

DIY LIKE AN ARCHITECT

11-step method



INTRODUCTION

DIY Like an Architect, an 11-step method emerged out of an architecture course I've been teaching. As an architect, DIY fanatic, educator and mother, I'm all about sharing expertise, honoring authenticity, encouraging self-reliance. Offering what has proven to work well to a wider audience was a logical next step.

If you are a DIY home improvement enthusiast who'd rather give up your first-born than surrender control of a dream project but would enjoy learning a few tips from a trained expert, this how-toBOOK is a valuable resource. It is a step-by-step hands-on guide to a process an architect embarks on when facing a blank sheet of paper, just like you.

Diligently following these steps while customizing them to fit your own set of parameters is the objective. An FYI (*For Your Inspiration*) vignette accompanies each step to share observations and thoughts of my own architect within on extraordinary design solutions and time-tested problem-solving methods throughout history — visualizing being inside the Guggenheim, the Acropolis, Salk Institute or Piazza del Campidoglio usually helps me to move beyond a stumbling block.

Do not hesitate. Begin. And know that a solution will unfold.

If you are still skeptical and ask: *"Why?"* Well, maybe a quote from my favorite architect Louis Kahn will begin to shed light on this question: *"A work is made in the urging sounds of industry, and, when the dust settles, the pyramid, echoing silence, gives the sun its shadow."*

You will be surprised by what you discover and how much fun it is!

The only prerequisite is your desire for self-expression.

Anyone can master this method and DIY like an architect:

Step 01: Mind Map — assemble your wish list

Step 02: Collage — visualize your wish list

Step 03: Parti — summarize your wish list in one word

Step 04: Parti Diagram — illustrate your parti graphically

Step 05: 3-D Parti Diagram — illustrate your parti spatially

Step 06: Program — finalize your wish list

Step 07: Human Scale — consider size and proportion

Step 08: Scaled Drawings — give form to your wish list

Step 09: Model — understand structural implications

Step 10: Exterior Elevations — fine-tune

Step 11: Site Plan — put in context

STEP .01

A hand-drawn mind map with 'My ideal room' at the center. Red lines radiate from the center to various features and activities. The features include 'Internet', 'Television', 'Practice', 'Read', 'Privacy', and 'Market'. Each feature has associated details written next to it.

