Ornament is Dangerous
A Wildfire Hazard Center for Los Angeles

by

Matthew Alexander Trimble :: Bachelor of Fine Arts in Architecture :: The University of Memphis, 2002

Submitted to the Department of Architecture in partial fulfillment for the degree of Master of Architecture at the Massachusetts Institute of Technology, February 2008.

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Submitted to the Department of Architecture on January 16, 2008 in
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ABSTRACT ::

There is no such thing as an unadorned building. While the role and relevance of ornament in architecture has been criticized for centuries, its position has been, for the most part, supported as essential to architecture. In his seminal work On the Art of Building in Ten Books, Alberti wrote, “ornament may be defined as a form of auxiliary light and complement to beauty… ornament, rather than being inherent, has the character of something attached or additional.” This understanding of ornament stems from the notion that within a work of art or architecture, that which is essential (the work) may be distinguished from that which is supplementary (the ornament). Similarly, for Immanuel Kant ornament is “only an adjunct, and not an intrinsic constituent…” Kant suggests that the work exists on the level of the primary, with respect to that of the secondariness of its ornamentation. Therefore ornament, in this primitive form, is something tacked on to that which is already complete in itself.

Regardless of the specific nature of its use, or the extent of its distinguishability from structure, ornament is still typically thought of as an adjunct to architecture. It is required to conform to predetermined logics of space, material, surface, and structure, with room to maneuver only insofar as those arguments remain essentially intact. Instead, could ornament vis-à-vis architecture be conceived as genetic rather than epidermic? Could the eloquence of ornament become an impetus for making architecture, assuming the responsibilities of both master and slave. Henri Focillon begins to grapple with this idea in The Life of Forms in Art. He proposes that “Ornament shapes, straightens and stabilizes the bare arid field on which it is inscribed. Not only does it exist in and of itself, but it also shapes its own environment -- to which it imparts form.” This thesis speculates that the role of ornament is greatly limited when thought of strictly as an appliqué, and will therefore begin by attempting to posit ornament as a primary architectural consideration rather than exclusively supplementary.
In a manner consistent with the critique of ornament as strictly supplementary, the notion that ornament must be built up from a predetermined, constructive rule set will also be challenged. Rather than working toward an idea of ornament fixed by the work to which it is applied, processes of destruction will be developed as tools to establish an emergent ornamentation. Instead of subscribing to an additive logic, ornament will emerge from a destructive, transformative logic.

The Southern California Wildfire Hazard Center (WHC) is an existing organization based at the University of California in Santa Barbara. The WHC employs current and near-term capabilities of the National Aeronautics and Space Administration’s Earth Science Enterprise (NASA ESE), and is a joint endeavor of a consortium of universities, research organizations, and the Los Angeles County Fire Department. The key goal of the WHC is to assist in the management of fire hazards at the urban-wildlands interface. It pursues this goal by developing new data sources, analysis techniques, database management tools, and fire hazard prediction tools. The thesis project, an LA Wildfire Hazard Center, will serve as a local subsidiary to the Southern California Wildfire Hazard Center, hosting both research and educational facilities focusing on Los Angeles County.

“Ornament is but the guiled shore to a most dangerous sea.”
- Shakespeare, *The Merchant of Venice*

Thesis Supervisor :: Mark Goulthorpe
Title :: Associate Professor of Architecture
“Ornament is dangerous precisely because it dazzles us and tempts the mind to submit without proper reflection.”
- E.H. Gombrich, The Sense of Order
ACKNOWLEDGEMENTS ::

First, I would like to thank Jesus Christ, who I committed my life to at the age of 12. It’s so amazingly freeing to know the love of God. I am convinced that I would have fallen way short of what has become my thesis had it not been for the peace and love of God (Philippians 4:6-7).

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Mark Gouthorpe, your vision and commitment to exploring architecture is uniquely consistent and specific. You have the capacity to inspire, frame, and pursue an agenda with a tenacity and rigor that I have only experienced when working with you. John Fernandez, thank you for your insights into the realities of fire protection, structure, and natural ventilation and their potential impact on form, space, and ornament. Your ability to play the role of both supporter and cynic was quite helpful. Michael Hays, thank you for kindness and openness, for lowering yourself to brainstorm with me, rather than at me (which continually amazed/es me). I’m so appreciative of the time you took to meet with me both at the GSD, during our early discussions, and later at MIT, carefully working through each argument with precision and rigor.

A big thanks goes to Cynthia Stewart for her efforts in organizing reviews, helping with equipment allocation, and assisting with revisions to this book.

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Jeff and Joey Adams, you guys are outrageously cool. My thesis is based in LA largely because of you, because you made my experience of that place such a pleasure. Perhaps one day soon I will join you again. Robert and Ray Saunders, thanks for listening to me mumble about academic things that aren’t really all that important, and keeping me in check with fantastic games of late night Scrabble. You guys have been there for me always. Peter Winterburn, the one kid who probably knows me better than all the others, thanks for having no bounds or limitations on where our discussions might go. You perpetually amaze and amuse me. Love you, bro. Jess Sundberg, your presence this past semester has made so many seemingly unbearable things, more than bearable. Thanks for putting up with me through this rocky time, and providing such a delightful alternative to self absorption. Neil Denari and Duks Koschitz, thank you for helping me build the foundational skills that were necessary to bring me to this moment. Your faith and investment in me is still pretty baffling. There is no way I can measure how much I have learned from you two, but I’m sure the amount is quite substantial. I continue to reap the rewards of your thoughtful guidance and provocations.

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INTRODUCTION ::

The LA Wildfire Hazard Center (WHC) will serve as a rendezvous and exchange point for wildfire professionals and the public. At the urban scale the WHC is both centralized, with respect to LA County, and on the periphery, with respect to the urban-wildland interface within which it resides. The concept of centrality is significant to the design consequent to its reflection of two relevant realities. First, a flame, under homogenous wind, fuel, and climatic conditions will spread radially from its ignition point. The bottom, center of the flame, the dark inner portion, remains the coolest part of the flame. Second, the notion of centrality is significant because fire stations throughout LA County are centrally located within their respective battalion boundaries in order to maximize access to all areas, with minimum response times.

As the WHC is largely concerned with the urban-wildland interface, the notion of boundaries and boundary intensities became important, noting the inevitable build-up of material as the ambitions of one environment collide with another. Similarly, the outermost portion of a flame produces the most intense heat, at about 1400 degrees Celsius. Peripheral zones are thus denoted by built-up intensities, rendered via a high density and diversity of patterning, texture, perforations, and form. Such zones are found at programmatic intersections, material adjacencies, and portions of the exterior envelope.

