

fake design
homage art
counterfeit architecture
copied
replica
reproduced
ryan.t.ralston

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Ryan T Ralston
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Yea, I copyrighted it...

“Here’s to the Crazy Ones. The misfits. The rebels. The trouble-makers. The round pegs in the square holes. The ones who see things differently. They’re not fond of rules, and they have no respect for the status-quo. You can quote them, disagree with them, glorify, or vilify them. About the only thing you can’t do is ignore them. Because they change things. They push the human race forward. And while some may see them as the crazy ones, we see genius. Because the people who are crazy enough to think they can change the world - are the ones who DO!”

-Apple Inc. 1997

Thesis Committee

PABLO GARCIA

Primary Advising Professor: Thesis Studio
School of Architecture
Carnegie Mellon University



DALE CLIFFORD

Professor: Thesis Studio
School of Architecture
Carnegie Mellon University



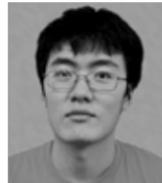
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Client: Prototype One
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Preface



RYAN T RALSTON

Student: Thesis Studio
Bachelor's of Architecture
Carnegie Mellon University

Firstly...

..a special thanks to all those who have helped and supported me throughout the past year and leading up to this point..friends, family, professors, critics, roommates, partners, classmates, colleagues...

Today I look back over a body of experience that has culminated at this point. It is mere days until I receive my diploma and yet I can remember that very first day of studio as if it were yesterday. Comically, I couldn't tell you what I had for lunch yesterday, as this whirlwind of final production brings five years to a close. Yet, it seems a fitting end to a five year journey that has had more than its share of literal blood, sweat and tears.

Reflecting on the accomplishments and achievements I have had over the years, I see mere flash moments within a much larger experience. Individual courses, grades, accolades do little justice in explaining the growth I have experienced while at Carnegie Mellon. The richest moments aren't those listed on a resume, or in a competition entry...they are the endless hours, the little moments, shared pain; the combination of millions of moments over half a decade have made me who I am today.

I submit this final thesis document as record of yet another small moment in a larger picture. While it cannot come close to summarizing all I have learned and become, it does have the most of 'me' when compared to any other project from the past five years. I hope it can give readers, and skimmers, and those who just like glancing at the imagery (you won't even read this), a view into who I have become and what I am capable of as I continue forward on my journey. If nothing else, that is one thing I have learned for sure...never stop moving forward...iteration, iteration, iteration, a little irritation...and as Winston Churchill said,

"if you're going thru hell..keep going..."

It has been quite the journey, and as this era comes to a close, I leave this document as the best record of what I have learned and who I have become. Onward I move to the future, with hopes to be able to utilize the full value of all I have learned to do good and be great.

Ryan T Ralston

May 2012

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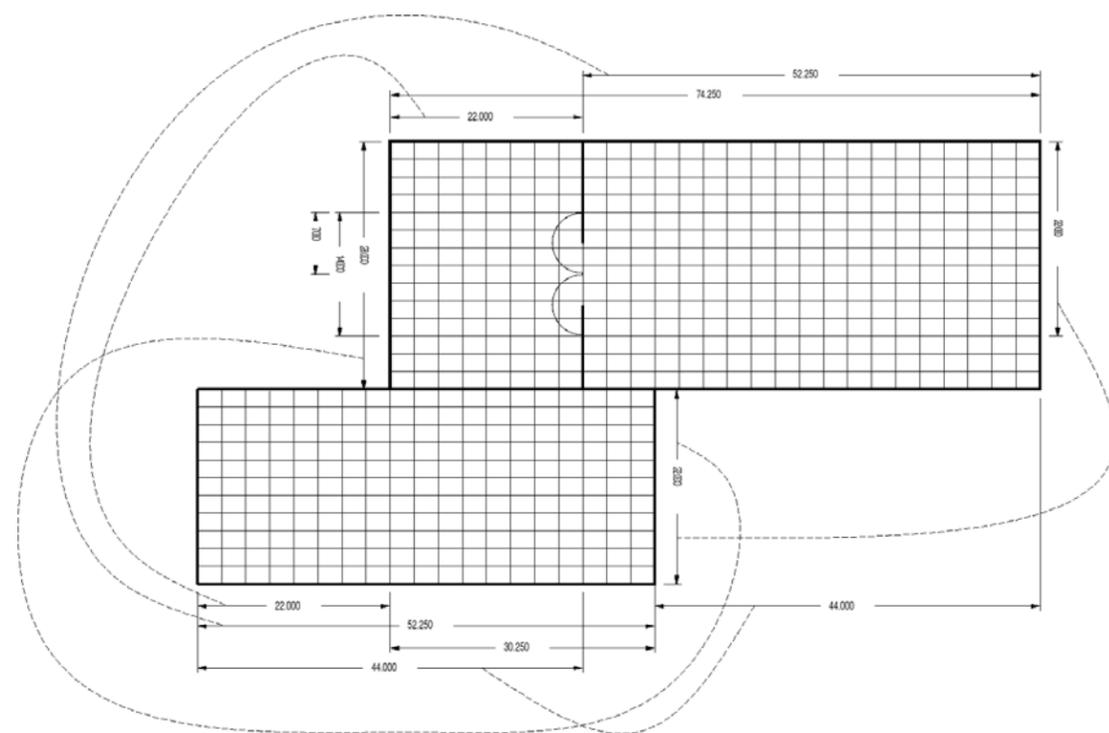
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"Triple Elvis", Andy Warhol, 1963. Print.

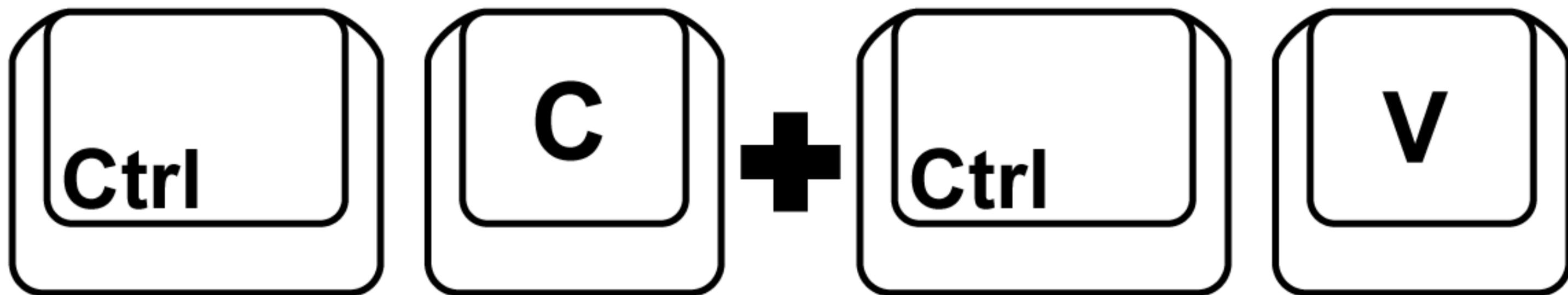
Abstract

U.S. Copyright Law provides explicit protection for "Architectural Work" under Section 102 of the Copyright Act (Title 17 of *The United States Code*), as of December 1, 1990. It is also explicitly states that the act does not provide equal protection for "Architectural Works" created prior to December 1, 1990. While revisions to the code in 1909 and 1976 made provisions to protect "drawings or plastic works of a scientific or technical character" and "technical drawings, diagrams, and models" respectively, all realized (or built) "architectural works" created prior to December 1, 1990 are left completely unprotected. With modern technologies, the technical drawings required to construct a building can be easily reproduced, leaving an opportunity for the copying and subsequent commodification of all so called "high architecture" that was created prior to 1990.

This study aims to analyze the potential effects of commodifying "high architecture" for the masses. Precedents within similar fields will be studied in order to guide the subsequent experimentation within the field of architecture. An in-depth analysis of U.S. Copyright Law as it pertains to Architectural Works will serve as the legal foundation in response to argument. The development of a prototype system for the commodification of architecture will serve as a tool for relevant market data collection. In conclusion the study will lead to the ultimate question...

...if it can be done..and the people want it...why not?

1.08



1.09

Introduction

A narrative summary of my thesis.

INITIAL OUTLOOK

Diving back into academia in the fall of 2011, my pursuit of a professional degree in architecture grew closer and closer to its end; so did grow my yearning to make something of my future that would be truly important and unique. I was given an opportunity to do precisely this when I enrolled in the thesis program at the start of my fifth year. It would be over the course of the next year that I would begin development on a larger future that expanded outside the realm of architectural academia and into the professional world. The trajectory of my future would come to be defined by the thesis I created in my fifth year.

PRELIMINARY STUDIES

The thesis began as an exploration of counterfeit culture. Preliminary studies looked at the fields of fine art and industrial design as models in which precedent of counterfeiting exists. The precedents were then compared to the field of architecture, before making the proposal that I would create a copy of Mies Van der Rohe's Farnsworth House. The copied house provoked a questioning into the copyright laws relating to architecture. Under further investigation it was discovered that while some laws pertaining to the protection of technical drawings and documents were in place, any 'design' created prior to December 1, 1990 was unprotected under US Copyright Law. It was at this point that a system was developed to exploit this fact. The system that would be developed through my thesis would be able to provoke rich academic discussion, as well create a preliminary business prototype for future development.

PARAMETRIC DELIVERY SYSTEM

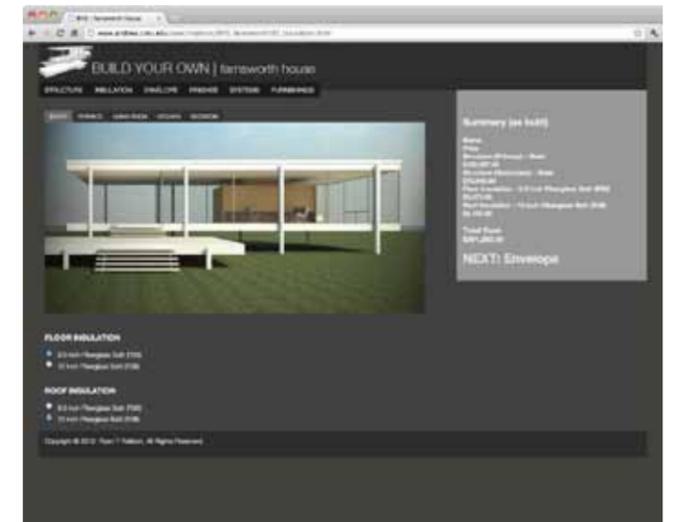
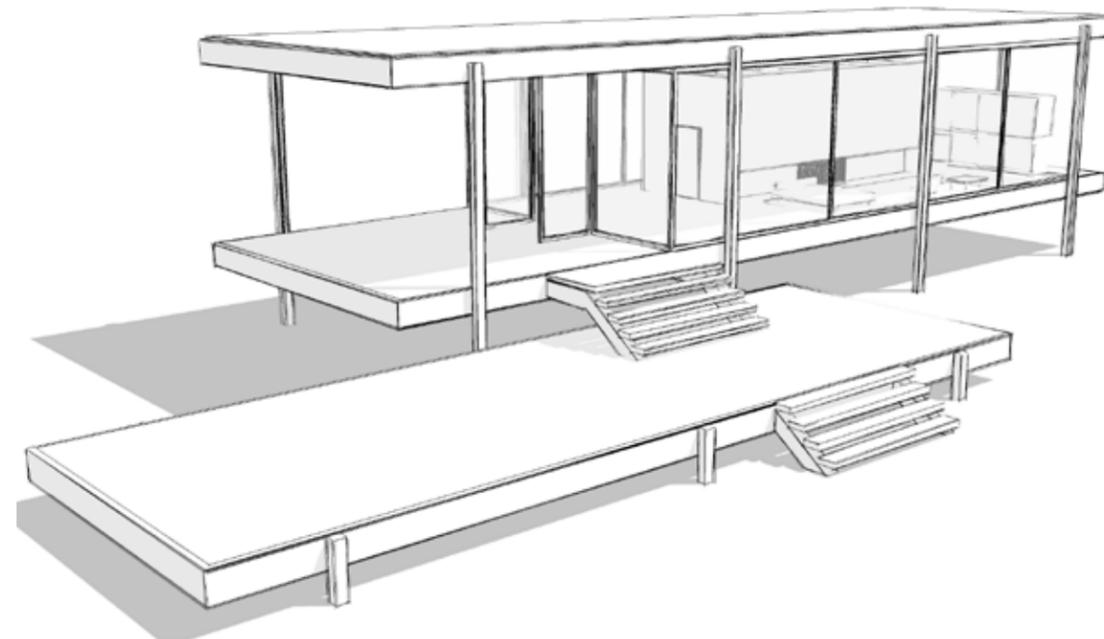
The primary concept of the system was a web-based user interface that allowed users (clients) to change design parameters to create a 'Farnsworth House' that suited their individual needs. Parameters included size, material and systems, with each having critical impacts on scope, aesthetic, and cost of the final design. An automated system was then developed to handle back-end production, which included output of instantaneous user feedback (i.e. renderings, material information, cost summary), the production of permit and construction document sets, and nearly all purchasing orders/schedules for contracted construction. The reductions in design time as well as expansion of market via the internet would be leveraged to gain investment from interested parties. The 'alpha' version of this system was ultimately what became the final submission for my thesis. It was officially registered as BYOarchitecture.com on May 11, 2012.

PROFESSIONAL CAREER

My plans professionally are to continue development of BYOarchitecture with immediate goals of having a fully functioning Beta running by September 1, 2012. Immediately following the Beta release, development will start on a full-scale prototype building with an invested client and contractor. Both were involved in the development of the 'alpha' software and over the course of academic study, interest has grown to exceed the limitations of an academic exercise.



1.10



1.11



"Starry Night", Vincent van Gogh, 1889. Oil on canvas.

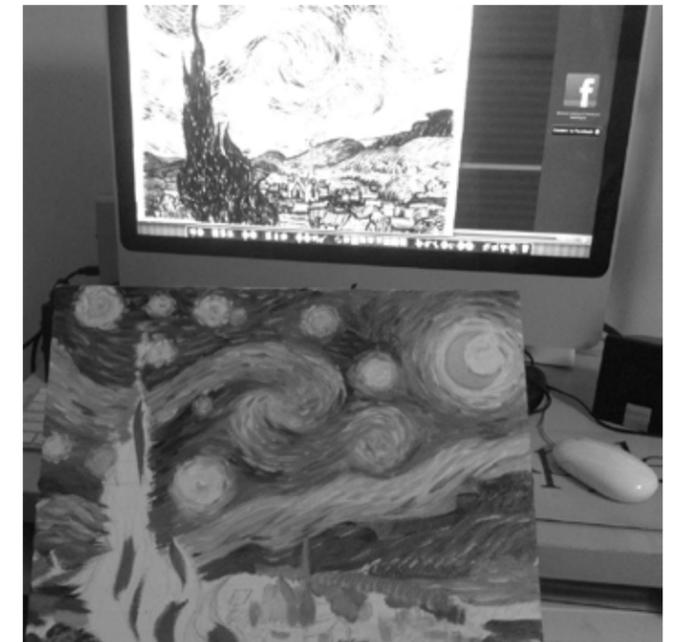
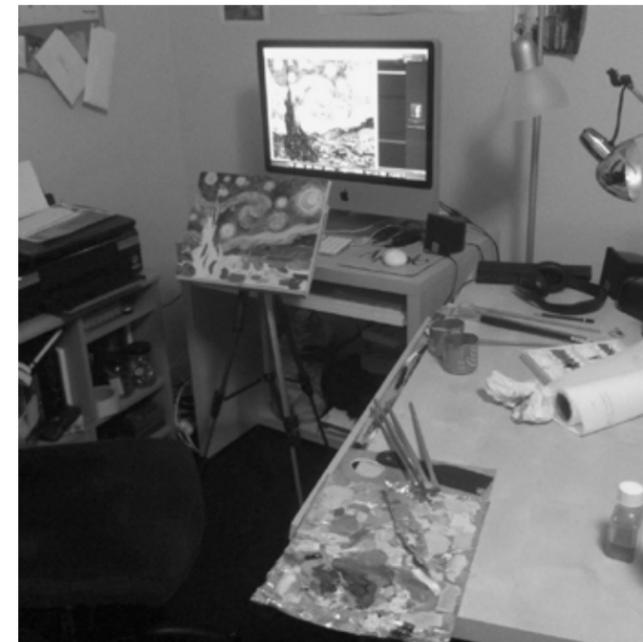
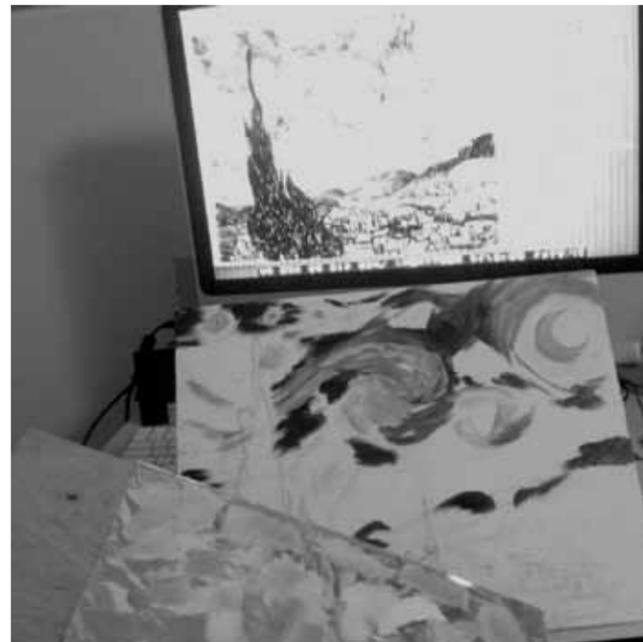