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graph TD
    Center((My ideal room)) --- Internet
    Center --- Television
    Center --- Practice
    Center --- Read
    Center --- Privacy
    Center --- Market
    Internet --- I1[have the ability to go 'online']
    I1 --- I2[silence]
    I1 --- I3[chair]
    Television --- T1[table for tv]
    Practice --- P1[silence]
    P1 --- P2[Practice]
    P2 --- P3[to practice my v]
    Read --- R1[silence]
    R1 --- R2[space]
    R2 --- R3[Read]
    R3 --- R4[shelves]
    R4 --- R5[to read books]
    Privacy --- Pr1[silence]
    Pr1 --- Pr2[Privacy]
    Pr2 --- Pr3[keep away from other people and have quiet time]
    Market --- M1[Market]
    M1 --- M2[marker]
  
```

My ideal room

- Internet**
 - have the ability to go 'online'
 - silence
 - chair
- Television**
 - a way to entertain
 - table (for tv)
- Practice**
 - to practice my v
 - silence
- Read**
 - to read books
 - shelves
 - space
 - silence
- Privacy**
 - keep away from other people and have quiet time
 - silence
- Market**
 - marker

- + IDEA - a specific mental structure by which we organize, understand and give meaning to external experiences and information

- ## SUGGESTED SUPPLIES

- ## RECOMMENDED READING

- + *How to Think Like Leonardo da Vinci*
by Michael Gelb

PROCESS

- + Start by printing the main topic (MY IDEAL ROOM) in the center and draw lines radiating from it.
- + List Key Activities to engage in one at a time at the end of each radiating line (REST, EAT, ENTERTAIN, RELAX, LISTEN, PLAY, CREATE, WORK, GET READY).
- + Under each Key Activity list what you associate it with (READ: desk by a window, wall-to-wall bookshelves, floor lamp, overstuffed chair).
- + Each association should have its own separate line, but in no particular order.
- + Use color to group.
- + Complement words with sketches and doodles.
- + Highlight what is really important.
- + Emphasize with size.
- + Continue to write down the insights that are coming from all directions. Branch out with details. Think about how it might feel.
- + Notice overlap and connections.

FOR EXAMPLE:

a center of activity

a place for self-expression

sound of ocean

video game arcade

a dance floor

a studio: place to be creative with all the tools

functional and whimsical

"stable" and "peaceful" environment

a tunnel to China

private garden with a waterfall

a trap door to a magic kingdom

indoor basketball court

KEY ACTIVITIES

sleep: bed (memory foam mattress), soft blankets and pillows, clock, teddy bear

talk: telephone, tablet, Internet

work: computer, laptop, desk with drawers, bulletin board, light (outlets), big windows/blinds, calendar-agenda

exercise: yoga mat, treadmill, punching bag, pull-up bar

find refuge: rug, wood floors, flowers, doors with locks

maintain hygiene: towels, bathtub, sink, washing machines, hand sanitizer

get dressed: closet, mirror, privacy, outfit inspiration book or board

entertain: tv, pets, adequate seating, snacks/refreshments

relax: chair/sofa, refrigerator

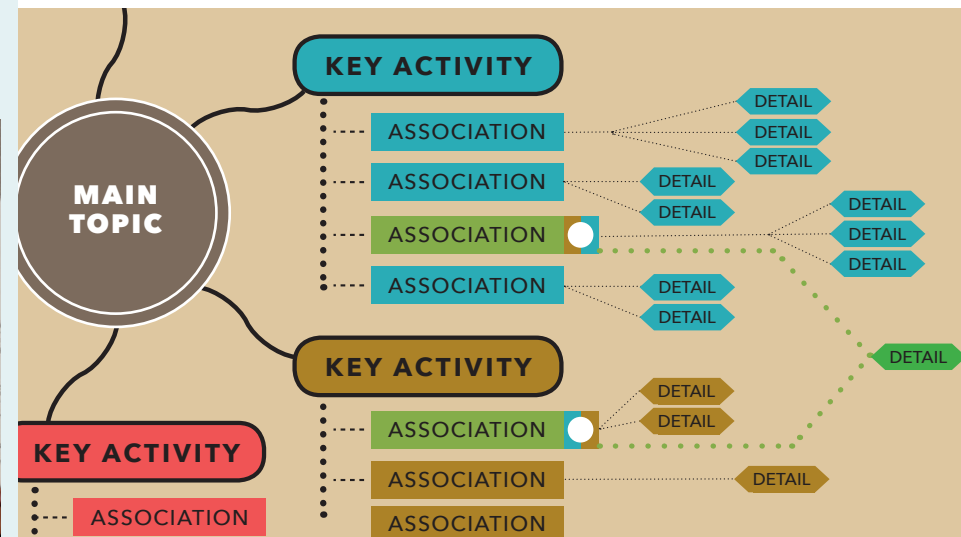
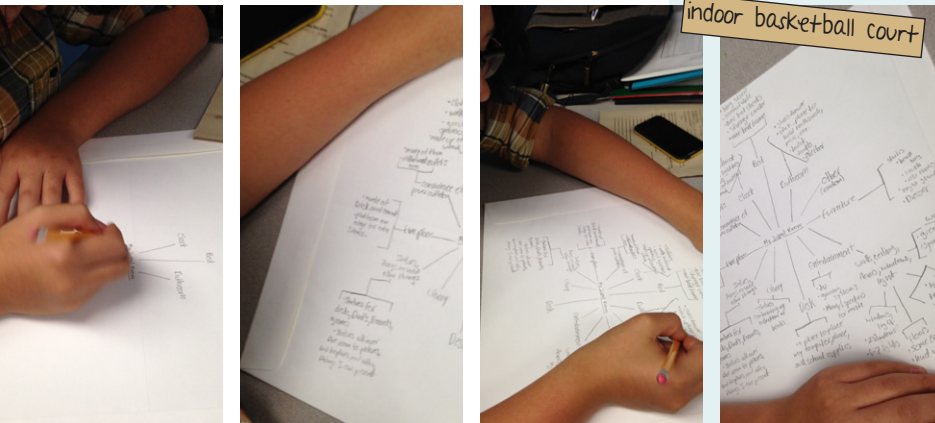
read: bookshelves/books

listen to music: stereo/electronics, amazing speakers, musical instruments (violin, piano, guitar)

display art/work: wall space, high ceilings

connect to outside: view, skylight, stream running through, tree growing inside, balcony

*First step helps you think out loud as you verbalize your highest expectations and express them graphically as a branching out organic structure. There is no right or wrong — you are nurturing your unique vision. Do not be concerned with practicality and feasibility. Now is the time to dream. **Focus on what your heart desires!***



I unleash my creative potential

BEING DISCIPLINED

- BEING CONTENT WITH MAKING TINY STEPS...
 - doing more with less
 - learning by doing
- MOVING FORWARD WITHOUT KNOWING THE OUTCOME...
 - immersion
- ALLOWING THE TIME FOR SOMETHING TO EMERGE...
- DOING SOMETHING CONSISTENTLY...
 - incorporating lessons learned
- THRIVING WITHIN BOUNDARIES...
 - commitment
 - setting goals
- community
- support system
- cooperation

ACCEPTING ANXIETY OF NOT KNOWING WHAT TO DO

- ANTICIPATING FALSE STARTS...
 - mistakes as part of the process
- TAKING RISKS EVEN IF IT'S SCARY...
 - thinking across boundaries
- EXPERIMENTING...
 - digging deep
- ARTICULATING OWN POINT OF VIEW...
 - making it personal
- ENDURING AMBIGUITY...
 - ideals

LISTENING TO OWN INTUITION

- PAYING ATTENTION...
 - muted undertones of shy inner voices
- ACCEPTING PARADOX OF OPPOSITES...
 - beauty vs. ugliness
- ATTENDING TO DEPTH OF EMOTION
 - "we lie in order to tell the truth." -Picasso
- USING SENSES TO EXPLORE