For the purpose of the thesis, two simultaneous design strategies were pursued. One strategy was preoccupied with deriving an ecology of ornament, setting the tone for the formal and spatial order of the project. The other strategy dealt mainly with site, program, and code requirements. While each design decision under the influence of one strategy will certainly inform the other, it is the goal of this thesis to focus on and pursue an understanding and application of ornament as primary.
I. ORNAMENT AS PRIMARY ::

With respect to the notion that the orthodox of ornament has primarily been a constructed embellishment, two modes of implementation may be distinguished. One point of view asserts that ornament should be deployed as a vital mechanism for linking architecture to the world it inhabits. In this sense, ornament serves as a bridge between edifice and environment, i.e. society, culture, politics and/or religion. This point of view reinforces the notion that ornament is an applied art, necessary only insofar as it sufficiently conveys beauty and meaning. A second position maintains that ornament should embed itself in the very grain of architecture, simultaneously retaining both structural and aesthetic value. In many cases this position operates at the service of the first. The conclusions of this second mode of operation tend to minimize the hierarchical relationship of structure (master) to ornament (slave), intertwining them in such a way that leaves one unable to decipher where one ends and the other begins.

In reference to Gottfried Semper’s understanding of ornament in Gottfried Semper’s primitive hut as an act of self-creation, Jonathan A. Hale argues that “ornament – in the sense of emerging pattern based on the process of fabrication -should have primacy over any underlying structure.” In terms of the thesis, processes of “fabrication” were devised through generative procedures to defamiliarize, separate, and reduce both the “underlying structure” of ornament, as well as its “environment.” This thesis finds the collective notion of ornament as a vital, determinate, constructive logic to be a critical point of reference, yet seeks to explore the antithesis of ornamental determinacy through algorithms of transformation and destruction.
II. CASE STUDIES ::

“The dramatic theater’s spectator says: Yes, I have felt like that too [familiar]-- Just like me--It’s only natural-- It’ll never change--
The sufferings of this man appall me, because they are inescapable--That’s great art; it all seems the most obvious thing in the world--I weep when they weep, I laugh when they laugh.’’

“The epic theater’s spectator says: I’d never have thought it [unfamiliar] -- That’s not the way -- That’s extraordinary, hardly believable -- It’s got to stop -- The sufferings of this man appall me, because they are unnecessary -- That’s great art; nothing obvious in it -- I laugh when they weep, I weep when they laugh.”

- Bertolt Brecht, 1926, concept of the Epic Theater

In his juxtaposition of dramatic and epic theater, Bertolt Brecht emphasizes the process of defamiliarization as a key component of epic theater, by “taking a common object or operation and bringing attention to it by illuminating its peculiarity.” His interest here is in the “destruction of dramatic illusion” to yield the emergence of an “Epic” aesthetic. This concept of destruction through defamiliarization will be helpful in understanding methods for arriving at ornamentation that do not strictly subscribe to additive processes.

Jasper Johns writes, in a description of Marcel Duchamp, “He declared that he wanted to kill art (‘for myself’), but his persistent attempts to destroy frames of reference altered our thinking, established new units of thought, ’a new thought for that object.’” Duchamp’s readymade sculptures and everyday objects placed in uniquely framed positions/locations became critical works of art, demonstrating the utility of destruction to extract an unfamiliar, new, perplexing applique. In one of his most renowned works, Fountain (1917), Duchamp removes a urinal entirely from the realm of utility to reclaim it as ‘art,’ signed “R. Mutt 1917.” Upon becoming constituted as art, ornament inadvertently appears, both as a result of a denial of the object’s function and a separation from its context. The following case studies, preceded by some relevant historical documentation on ornament, depict a range of possible methods for gleaning ornament through destructive, transformative processes, from abstract to physical.
<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Year</th>
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<tr>
<td>Leone Battista Alberti</td>
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<td>Immanuel Kant</td>
<td>Critique of Judgement</td>
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<td>John Ruskin</td>
<td>The Seven Lamps of Architecture</td>
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<td>Gottfried Semper</td>
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<td>Owen Jones</td>
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<td>Hermann Muthesius</td>
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<td>Adolf Loos</td>
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<td>Claude Bragdon</td>
<td>The Beautiful Necessity</td>
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<td>Louis Sullivan</td>
<td>A System of Architectural Ornament</td>
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<td>Henri Focillon</td>
<td>Life Forms in Art</td>
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<td>Jacques Derrida</td>
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<td>Gianni Vattimo</td>
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<td>Victor Papanek</td>
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<td>Gregory L. Ulmer</td>
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<td>Mark Wigley</td>
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<td>Farshid Moussavi</td>
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References on Ornament, a brief timeline

| 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 |
“Ornament is always conceived of as potentially dangerous, potentially chaotic; and, therefore, it must be tamed. Ornament must be made servile to structure precisely because ornament lies in the dangerous realm of representation and can mislead us, take us away from the natural presence of harmony and order. Architectural theory has always attempted to tame ornament, to make it represent structure, to articulate structure. Structure itself has been protected from interrogation.”

- “The Displacement of Structure and Ornament in the Frankfurt Project: An Interview” (of Mark Wigley by K. Michael Hays)

“It is not that the superficial ornament is necessarily disorderly. On the contrary, it is precisely by representing a nonexistent order that the ornament can most threaten order.”

- Mark Wigley, *The Architecture of Deconstruction: Derrida’s Haunt*

“Ornament is but the guiled shore to a most dangerous sea”

- Shakespeare, *The Merchant of Venice*

“Ornament is the direct manifestation of a psychological mandate to create order. “ He writes, “I believe that in the struggle for existence organisms developed a sense of order not because their environment was generally orderly but rather because perception requires a framework against which to plot deviations from regularity.”

- E.H. Gombrich, *The Sense of Order*
“Ornament is dangerous precisely because it dazzles us and tempts the mind to submit without proper reflection.”

- E.H. Gombrich, *The Sense of Order*

“In discussing procedures in design I have proposed to distinguish between composition and subsequent elaboration and enrichment. In music the term ‘ornamentation’ is used precisely in this sense, it does not affect the structure such as the harmonic progression of chords, but it adds flourishes, ‘grace-notes’ or embellishments.”

- E. H. Gombrich, *The Sense of Order*

Ornament: an accessory, article, or detail used to beautify the appearance of something to which it is added or of which it is a part; an embellishment

- dicitonary.com

“Ornament may be defined as a form of auxiliary light and complement to beauty… ornament, rather than being inherent, has the character of something attached or additional.”

- Alberti, *On the Art of Building in Ten Books*

Architecture needs mechanisms that allow it to become connected to culture. It achieves this by continually capturing the forces that shape society as material to work with… Ornament is the by-product of this process, through which architectural material is organized to transmit unique affects.”

- Farshid Moussavi & Michael Kubo, *The Function of Ornament*
The joint is the beginning of ornament
And that must be distinguished from
decoration, which is simply applied.
Ornament is the adoration of the joint.

