was to be the centrally featured artist in the collection as well as the designer for all the exhibit spaces.^{iv}

Judd's design work began immediately in 1979 on both the art and architecture. There was a great deal of work to do to match the ideals of the foundation with the reality of the

buildings. Nearly every building on the former Fort D.A. Russell needed extensive remodel and repair to properly house the foundation's collection^v. Judd was not interested in making the exhibition space simply "acceptable" nor did he embrace the incorrect assumption that contemporary art is best placed in an expressionless, pure white room^{vi}. Instead he carefully crafted a spatial and experiential sequence within the buildings, exposing the inherently simple and powerful volumetric environments of the former military buildings. For the new building components, he limited the palette of materials, their manner of assembly, and their placement in favor of sparseness, simplicity, clarity, and honesty congruent with his artwork^{vii}. When coupled with the deliberate placement of artwork within the spaces, this elemental system of expression and organization produced a compositional complexity and richness notable for the profound juxtapositions visible between the art, architecture, and the landscape. (Image 2 goes here, 1 column), (Image 3 goes here, 1 column)

Quite unlike the technical expertise and perfection of fabrication required in his work, most of the remodeling was decidedly low-tech yet highly resolved--common things done uncommonly well. Judd explained that, "my aphorism is not that form follows function but that it never violates it. Or common sense, for that matter."^{viii} As a result he selected natural and contextual materials such as brick, adobe, plaster, and wood so as to be intentionally divergent from the industrial qualities of the adjacent artwork^{ix}. These had natural imperfections and were designed to weather and naturally age, as a stark contrast to the permanence desired in his works. The manner of assembling these components was more congruent with the work: new doors, windows, walls and furniture were all well-crafted, meticulously proportioned, and clearly organized. This consistent aesthetic template across the 340 acres and 16 buildings creates a recognizable vernacular that envelops all the buildings in one larger composition of art, architecture, and landscape. These buildings were not meant to be "art" in-and-of-themselves, but instead were intended to serve as a symbiotic compositional partner to the work they contained. As a result of these choices, nearly all the buildings were technically simple to remodel and few compromises were necessary to achieve Judd's vision.

(Image 4 goes here, 1 column), (Image 5 goes here, 1 column)

However, when Judd set out to design his first freestanding buildings, the *ten concrete buildings*, he shifted away from this decidedly low-tech, aesthetic relationship between the art and architecture in favor of creating the buildings as works of art complementary to his own, with the same highly technical challenges of assembly and expectations of aesthetic perfection. Because of this choice, over the next several years he would be forced to navigate through several difficult technical challenges related to aligning the building's materials, structure, and fabrication to his proposed formal aesthetic without making compromises. After two years of difficult construction and administration, only two of the ten structures were built. The successful components of the buildings, as well as their corresponding complications, are a vivid reminders of the tenuous balance between technical and creative endeavors.

“...just reworking old buildings becomes tiresome.”—Donald Judd^x

In 1980, Judd produced 13 new works, including several versions of the so-called “Stacks”, “Progressions”, and large-scale stainless steel pieces for permanent installation. Judd did not believe that any existing buildings would be suitable for display of the artwork so he began working on a design for a new complex of concrete buildings to be built specifically for the pieces. The Dia Art Foundation never financed the construction and so the project waited until the Chinati foundation took over the collection in 1987. Judd made specific plans for their construction to begin on the site of a former German POW barracks in the southwestern corner of the foundation’s grounds. Like much of his work, the key design concepts never start, or end, far from simple ideas about the work’s materiality, assembly, and arrangement.