- KEEPING AN OPEN MIND TO UNCONSCIOUS DATABASE...
 - awareness
 - instinct

ASKING QUESTIONS

- CHALLENGING...
 - commitment to authenticity
- EXAMINING...
 - balance of masculine and feminine
- SUSPENDING JUDGMENT...
 - patience
- CONSIDERING DIFFERENT PERSPECTIVES, IDEAS, INSIGHTS
- EMBRACING VULNERABILITY...
 - interaction
 - inspiration
 - innovation

INCUBATING

- MEDITATING...
 - evolution
- ALTERNATING WORK AND REST...
 - conditions for feeling lived-in
- CULTIVATING A SENSE OF BELONGING...
 - reflection
- TRYING NEW THINGS...
 - allowing for experimentation
- APPROACHING EVERY DAY AS AN ADVENTURE...
 - exploration
 - discovery

FYI For Your Inspiration™

"We do not know anything about the future, but we will arrange it, nevertheless." — Peter Lorenz

THE LEGACY OF CHINESE ARCHITECTURE *(Temple at Wu Residence in Lijiang)*

I had a conversation with a woman from India recently. I was struck by her skepticism and lack of resolve. In her mind, nothing was up to her. She confided in me: *"Where I am from, they place a lot of emphasis on culture, myth, family values, class, being the elder daughter. Contentment and tolerance are ingrained. You do not feel that you have the luxury of choice. You do not question whether something else would be more logical."*

In my mind, what she complained about, she could, just as easily, be thankful for. Drawing on layers of one's identity adds exuberance. Knowing one's history and its meaning helps alleviate the sense of creating in a void. Understanding the cultural background inspires to dig beyond what's in plain view.

Very often, our roots strengthen our values — the bedrock of life.

Have you ever noticed how carried from generation to generation, compositional principles of Chinese architecture have remained largely unchanged? The omnipresent heavy gabled roofs have diligently professed importance with their spectacular articulation for centuries. These floating crowns of sweeping curvature have evolved, yet remained constant, as they have continued to simultaneously make an impression and guarantee structural stability.

My point is: Wisdom and beauty do not become outdated; they prevail.

In Chinese architecture, the emphasis has always been placed on visual impact, specifically, on how a building is approached and entered. Breadth and expanse, rather than height, have been underlined. The rooms in the palaces of The Forbidden City in Beijing, the home to 24 emperors, are built with relatively low ceilings, but the grandiose exterior expresses the all-embracing nature of imperial China.

My point is: Uncovering the reasons why something has been done a certain way and has passed the test of time can fuel innovation.

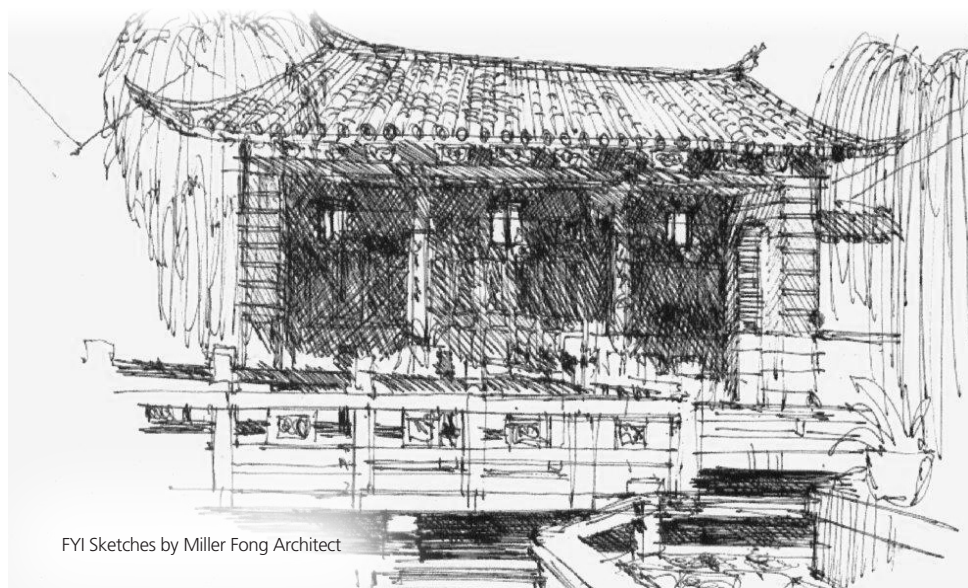
Bilateral symmetry, a device that ensures visual balance, has been prevalent in elaborate palace complexes as well as in humble farmhouses. Up until present,

it has been customary to strategically place a door in the center and to employ numerology as a tool for reaching equilibrium. Odd numbers have been thought to carry auspicious qualities. Number nine has been used extensively in much of construction (nine being the greatest single digit number). The Forbidden City, for example, is said to have 9,999 rooms — just short of the mythical 10,000 rooms in heaven.

My point is: Making sense of what has been accepted as a rule of thumb for ages and acknowledging its unfaltering relevance in the present can be a good place to start.

All buildings in China have been legally regulated, and the law has held that the number of stories, the length of the structure and the colors used depend on the owner's class. However, regardless of social standing, it has been customary for all dwellings to follow a set of cultural patterns — the center of any house has always been reserved for a shrine dedicated to the deities and the ancestors, while the bedrooms for the elders have been located on either side of the central space.

My point is: Digging into tried and true to extract meaning that fits properly in today's society is necessary in the process of coming up with something new and fresh. Creating an environment appropriate for today, my architect within can rely on lessons of the past to instill a sense of continuity and belonging. Building on tradition, moral codes and laws, my architect within has the insight to say: *"There are corners of my creativity I still need to explore and I hope that I can settle myself down sufficiently to immerse in them fully."*



FYI Sketches by Miller Fong Architect

STEP .02 Collage