- Louis Khan

Ornament is that which “always hides some fault of construction.” (he would likely contend that if the building was construct-
ed perfectly, there would be no need for ornament)

- August Perret

“It is perhaps true . . . that to deal with whatever ornament may be strikes at the very core of the visual experience, where
that experience is not skewed by taste, snobbery, ideology, social convention, ecclesiastical or political restrictions, stylistic
salesmanship and all sorts of other refinements that limit the emotional and sensor). freedom of each viewer”

- Oleg Grabar, The Meditation of Ornament

“Ornament is an unenunciated but almost necessary manner of compelling a relationship between objects or works of art
and viewers or users”

- Oleg Grabar, The Meditation of Ornament

"Ornament is the origin of architecture"

- John Ruskin
D11
Ornament is "only an adjunct, and not an intrinsic constituent" Kant’s 3 examples of ornament: “the frame on a painting, drapery on a statue, and the colonade on a palace”

- Immanuel Kant, *Critique of Judgement*

D12
“like order and proportion, ornament expressed the fundamental regularity of the universe, and, above all, its fecundity. Ornament, in general, gave evidence to the creativity and the beauty of the cosmic order, just as the fruits and flowers that if often imitated were the products and finery of nature.”


D13
“Ornament shapes, straightens and stabilizes the bare arid field on which it is inscribed. Not only does it exist in and of itself, but it also shapes its own environment -- to which it imparts form.”

- Henri Focillon, *The Life of Forms in Art*

D14
“Ornament – in the sense of emerging pattern based on the process of fabrication should have primacy over any underlying structure”

- Jonathan A. Hale, referencing Gottfried Semper’s understanding of ornament in *Gottfried Semper’s primitive hut as an act of self-creation*

D15A
“The empire of signs has many clothes, but no substance. To make ourselves at home in this floating world, we need something we can recognize. Let’s call it ornament.”

- Aaron Betsky, *Architecture Must Burn*, Section 3.3 Ornament is Fine
“...a woven architecture is one in which any constituent piece is inextricably bound up in the whole.” Betsky later explains that “In a woven world, ornamentation is not a crime, but a necessary elaboration and reminder of what we have made that cloaks us in our artiface and points the way towards the continual reweaving of the patterns of order.”

- Aaron Betsky, *Architecture Must Burn*, Section 3.3 Ornament is Fine

“[ornament] can articulate the complexity and mythology of particular times and places”

- Kent C. Bloomer, *The Nature of Ornament: Rhythm and Metamorphosis in Architecture*

2006 Critical Digital: Digital Culture and Ornamentation. April 24th, 2006, Cambridge, MA. Round-table discussion with Antoine Picon (Harvard), Joe MacDonald (Harvard), Mark Jarzombek (MIT), and Mark Goulthorpe (MIT). Topic: “Throughout the history of Design the concept of “ornament” has swayed back and forth from appeal to revulsion. With the almost complete saturation of digital media into our design culture, what role does, can, or will the notion of ornament play? What is critical about ornament in the digital age?”
Case Study 1 :: Painting, Jim Dine
While Jim Dine’s dangerous-looking artworks depicting hammers and hatchets whacked into wood might seem appropriate subject matter, it is his less overtly aggressive work that is pertinent for understanding ornament through destruction. From the early ‘60s to the mid ‘80s Dine completed an assortment of paintings that wrestled with the ideas of the “body” and “the absence of presence.” In Pearls, Flesh Striped Tie, and Kentucky Robe, Dine posits ornament as subject matter. He takes the familiar understanding of ornament as subsidiary relative to both the subject matter and to the viewer, and rephrases ornament as primary by denying any previously established expectation of subject matter (the body).
Fig. 1 Pearls, Flesh Striped Tie, and Kentucky Robe (from left to right)
Case Study 2 :: Product Design, Ron Gilad

Israeli industrial designer Ron Gilad’s “design through destruction” series depicts another method for achieving ornament through destruction. Exhibited in the Design Life Now: National Design Triennial 2006, Gilad’s Run Over By Car (ROBC) vases are all pseudo-mass customized one-of-a-kind’s. The vases are initially mass produced, then each vase is distinctly crushed into finality by the impact of a vehicle, manifesting curious curvilinear patterns and surface undulations from dimples, scratches, and indentations. While the program (utility) of the vase as container remains intact, each iteration of destruction adds another layer of unforeseeable, emergent ornamentation.
Fig.2 ROBC Vases
Case Study 3 :: Furniture Design, Maarten Baas

German furniture designer Maarten Baas’s “Where There’s Smoke” collection has twenty-five of the most renowned furniture designs in history, each “custom burned” to a rich, black finish. Each piece is burnt and finished with an epoxy resin followed by a transparent polyurethane lacquer with UV-filter.

Included in the set are Antonio Gaudi’s 1902 Calvet chair, which had lost part of its curvy back in the conversion to charcoal briquette. Charles Rennie Mackintosh’s famous ladderback chair had been torched to within several slats of its life, then finished off with apple-green fabric handmade by Claudy Jongstra, a contemporary Dutch textile designer. For a Dutch design fan, the most irreverent act may have been turning Gerrit Rietveld’s “Red and Blue” chair, a 1918 masterpiece, into planes of coal black.
ORNAMENT IS DANGEROUS

Fig. 3 Furniture by Baas
Case Study 4 :: Interior Design, Urban Outfitters
Similar to Stephen Knapp’s shattered glass tables, the nature of the shattered glass wall and transom is unique in every iteration. A latent ornamental layer is both literally and conceptually central to the design. When tempered glass breaks, it shatters into thousands of small pieces. In this case the lamination process contains that potential energy and the “ornamental” glass fragments are all held together between two pieces of safety glass. The resultant glass composite is therefore ornamented by shattering its middle layer.
Fig. 4 Urban Outfitters in Harvard Square, Cambridge, MA
Case Study 5 :: Old Buildings, Gordon Matta-Clark

Gordon Matta-Clark is known for his capacity to destabilize and reiterate the banal to posit that which is immaterial, thereby constituting the “entropic monument,” or “non-ument.” Office Baroque (1977), a surgical excavation through a five-story Antwerp office building, was inspired by overlapping teacup rings left on a drawing. Matta-Clark reduces the unadorned space of homogenous, horizontal surfaces (floors/ceilings) to the adorned space of perforated, layered sections. The carving was organized around two semicircles that arced rhythmically through the floors, creating a rowboat shape at their intersection (Nancy Spector). Matta-Clark described the piece in his own words as “a walk through a panoramic arabesque.”
Fig. 5 Office Baroque

ORNAMENT IS DANGEROUS
Abandoned five-story office building.
Office Baroque.
Standard assembly.
Standard materials.
No exposed structure.
The original mass.

Through acts of destruction, both globally and locally, and no acts of construction, the building is reborn. It is distilled, purified, and transformed.
The utility of space is interrogated through a series of incisions. As material is systematically removed, the exposure of material and structure becomes a new composition, a spatial pattern.