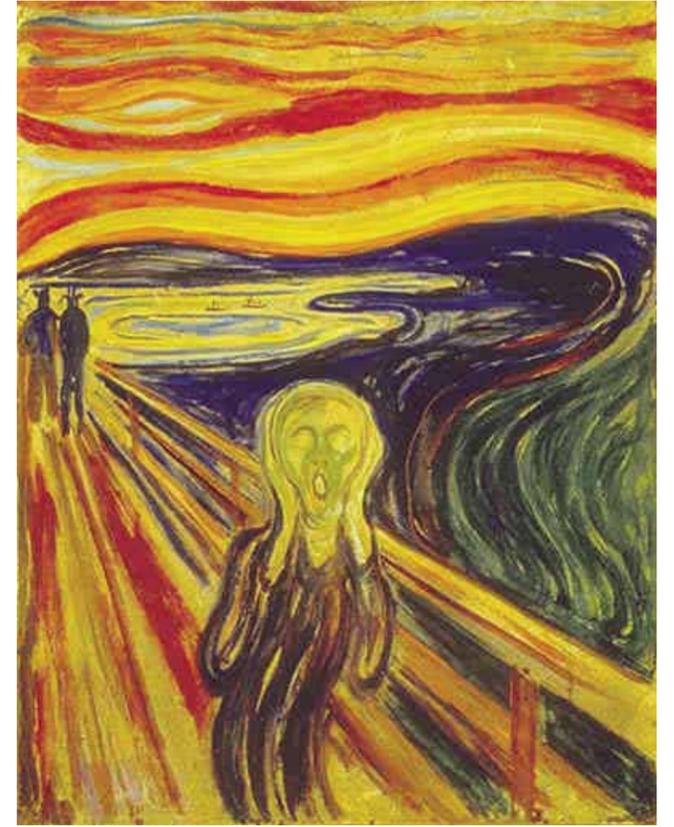
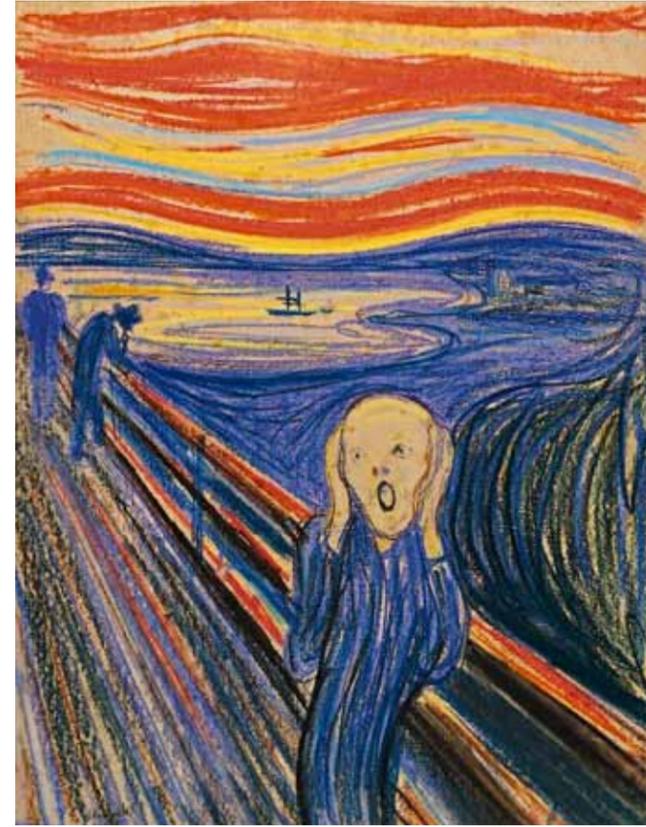
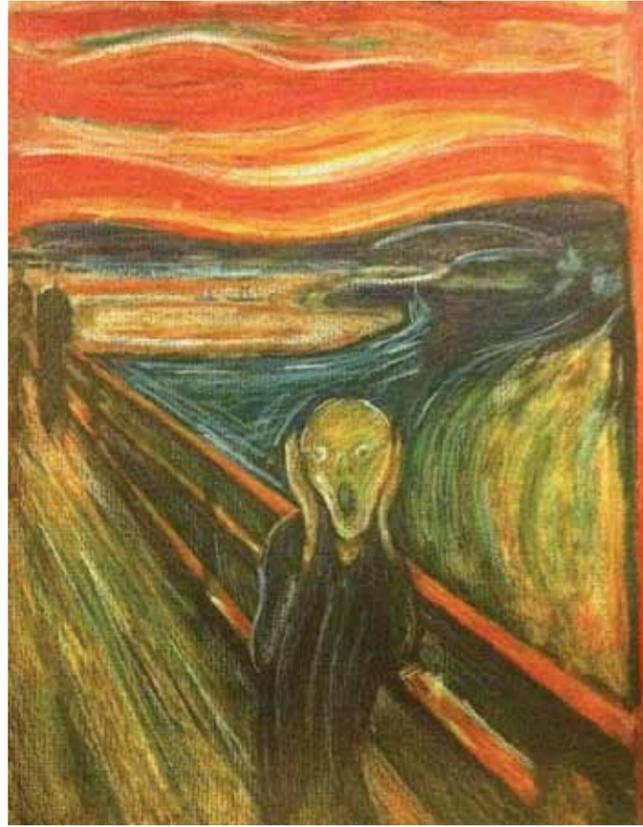
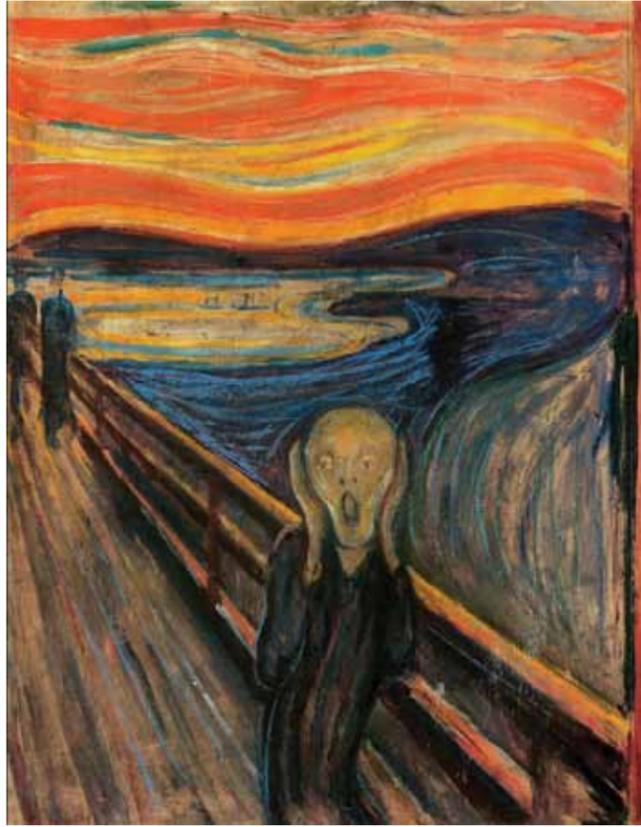
"Starry Night", Ryan T Ralston, 2011. Oil on canvas.

INITIAL EXPLORATIONS

2.12 The first exploration into counterfeiting was an oil painting of 'Starry Night' originally created by postimpressionist master Vincent van Gogh in 1889. The painting was done using the same techniques and media as the original. The dimension of the counterfeit was reduced to roughly 75% of the original.

In this early exploration, the counterfeit was hardly passable as the original but it did succeed in sparking discussion of the hot topic of copying artistic work. Questions were raised regarding the intent, method, and craft of a copy.





**Three are by Edvard Munch.
 One is by Ryan T Ralston.
 Each is a different media.
 Each was completed at different time.**

Which is “The Original”?

From left to right:
 “The Scream”, Edvard Munch, 1893. Oil, tempera, and pastel on cardboard.
 “The Scream”, Ryan T Ralston, 2011. Colored pencil and pastel on gray paper.
 “The Scream”, Edvard Munch, 1895. Pastel on unknown.
 “The Scream”, Edvard Munch, 1910. Tempera on cardboard.



"Boomerang Chair"
Richard Neutra
1942

MOVING TOWARDS ARCHITECTURE

Having completed a few studies of counterfeiting within the field of fine art, it was necessary to make a move to more physically manifested objects. The resultant study was conducted on a piece of furniture. The "Boomerang Chair" by Richard Neutra was the selected target for replication. This case study had particular interest due to fact that ownership of the "design" was no longer held by Neutra. A new company had purchased the rights to reproduce the chair in order to commoditize it for consumers and make it more widely available as a piece of exemplary design.

According to a design blog post from 2007, "House Industries and Otto Design Group have decided to collaborate (under the guidance of Dion Neutra) to make the Boomerang Chair more widely available, such that this rare specimen of Modern Furniture would be available even to those who did not own a Neutra home. The initial edition of Boomerang Chairs (comprising of 100 chairs) are extensively refined. Dion Neutra will be signing and numbering the chairs

and they would be exclusively distributed by House Industries."

In this case, the counterfeit product would be undoubtedly illegal, as House Industries owned the design, technical drawings as well as exclusive production and distribution rights for the chair. However, under closer inspection, the version they were producing was not to the original specifications. The support rails for the webbing did not penetrate the sides, nor did they use the same material as a webbing. Were they improving on the design? Saving themselves from infringement accusations? Creating a more economic version? They aren't telling.

So the counterfeit falls in between the two versions of the chair. Taking the best aspects of each, combining it with some individual craftsmanship and making the first threat towards the field of design. If one could get away with this counterfeit within a field with well established standards on counterfeiting, what is stopping one from attacking architecture?

**Authorship of Design?
Ownership of Design?
Accuracy? Craftsmanship?
Accessibility to Public?
Commodification?**



"Boomerang Chair", Ryan T Ralston, 2012.



"Boomerang Chair", House Industries, 2007.



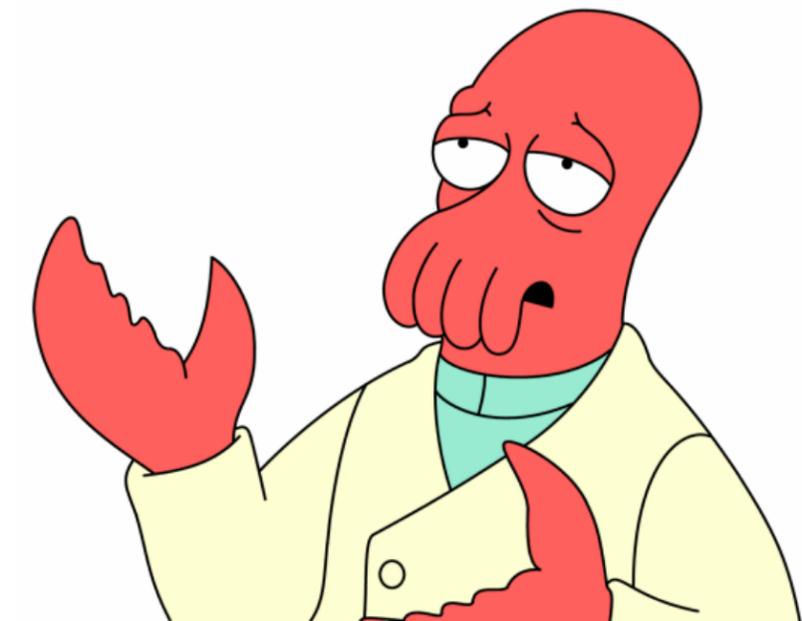
CAN ARCHITECTURE BE COPIED??

After the preliminary studies in general implications of artistic counterfeiting my focus shifted towards an short but intensive study of U.S. Code, in particular Section 17 with its regard to the copyright of architectural works. It was clear at this point in the study that it was necessary to question the security of architecture from impending counterfeiting and commodification. If a single person can successfully copy a prominent art work or design and create a market for reproductions, what is stopping this from spreading virally?

I discovered during this study that architectural works became subject to copyright protection on December 1, 1990. The copyright law defines “architectural work” as “the design of a building embodied in any tangible medium of expression, including a building, architectural plans, or drawings.” However, architectural designs embodied in buildings constructed prior to December 1, 1990, are not eligible for copyright protection. These claims are explicitly stated in “Circular 41”, Copyright Claims in Architectural Works. Given knowledge of this information, along with a personal interest in modernist style and modular systems, I decided to move ahead in my course of study with the end goal of producing a full copy of Mies Van der Rohe’s “Farnsworth House”. As long as I produced my own documents, it would be legal.

Counterfeit Art ✓
Counterfeit Design ✓

Why not Architecture??



*Google image search, "Why not Zoidberg?"



U.S. COPYRIGHT OF ARCHITECTURAL WORKS

The first acknowledgment of architectural work with U.S. Copyright Law came in the Copyright Act of 1909. This act protected “drawings or plastic works of a scientific or technical character” and clearly included architectural plans only if strict notice of copyright was present. In 1976 another update to copyright law expanded architectural protection to include “technical drawings, diagrams, and models.” Although this expansion was a step forward, it still failed to protect architectural works in their built form.

3.20 On December 1st of 1990, the Architectural Works Copyright Protection Act (AWCPA) was first enacted. This became the first revision to place the realized design under the protection of U.S. Copyright Law. According to 17 U.S.C. § 101, “architectural work” is defined as “the design of a building as embodied in any tangible medium of expression, including a building, architectural plans, or drawings. The work includes the overall form as well as the arrangement and composition of spaces and elements in the design, but does not include the standard individual features.”

§ 113(b) ultimately makes a point to determine the protectability of individual features of a project. In the case of possible infringement a court would look to see if the unprotected utilitarian features of an article could be separated from the protectable aesthetic features.

§ 120 is an overview of all exceptions and limitations to the copyright of architectural work. It gives explicit exclusion to all work prior to the enactment of the AWCPA. This means that all work completed prior to December 1, 1990 are not protected under the act. While the documents that relate to the work can be protected in accordance to the previous laws, the realized product is not.

In expressing of the copyright owners rights, § 120 makes clear that copyright owners have no right to control the “making, distributing, or public display of [pictorial representations] of the work, if the building in which the work is embodied is located in or ordinarily visible from a public place.” This prevents copyright owners from claiming infringement whenever a copyrighted building enters the frame of a photographers camera.

Additionally, the copyright owner forfeits certain rights to the building owner. These include the right to alter, authorize the alteration of, destroy, or authorize the destruction of such a building. This way the building owner can continue to adapt without the need to consult the copyright owner.

There are three specific terms for protection. The first two pertain to “for-hire’ work and a have protection term of 95 years from publication or 120 from creation, whichever is less. The last term pertains to individual work, and lasts the lifetime of the author plus 70 years. After these terms the work is public domain.



US Copyright Law related to Architectural Works

SUMMARY FROM ‘CIRCULAR 41’ U.S. COPYRIGHT OFFICE

3.21 “An **original design** of a building created in **any tangible medium of expression**, including a constructed building or architectural plans, models, or drawings, is subject to copyright protection as an “architectural work” under section 102 of the Copyright Act (title 17 of the United States Code), as amended on December 1, 1990. Protection extends to the **overall form** as well as the **arrangement and composition of spaces and elements** in the design but does not include individual standard features or design elements that are functionally required.”