COLLAGE is a tool used to assess your preferences as they relate to environment. Think of it as a form of meditation or reflection to help articulate your desires. The trick is to get into the mindset that reality is mostly a matter of perception and depends on where you focus/concentrate your attention.

VOCABULARY

- + INSPIRATION - the process of being mentally stimulated to do something creative
- + COLLAGE - a composition created with fragments of found images, newspaper clippings, partial photographs combined, layered and pasted together

SUGGESTED SUPPLIES

- + A stiff board (*like foamboard*)
- + A pile of old magazines/advertising brochures
- + Scissors and/or X-Acto knife (*#11 blade*)
- + Glue stick, rubber cement and/or tape

RECOMMENDED READING ONLINE

- + Notpaper blog
- + Kolaj - a Canadian magazine devoted to collage
- + Collagista! - a source of inspirational links



PROCESS

+ As you are thumbing through magazine pages, pay attention to what you are drawn to.

+ Start by finding an image that represents you, not a photograph of you, but a symbol that you can be associated with (a pair of glasses, a fireplace, an open door, a blender, a juicy hamburger — whatever works for you, it doesn't have to make sense to anyone else). It will go in the center.

+ Look for things that are all about your preferences in color, texture, materials and general ambiance. Find images of what you would love to be surrounded with. Once something grabs your fancy — rip it out!

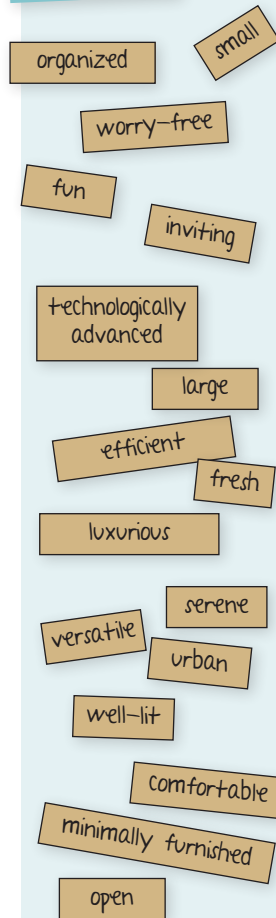
+ Do not ignore headlines. If it resonates with you — incorporate it! However, you are not allowed to write anything by hand.

+ Compose what you have amassed on a board around the image that embodies you. Glue or tape everything down.

+ Describe your collage explorations to someone.

+ You'll be amazed at the eloquence and the depth. You are thoroughly aware of your own preferences and are acknowledging them. The authentic spirit of your design is deeply rooted in what you care about.

FOR EXAMPLE:



*Second step helps you acknowledge what you like and are passionate about while noticing how you respond to various images. Just like in the first step, do not be concerned with practicality and feasibility — you are cross-pollinating. Now is the time to reveal what your ideal world consists of. **This is fun!***



FYI For Your Inspiration™

"Design is the term we use to describe both the process and the result of giving tangible form to human ideas. Design doesn't just contribute to the quality of life; design in many ways, now constitutes the quality of life."

— Peter Lawrence

ANCIENT GREEK ACROPOLIS

Examining various aspects of persevering architecture motivates me to think in whole systems and life-affirming concepts, to become aware and make sense of the world around me.

The Ancient Acropolis in Athens is a grouping of temples imbued with human traits, interacting with one another. The sculptural buildings (perceived from the outside) are intended to symbolize human interplay as well as individual qualities of each of the participants. They represent ideas and personify human society. Each structure has its own function and exact place serving its distinct purpose and telling its part of the narrative through a particular treatment of both space around it and elements defining it. It is a collage of forms concretizing the highest ideal using the language of architecture.

The Parthenon (temple sacred to Athena Parthenos) is the one that represents the human qualities of the goddess, the virgin patroness of her namesake city, Athens. Its primary significance is clearly manifested as the main edifice in the group by the following: 1) it is the first to be constructed; 2) it is the largest; 3) it is given the most prominent location at the summit.

Next in the hierarchy is the first monument to be observed upon arrival to the Acropolis. It is the exquisitely proportioned temple to Athena Nike (victorious) standing near the Propylaea, the gateway, the one that the Panathenaic procession would have to go through to reach the Parthenon.

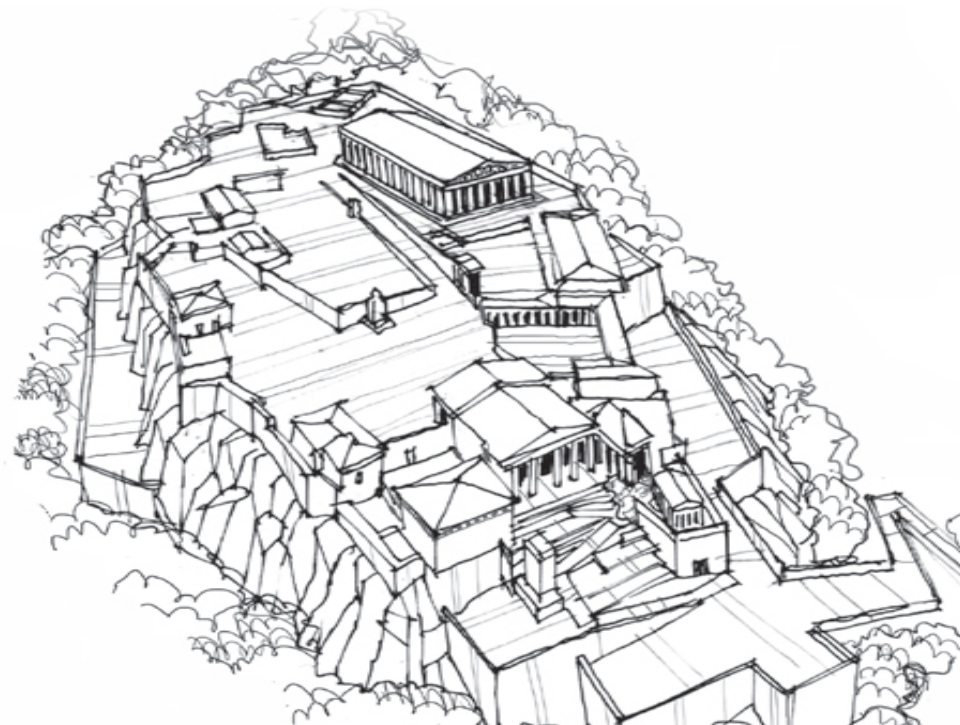
The Propylaea's function is to create a threshold and to serve as the spatial transition. The gate hall itself is adjacent to the library on one side and the first picture gallery in history on the other.

The central open space is flanked by the Parthenon and the Erechtheum. The Erechtheum has a complex form, which results from a need to house a number of shrines within it; its volumetric intricacy offsets pure massing of the Parthenon. There is no mistake regarding its substance as compared to the Parthenon. The order of importance is clear. Everything is perfectly prioritized. There is nothing haphazard or arbitrary about the placement of every actor on the "stage." The buildings' 1) size; 2) siting; 3) articulation rationally attest to their significance. The actors and the audience come together to engage in self-reflection and self-expression.