The process of material reduction is a rich context for exploration, revealing new spatial potentials that reside latent in the original mass.
Case Study 6 :: New Buildings, Morphosis
In their competition entry for a new tower in the La Defense district of Paris (which they won), as well as in the Salick Health Care facility in Los Angeles, Morphosis unravels space, structure, and skin to produce ornament. In La Defense, at the tower’s highest elevation, the envelope is dissolved to exclaim the ornament of structure as it bypasses the threshold of its essential function. This being a distinctly different act than Mies applying structurally unnecessary vertical I-beams on the façade of the Seagram building. For the Salick Health Care facility Morphosis coupled structure and skin to crown the building, enabling both components to become ornamental by extending and separating them from the programmed space of the building’s interior.
ORNAMENT IS DANGEROUS

Fig.6 Cal Trans, LA
Fig.7 Salick Health Care, LA
Fig.8 San Francisco Federal Building
Fig.9 La Defense Tower, Paris
III. FIRE ECOLOGY ::

A basic premise of fire ecology is that wildland fire is neither innately constructive nor destructive: it simply causes change. Nonetheless, fire, one of what Empedocles (Greek, pre-Socratic philosopher) called the four “roots,” naturally operates within an apparatus of constructive/destructive logics. Humanity’s relationship to fire has always been tenuous. Perhaps more glaringly and with greater impact than any other phenomenon, fire constantly resides on the border between serving us, providing health and life, and dominating us, destroying our surroundings and our lives. In order to effectively manage forest fires, reduce understory fuel loads, restore normal ecosystem dynamics, and minimize damage to the built environment, a thorough understanding of fire ecology is essential. (7)

Fire is a familiar provider of both necessity and comfort through heat and light. In Thermal Delight in Architecture Lisa Heschong writes, “Drawing a parallel to the concept of the soul that animates the physical body of a person, the fire, then, is the animating spirit for the body of the house.” (8) Fire is also a powerful agent for purification. In The Psychoanalysis of Fire, Gaston Bachelard proposes the idea that “fire purifies everything.” To defend his case Bachelard promptly points out that fire both “suppresses nauseous odors…” through its “power of deodorization,” but it also “separates substances and destroys material impurities. In other words, that which has gone through the ordeal of fire has gained in homogeneity and hence in purity.”(1) “Prescribed Burning,” a helpful technique used in wildfire management, consumes more dead fuel (brush, logs, etc.) than it creates, effectively reduces the fire hazard and, with few if any modifications, improves wildlife habitat. (http://www.pfmt.org/standman/prescrib.htm) Therefore, from this perspective the concept of destruction is not meant to be thought of as having strictly negative impact, but rather as a more pliable notion that negotiates between both the physical and the abstract.

While fire has long been an agent of sustenance, keeping us warm, lighting our path, and mediating between us and an often times harsh world, it is also a powerful agent of destruction. Aside from its innumerable applications in the arena of war, fire causes massive material consumption of the built and natural environment, carbon monoxide poisoning, suffocation, and destabilization of ecological balance. In fact, according to the American Red Cross, “fires kill more Americans each year than all natural disasters combined.” Furthermore, though many wildfires begin as a result of natural phenomena, i.e. lightning or volcanic activity, the US Federal Emergency Management Agency reports that “four out of every five forest fires are started by people,” from still lit cigarette buds, signal or rescue flares, unsanctioned camp fires, etc.
<table>
<thead>
<tr>
<th>Event</th>
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<tr>
<td>Native Americans had fire firmly rooted in their way of life. (William Bartram)</td>
<td>1700s</td>
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<td>The earliest European settlers to North America noted indigenous peoples' use of fire for clearing land,</td>
<td></td>
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<td>hunting and gathering activities.</td>
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<td>The Peshtigo, Wisconsin, fire left 1,300 dead and over one million acres charred.</td>
<td>1871</td>
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<td>Land managers in the southeastern United States began arguing for the return of more natural fire</td>
<td>1930s</td>
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<td>regimes.</td>
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<td>Ecologists began to recognize that fire was a primary agent of change in many ecosystems, including</td>
<td>1940s</td>
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<td>the arid mountainous western United States. (NPS)</td>
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<td>National parks and forests began to experiment with controlled burns.</td>
<td>1950s/60s</td>
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<td>Yellowstone and other parks had instituted a natural fire management plan to allow the process of</td>
<td>1970s</td>
</tr>
<tr>
<td>lightning-caused fire to continue influencing wildland succession.</td>
<td></td>
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<tr>
<td>The driest year (of 125) in Yellowstone National Park's recorded history. A total of 248 fires started</td>
<td>1988</td>
</tr>
<tr>
<td>in greater Yellowstone this year. About 1.2 million acres was scorched; 793,000 (about 36%) of the park's</td>
<td></td>
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<tr>
<td>2,221,800 acres were burned. Sixty-seven structures were destroyed. Estimated property damage totaled</td>
<td></td>
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<td>more than $3 million.</td>
<td></td>
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<tr>
<td>Yellowstone National Park issues a new wildland fire management plan, but with stricter guidelines</td>
<td>1992</td>
</tr>
<tr>
<td>under which naturally occurring fires may be allowed to burn.</td>
<td></td>
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</tbody>
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**Wildland Fire, a brief timeline**

<table>
<thead>
<tr>
<th>Year</th>
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<tr>
<td>1400</td>
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<td>1900</td>
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<td>2000</td>
</tr>
</tbody>
</table>
Fig. 10 Anatomy of a Prescribed Burn
The science of fire ecology necessarily isolates one set of processes from a broader complex system. The manner in which different organisms respond to fire is rarely limited to the effects of fire alone. The impact of a fire upon an ecosystem will vary widely among systems, between fires, and according to biological timing. Stephen J. Pyne notes three fields of study for analyzing these effects, namely “autecology, the study of individual organisms; synecology, the study of communities; and the fire regime, the integration of ecosystems with fire history.” (11) However, Pyne proceeds to explain that for some ecosystems fire does play a dominant role in shaping the structure, composition, and dynamics of the whole system. A poignant example of wildland fire being a significant factor in a particular ecosystem, yet straddling the line between being constructive and destructive, is in the Pacific Southwest.