Judd created a rectangular grid of twelve 36m x 36m squares on the land and logically positioned the ten buildings at the center of each square along the perimeter of the rectangle leaving the center bays open. All the buildings were linked with narrow walks arranged on a separate rectangular grid suggested by the entrances of each building and extending to edge of the imaginary grid. There is a military efficiency to the layout that anchors the project to the larger context.^{xi} (Image 6 goes here, 1 column)

There were three different buildings sizes proposed. They were all square in plan, each with a different volume informed by the artwork housed inside and expressed with a free-spanning concrete vaulted roof structure. Two 9m x 9m buildings were to display Judd’s vertical “Stacks” pieces, and the two other buildings of this size were designed for multistory living and library spaces, so correspondingly these buildings had a tall plan to height ratio of 1:1:1. The four 12m x 12m buildings were placed at the corners of the rectangle, and because they were intended to house the horizontal “Progressions” pieces they have a lower interior volume with a ratio of 2:2:1 (both existing building are this size). The two remaining 18m x 18m buildings face their entrances directly into the central space of the complex. This building has the lowest volume with a ratio of 3:3:1. Judd felt that, “you can’t exaggerate the importance of proportion. It could almost be the definition of art and architecture.” The building proportions are designed to relate to each other and enhance perceptible sense of space. The priorities in the form-making are primarily geometric and experiential and not tectonic.

(Image 7 goes here, 1 column), (Image 8 goes here, 1 column)

All the buildings express their interiority and volume through a floor to ceiling central window/entrance and a larger window on the opposite end. Judd believed that “nothing is architecture unless the interior volume is evident.” This statement borrows heavily from his favorite quote of Louis Kahn’s: “No space architecturally is a space unless it has natural light.”^{xii} The final result of the design is what one might expect--the form follows a basic proportions system and material expression to which each detail is clearly linked with a formal logic that is intelligible and clearly recognizable.^{xiii}

“..the thing as a whole, its quality as a whole, is what is interesting.” – Donald Judd^{xiv}

Ultimately, for these buildings, a combination of design choices seemingly done for reasons of aesthetics and expression eventually manifested themselves as technical problems and may have contributed to the project’s unfinished status. By selecting concrete as the sole material expression, and then restricting its formal geometry and structural thickness, the aesthetics ran against conventional structural and material logic.

Surprisingly, each building has the same thickness for all walls and roofs (25cm), irrespective of the scale or span of the building. Typically, the longer the span, the thicker the slab, (in concrete this solution is counterproductive because it adds additional weight to an already heavy roof). The structural performance of the roof could be made more efficient and expressive of the underlying structural logic only with a dramatic modification to geometric shape of the building shell or by coupling the roof with additional structural elements.^{xv} The vaults also exert a great deal of horizontal thrust into the walls when they try to “flatten out” because of gravity. Typically to resist this thrust, walls are made thicker, an exterior buttress is created, or the bottom of the vaults are tied together internally across the interior space with tension rods. None of these solutions were presented as options as designed.^{xvi}

By limiting the thickness and demanding uniformity across all three building types, Judd engages in a representational tectonic of Semper’s “structural-symbolism” that seems to run counter to his intellectual commitment to architecture informed by function and “common sense.”^{xvii} Not only are the vaults inapt structurally, but they represent a highly suggestive historical form. In Judd’s artwork, it was unheard of to allow any representational form within a composition. Further, Judd’s own critiques of architects seem to suggest an opposition to this method of design, stating that “forms for their own sake, irrespective of function are ridiculous”^{xviii}. (Image 9 goes here, 1 column)

The use of the vaulted form can be explained by Judd’s experience in fixing a leaky roof at the nearby artillery sheds and his knowledge and respect for Louis Kahn. In 1984, Judd added a large, corrugated metal, vaulted “Quonset-hut” roof on top of the existing flat-roofed artillery shed buildings.^{xix} Days after first sketching this solution, Judd drew a similar roof section, but labeled the sketch as a study for the concrete buildings. Kahn’s work, specifically at the Kimbell was well known to Judd and praised in his essay “Art + Architecture”.^{xx} Interestingly the proportions of the roof that was sketched roughly corresponds with the dimensions of the Kimbell’s cycloid arch.^{xxi} (Image 10 goes here, 1 column) (Image 11 goes here, 1 column).