The Greeks are guided by their own values. The Acropolis is a meticulously organized model of the universe, as they perceive it. The Athenians shape the buildings and the space around them to gain better understanding and control of the following: 1) themselves; 2) their environment; 3) themselves within their environment.

What's the lesson here?

I can tap into what the Greeks have discovered and apply it. Guided by values and perceptions, the architect within can organize and affirm my world by encompassing everything that matters to me and say: *"I have control of the following: 1) myself; 2) my environment; 3) myself within my environment."*



STEP .03

Parti

PARTI stands for “big idea.” Determining what it is ahead of everything else helps you give your project a narrative, purpose and meaning. Settling on a parti — your guidepost — allows you to understand a problem prior to solving it, to make bold and all-encompassing choices without focusing on any particulars. The trick is to decide what it is before anything is designed.

VOCABULARY

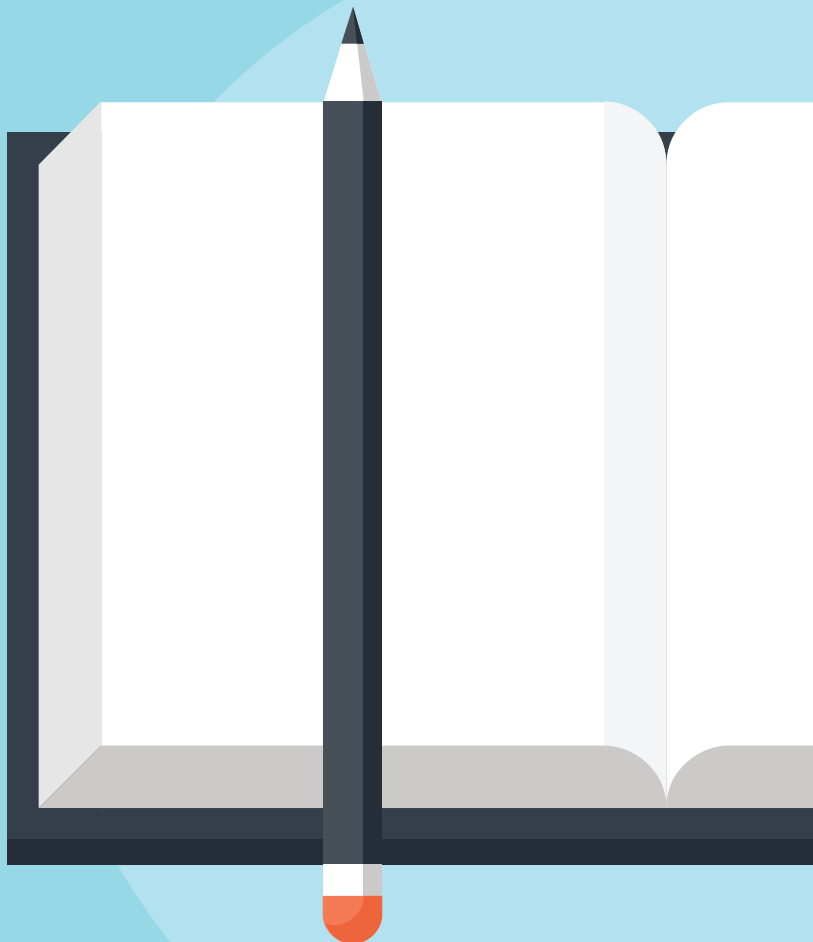
- + PARTI - the central idea or concept for an architectural design
- + AMBIGUITY - the anxiety that comes from not knowing what to do, vagueness or uncertainty of meaning

SUGGESTED SUPPLIES

- + Sketchbook
- + Color markers and/or pencils, highlighters

RECOMMENDED READING

- + *The Element: How Finding Your Passion Changes Everything* by Ken Robinson, Ph.D.



MIND MAP / COLLAGE DEBRIEFING

+ List 3 things you discovered doing your mind map:

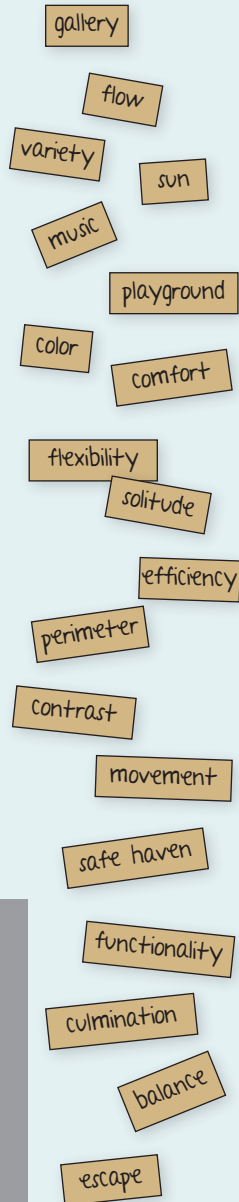
+ What surprised you the most? Anything you never thought of before?

+ Going from your mind map to the collage, did you notice a theme emerging? What was it?

+ What is the central image in your collage? How does it relate to you?

+ If you were to think of a single word to describe your ideal space, what would it be? Give it some thought.

FOR EXAMPLE:



+ Is there anything that stands out for you? Is there anything you come back to time and time again?

+ Attempt to simplify, boil down your elaborate story to a single word. Make a leap of faith and assume that this word is your one big bold idea or parti — a way to render a solution before solving a problem. What is it?

*Third step helps you devise a frame of reference in advance of confronting a blank piece of paper by listening to your own intuition and attuning to muted undertones of your shy inner voice — you are unleashing your creative potential. Now is the time to describe your findings with one word and to give meaning to all of the subsequent steps. **Own it!***



FYI For Your Inspiration™

"The success of the masterpieces seems to lie not so much in their freedom from faults... but in the immense persuasiveness of a mind which has completely mastered its perspective." — Virginia Woolf

PIAZZA DEL CAMPIDOGLIO

According to Virginia Woolf, even flawed work can be considered a masterpiece as long as its creator has persuasively mastered everything about it, has given all of herself to it, wholeheartedly.

My work is a reflection of who I am — goals, values and aspirations — my life as I dream, imagine, design and build it. I want it to be a masterpiece.

In order to master perspective, I need to:

1. override habitual and superficial by keeping an open mind
2. bear contradictions by changing a point of view
3. recognize interconnectedness by relating unrelated
4. approach problems creatively by finding metaphors in nature
5. integrate whole-brain thinking by balancing logic & imagination
6. maintain a child-like sense of wonder by exploring continuously

As a test, I apply the criteria above to Piazza del Campidoglio:

1. Michelangelo reorganizes the place that throughout centuries had symbolized the center of the world — the architect overrides habitual and superficial by keeping an open mind.

Roman Forum, located in the depression between the Palatine and the Capitoline Hills, is the central area around which Ancient Roman civilization developed, the heart of the Roman Imperium. However, its importance as a sacred site in antiquity had been largely forgotten as it was transformed into the seat of the secular government and headquarters for the guilds during the Middle Ages.

In 1536 Pope Paul III, Born Alessandro Farnese — he comes to the papal throne in an era after the sack of Rome in 1527, rife with uncertainties in the Catholic