Consequent to the climatic and geographical conditions of southern California, forest fires can rage uncontrollably for days, even weeks. In the summer of 2004 a forest fire in Gaviota State Park burned 5,000 acres in the first day. According to incident reports, 1,370 fire fighters were involved and the fire threatened 200 homes, two oil refineries, and the Reagan ranch. The fire fighting cost $6.4 million. This was nothing compared to the more recent Day Fire, which was the fifth largest fire in California history. The Day Fire started on Labor Day, September 4, 2006. By September 10 it had burned 13,646 acres of Los Padres National Forest. By October 1, 2006, the fire had burned over 162,700 acres, cost $70.3 million, and at one point, consumed the attention of 4,600 active firefighters. The Day Fire wasn’t completely contained until October 13, more than 5 weeks after it began.
Based on a report published by the United States Geological Survey (USGS) in 2001, California chaparral ecosystems burn in large landscapescale crown fires that on the one hand are critical for the ecology of these systems, but on the other pose a serious threat to southern California residents. The Western Ecological Research Center (WERC) has shown that for many species in these systems, their seeds require smoke to induce germination, and are therefore almost entirely dependent upon recurrent fire for their sustenance. Unlike western U.S. Coniferous forests, where a century of fire suppression has led to fuel buildup and a risk of catastrophic wildfires, WERC research has shown that large, high-intensity fires in chaparral ecosystems do not appear to be the result of fuels buildup. These fires actually occur, in league with powerful Santa Ana winds, as frequently today as before widespread fire management aimed at fire suppression. (7)

It is important to reiterate that fire ecology is concerned with the impact (both constructive and destructive) of fire on ecosystem dynamics and species composition. Fire ecologists believe that fire is an integral component to the function and biodiversity of many communities, and that the organisms within those communities have adapted to withstand and even exploit it. According to the Association for Fire Ecology, which echoes the findings of the Western Ecological Research Center, “Fire is a critical ecological process in many ecosystems throughout the world.” It is therefore the mission of AFE to “assure fire applications and fire management actions are informed by sound science and the most innovative ecological thinking.” In conjunction with the notion that fire not only helps, but plays an integral role in certain ecosystems, The Nature Conservancy (TNC) has instituted the Global Fire Initiative. Researchers at TNC report that “Approximately 84% of places identified by scientists as important for global conservation are estimated to be at risk from changes that have created too much, too little or the wrong kind of fire.” Consequently, TNC has embarked on a holistic, comprehensive wildfire management approach in order to “address fire issues that consider biological, environmental, cultural, social, economic and political interactions.” (8)

Architecture and fire are inextricably linked to one another as much by the hearth as by the ovens that produce brick, glass, and metal. (5) In Genesis 11 Moses writes “[v2] It came about as they journeyed east, that they found a plain in the land of Shinar and settled there. [v3] They said to one another, ‘Come, let us make bricks and burn them thoroughly.’ And they used brick for stone, and they used tar for mortar.” The use of fire remains a critical component in the production of architectural materials today. Iron ore is melted in a blast furnace (or an electric arc furnace when using scrap metals) and the resultant molten iron is processed to produce steel. The first step of a typical glass manufacturing process is to introduce raw materials (sand, limestone, and soda ash) in a melting furnace. (http://www.epa.gov/ttn/chief/ap42/ch11/final/c11s15.pdf) Conversely, the last step of a standard brick manufacturing process is to fire the clay in a kiln (usually either a tunnel or periodic kiln) or furnace. (http://www.brickinfo.org/BIA/technotes/t9.htm)
Fig. 12 Glass Manufacturing Process

Fig. 13 Brick Manufacturing Process
Just as fire plays a key role in the production of construction materials, it also plays a significant role in their destruction. The New York City Building Code (NYCBC) plainly acknowledges this fact, and consequently states that “all structural elements within 20ft (6.1m) of an occupied area should be fire-protected to achieve two hours’ fire resistance, irrespective of the actual level of hazard in the space, or its specific geometry.” (3) This demand of the NYCBC became the principal challenge for engineers of Arup Fire while working on Columbia University’s Alfred Lerner Hall, designed by Bernard Tschumi. In response, Arup Fire developed scenarios to simulate probable fire size and location relative to the structural elements in question. The structural effects of the digital fire were assessed by carrying out computational heat transfer analyses, convective for engulfed elements and radiative for distant elements. (3) The tests determined the likely temperature of the structural elements in the event of the design fire, and ultimately led to a huge savings in cost, greater structural efficiency, and purity of design intent. Consequent to their commitment to understand and analyze fire behavior, Arup Fire was able to construct a landmark precedent project for Manhattan and the world.

At this point it has been established that fire provides light for seeing and heat for cooking. It reduces hazardous fuels and helps to regulate ecological communities via guiding plant rejuvenation. Fire also plays a critical role in material production for the built environment. But fire is monstrously dangerous and an enormous threat to life. Fire consumes and destroys the material of the built and natural environment. The smoke from fire causes carbon monoxide poisoning and asphyxiation. The timing, placement, and quantity of fire can come together to either preserve or disrupt ecological balance. The question is, how can the role of fire ecology contribute to a better understanding of the relationship between people, the places they inhabit, and nature? One of the goals of this thesis has been to grapple with the common constructive/destructive phenomenological dichotomy as it pertains to fire, based on the assumption of its particular significance given its unique nature, history, and scale - an inherent task of any fire ecologist. Although the Los Angeles Wildfire Hazard Center will contain research facilities, it will mainly serve to inform the public of this ecology of fire as it pertains specifically to LA.
IV. THE URBAN-WILDLAND INTERFACE

Site Documentation and Analysis ::

The Los Angeles Wildfire Hazard Center is located at the intersection of two urban-wildland conditions. The first may be observed at the county scale. This threshold occurs near the center of LA County, dividing Angeles National Forest to the north, from the City of Los Angeles to the south. The second is more local, at the city scale, separating the hills of Linda Vista to the west, from the suburban developments of Altadena to the east. The north-south interface is particularly important because along it runs much of the Very High Fire Hazard Severity Zone, a subset of the Los Angeles County building code (5.37.070 Special building standards, Section 101.3), which demands a much more rigorous response to the prospect of potential fire hazards.

The site bends circuitously around Weimar Ave, dividing it into two distinct bulges. Similarly, the building is grouped into two complimentary camps. The portion of the building in the northwest faces the mountains. North is Angeles National Forest, and west are the Linda Vista hills. This part of the building is elevated above the site to provide views over the existing tree line, with greater volume of space to support both research-related and public functions. It’s also at a higher elevation than its counterpart. The portion of the building in the southeast faces the city, and lends itself to accommodating pedestrian access. South is the City of Los Angeles and east is Altadena. This area is characterized by greater geometric acuity, with clearer divisions of space and programmatic use.
Pacific Ocean County
Ventura County
Kern County
San Bernardino County
Orange County
LA County
North Region
Central Region
East Region

LOS ANGELES COUNTY FIRE DEPARTMENT REGIONS

SITE
BN.3
BN.16
BN.4
BN.13
BN.18
BN.20
BN.21
BN.12
BN.5
BN.1
BN.10
BN.19
BN.2
BN.14
BN.11
BN.7
BN.6
BN.9
BN.17

LOS ANGELES COUNTY FIRE DEPARTMENT DIVISIONS & BATTALIONS

North Region
LA County
San Bernardino County
Ventura County
Pacific Ocean County
Central Region
Orange County
Kern County
Site Hierarchy for Wildfire Management

- LA Fire Department Regions
- Battalion & Division Headquarters
- Division Headquarters
- Divisions
- Battalion Headquarters
- Battalions
- Fire Stations
- Fire Camps
LOS ANGELES COUNTY FIRE DEPARTMENT

Kern County

LA County

San Bernardino County

Orange County

Ventura County

Pacific Ocean County

SITE

VHFHSZ

ORNAMENT IS DANGEROUS

ORNAMENT IS DANGEROUS
CITY OF LOS ANGELES BRUSH CLEARANCE ZONES

Pacific Ocean County
Ventura County
LA County
San Bernardino County
Kern County

SITE
0 10 Miles
0 20 Kilometers

Intersection of Yucca Lane & Oak Grove, looking SE
The site is located within the Very High Fire Hazard Severity Zone, and at the intersection of two urban-wildland boundaries: one on a larger scale dividing Angeles National Forest and the City of Los Angeles, the other on a smaller scale dividing Linda Vista and Altadena.
The site is located within the Very High Fire Hazard Severity Zone, and at the intersection of two urban-wildland boundaries: one on a larger scale dividing Angeles National Forest and the City of Los Angeles, the other on a smaller scale dividing Linda Vista and Altadena.