COP·Y

n - a thing made to be similar or identical to another

v - send someone a copy of an e-mail that is addressed to a third party

COUN·TER·FEIT

adj - made in exact imitation of something valuable or important with the intention to deceive or defraud

n - a fraudulent imitation of something else; a forgery

v - imitate fraudulently

FAKE

n - a thing that is not genuine; a forgery or sham

adj - not genuine; counterfeit

v - forge or counterfeit (something)

FOR·GER·Y

n - the action of forging or producing a copy of a document, signature, banknote, or work of art

n - a forged or copied document, signature, banknote, or work of art

REP·LI·CA

n - an exact copy or model of something, esp. one on a smaller scale

n - a duplicate of an original artistic work

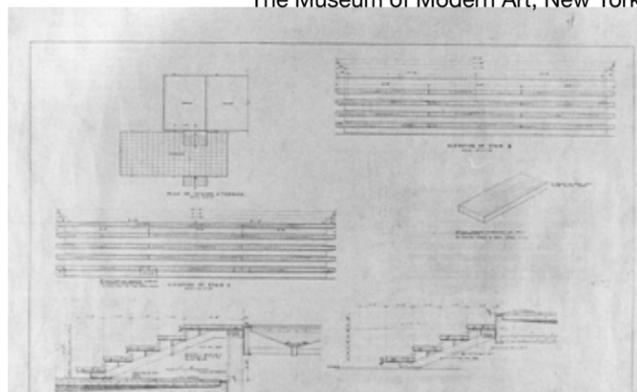
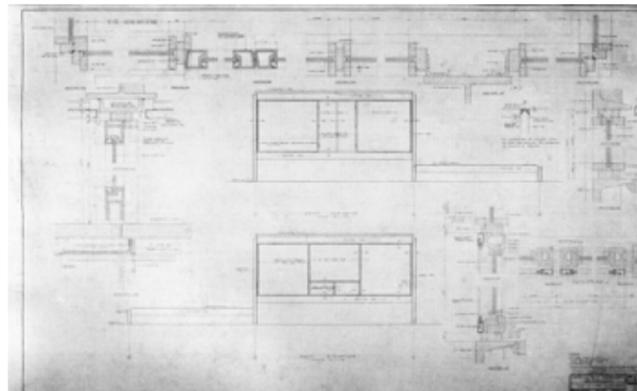
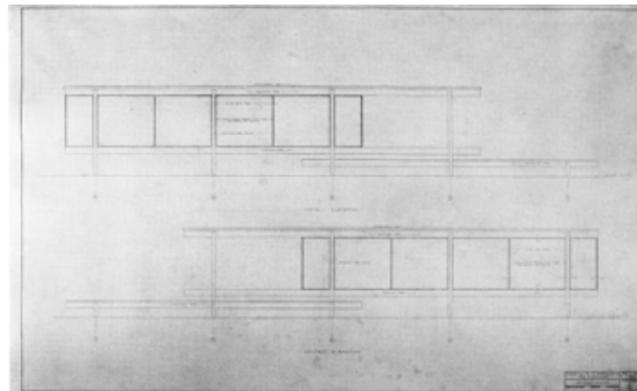
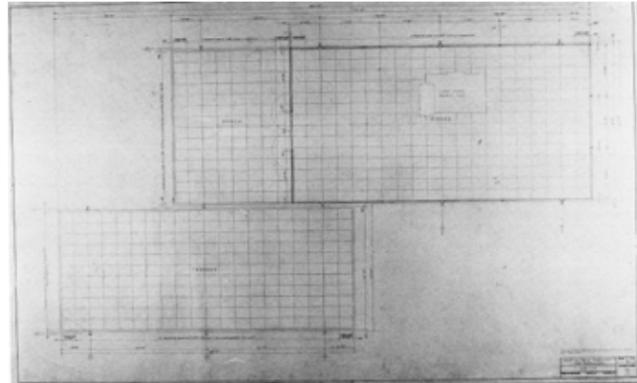
RE·PRO·DUC·TION

n - the action or process of making a copy of something

n - the production of offspring by a sexual or asexual process

PROPOSED EXPERIMENTAL PROJECT

The Farnsworth House was chosen as an experimental project that would serve as a tool for gaining a better understanding of how one might copy an architectural work. An interested client and contractor were brought on board at an early stage in order to create a realistic experimental environment. The hope was to be able to have a built replica of the Farnsworth House to examine much as the previous counterfeit products had been examined in the early stages of this study. Due to lead times prescribed by the contractor, having a built version prior to the conclusion of this semester may not be possible. Additional restraints set by the budget of the client, the design will have to stray quite a bit from the original. While not having the ability to build the product within the scope of this project was undoubtedly disappointing, the restraint in budget that was introduced became an interesting parameter in its own right.

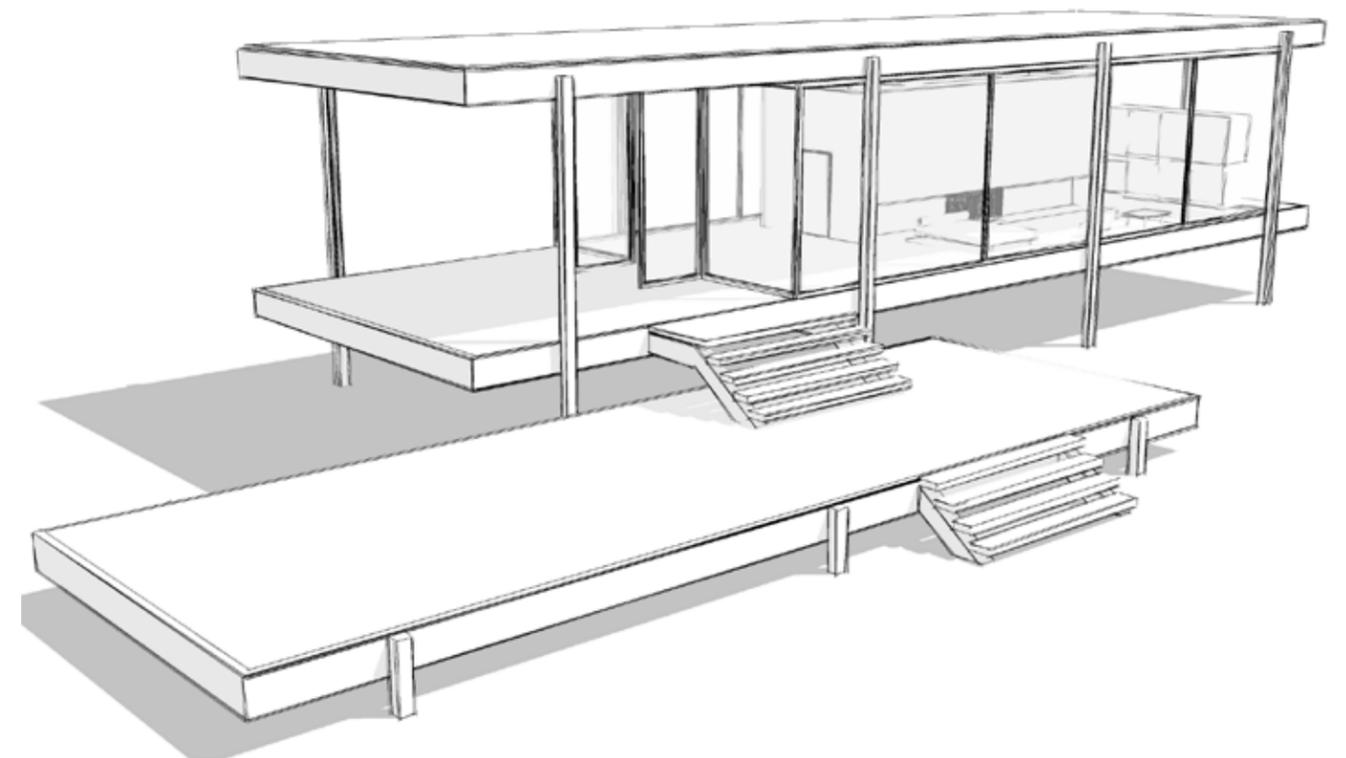
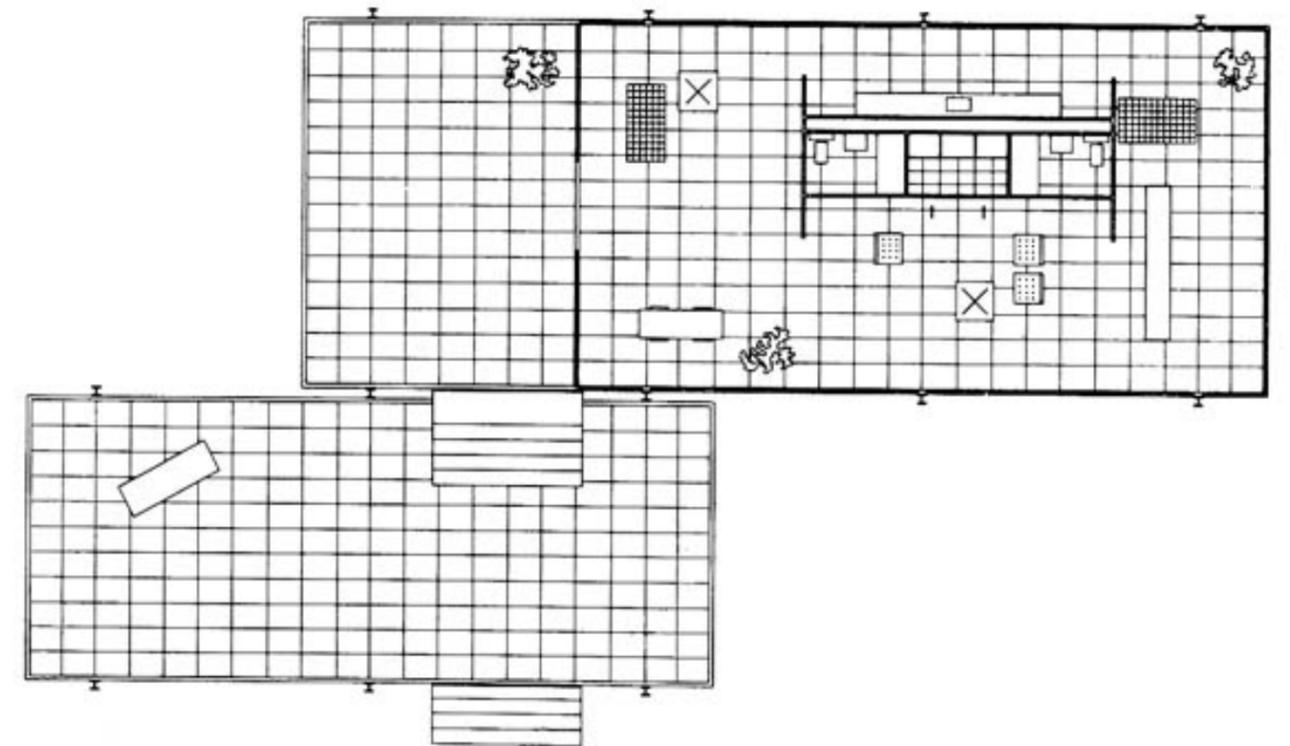


The Mies van der Rohe Archive,
The Museum of Modern Art, New York.

The first step of this process was the replication of drawings and construction documents. While the original drawings are available for the public, they cannot be duplicated with the intent to use them as construction documents. This building falls within a date that protects the drawings but not the design.

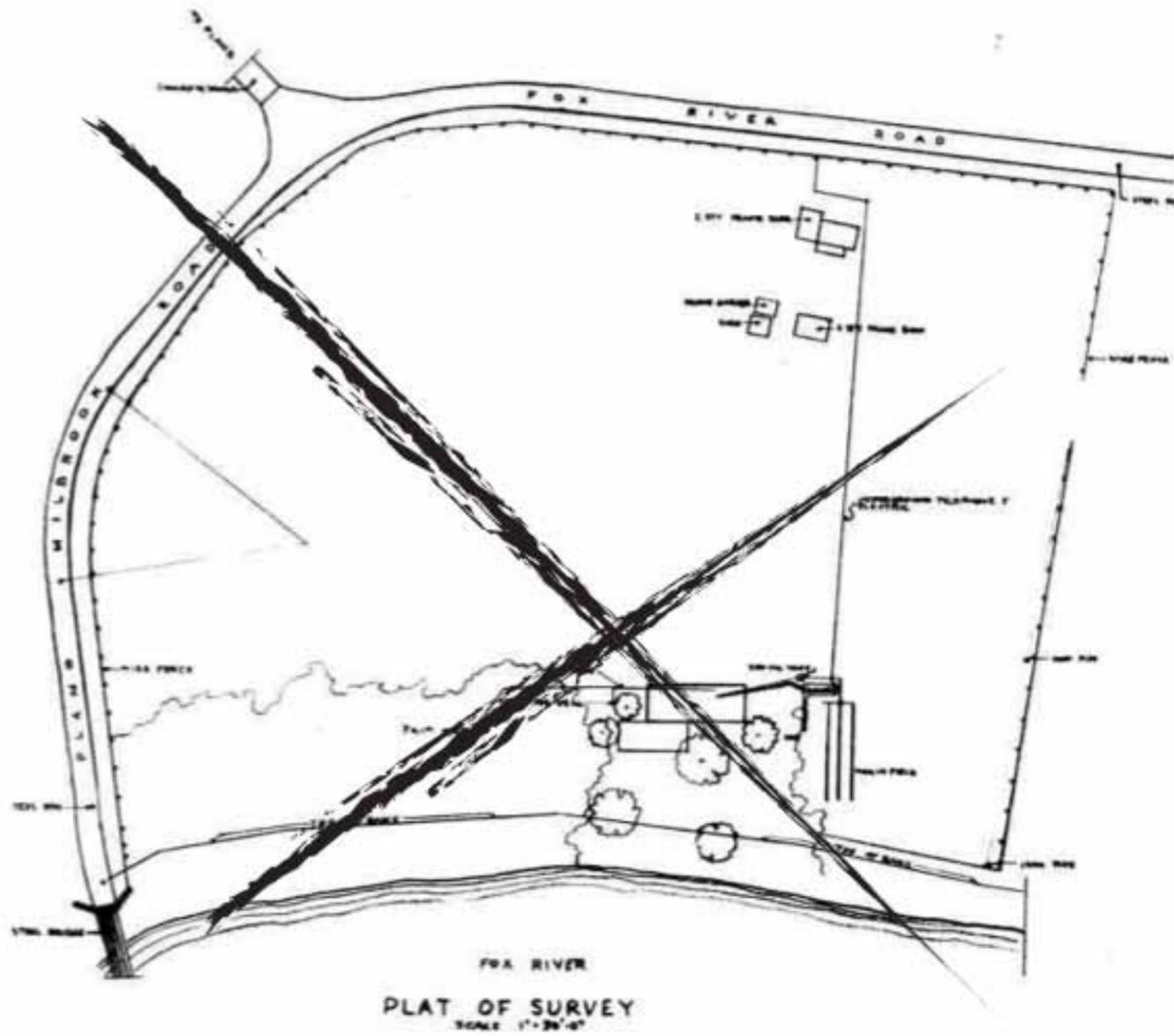
4.24 So new drawings were created by taking dimensions and design intent and reconstructing the drawing set utilizing modern software.

A cost model was then estimated off the new drawings set and totals for a nearly exact replica came in around one million dollars. This being completely beyond the budget of the client, modifications would need to be made. The question then became, what would change? How different could the design become before it wasn't a copy anymore?

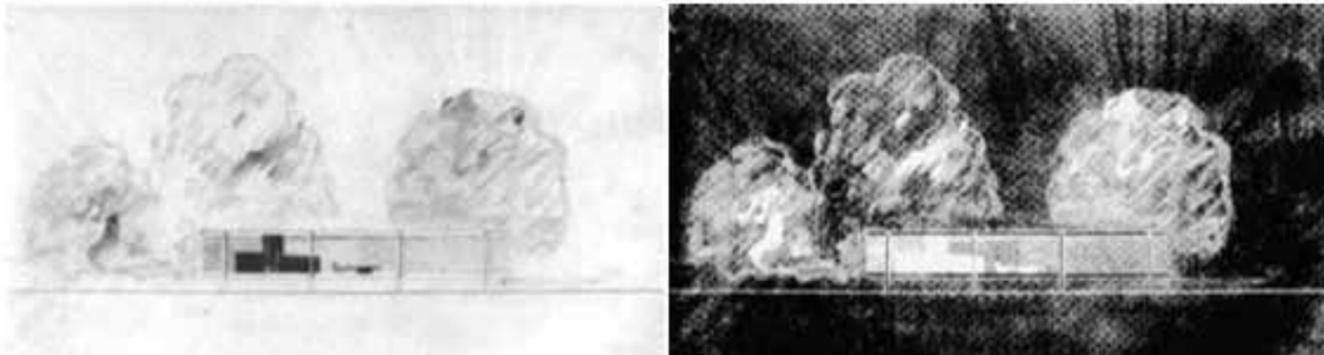


4.25

BUILD YOUR OWN FARNSWORTH_{KIT}



4.26



Qty.	LineNumber	Crew	Unit/Day	Hrs/Unit	Unit	Material	Labor	Equipment	Total	Material	Labor	Equipment	Total
2.5	33053405900	C14C	54.14	2.069	C.Y.	159.00	87.50	0.50	247.00	0.00	0.00	0.00	0.00
5	33053405900	C14C	54.14	2.069	C.Y.	159.00	87.50	0.50	247.00	795.00	437.50	2.50	1,235.00
0	0								0.00	0.00	0.00	0.00	0.00
0	0								0.00	0.00	0.00	0.00	0.00
112	51223176900	E2	1032	0.054	L.F.	66.00	2.62	1.45	70.07	7,392.00	293.44	162.40	7,847.84
0	61110140480	2 Carp	0.7	22.857	M.B.F.	1,200.00	1,000.00	0.00	2,200.00	0.00	0.00	0.00	0.00
8	61813208260	F3	30	1.333	Ea.	395.00	60.00	20.50	475.50	0.00	0.00	0.00	0.00
0	0								0.00	0.00	0.00	0.00	0.00
20800	51223400600	E3	500	0.048	Lb.	0.75	2.40	0.24	3.39	15,600.00	49,920.00	4,992.00	70,512.00
0	0								0.00	0.00	0.00	0.00	0.00
16	61813208266	F3	29	1.379	Ea.	565.00	62.00	21.00	648.00	0.00	0.00	0.00	0.00
0	0								0.00	0.00	0.00	0.00	0.00
0	0								0.00	0.00	0.00	0.00	0.00
728	51223177150	E2	1032	0.054	L.F.	69.00	2.62	1.45	73.07	0.00	0.00	0.00	0.00
0	0								0.00	0.00	0.00	0.00	0.00
26	61813208262	F3	30	1.333	Ea.	455.00	60.00	20.50	535.50	0.00	0.00	0.00	0.00
4,256	61733101400	F5	2600	0.012	SF Flr.	2.87	0.55	0.00	3.42	12,214.72	2,340.80	0.00	14,555.52
1,456	61110305180	2 Carp	575	0.028	L.F.	1.28	1.23	0.00	2.51	0.00	0.00	0.00	0.00
0	0								0.00	0.00	0.00	0.00	0.00
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0	0								0.00	0.00	0.00	0.00	0.00
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2128	61636100857	2 Carp	1550	0.01	S.F.	0.79	0.46	0.00	1.25	0.00	0.00	0.00	0.00
0	0								0.00	0.00	0.00	0.00	0.00
0	0								0.00	0.00	0.00	0.00	0.00
0	0								0.00	0.00	0.00	0.00	0.00
2128	61636100205	2 Carp	1586	0.01	S.F.	0.62	0.45	0.00	1.07	1,319.36	957.60	0.00	2,276.96
2128	61636100857	2 Carp	1550	0.01	S.F.	0.79	0.46	0.00	1.25	0.00	0.00	0.00	0.00
0	0								0.00	0.00	0.00	0.00	0.00
0	0								0.00	0.00	0.00	0.00	0.00