Church following the Reformation — commissions Michelangelo to reshape the Capitoline Hill (Piazza del Campidoglio, as Romans call it by the 16th century) into a monumental civic piazza, a symbol of the new Rome.

In a bold move aimed to solve both urban and propaganda programs at once, Michelangelo sets out to effectively reverse the classical orientation of the Capitoline Hill and reorganize Rome's ancient civic center to face away from its original focal point, Roman Forum, and instead in the direction of Papal Rome and the Christian Church in the form of St. Peter's Basilica.

2. Michelangelo takes advantage of insurmountable preexisting conditions on the site — the architect bears contradictions by changing a point of view.

The two dilapidated palaces that Michelangelo inherits, the Palazzo Senatorio and the Palazzo dei Conservatori are not positioned at an expected ninety-degree angle to one another. Retaining both of them in the design means having to come up with a solution that addresses the awkward angle these buildings create. Michelangelo turns a constraint into an opportunity. Given irregularity — a potential disadvantage — becomes a catalyst for a brilliant solution, a trapezoidal plan that influences other features of the scheme.

3. Michelangelo adds a third building to create one continuous spatial boundary — the architect recognizes interconnectedness by relating unrelated.

Michelangelo builds Palazzo Nuovo as a mirror image of the Palazzo dei Conservatori, creating a U-shape enclosure that is balanced on its axis (Palazzo dei Senatori). In his design, the two palazzi facing the piazza have identical facades and their porticoes belong to the outdoor room they frame.

4. Michelangelo treats separate buildings as if they were inseparable components of one organism — the architect approaches problems creatively by finding metaphors in nature.

In the only surviving evidence of Michelangelo's theory of architectural relationships he claims that all the parts of one kind must be adorned in a similar manner. Furthermore, he insists that a composition of buildings necessitates the same symmetry as a human body; he writes: "... the nose, which is in the center of face, has no commitment either to one or the other eye, but one hand is really obliged to be like the other... And surely, architectural members derive from human members. Whoever has not been or is not a good master of the figure and likewise of anatomy cannot understand (anything) of it..."

Maestro resolves the central building on the Piazza del Campidoglio by employing natural symmetry, as if he were sculpting a human body. Originally built as a fortress in the 11th century on top of Tabularium that had housed the archives of ancient Rome, he transforms it with a double triangular stairway, the first one of its kind to be adapted to the palace façade.

One of the ideas behind the form is to powerfully coordinate and balance the composition of three structures defining the piazza and to mask their inequality in height. Interestingly, the three palace facades of the Piazza Campidoglio do not continue around the buildings; stopping short at the corners, they act as architectural skin of the space articulated by two lower wings converging at a dominant central accent of Palazzo dei Senatori with its axuality and greater height.

5. Michelangelo creates an urban interior using open space as primary building material — the architect integrates whole-brain thinking by balancing logic & imagination.

Axis, symmetry, and convergence are the commanding forces that shape the void of the piazza. All elements act together in unison. Individual buildings control the environment as a group. The space between them is designed to be a sculpted volume made up of air.

Michelangelo tackles the design process of an architectural composition very much as he would approach creating a sculpture. First, there are preparatory (figure) drawings. Then, having effectively molded a composition on the page, he makes a clay or wax model in which form he continues to shape and modify. For Michelangelo, art and science are indivisible; he goes back and forth, studying the whole composition as well as every detail.

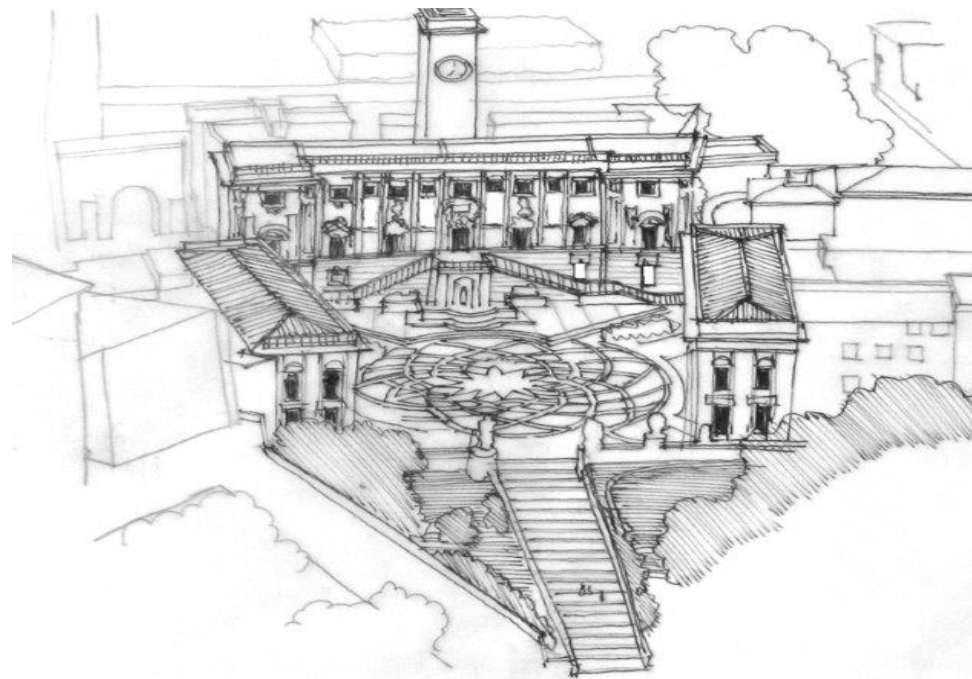
6. Michelangelo gives the world a place that simultaneously expands and contracts, a place of departure and return — the architect maintains a child-like sense of wonder by exploring continuously.