The site has approximately 50k square feet of developable land. Its northern edge must be bound by a 20' setback due to its adjacency to a major roadway, whereas all other setbacks are 10'.
The site is located within the Very High Fire Hazard Severity Zone, and at the intersection of two urban-wildland boundaries: one on a larger scale dividing Angeles National Forest and the City of Los Angeles, the other on a smaller scale dividing Linda Vista and Altadena.
The notion of centrality is significant. A flame, under homogeneous wind and fuel conditions, will spread radially from its ignition point. The center of the flame is characterized by color and temperature, as the dark inner portion is the coolest part of the flame.

Central Node :: tier 1

Colorless

1200 degrees C

Light Yellow

1400 degrees C

White

1000 degrees C

Dark Red, Brown, or Orange

800 degrees C

Blue

600 degrees C

The criticality of centrality is also evident in the location of fire stations throughout LA County. Each is positioned within its battalion boundaries in order to maximize access to all areas with minimal response times.

Central Node :: tier 2

The criticality of centrality is also evident in the location of fire stations throughout LA County. Each is positioned within its battalion boundaries in order to maximize access to all areas with minimal response times.

The notion of centrality is significant. A flame, under homogeneous wind and fuel conditions, will spread radially from its ignition point. The center of the flame is characterized by color and temperature, as the dark inner portion is the coolest part of the flame.

The criticality of centrality is also evident in the location of fire stations throughout LA County. Each is positioned within its battalion boundaries in order to maximize access to all areas with minimal response times.
Central Node :: tier 3

Central points within the public/private zones

Central points within the overlap between the public/private zones

Central Node :: tier 4

Possible locations for cooling centers, akin to those located in community centers/facilities during severe LA heat waves.

Providing a direct link between vistas will be critical for providing immediate visual feedback to the visitor, heightening their awareness and appreciation of the urban-wildland interface.

Facing the mountains
West is Linda Vista.
This portion of the site will be at a higher elevation.

South is the City of Los Angeles.
East is Altadena.
This portion of the site will be at a lower elevation.

Facing the city
South + East
North + West

Site Diagrams and Concept studies

Site Diagrams and Schematic Design

Concept studies
Peripheral zones will be denoted by certain built-up intensities, rendered via a high density & diversity of patterning, texture, and form. Such zones may be found at programmatic intersections, material adjacencies, and portions of the exterior envelope.

As the WHC is largely concerned with the urban-wildland threshold, the notion of boundary intensities becomes important, noting the build-up of material as the ambitions of one environment repeatedly collide with the other. This kind of peripheral intensity is also apparent in fire. The outermost portion of a flame produces the most intense heat, at about 1400 degrees C, whereas the innermost portion is the coolest, at about 600 degrees C.

Whether a substance is synthetic, geographic, aquatic, or some combination thereof, it's the repeated friction & collision between it and its neighbors that creates moments of intensity. On the one hand material is eroded, producing a spike in surface area. On the other hand material is accumulated, producing a spike in volume. Both scenarios often lead to a formal intricacy and complexity, a material diversity, and a graphic brilliance that culminates in a compositional intensity.

The public and private programmatic domains are mutually concerned with fire as it effects urban and wildland environments. Their respective locations will be indicative of this, as they both inhabit parts of the northwestern and southeastern portions of the site.

Patterns of overlap between the public and private zones will help determine the specific nature of their relationship, and the extent to which the programmatic balance shifts during times of emergency.
V. THE PRAGMATICS OF PROTECTION

Shielding the Building:

Some major considerations for providing adequate protection against potential fire hazards are building form and materials. Overhangs, cantilevers, and forms that extend outside the footprint of the building can cause accumulation of radiant energy from fire. In addition, with the often unpredictable behavior of fire, and burning embers that can come from any direction, all exterior wall and roof materials must be non-combustible.

Once the basic mass of the building was erected from the parameters dictated by the Los Angeles Building Code, in conjunction with the Very High Fire Hazard Severity Zone Code, protection-oriented and programmatic parameters were put in place to further configure the building. All subtractive transformations cascade from the peak of the building (about 35’ above grade) to the base. Two plugs were removed at either end to provide interior courtyards. A fire screen was added, working in tandem with the exterior wall assembly in areas requiring heightened protection from radiant heat (both from the sun and from potential fires). This screen was designed to pull away from the exterior wall as it became more perforated to accommodate light, views, ventilation, and occupancy needs, while sustaining a relatively high degree of protection.
**Building Code Requirements**

Constituting the mass to the max

Maximum Allowable Building Area :: 76,950 SqFt
Programmed Building Area (w/ parking) :: 19,200 SqFt
First Order Adjacencies

Studies in programmatic relationships

PUBLIC

Located at the area centroid (in plan) of each portion of the site, and accessed near ground level.

Storage

Bath 1

Bath 2

Lobby

Info Kiosk

Screening Room

Primary Entrance

This portion of the building focuses views toward Altadena to the east and the City of Los Angeles to the south.

Direct link between vistas is critical for providing immediate visual feedback to the visitor, heightening their awareness and appreciation of the urban-wildland interface.

Cafe & Viewing Deck - A

Cafe & Viewing Deck - B

Located at the area centroid (in plan) of each portion of the site, and accessed near ground level.

Cafe - C

Cafe & Viewing Deck - A

Café - C

Cafe & Viewing Deck - B

Located at the area centroid (in plan) of each portion of the site, and accessed near ground level.

Primary Entrance

50'

This portion of the building focuses views toward Linda Vista to the west and Angeles National Forest to the north.
First Order Adjacencies

Studies in programmatic relationships

SEMI-PUBLIC

PRIVATE

[scheme A]  [scheme B]  [scheme C]

[scheme A]  [scheme B]

ORNAMENT IS DANGEROUS
Program: During times when wildland fires are burning at or near the City of Los Angeles/Angeles National Forest interface, the building’s research and administrative functions consume much of the building’s resources, including spaces normally programmed for public use. However, during seasons when there are no wildland fires in the vicinity, the building remains predominantly open to the public for educational purposes.