4.27

problem.....solution

budget of \$100,000, estimated cost to build \$1,000,000.....redesign with cheaper materials

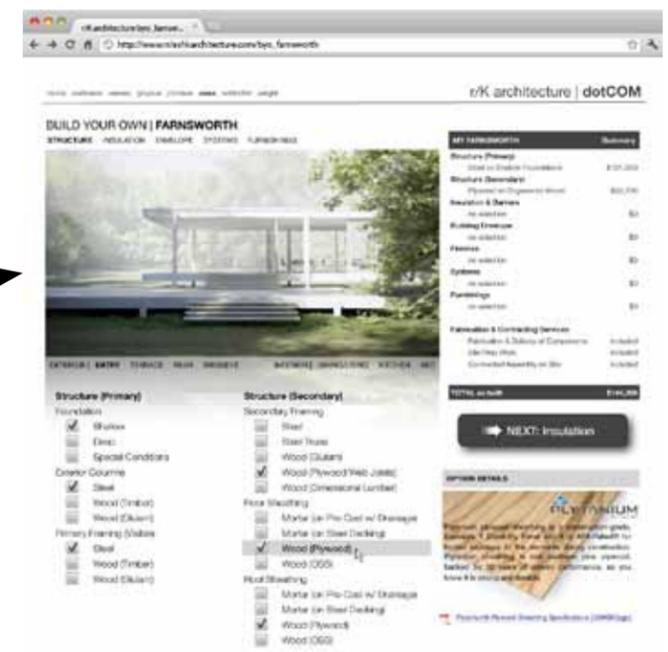
budget of \$100,000, cost still >\$500,000.....redesign with reduced dimensions

cost below \$200,000, client dissatisfied with resultant design.....redesign with greater efficiency of material, incorporate additional client suggestions, and seek additional funding

lead time for delivery exceeds available time.....postpone building delivery, instead invest resources in delivery system redesign, propose investment opportunity to client

4.28

Qty	LineNumber	Crew	Unit/Day	Hrs/Unit	Unit	Material	Labor	Equipment	Total	Material	Labor	Equipment	Total
2.5	30053405900	C14C	54.14	2.069	C.Y.	159.00	87.50	0.50	247.00	0.00	0.00	0.00	0.00
5	30053405900	C14C	54.14	2.069	C.Y.	159.00	87.50	0.50	247.00	796.00	437.50	2.50	1,235.00
0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	51223176900	E2	1032	0.054	L.F.	66.00	2.62	1.45	70.07	7,392.00	293.44	182.40	7,847.91
0	61110140480	2 Carp	0.7	22.857	M.B.F.	1,200.00	1,000.00	0.00	2,200.00	0.00	0.00	0.00	0.00
8	61813208260	F3	30	1.333	Ea.	395.00	60.00	20.50	475.50	0.00	0.00	0.00	0.00
0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20800	51223400800	E3	900	0.048	L.F.	0.75	2.40	0.24	3.39	15,600.00	49,900.00	4,990.00	70,512.00
0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	61813208260	F3	29	1.379	Ea.	565.00	62.00	21.00	648.00	0.00	0.00	0.00	0.00
0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
728	51223177150	E2	1032	0.054	L.F.	66.00	2.62	1.45	73.07	0.00	0.00	0.00	0.00
0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	61813208260	F3	30	1.333	Ea.	455.00	60.00	20.80	535.50	0.00	0.00	0.00	0.00
4,356	61733101400	2 Carp	3600	0.012	S.F.	2.87	0.55	0.00	3.42	12,214.72	2,340.80	0.00	14,555.52
1,456	61110305180	2 Carp	575	0.028	L.F.	1.28	1.23	0.00	2.51	0.00	0.00	0.00	0.00
0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2128	61623100105	2 Carp	1674	0.01	S.F.	0.62	0.42	0.00	1.04	1,319.36	993.76	0.00	2,213.12
2128	61638100857	2 Carp	1950	0.01	S.F.	0.79	0.46	0.00	1.25	0.00	0.00	0.00	0.00
0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2128	61623100205	2 Carp	1586	0.01	S.F.	0.62	0.45	0.00	1.07	1,319.36	957.60	0.00	2,276.96
2128	61638100857	2 Carp	1550	0.01	S.F.	0.79	0.46	0.00	1.25	0.00	0.00	0.00	0.00
0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



4.29

This is a successful
Product delivery system.

This is can be too!

Build Your Own 2012 Z4 sDrive35is

Exterior | Interior | Packages | Options | Accessories | Summary

My Z4 sDrive35is

3.0-liter, inline 6-cylinder engine
Rear-wheel drive
See all standard features

BASE MSRP \$64,200

- Atacama Yellow \$0
- Black Alcantara/Leather Combination \$0
- Individual black trim \$0
- Exclusive Citrus Yellow Package \$1,500
- Destination & Handling: \$895

BMW Ultimate Service™
A suite of premium benefits that are included at no cost with all new BMW Vehicles.

- 4 Years/50,000 Miles Warranty **Included**
- 4 Years/50,000 Miles Maintenance Program **Included**
- 4 Years/Unlimited Mileage Roadside Assistance **Included**

TOTAL MSRP AS BUILT \$66,595

NEXT: INTERIOR

ESTIMATE A PAYMENT

APPLY FOR FINANCING

GET A QUOTE

DOWNLOAD BROCHURE

Privacy Policy & Legal | Company Information | Careers | Contact Us | Site Map | View Mobile Site | Trouble Viewing This Site? | Join us | ©2012 BMW of North America, LLC.

5.30

BUILD YOUR OWN | FARNSWORTH

STRUCTURE | INSULATION | ENVELOPE | SYSTEMS | FURNISHINGS

home corbusier eames gropius johnson mies schindler wright

MY FARNSWORTH Summary

Structure (Primary)	Steel on Shallow Foundations	\$121,690
Structure (Secondary)	Plywood on Engineered Wood	\$22,706
Insulation & Barriers	no selection	\$0
Building Envelope	no selection	\$0
Finishes	no selection	\$0
Systems	no selection	\$0
Furnishings	no selection	\$0
Fabrication & Contracting Services	Fabrication & Delivery of Components	included
	Site Prep Work	included
	Contracted Assembly on Site	included
TOTAL as built		\$144,396

NEXT: Insulation

OPTION DETAILS

PLYTANIUM

Plytanium plywood sheathing is a construction-grade, Exposure 1 Durability Panel and it is APA-Rated® for limited exposure to the elements during construction. Plytanium sheathing is real southern pine plywood, backed by 30 years of proven performance, so you know it is strong and durable.

Plytanium® Plywood Sheathing Specifications (568KB/2pgs)

EXTERIOR | ENTRY | TERRACE | REAR | BIRDSEYE | INTERIOR | DINING/LIVING | KITCHEN | BED

Structure (Primary)

- Shallow
- Deep
- Special Conditions

Exterior Columns

- Steel
- Wood (Timber)
- Wood (Glulam)

Primary Framing (Visible)

- Steel
- Wood (Timber)
- Wood (Glulam)

Structure (Secondary)

Secondary Framing

- Steel
- Steel Truss
- Wood (Glulam)
- Wood (Plywood Web Joists)
- Wood (Dimensional Lumber)

Floor Sheathing

- Mortar (on Pre-Cast w/ Drainage)
- Mortar (on Steel Decking)
- Wood (Plywood)
- Wood (OSB)

Roof Sheathing

- Mortar (on Pre-Cast w/ Drainage)
- Mortar (on Steel Decking)
- Wood (Plywood)
- Wood (OSB)

5.31

Build Your Own BMW

- +intuitive and clean interface
- +proven market success
- +beautiful renderings

- not architecture
- no direct purchase
- unknown back-end

Toll Brothers DYOH

- +proven market success (not necessarily online though)
- +moderate renderings

- requires plugin to design
- messy interface (parameters spread about)
- no direct purchase
- back-end linked to personal consultant

bluHomes Home Configurator

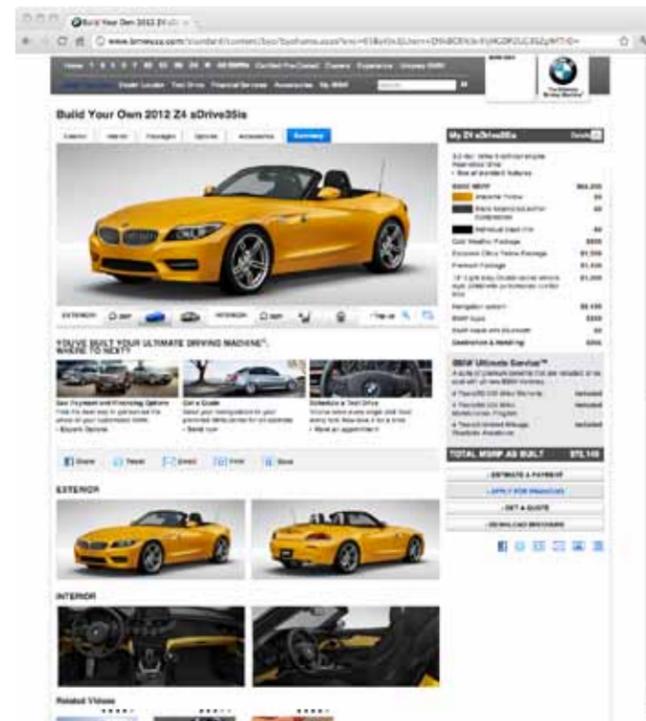
- +clean interface
- +modular system of construction
- +3D walk-through capability

- ugly renderings
- parameters are difficult to compare directly
- cost is fairly high

Sears Roebuck Modern Home Catalog

- +proven market success
- +over 400 different styles
- +comfortable house styles

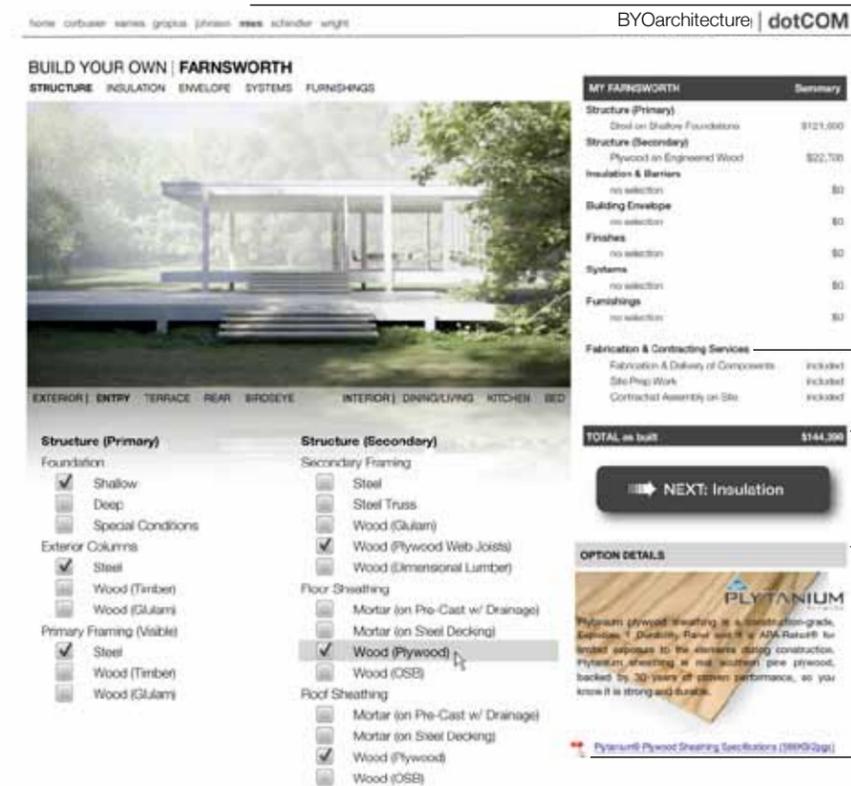
- no longer in business
- obsolete technology
- cost data un-comparable



Access to renowned architectural designs.

5.32 **USER INTERFACE**

Once it was decided that the project would begin to focus solely on the delivery system. Precedent studies were conducted to analyze both interface design and market penetration for a interactive web interface for the delivery of architecture as consumer product. The studies helped create an interface that would be intuitive for users as well as marketable to those interested in building their own home. The exhaustive study also gave an overview of the field of direct competitors. Differentiating factors in the design of my interface was not only the ability to access a world renowned design. Additionally, educational pop-outs give instant feedback on various parameter choices, the generally more intuitive site navigation, and a back-end system that was automated and linked directly to the construction team. The wireframe for the 'alpha' interface is illustrated to the right with the positive and negatives of this particular model highlighted.



- BYOarchitecture**
- +intuitive and clean interface
 - +beautiful renderings
 - +automated back-end system
 - +instant user feedback loop

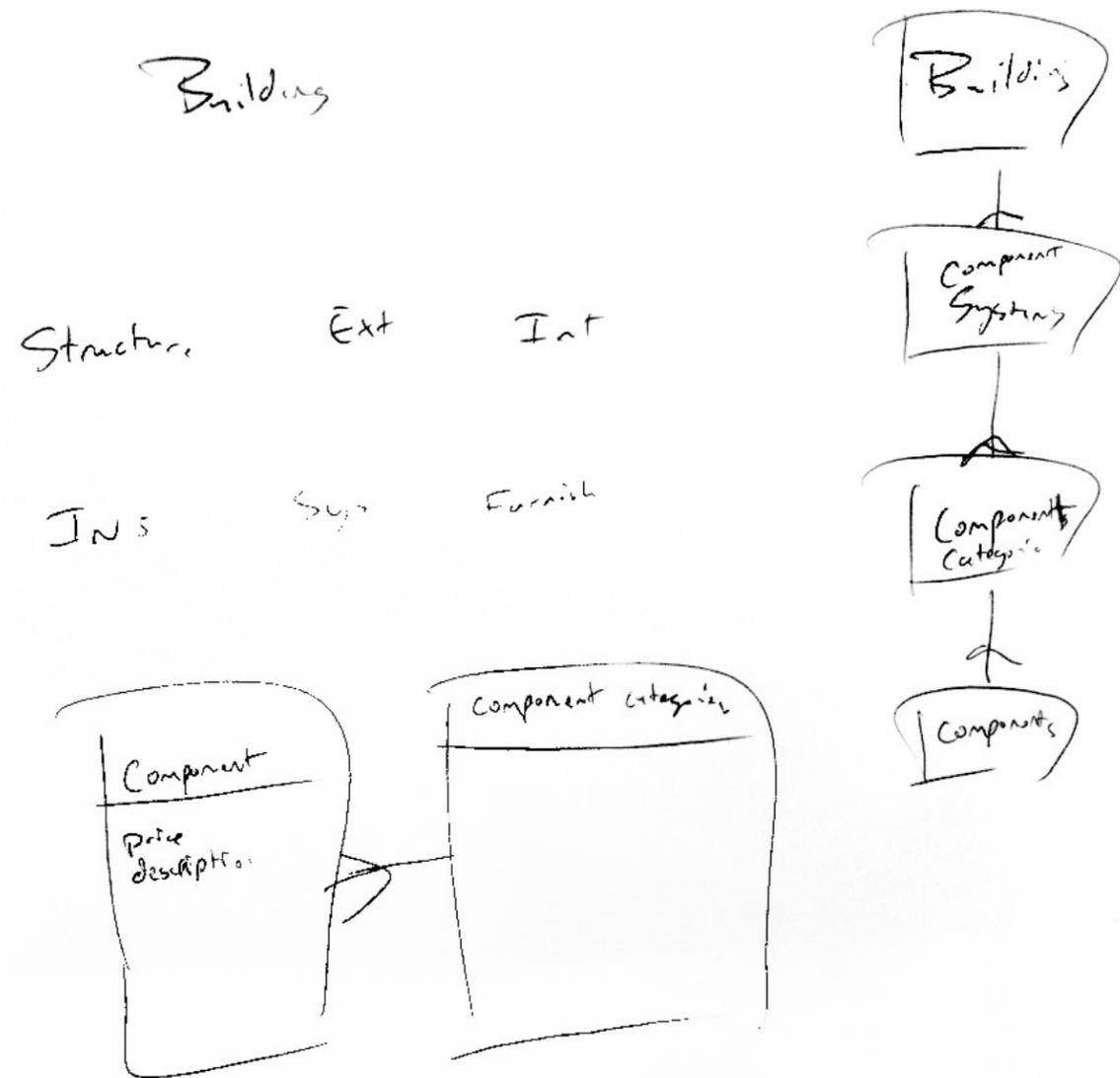
- unknown market success
- not "original" designs

Complete service experience maintained.

Relatively low cost due to savings made in automated back-end system.

Instant parameter choice feedback provides better user experience.