A playful, naïve approach allows Michelangelo to make unprecedented, original connections; he aspires to give the world an urban enclosure where every part of the universe is concentrated in a single point. By organizing the space with an oval that combines in one form both centrality and axuality, he conceives of a place of both departure and return. Even the pavement design, an interlaced twelve-pointed star, is intended to make a subtle reference to the constellations revolving around this exact location called the umbilicus or Caput Mundi, the “head of the world.”

The Cordonata, a magnificent, upward sweeping staircase draws visitors from the bottom of the hill to the summit where the piazza emerges and expands toward the Forum. They can't help but feel undeniable magnetism, enveloped by this trapezoidal “room” of three walls and an opening that spills into the city. Yes, it is that persuasive!

What's the lesson here?

Fascinating. I managed to apply the aforementioned criteria to Michelangelo's masterpiece. What's next? I can begin to realize that it's all in my head and that to gain confidence in my own process, I have to think across boundaries, to override habitual and superficial. Who knows... Perceiving something from a unique perspective can lead to unexpected awareness that in turn gives me the flexibility to relate unrelated. Going back and forth from big picture to small detail and realizing the interconnectedness of everything encountered as if it were one indivisible living system, I can be inclined to solve problems by finding metaphors everywhere. In pursuit of beauty and truth, compelled to practice whole-brain thinking (using logic and imagination), I can embrace the value of continuous learning, thereby harnessing my child-like sense of wonder. Content, even delighted to take baby steps my architect within can persuasively say: *“I will continue working on something of consequence — block by block.”*



Parti Diagram

PARTI DIAGRAM is your parti expressed graphically with a basic pictogram. It is the most primitive and legible way of communicating the essence of your project. The trick is to make it clear at a glance, with no explanation necessary.



VOCABULARY

- + DIAGRAM - a symbolic (not representational) drawing intended to demonstrate or explain something or clarify the relationship existing between the parts of the whole
- + INNOVATION - a creation of a new device or process resulting from study and experimentation

SUGGESTED SUPPLIES

- + Sketchbook
- + Color markers and/or pencils, highlighters
- + 6" x 6" card

RECOMMENDED READING

- + *100 Diagrams that Changed the World*
by Scott Christianson

PROCESS

+ The word that you conjured up is your first glimpse into what is about to unfold. It is really important to understand it thoroughly and completely. In order to do that — draw it!

+ Draw it in such a way that it is absolutely clear — there shouldn't be anything ambiguous about it. If you were to show it to a child or a random person on the street, they would be able to know what it is without a word of explanation.

+ Start sketching. Let's say your part is **INTERTWINED**. How do you communicate that with basic graphic elements?

+ Try many ways. Make it as graphic (clearly visible from far away) as possible.

+ It will take some effort, but you can do it.

+ Draw your final version on a 6" x 6" card.

WORD OF ADVICE

If you feel stuck, and a nagging voice inside starts wining: "Maybe I am not meant to be an architect..." Don't give in. There is no need to compare yourself to others. You are doing fine. It will come once you stop resisting. Continue.

GRAPHIC ELEMENTS

geometric shapes



organic shapes



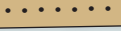
arrows



dashed lines



dotted lines



squiggly lines



solid lines



heavy lines



thin lines



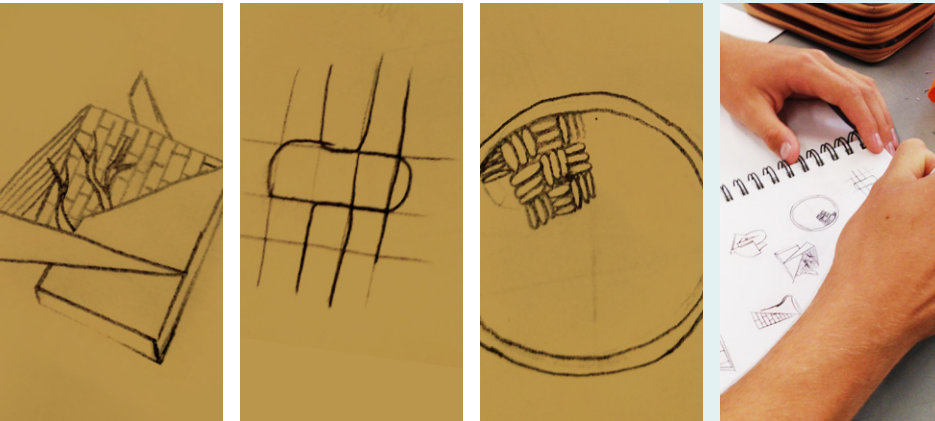
radiating lines



intersecting lines



Fourth step helps you chart the direction of your project by focusing purely on the main bold idea and representing it visually. It allows you to challenge your habitual thinking — you are looking at something through a new lens. Now is the time for revelations, for a chance to strip it all down. **Embrace your vulnerability!**



FYI For Your Inspiration™

"No stream rises higher than its source. What ever man might build could never express or reflect more than he was. He could record neither more nor less than he had learned of life when the buildings were built." — Frank Lloyd Wright

FRANK LLOYD WRIGHT'S GUGGENHEIM MUSEUM

The decisive idea behind The Guggenheim Museum is centered on an impulse to find a revolutionary way of displaying art. A flowing ramp shapes the interior space and informs the building's exterior. Every move is aimed to bolster the all-encompassing concept of merging with art, from monitoring the surge of visitors by providing the grand inclined passage, to controlling the display of a single painting by slightly tilting the wall surfaces and thus simulating a slant of an easel.