Public (~5,100 SqFt)
1. Kiosk for pamphlets, brochures, maps, and announcements (x1) 200 SqFt
2. Cooling Centers (x2) 350 SqFt
During Southern California heat waves, officials open cooling centers at community facilities in the City of Los Angeles. The Cooling Rooms in this project will primarily serve alternative programmatic functions, such as educating the public about the nature and locations of such cooling centers throughout the city.
3. Video Screening Room (x1) 1200 SqFt
4. Training and Seminar Spaces (x2) 250 SqFt
This space, in conjunction with the Simulation Room would straddle the public/private divide, accommodating schools, wildfire professionals, and LA County Fire Department Battalion and Division use.
5. Cafe & Viewing Deck (x1) 2500 SqFt

Research (~1,900 SqFt)
1. Lab/Work Space (x1) 800 SqFt
2. Simulation Room w/ Beowolf Computer Cluster (x1) 600 SqFt
3. Training and Seminar Spaces (x2) 250 SqFt
This space, in conjunction with the Simulation Room would straddle the public/private divide, accommodating schools, wildfire professionals, and LA County Fire Department Battalion and Division use.

General (~3,200 SqFt)
1. Restrooms (x4) 150 SqFt
2. Storage (x1) 500 SqFt
3. Lobby/Reception (x1) 450 SqFt
4. Courtyard Spaces/Light Wells (x2) 350 SqFt
5. Circulation (10% programmed area) 950 SqFt
6. Parking (1 space per 400 SqFt bldg area) 9,000 SqFt

Total Area of Site 47,200 SqFt
Total Approximate Building Area (w/ parking) 19,200 SqFt
Screening Room :: Potential Content

[1] **Summer Season Heat Wave Safety Tips**
Heat Emergency Safety Tip Video for hot summer months. (http://www.fire.lacounty.gov)

[2] **100 Feet of Defensible Space**
Video for explaining why 100 feet. In January 2005 a new state law became effective that extended the defensible space clearance around homes and structures from 30 feet to 100 feet. Proper clearance to 100 feet dramatically increases the chance of your house surviving a wildfire. This defensible space also provides for firefighter safety when protecting homes during a wildland fire. (http://www.fire.ca.gov/education_100foot.php#)

[3] **California Living, Fire Safe**
Video takes viewers to locations throughout California, demonstrating step-by-step how homeowners living in fire danger zones can protect their loved ones, homes and communities from the devastating effects of wildfire. (http://www.fire.ca.gov/education_video.php#6)

[4] **NASA on Wildfire Management**
From the NASA News Archive (http://earthobservatory.nasa.gov/Newsroom/NasaNews/2003/2003072215047.html)

Visitor Kiosk :: Potential Content

[1] What are the various fire hazard zones in LA County and what residents can do to be prepared.

[2] Real Estate value vis-a-vis fire hazard zones

[3] Interactive simulations for wildfire behavior. Participants can view potential outcomes of user-defined fire scenarios based on changes in vegetative types, topography, fuel quantities, and climate.


[5] Is your home in a Very High Fire Hazard Zone? What you can do to better protect your family and your property.
It can be seen that for June 21, in LA, the sun rises from the North-East, azimuth = 60, at approximately 5:42am. Sunset happens at about 8:08pm, when the sun is in the North-West (azimuth = 300). On that day the elevation angle is approximately 74 degrees at noon.

Equinox:

An equinox in astronomy is that moment in time (not a whole day) when the center of the Sun can be observed to be directly above the Earth’s equator, occurring around March 20 and September 23 each year.

The diagram below illustrates the solar window between 9am and 3pm, from December 21 to June 21.

Los Angeles Solar Window
It can be seen that for June 21, in LA, the sun rises from the North-East, azimuth = 60, at approximately 5:42am. Sunset happens at about 8:08pm, when the sun is in the North-West (azimuth = 300). On that day the elevation angle is approximately 74 degrees at noon.

Equinox :: An equinox in astronomy is that moment in time (not a whole day) when the center of the Sun can be observed to be directly above the Earth's equator, occurring around March 20 and September 23 each year.
The fire screen will in part serve as protection against solar radiation, so a clear understanding of the sun’s movement vis-a-vis LA is important.
The fire screen will in part serve as protection against solar radiation, so a clear understanding of the sun’s movement vis-a-vis LA is important.
At the scale of the city, the fire screen must protect the building from wildland fire that may start in the San Gabriel Mountains to the north, or the Linda Vista hills to the west.

[levels of protection]
- high
- medium
- low
Fire Approach Protection, Near

At the scale of the site, the fire screen must protect the building from more local areas of propagation, such as the long patch of trees to the immediate north, and/or the green space to the west.
As strong Santa Ana winds push potential wildland fires from the north, into the LA Basin and on toward the Pacific, key points will be identified to protect the building from intense radiant heat.
The fire screen will serve as protection against solar and fire generated heat that may affect the building through radiation, conduction, and/or convection.

Radiant heat from fires in close proximity

Radiant heat from fires far away

Radiant heat from the sun

2D [levels of protection]

Fire Screen

Exterior Wall Assembly

$d$: distance
$p$: perforation (as % of surf. area)

As $p$ increases, $d$ must $\uparrow$
Radiant heat from fires in close proximity

Radiant heat from fires far away

Radiant heat from the sun

3D radiometric lines

The fire screen will serve as protection against solar and fire-generated heat that may affect the building through radiation, conduction, and/or convection.
Fire/Sun Protection
The Fire Screen

Radiant heat from fires in close proximity
Radiant heat from fires far away
Radiant heat from the sun

The fire screen will serve as protection against solar and fire generated heat that may effect the building through radiation, conduction, and/or convection.

Fire/Sun Protection
The Fire Screen

Radiant heat from fires in close proximity
Radiant heat from fires far away
Radiant heat from the sun

The fire screen will serve as protection against solar and fire generated heat that may effect the building through radiation, conduction, and/or convection.
Radiant heat from fires far away

Radiant heat from fires in close proximity,
radiant heat from the sun

The fire screen will serve as protection against solar and fire generated heat that may effect the building through radiation, conduction, and/or convection.

2D Hybrid illustrating combined protection against radiant heat from fires in close proximity, radiant heat from fires far away, and radiant heat from the sun

3D Hybrid

2D & 3D
The notion of the flashpoint, the lowest temperature at which a liquid or solid produces enough vapour to form a flammable air-vapour mixture near its surface so that it can be ignited by a spark or flame at atmospheric pressure (http://www.ilo.org/public/english/protect/safework/cis/products/safetytm/msds.htm), became significant as a way of thinking about how certain material, formal, or spatial transitions might occur. This idea was explored through a series of animated parametric point fields that were algorithmically interrupted by a passing sphere (built in GC, written in C#).
ORNAMENT IS DANGEROUS
ORNAMENT IS DANGEROUS
VI. TRANSFORMING THE MASS ::

The ambition to derive ornament, as a foundational consideration, with the understanding that architecture would follow as a necessary byproduct, instigated the assembly of the *original mass* (reference to Matta-Clark). This banal *body* (reference to Jim Dine) could then be subjected to various modes of destruction and transformation. With the parameters of building codes, program specifications, daylighting goals, site constraints, and fire protection mandates in place, the mass could be manipulated in a manner that would lead to a cohesive and systematic ecology of ornament.