“It’s difficult to be informed by the extreme generalities of aesthetics when your problems are so specific.” -- Donald Judd^{xxii}

The last, but certainly not least of the technical issues that were complicated by the use of concrete were issues of craft that stemmed from the pouring and finishing the work. In Judd’s art, the relative power of expression depended to a large degree on the ability to make perfectly

fabricated objects. By considering these buildings as “art,” they were now subjected by Judd to the same uncompromising rules of aesthetic perfection. Unfortunately, these buildings were fabricated under incredibly different circumstances than his work.

In spite of the limited available pool of skilled laborers in the region, Judd had every reason to believe that quality concrete work was possible. He had spent the better part of the previous six years overseeing the use of “artistic concrete” in his iconic *freestanding works in concrete*.^{xxiii} This large scale sculpture consists of 60 separate, 2.5mx5mx2.5m concrete boxes, arranged in 15 groupings, along a 900m long axis. (Image 12 goes here, 2 columns) From the beginning of this installation, the quality of concrete work was a major problem that mired the installation with delays^{xxiv}. To achieve the desired finish for the work, the original contractor was replaced and a concrete expert from Dallas, Bob Kirk, was brought in to oversee the work^{xxv}. Judd personally examined the squareness of corners, the alignment of joints, color consistency, and texture to ensure the highest possible quality.

In the two concrete buildings that were built, there were several locations where the concrete work fell well below Judd’s established standards. To even out the textural differences in the surface, it appears that Judd compromised his original intentions and decided that the buildings would be completely sandblasted. (Image 13 goes here, 1 column) This solution had the welcome benefit of making the building seem more connected to the land because this sandblasting exposes the aggregate within the concrete that is made of local stone. There is another more obvious lapse in craft at the exterior conjunction of the roof and wall where the concrete seems to have pooled at the low point of the vault and exerted so much pressure on the formwork that the edges are actually billowed out instead of the crisp rigid edges expected by Judd. (Image 14 goes here, 1 column) Finally, the design features a rigorous and difficult alignment of reveals and pour lines throughout the interior and exterior of the buildings which seems to have been reasonably, but not perfectly, accomplished. (Image 15 goes here, 1 column)

In an interview, Stockebrand explained that construction wasn’t halted due to any complications with the structure or fabrication, but instead from a disagreement Judd had with Kirk about a topic unrelated to the project. Much to the loss of the world of art and architecture, Judd suddenly died a few years later, in 1994, leaving the status of the project unresolved^{xxvi} (Image 16 goes here, 2 columns)

If the project were to continue, it may involve certain compromises of the original vision—or perhaps not. It is precisely this discourse between the technical encumbrances and the creative vision that makes any creative endeavor so interesting and difficult. There are always certain decisions that complicate a project technically, but these encumbrances need to be measured against a project’s larger creative and conceptual foundation. As Judd seems to demonstrate repeatedly in his artistic and architectural work across Chinati, these technical challenges and design ideals don’t need to have opposing trajectories that involve detrimental

compromises. The vision of creating an environment that unifies art, architecture, and nature seems to necessitate an equally unified approach to design.

ⁱ Donald Judd, *Complete Writings 1975-86*, Stedelijk Van Abbemuseum, Eindhoven 1987, p. 111.

ⁱⁱ By 1971-3, Judd was buying and renovating buildings in Marfa, including his own home, La Mansana de Chinati (or the Block), which were airplane hangers that he converted to a unique combination of a home and museum.

ⁱⁱⁱ *The Making of Two Works: Donald Judd's Installations at the Chinati Foundation*, presented as a lecture at the Courtauld Institute, London, on February 26, 2004.

^{iv} Works by John Chamberlin and Dan Flavin were also part of the original collection. After 1987, the collection was expanded and now includes the work of 12 permanent artists.

^v Donald Judd. *Architektur*, 3rd Edition, Ostfildern near Stuttgart: Cantz, 1992, p. 72.

^{vi} Marianne Stockebrand, Chinati Foundation director. Interview by author, 8.4.09. Judd was famously critical of the architecture of museums as well and wrote about this extensively.