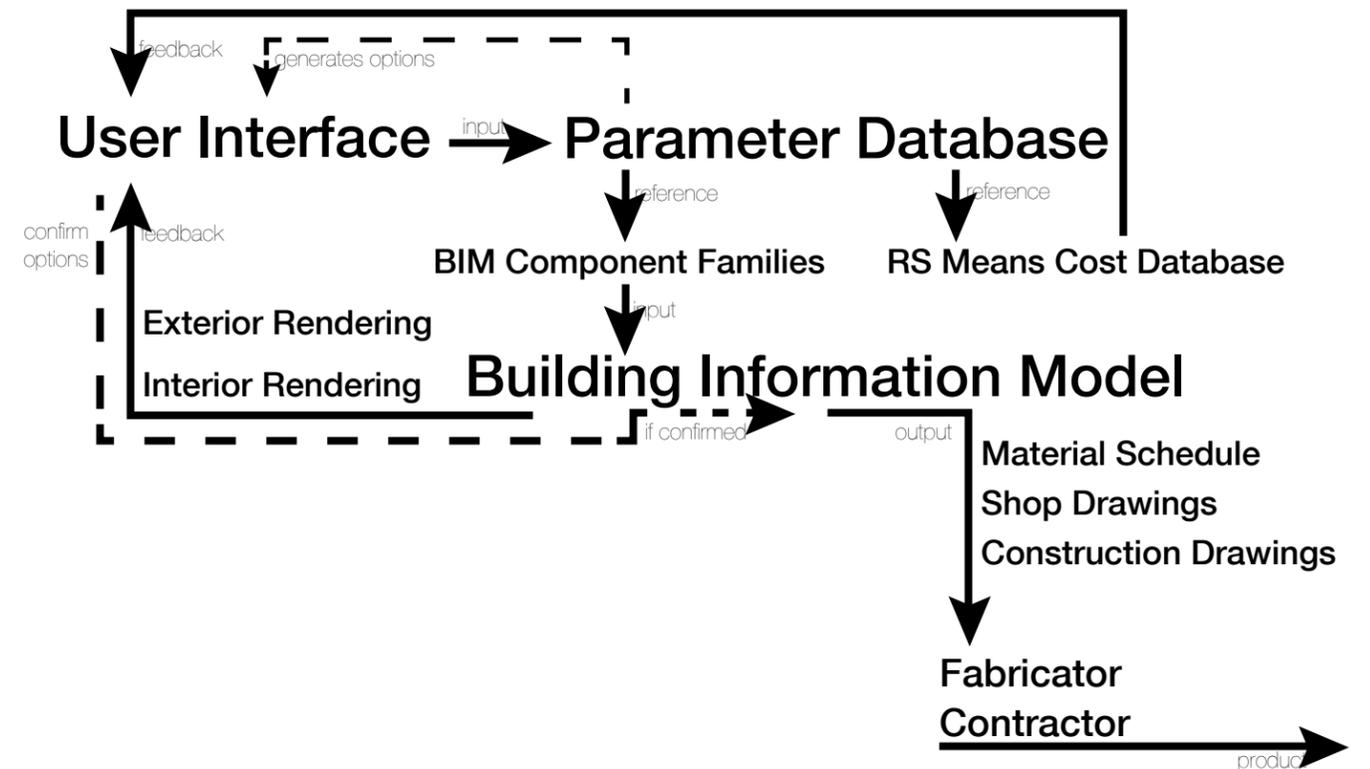
Links to external sources for more detailed information.



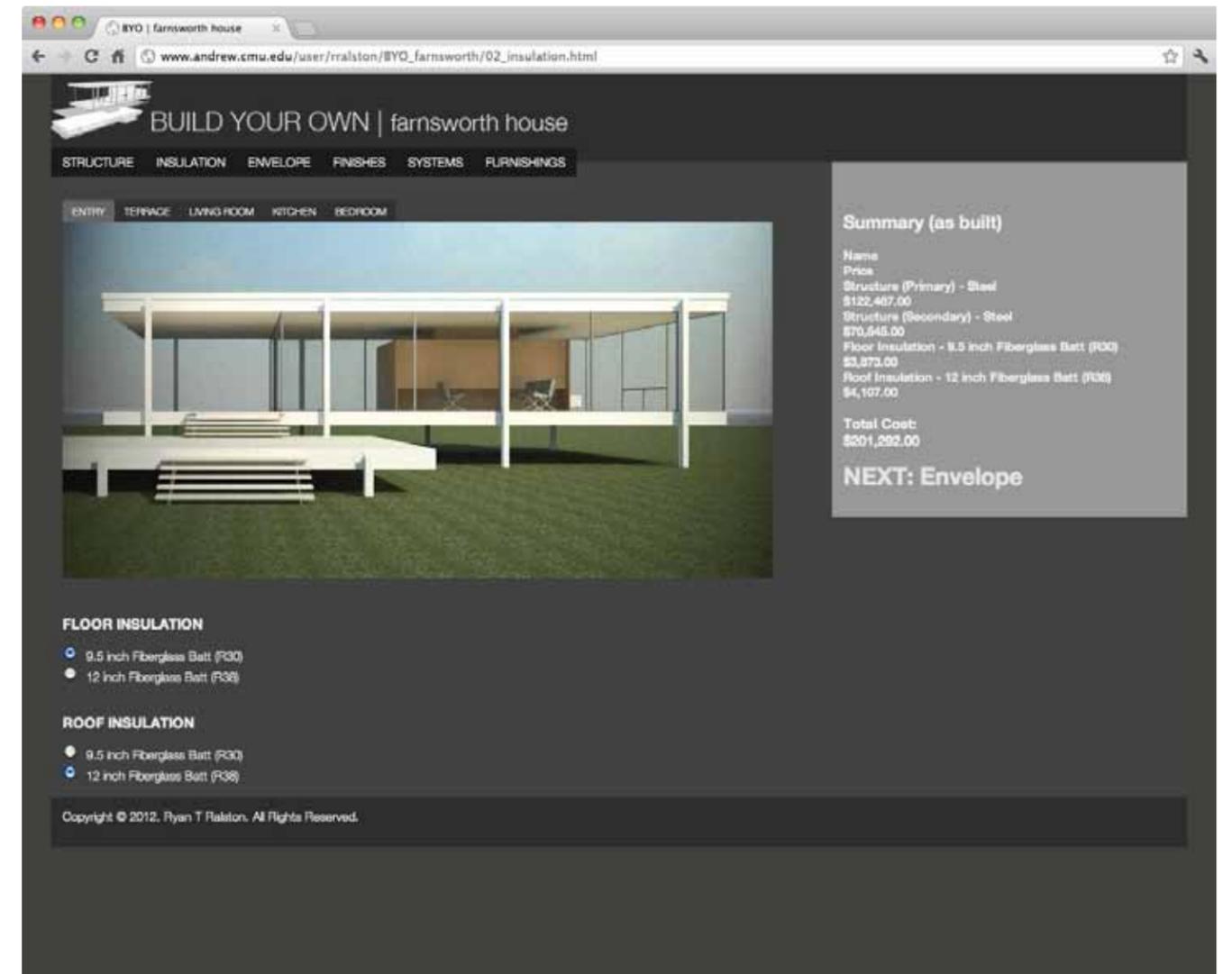
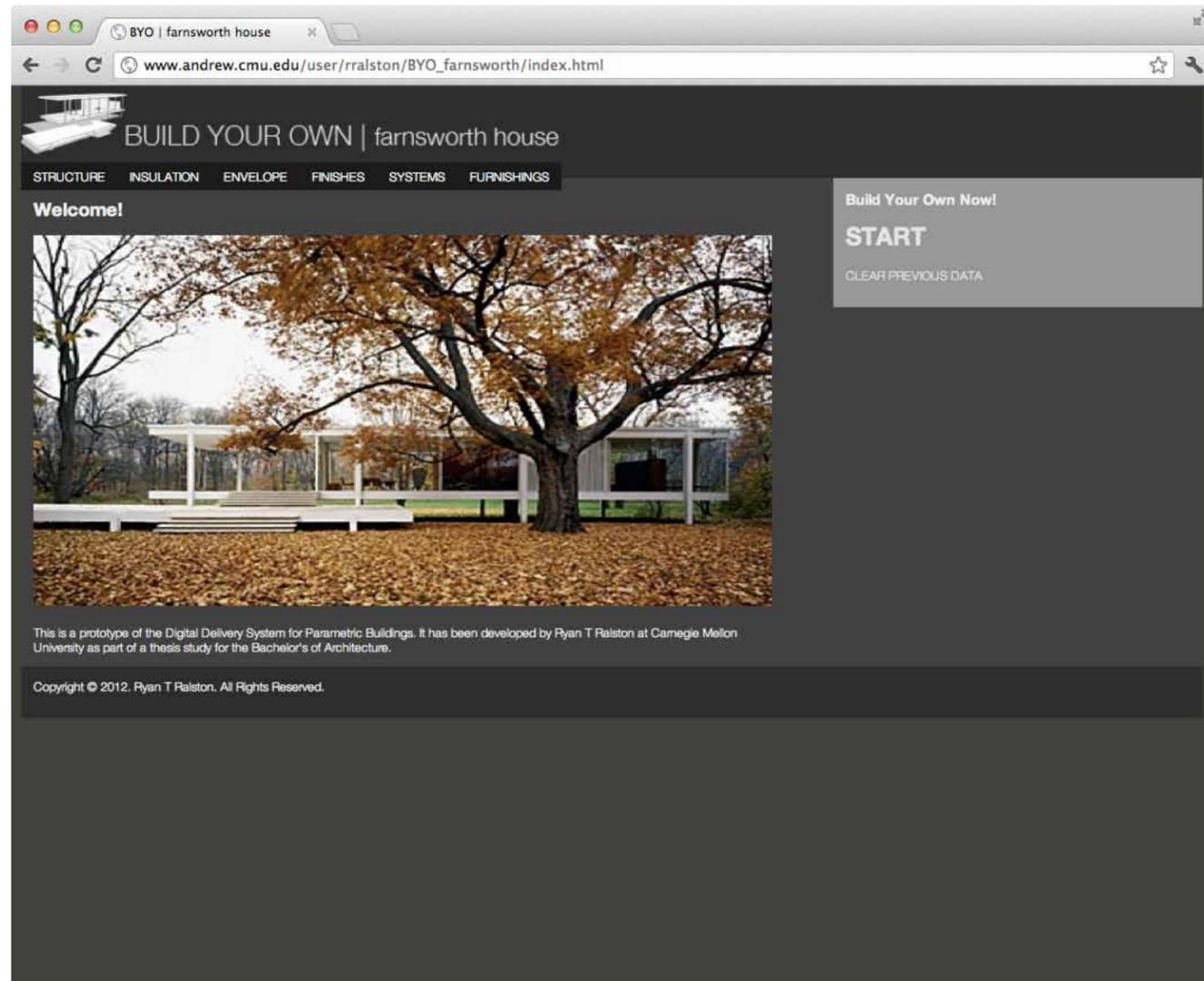
Implemented 'Alpha' System Diagram

5.34 DYNAMIC PARAMETRIC DELIVERY SYSTEM

The system utilizes a set of parameters that are defined by the architect. The design can then be modified as the user or client selects various criteria for the design. The criteria selections are automatically entered into the system which updates building and cost models and sends immediate feedback back to the user. The two primary forms of feedback are visual renderings and a running financial summary with grand total for the project's completion.



5.35



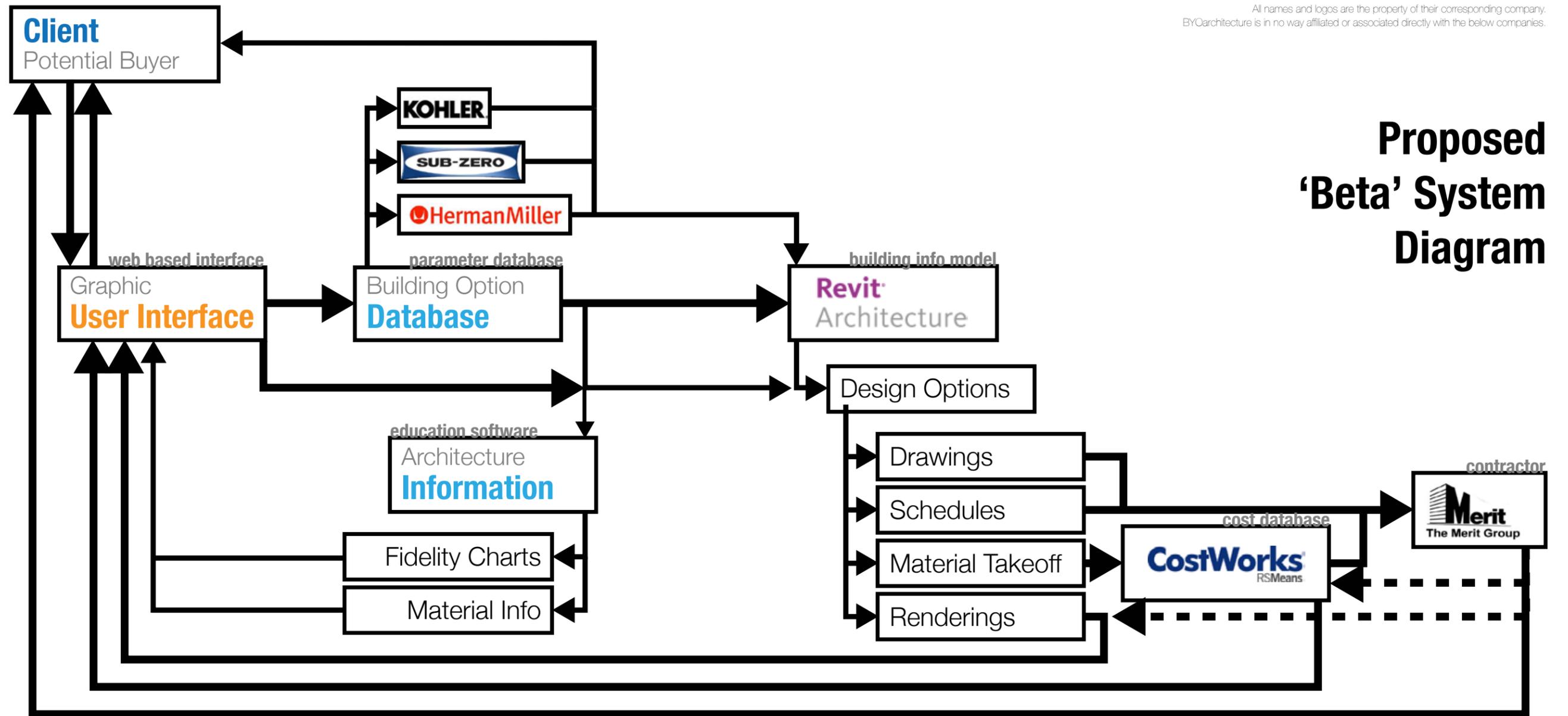
5.36 IMPLEMENTATION OF SYSTEM

A prototype web interface was created to gather data from the market and gain an understanding of what types of input users preferred. Initially the primary input options were limited to structure and material selection. It was determined that including additional parameter features such as dimensional changes would be beyond the scope of the semester project. Wireframe marketing material would be created for all future iterations, leaving actual web programming beyond the 'alpha' for future development.

5.37

**Implemented
'Alpha'
User Interface**

All names and logos are the property of their corresponding company. BYOarchitecture is in no way affiliated or associated directly with the below companies.



Proposed 'Beta' System Diagram

5.38 BETA SYSTEM "BYOarchitecture"

The above diagram represents the entire system controlled by BYOarchitecture. The 'alpha' version of the system had various components operated manually, due to the limited access to a systems developer during the course of the thesis study. However, given the commitment of a full time systems developer, the 'beta' is expected to have a fully automated feedback loop.

As diagrammed, the client will interact solely with the web interface. That interface will then be able to communicate with a database of Revit models. The

various models have utilized "design options" that can be controlled by the system and the model updated accordingly. Primarily each individual Revit model will relate to overall size choices, while material and system changes will be updated by the individual model's 'design options'. With every model update, the system will output of specified 'instant updates' that will feed back to the user interface instantaneously. These 'instant updates' include material information, fidelity charts, renderings and cost data. It should be noted that the cost data is derived from a secondary

calculation from a material takeoff through CostWorks. This is done to maintain the most accurate cost model according to date and client location.

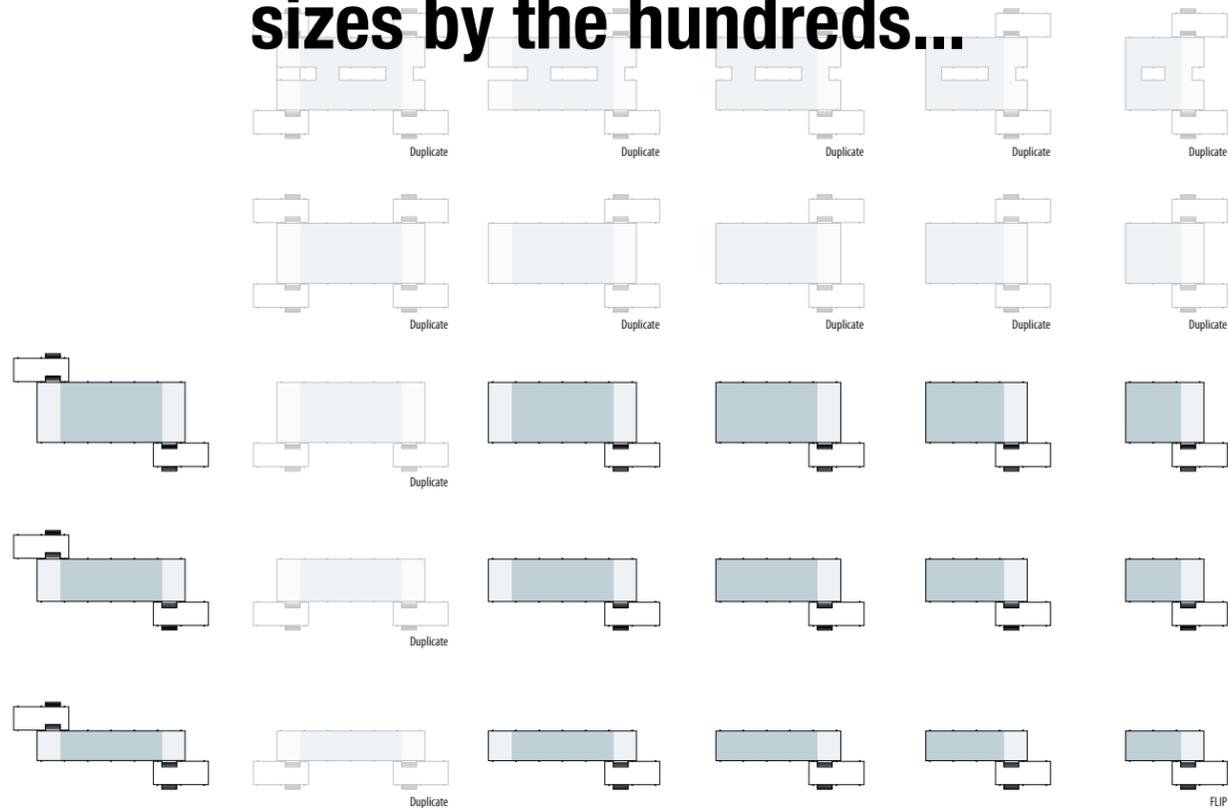
Ultimately, when a client is satisfied with their design, they can submit their order to a contractor. This will trigger an order to be sent to a pre-contracted builder. The order will include all permitting and construction documents as exported out of Revit and packaged neatly by the system. Home products and add-ons will also be available for purchase through

the user interface. Orders will be processed by the system, model will be updated with the most recent manufacturer Revit family and an order will be sent directly to the individual manufacturer for shipment.