Operations on the mass began at the relative centers of each end of the site, the interior courtyards/lightwells. The idea was that each lightwell would serve as a giant column, and be parametrically constructed to follow the sun. The lightwell in the southeast portion of the site is oriented to accommodate direct light during the first half of the day, then be shaded during the later part of the day. The lightwell in the northwest portion of the site is oriented to accommodate direct light during the second half of the day, and be shaded during the morning and early afternoon. This way, between the two of them, the building’s occupants can go outside, inside, and have access to direct light and shade during most of the day, every day of the year.
geometric hierarchy from generative components associative model, both for the courtyard and the coffers that populate it
Buoyancy Driven Air Flows: If indoor air is warmer than outdoor air, it will tend to rise and escape through the courtyard, and be replaced by air entering the lower part of the building. Pressure differences due to buoyancy are directly proportional to both height and the temperature difference between incoming and outgoing air. (http://greenbuildings.santa-monica.org/pdf/sf5.pdf). Coffers at the base of the courtyard are deep, open, and offer minimum solar gain. Coffers at the top of the courtyard (about 35’) are shallow, closed, and provide maximum solar gain, thus maximizing the temperature differential between bottom and top. A shallow trellis with dampers was also added to the roof of the courtyard to further increase solar gain and provide protection against falling embers.
ORNAMENT IS DANGEROUS

study model
concept model for trying to arrive at an intensity of ornamentation, methodologically antithetical to my goal, but likeminded in product.
Pattern, form, and texture come together to produce an affect of intensification.

ORNAMENT IS DANGEROUS
study models
ORNAMENT IS DANGEROUS

Classrooms and Training Space - view looking northwest
Both the northwest and southeast portions of the building contain research and education related spaces, with the central zone dedicated to “interface” vistas and circulation.

View :: Looking South
Both the northeast and southwest sections of the building contain research and education related spaces, with the central zone dedicated to ‘interface‘ vistas and circulation.

**L2 - 3000 sf [15’]**
- Cafe & Viewing Deck - SE
- Screening Room [upper level]

**L2 - 7500 sf [18’0”]**
- Lab/Work Space
- Training 1
- Training 2
- Training 3
- Training 4

**L3 - 5000 sf [29’]**
- Cafe & Viewing Deck - NW

Trellis w/ dampers to maximize solar radiation and seal the courtyard in case of fire or burning embers.
Site Plan
View looking northeast
View looking southwest
Animation frames from a sun study of an array of 9 coffers from the courtyard
Animation frames from coffer and courtyard schematics, demonstrating the range of potential solutions.
ORNAMENT IS DANGEROUS
ORNAMENT IS DANGEROUS
ORNAMENT IS DANGEROUS
ORNAMENT IS DANGEROUS
ORNAMENT IS DANGEROUS
Animation frames from courtyard study in ornamental intensity, arriving as a consequence of systematic removal of material, both globally and locally.
VII. POSTSCRIPT ::

My thesis committee was composed of three men who I selected for their unique and complimentary architectural perspectives. I had the privilege of studying under each of them before soliciting their involvement, and I am so thankful for their time and effort in routing me toward a more articulate and persuasive thesis over the past year. My primary advisor was Mark Goulthorpe. Mark is the founder and principal of dECOi atelier, and is an Associate Professor at MIT. John Fernandez is also an Associate Professor at MIT. John’s work and research is primarily geared toward building technology and industrial ecology. The third member of my committee was K. Michael Hays. Michael is the Eliot Noyes Professor of Architectural Theory at the Harvard University Graduate School of Design. The jury of my final review on December 13, 2007, included Mark Jarzombek (though only present at the beginning of the review), John Fernandez, Sanford Kwinter, Mark Goulthorpe, Keller Easterling, and Aaron Betsky.

Solidifying the idea of this thesis was by far the most challenging aspect of its coming into being. I initially meandered through a wide array of potential directions. I began by considering the notion of camouflage and continuity/cycles/looping through a lens of what I called ‘animated taxonomies:architectural cartography.” I then turned to particular design modalities which I identified as being expressed via material media, which integrates building information databases into 3d modeling, referred to as “Wet Computation” by Sanford Kwinter, or Building Information Modeling (BIM) by the construction industry. Another category being immaterial media, what Greg Lynn called “blob architecture” for Binary Large OBjects, and Jesse Reiser described as reducing architecture “to that of control systems, while at the same time positing the advent of immaterial architecture as a new found freedom.” The third category is that of ornamental media, described by Farshid Moussavi in terms of its affects on form, structure, screen, and surface, and is illustrated in such projects as FOA’s Spanish Pavilion, Expo 2005, and UNStudio’s Theatre Agora project in Lelystad, the Netherlands. After much painful interrogation by Mr. Dutta, I became fascinated by the history and potential future of ornament. Trying to position it in a structural role became an exciting challenge, though it was seemingly counterintuitive at first, and allowed me the flexibility to dabble in related ideas. Ornament will always be dangerous, no matter how, or where, or in what capacity it manifests itself. Whether it can be readily distinguished from structure or not, it will forever remain somehow unnecessary. Its existence therefore demands much scrutiny to decipher what is ultimately true.
Fig. 16 Final Review
Work space in thesis suite 9-235b
BIBLIOGRAPHY ::

Ornament is Dangerous


Fire Ecology


IMAGE CREDITS ::

All illustrations and photographs by the author, unless otherwise specified.

Figure 1 :: http://www.artposters.jp/DINE/Dine1_gallery.htm
Figure 2 :: http://www.designfenzider.com/ShoppingNew/Products/ROBCBlack/ProductPage.html
Figure 3 :: http://www.maartenbaas.com/
Figure 4 :: my camera, yo
Figure 5 :: Object to Be Destroyed: the Work of Gordon Matta-Clark, by Pamela M. Lee
Figure 6 :: www.morphosis.net
Figure 7 :: www.morphosis.net
Figure 8 :: www.morphosis.net
Figure 9 :: www.morphosis.net
Figure 10 :: http://www.fl-dof.com/wildfire/wf_images/rx_anatomy.jpg
Figure 11 :: http://content.answers.com/main/content/wp/en/thumb/f/f9/300px-Gaviota_sp1.jpg
Figure 12 :: http://www.epa.gov/ttn/Chief/ap42/ch11/final/c11s15.pdf
Figure 13 :: http://www.brickinfo.org/BlA/technotes/t9.htm
Figure 14 :: http://picasaweb.google.com/lh/photo/1Wwy78CXBxVGJCorfZAXJQ

Figure 15 :: Photo by Arjun Bhat

Figure 16 :: Photo by Arjun Bhat

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