^{vii} Many people call his work sculpture, but Judd disliked this terms so I will refer to his three-dimensional artwork simply as his "work".

^{viii} Donald Judd, *Complete Writings 1975-86*, Stedelijk Van Abbemuseum, Eindhoven 1987, p. 36.

^{ix} Marianne Stockebrand, Chinati Foundation director. Interview by author, 8.4.09. She explained that it was intentional that the "buildings weren't exact like the work", and that Judd "felt new buildings and new museums were too clean and too slick."

^x Donald Judd. *Architektur*, 3rd Edition, Ostfildern near Stuttgart: Cantz, 1992, pp. 88-89.

^{xi} Others have written that this military influence in his aesthetic stemmed from Judd's personal experiences as a draftsman and construction foreman while stationed in Korea. The existing architecture of Chinati and nearby Fort Davis, Texas were also fundamentally influential.

^{xii} Donald Judd, *Complete Writings 1975-86*, Stedelijk Van Abbemuseum, Eindhoven 1987, p. 36. Judd praised the Kimbell by stating that "A good building, such as the Kimbell Museum, looks the way a greek temple in a new colony must have looked among the huts...the Kimbell is civilization in the wasteland of Fort Worth and Dallas."

^{xiii} Andrea Palladio, in *The Four Books of Architecture* wrote "Beauty will result from the form and correspondence of the whole, with respect to the several parts, of the parts with each other, and of these again to the whole." As an expert in Renaissance art and architecture, Judd would certainly have been aware of Palladio.

^{xiv} From his seminal essay, "Specific Objects", originally published in *Arts Yearbook 8*, 1965.

^{xv} By matching the geometry to the loading patterns of thin-shell concrete construction, engineers are able to relieve the concrete from resisting bending stress and by extension greatly reduce the thickness and reinforcing required for shell.

^{xvi} Each building would have different thrust conditions. The 18m building would generate the most thrust due to its long span, but the 9m building may also have a difficult structural problem because its thrust line is so high above ground that it places a great deal of bending stress in the wall.

^{xvii} Donald Judd, *Complete Writings 1975-86*, Stedelijk Van Abbemuseum, Eindhoven 1987, p. 36.

^{xviii} Donald Judd. *Architektur*, 3rd Edition, Ostfildern near Stuttgart: Cantz, 1992, note 2, p. 197.

^{xix} Marianne Stockebrand, *The Making of Two Works: Donald Judd's Installations at the Chinati Foundation*, presented as a lecture at the Courtauld Institute, London, on February 26, 2004. These two buildings house his *100 untitled pieces of milled aluminum* boxes. Not all of the collection was installed at the time of the roof replacement.

^{xx} Donald Judd, *Complete Writings 1975-86*, Stedelijk Van Abbemuseum, Eindhoven 1987, pp. 25-36.

^{xxi} While the proportions may have been similar, there is a huge difference structurally in how the vaults perform. Tom Leslie, *Louis I. Kahn: Building Art Building Science*, George Braziller: New York, 2005.

^{xxii} Donald Judd, *Complete Writings 1975-86*, Stedelijk Van Abbemuseum, Eindhoven 1987, p. 28.

^{xxiii} The first few groupings that were poured had settled differentially and required a massive restoration/repair effort due to be completed October 2009.

^{xxiv} Marianne Stockebrand, *The Making of Two Works: Donald Judd's Installations at the Chinati Foundation*, presented as a lecture at the Courtauld Institute, London, on February 26, 2004

^{xxv} Robert Kirk, Architectural Concrete Association, Inc., Addison, Texas. Mr. Kirk recently passed away.

^{xxvi} Comita, Jenny. "Family Values (Art Flash)." *W*. 35.11 (November 2006): 186 (3). It is likely that finishing the project would not have been something Judd would have wanted to happen posthumously. In his will he stated, "It is my hope that my works of art which I own at the time of my death...will be preserved where they are installed."