Once a fairly sized body of constructed work has been established, the cost models will be updated by the hired contractors actual numbers and the renderings replaced with photographs of actual construction.

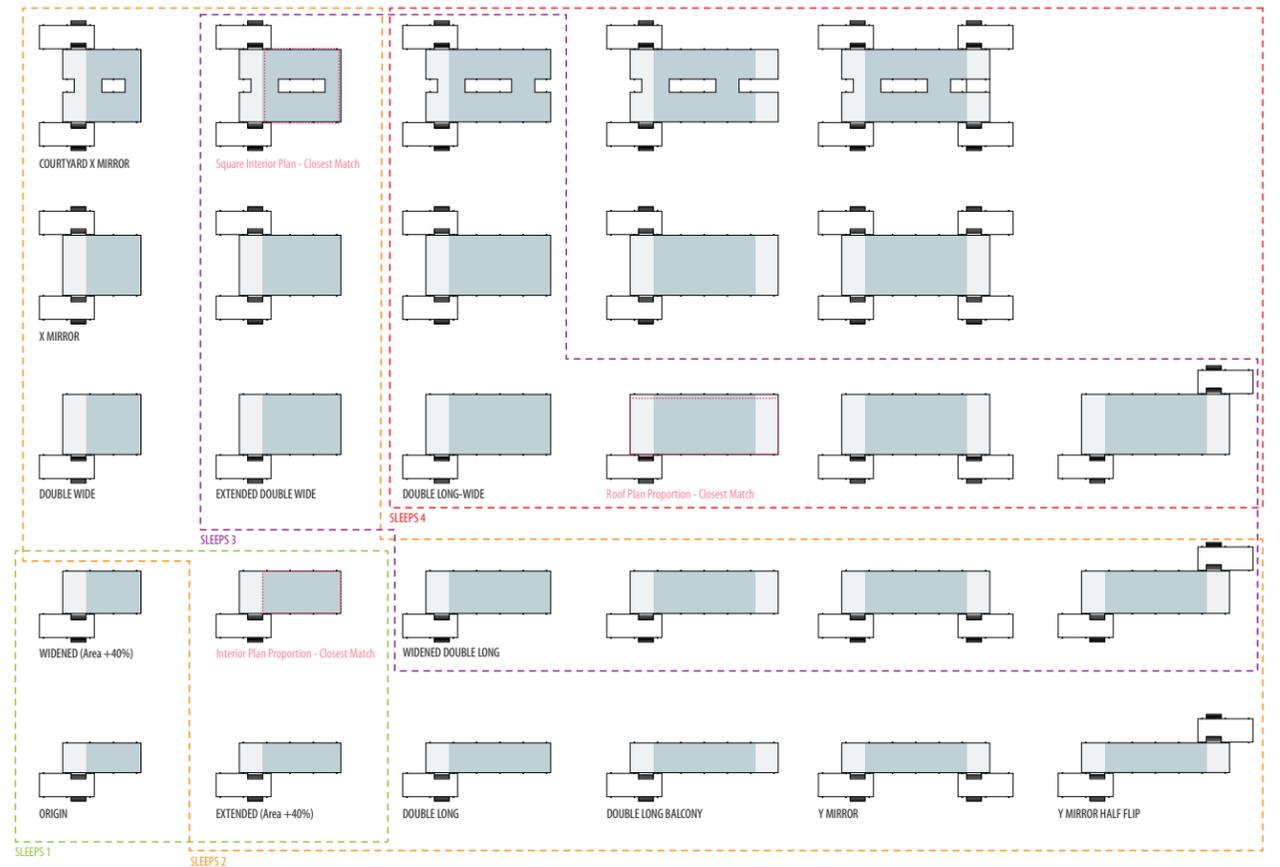
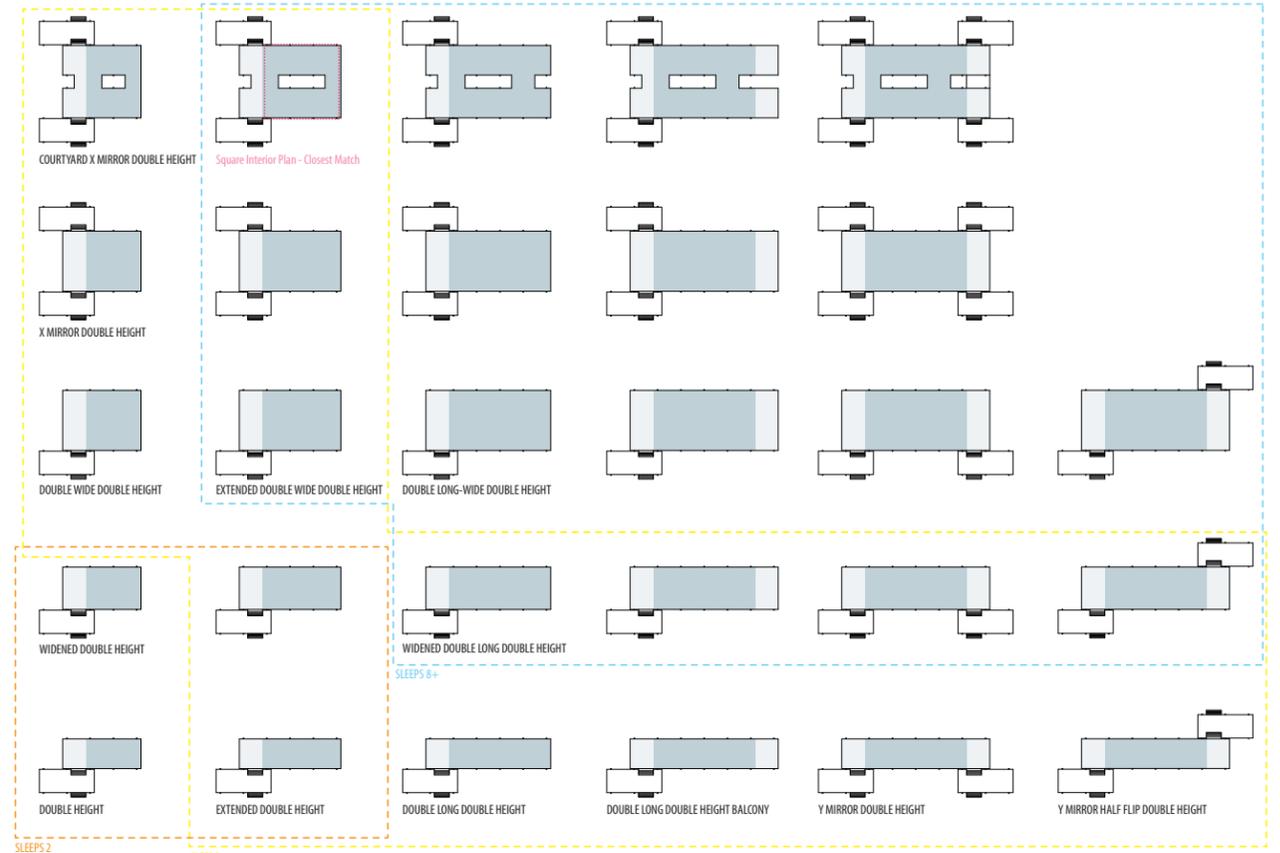


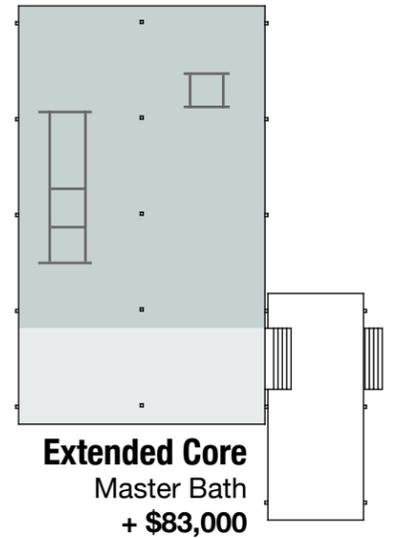
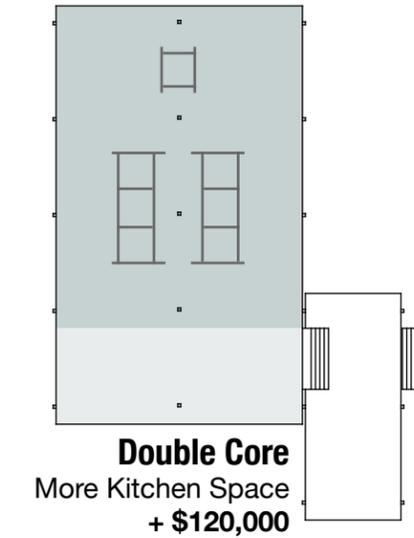
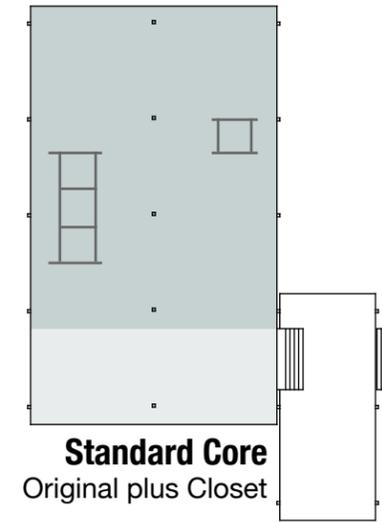
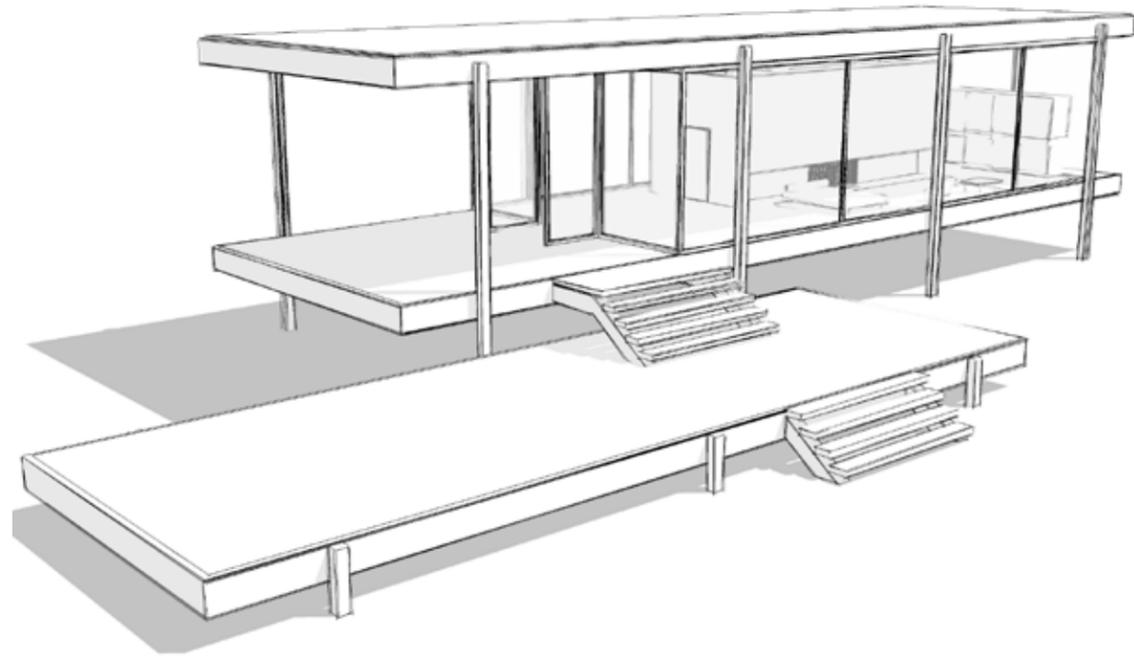
Farnsworth Versions sizes by the hundreds...



5.40

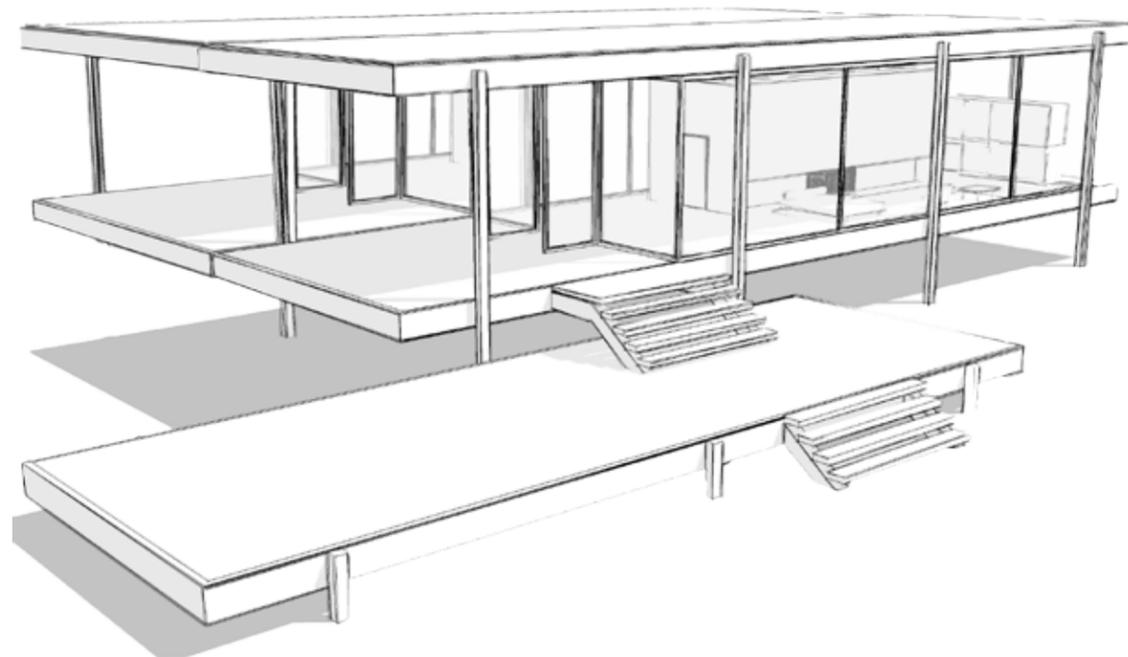
5.41



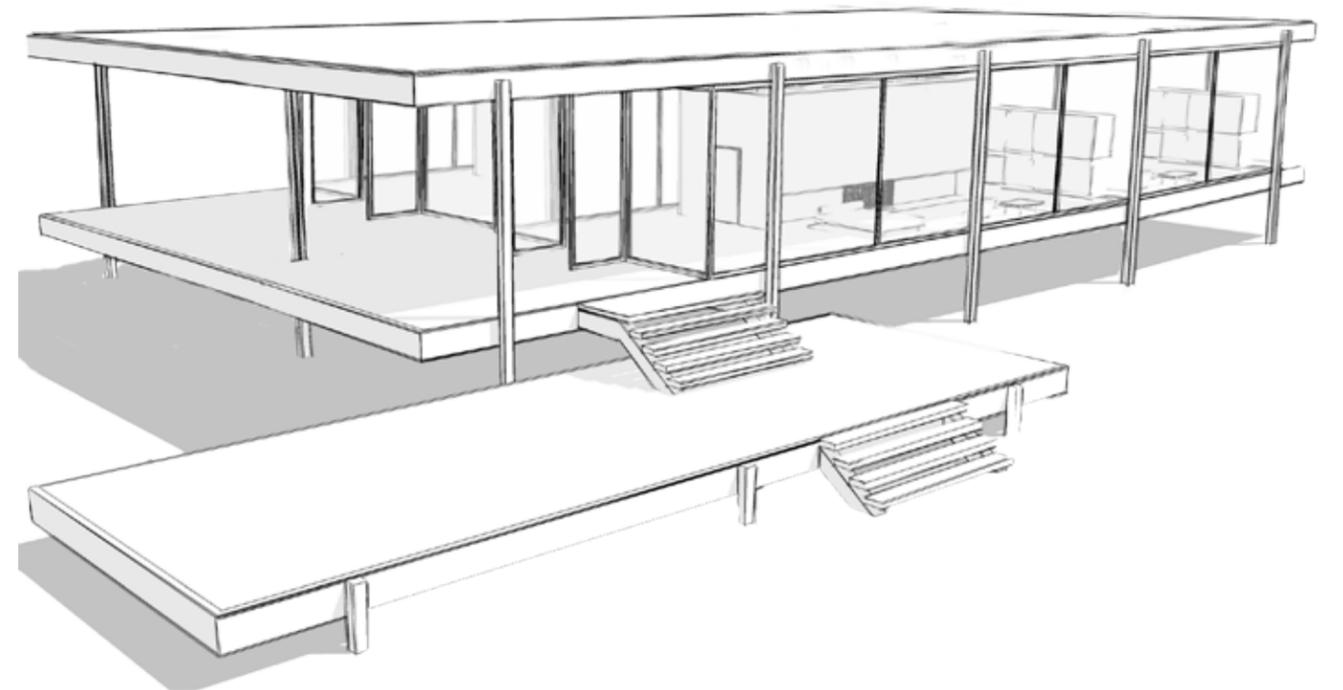


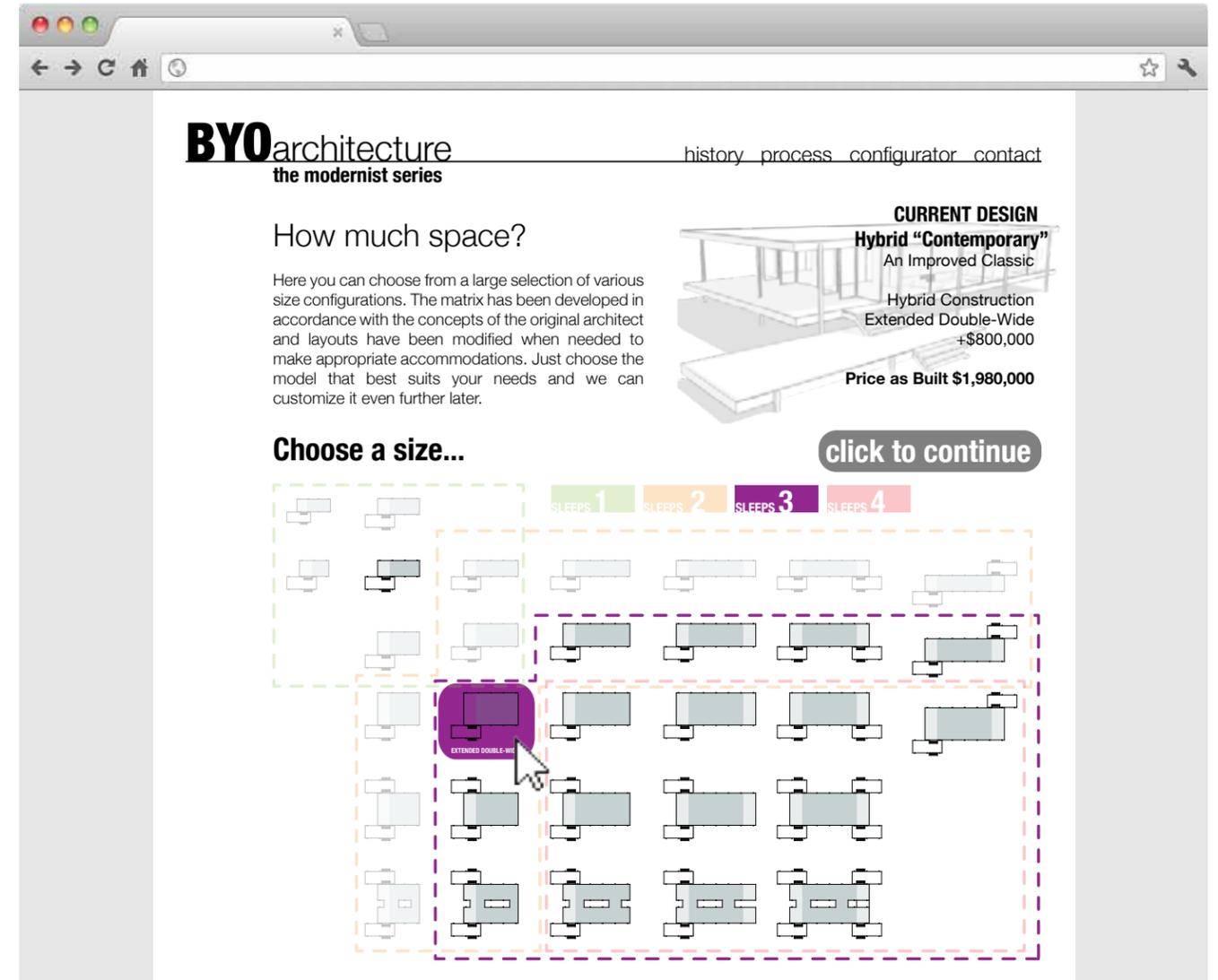
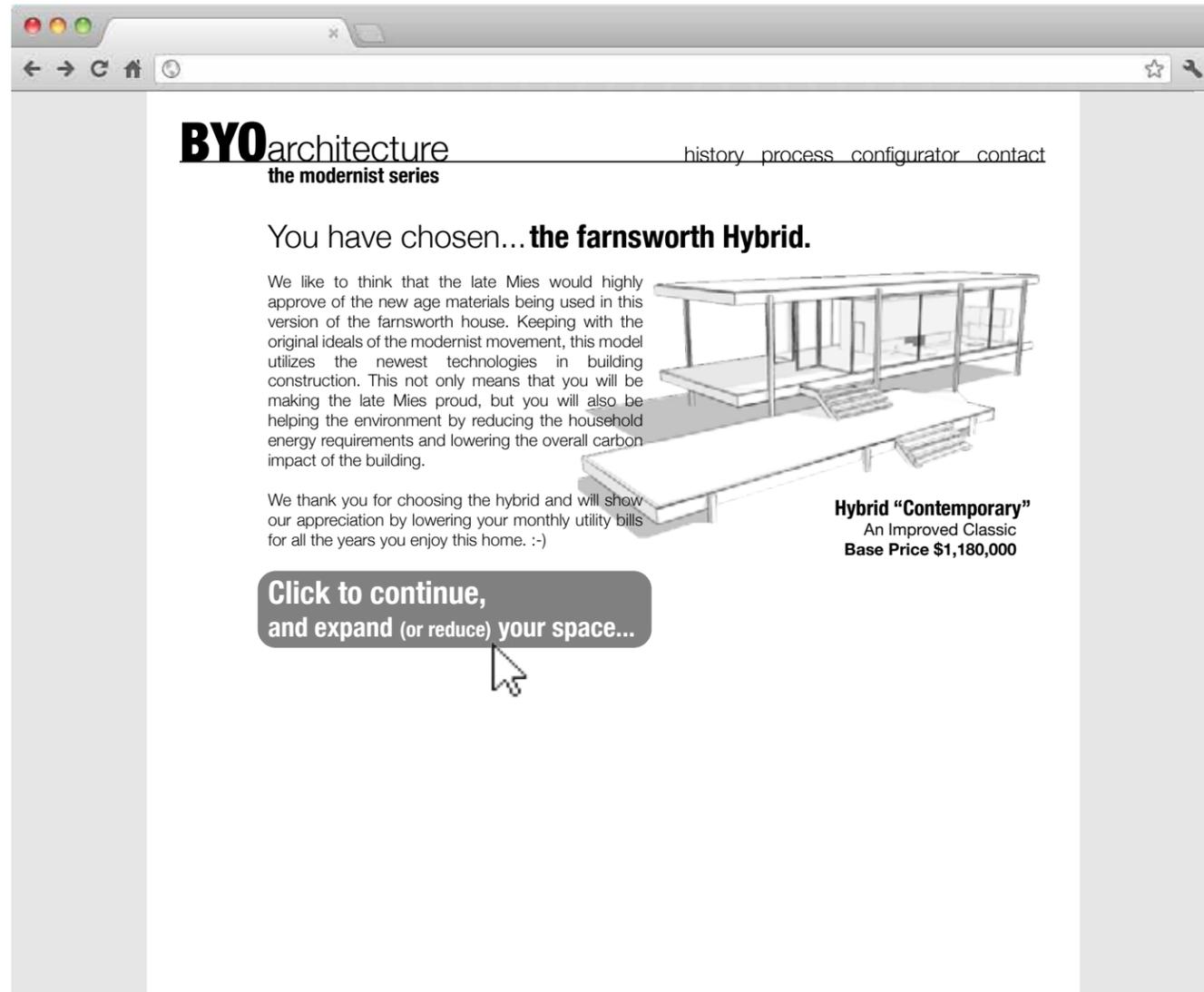
**Farnsworth Versions
dozens of layout configurations...**

5.42



5.43





5.44 **BYOarchitecture BETA INTERFACE**

The beta interface was refined down to make a more enjoyable and fun user experience. Concise descriptions give users information on their choices without taking away from the fun of design their own home. Visual rendered updates are kept simplified during early budget and program based decision making stages. Later stages of design are guided but still allow for customization if the user so chooses. This is done in the hope of influencing the design towards better architecture, without deterring those who really want something of their own realm.

Additional features have also been added with the ability to filter sizes by occupancy and predefining general materials prior to the final finishing stage. Again both these allow the architect to have some control or guidance over what the user chooses, but allows the user to deviate if they wish.

The above screen-shots represent only two of many stages of the design interface. Please do follow the link and immerse yourself in the full experience.

Wireframe BYOarchitecture 'Beta' User Interface

Please take a moment to watch the 90 second Beta Preview
@ www.bit.ly/BYOarch

...or on your mobile device @ bit.ly/BYOarchM

General Fidelity Meter

ARCHITECTURAL IMPLICATIONS

6.46

An interesting feature of the parametric system is the ability for the user to control the fidelity of a counterfeit project in respect to the original. Depending on how closely a design represents an original, one can make assumptions about the severity of the counterfeit. In order to visualize this fidelity of design intent, a series of comparative techniques were explored.

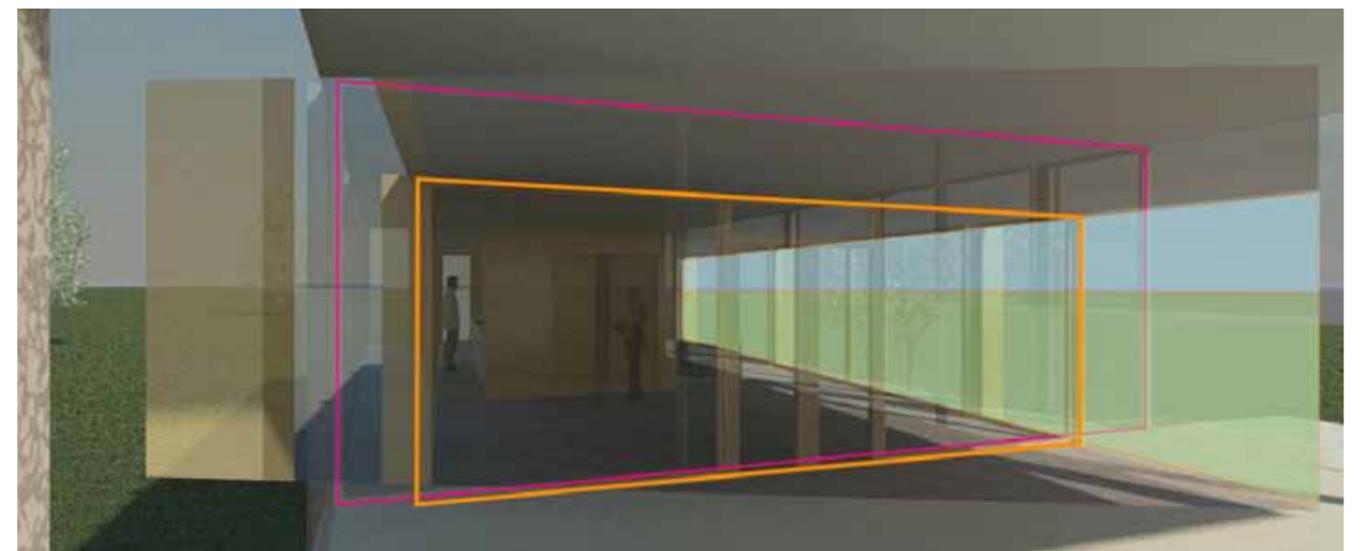
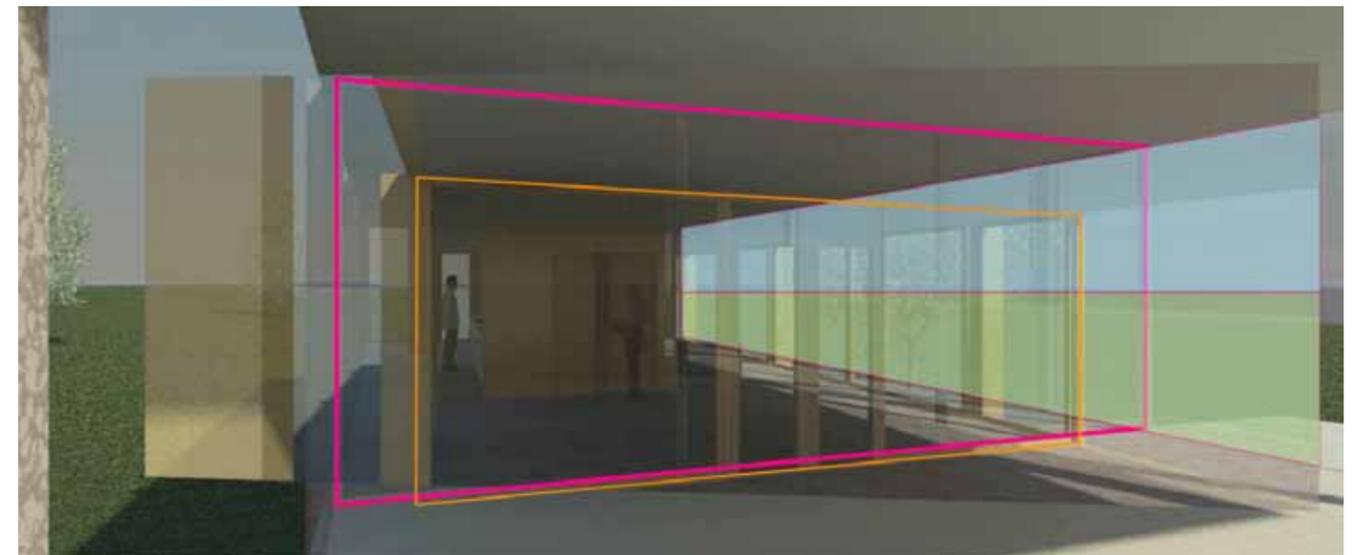
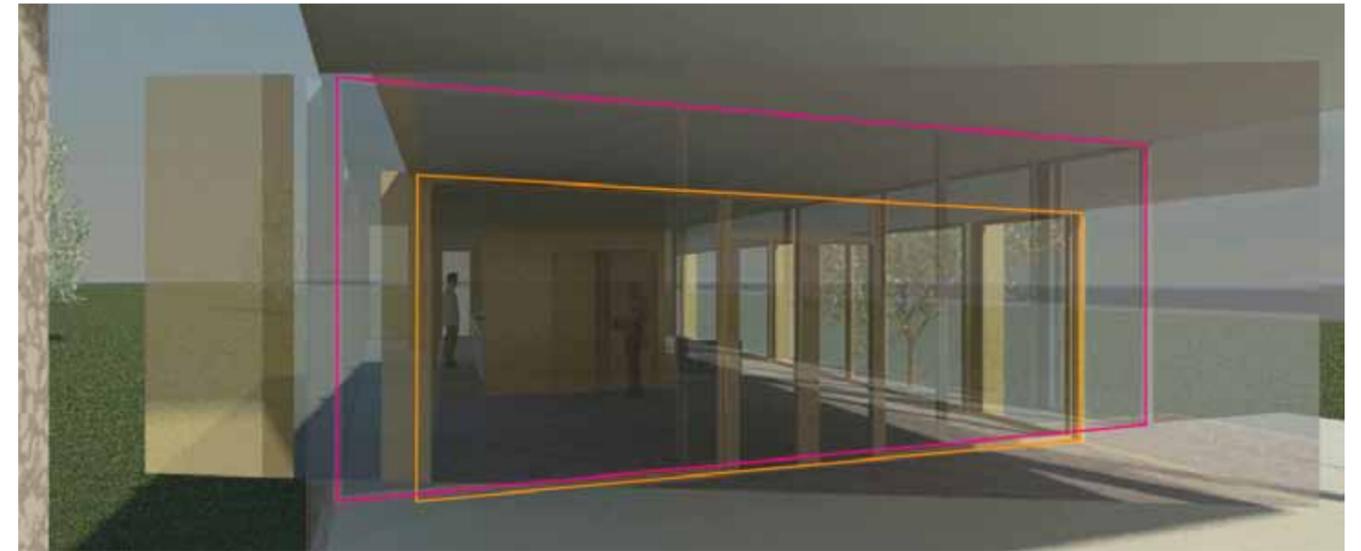
The first, a quantitative fidelity scale that gives numeric values to criteria in relation to how closely they match the original material used. The second an overlaying process with highlighted differences that are critical to the design.

The concept was further developed into an eight axis fidelity rose. This chart utilized eight parameters that would deform a circular profile to match the derivation of each parameter in relation to the original. The profile chart would not represent a right or wrong design, but instead a specific 'style' that users could begin to see their preference trends emerge from the profiles of their favorite designs.

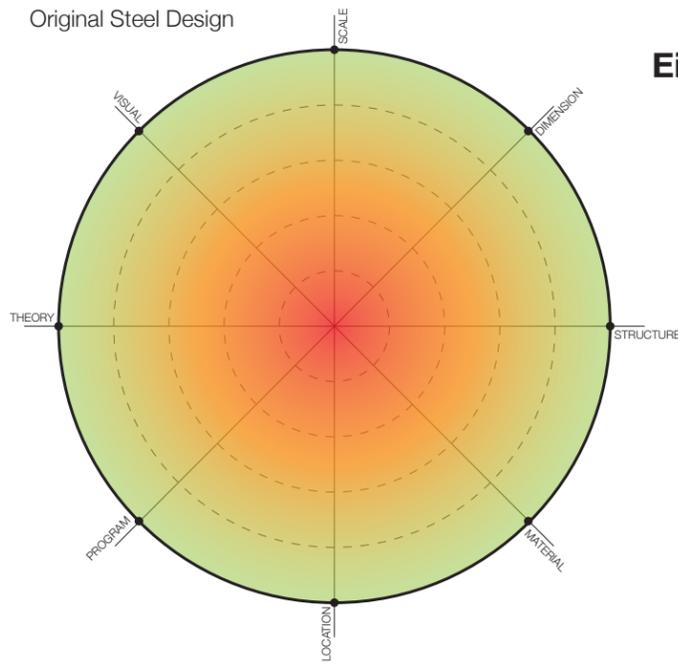


6.47

Experiential Analysis of Reduced Proportions on Vertical Symmetry

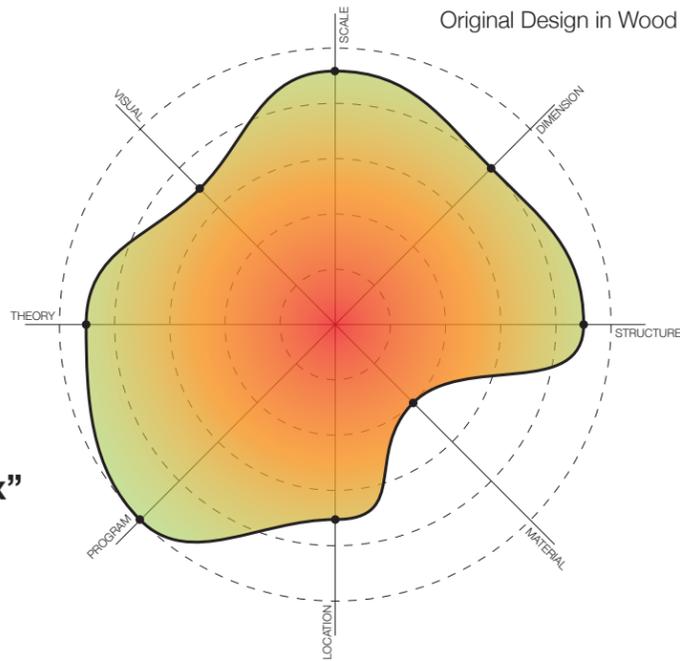


Original Steel Design



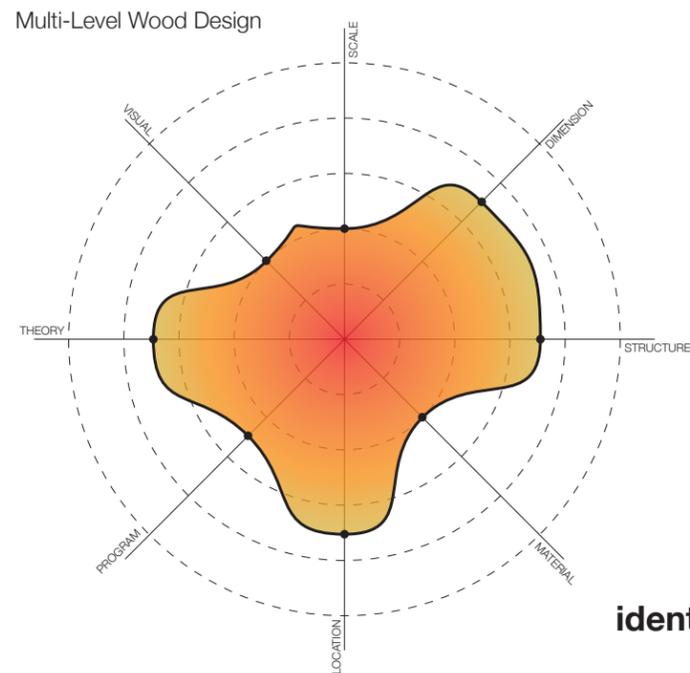
Eight axes define parameters of design fidelity in relation to the original

Original Design in Wood



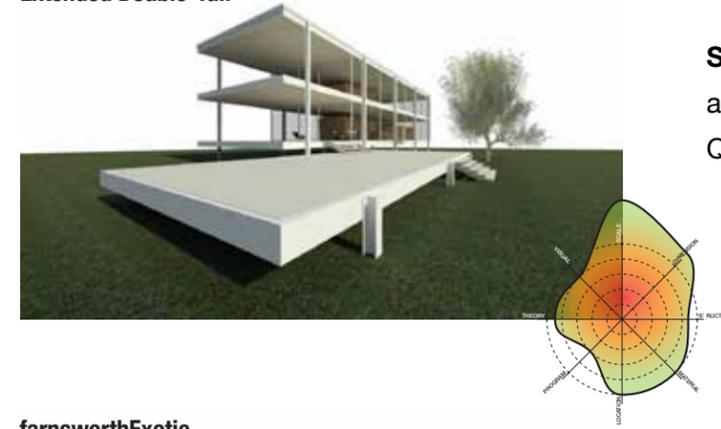
Area of circle is directly correlated to "Fidelity Index"

Multi-Level Wood Design



Color provides quick identification of general fidelity

farnsworthSteel
Extended Double-Tall



DEFINITION OF PARAMETERS

Scale - Related to the general scale of the building's as it relates to spatial experience and occupancy. Quantified in relation to percentage increase in overall volume and occupancy.

Dimension - Related to the dimensions of individual components within the larger system. Quantified as a multiple of average dimensional increases.

farnsworthExotic
Extended Wide



Structure - Related to the structural system that is utilized in the building. Deviations in component spacing and organization are represented by this parameter.

Material - Related to building materials used for both structural resolution as well as interior and exterior finishes. Materials are pre-assigned deviation factors in relation to their general structuring capabilities and aesthetic qualities.

farnsworthHybrid
Extended Original



Location - Based on general topographic, regional, and environmental site conditions. Quantified as average of three factors relating to each of these.

farnsworthSteel
Original



Program - Based off relationship to original intended program. General program sets are pre-assigned specific deviation factors.

Theory - Overall each of the previous six factors are assigned theory deviation factors. An average of all those factors defines this parameter.

farnsworthHybrid
Original



farnsworthWood
Original



Visual - This parameter is defined by an average of visual deviation factors from the first six parameters.



WWMvdRD? What would Mies van der Rohe Do?



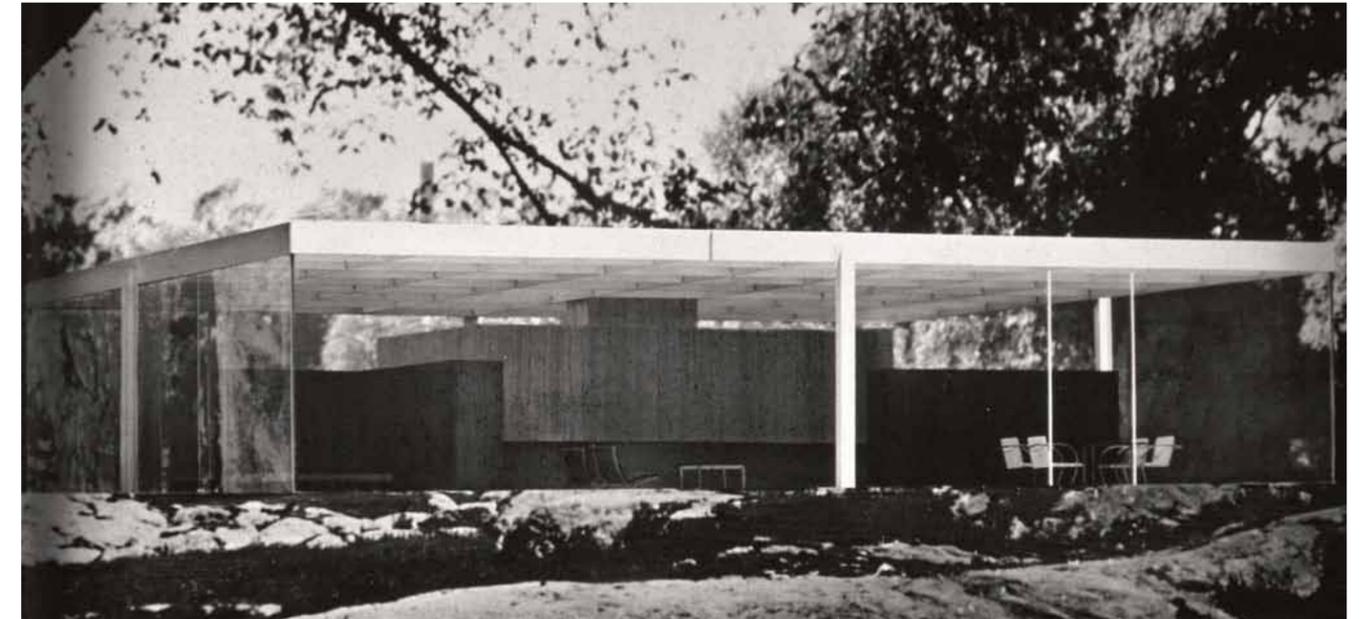
THE CORE HOUSE

The following is transcribed from an original study by Desenho de Luciana Fornari Colombo. it can be found at <http://www.vitruvius.com.br/revistas/read/arquitextos/11.130/3782/en>

Mies's self-imposed Core House project consists of a square space enclosed with glass. Only four exterior columns sustain the flat roof. The interior is free to be arranged at will around a fixed service core, not with walls, but with furniture, curtains, or lightweight low partitions. Like this, the number, size, and position of rooms can be easily changed according to the circumstances. In fact, the Core House was intended to adapt to different families and sites. To accomplish that, the house could be built in 40, 50 or 60 feet square (12.19, 15.24 or 18.28 m) and receive different service core arrangements. Opened in all directions to the surrounding nature through large glass panels, the house has minimal visual obstructions, just a few mullions, besides the slender columns. These columns are dislocated from their usual position, the corners, emphasizing the sense of space continuity and creating the perception of the roof as a light floating plane.

Core House, size variations based on Mies van der Rohe's original drawings. The interior arrangement for the small and big versions are hypothetically suggested by the author. Mies's remaining original drawings do not present a suggestion of interior arrangement

Approximately ninety sketches and thirty technical drawings, the majority made with pencil on paper, constitute the remaining drawings of the Core House project. These drawings are now kept by the Museum of Modern Art in New York. The project also contains a photomontage, whose image is held by the Chicago Historical Society. This photomontage shows a picture of the model inserted in a generic natural background. The view is focused on the house, barely indicating its surrounding. In the same way, the drawings do not indicate a context besides the surrounding trees. Likewise, these documents present a generic environment, not specifically urban or country, for walls enclosing the lot still could exist at a relatively close distance. In fact, some sketches made by the architect suggest this alternative of a sub-urban house protected by surrounding walls.



**WWMvdRD?
He already tried!**

7.54 Despite being launched with the name 'Core House', this project became popular later on as '50 x 50 House'. The first author to apply this name was Philip Johnson in his seminal monograph on Mies van der Rohe's work, which was published for the first time in 1947. This book became a very influential reference on the subject, in contrast to the newspaper article previously mentioned, which has been barely cited. In fact, the remaining drawings of the project suggest that Mies developed in details only the 50 x 50 version of the Core House.



40 x 40 Feet (36 x 36 Feet)
Hypothetical internal arrangement



50 x 50 Feet (48 x 48 Feet)
Internal arrangement proposed
by Mies van der Rohe



60 x 60 Feet
Hypothetical internal arrangement

7.55

Generally, Mies was accredited for saying:

“Less is more.”

"It is better to be good than to be original."

“God is in the details.”

"I don't want to be interesting. I want to be good."

In an interview by the Chicago Tribune in 1952, Mies stated that the Core House project was motivated, not by a client request, but by a general need:

“A dozen people have come to us in the last few years and asked for a modern house in the range of \$30,000 to \$40,000. We told them it was difficult to work out individual houses, for the work has no relation to the cost of the house...Since there seems to be a real need for such homes, we have attempted to solve the problem...”

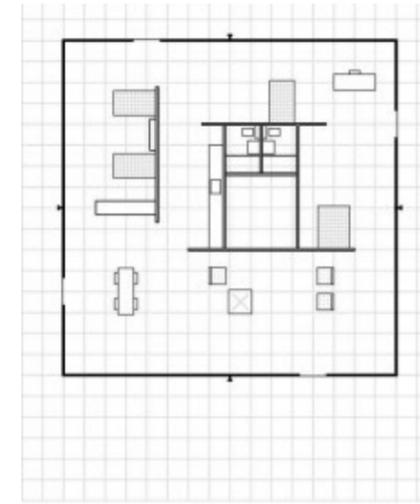


Mies van der Rohe

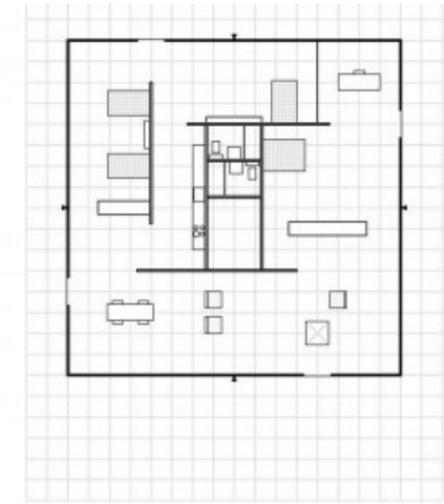
7.56

Upper Quotes:
Speaking about restraint in design, the New York Herald Tribune, 28 Jun 1959.
Mies van der Rohe quoted in "Words of Wisdom" by William Safire & Leonard Safire, 1989.

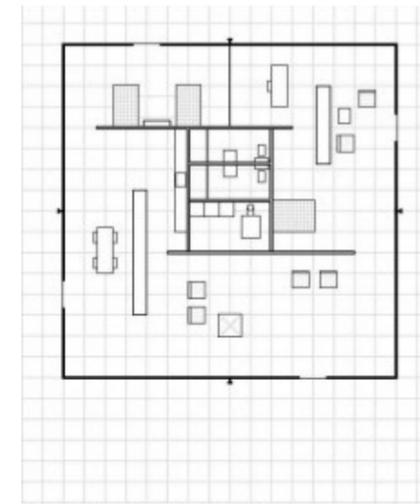
Chicago Tribune Quote & Plans:
<http://www.vitruvius.com.br/revistas/read/arquitextos/11.130/3782/en>



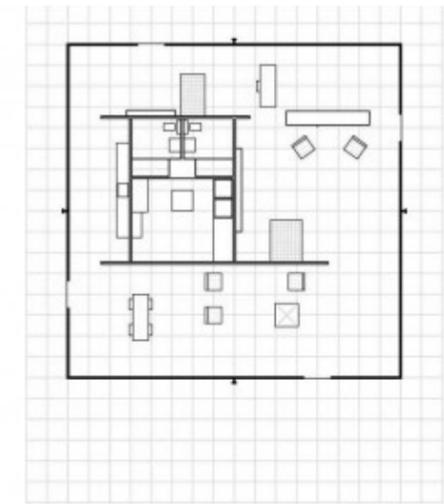
3 bedrooms



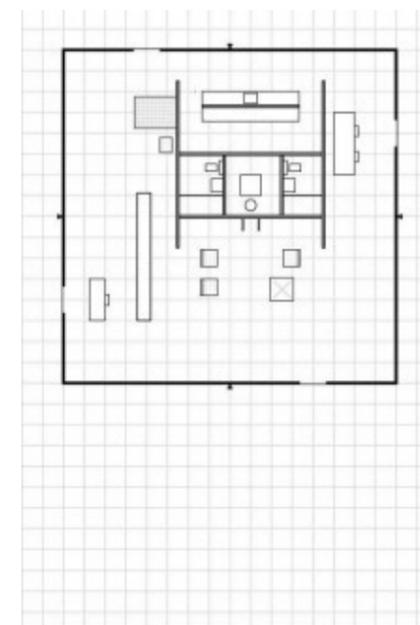
3 bedrooms and drapery indication



2 bedrooms and drapery indication



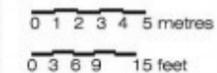
2 bedrooms



1 bedroom



2 bedrooms, one enclosed



7.57

Epilogue

I came. I counterfeited. I will conquer.

So that's it... there really isn't much more to say.
I hope you're inspired.

Why are you still reading this? Get out there and do something. If you're bored check out these links....

http://bit.ly/thesis_Presentation

http://bit.ly/thesis_Crit1

http://bit.ly/thesis_Crit2

<http://bit.ly/BYOarch>

Works Cited

in general order of use

“Starry Night”, Vincent van Gogh. Museum of Modern Art, New York.

“The Scream”, Edvard Munch. National Gallery, Oslo, Norway.

“Boomerang Chair”, Richard Neutra. Los Angeles County Museum of Modern Art.

“Boomerang Chair”, House Industries.

<http://copyright.uslegal.com/>, US Legal.

<http://www.copyright.gov/reports/architecture.pdf>, US Copyright Office.

<http://www.copyright.gov/circs/circ41.pdf>, US Copyright Office.

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