In his own words, Frank Lloyd Wright conceives the structure *"from within outward."* He envisions that a museum-goer would enter at the ground level, take an elevator to the top and begin descent on a spiraling ramp that wraps around the entire central volume. He writes: *"The building is no longer a block of building material dealt with, artistically, from the outside, the room within is the great fact about building — the room to be expressed in the exterior as space enclosed."*

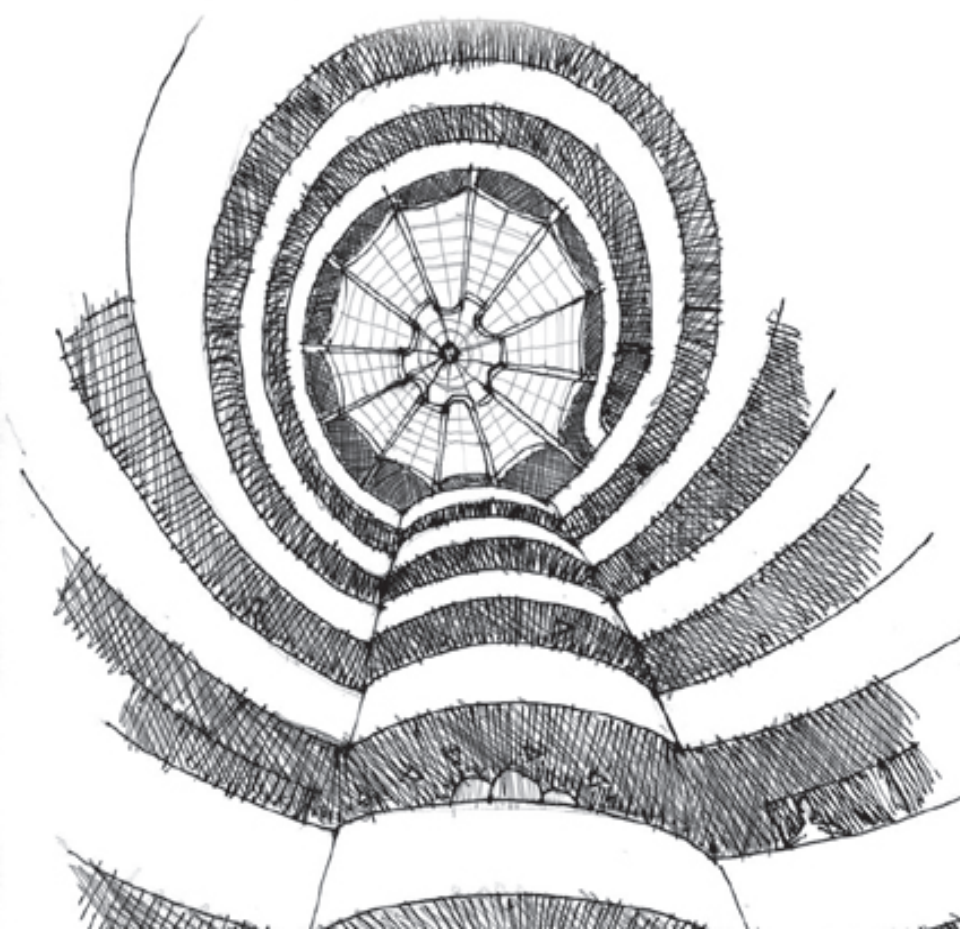
Although Solomon Guggenheim himself is supportive of Wright, he dies six years after the project is begun. Baroness Rebay, the curator of *"non-objective"* art collection to be housed in the future museum — she selected Wright as the architect in 1943 — continually expresses doubts about the building. The trustees are at odds with the idea of it. The new directorship that replaces Rebay is against it all together. During thirteen years of struggle to finalize the design before construction commences, seven complete sets of working drawings are produced.

However, despite difficulties, the architect continues to nourish his inspiration to facilitate what he thinks of as *"one of the highest experiences given to the urban modern man."*

The Guggenheim turns out to be Wright's most challenging undertaking; he does not live to see the museum open in 1959. Regardless, the architect's original concept *"... to make the building and the painting an uninterrupted, beautiful symphony such as never existed in the World of Art before,"* is — without a doubt — materialized.

What's the lesson here?

I think of the ramp as a metaphor for deliberate movement described with Wright's own words: *"Here for the first time architecture appears plastic, one floor flowing into another."* Wright's resilience motivates my architect within to produce an appropriate attitude, to usher thoughts in the direction I expect them to go: *"There is no fear of getting lost; I have a starting place and a defined path. I go and do it. I am obliged to do it, whether or not I succeed."*



3D Parti Diagram

3-D PARTI DIAGRAM is your parti expressed volumetrically with a loose massing model of the concept. You are still refraining from designing at this stage. It is still very open-ended and free-flowing — diagrammatic. The trick is to fully explore the meaning of your parti.



VOCABULARY

- + 3-D DIAGRAM - a sketch model (*not to scale*) intended to demonstrate or clarify the relationship existing between the parts of the whole, assemblage
- + BEAUTY - the aggregate of qualities that gives intense pleasure to the senses or deep satisfaction to the mind or spirit. It is due more to the harmonious relationships among the elements of a composition than to the elements themselves
- + COMPOSITION - the arranging of parts or elements into proper proportion or relation so as to form a unified whole

SUGGESTED SUPPLIES

- | | |
|----------------------------------|----------------------|
| + Hot glue gun and/or white glue | + Cutting board |
| + X-Acto knife (#11 blade) | + Cardboard base |
| + Metal straight edge | + Recycled materials |

RECOMMENDED READING

- + *The Element: How Finding Your Passion Changes Everything* by Ken Robinson, Ph.D.

PROCESS

- + Make a base (12" x12" or smaller) out of cardboard.
- + Dig into a pile of recycled materials you've assembled (see materials list) and start choosing what might work.
- + Focus on the abstract concept and how it can be translated three-dimensionally. It should be very loose and spontaneous. Pretend you are a kid building something out of blocks for fun.
- + Start gluing things together before you have worked it all out. Do not second-guess yourself. Don't worry — there is no right way of doing this and you can't go wrong. Follow the flow.
- + You are exploring and sketching. You are letting something to emerge. You are not sure of the end result — accept the anxiety of not knowing the outcome. You are just playing.
- + If there is something that you are not quite happy with, rip it out. False starts are productive — you learn. Remember, it's just a diagram!
- + The end result should be unexpected and should reveal something brand new, something you were not aware of before. Show it to somebody.

FOR EXAMPLE:

FLOW
= eliminating barriers

PARADOX
= relating unrelated

HUB
= meeting in the middle

NATURE
= bringing outdoors in

COMMUNITY
= opening a door

VERSATILITY
= anticipating variety

FUN
= creating a destination

EXPANSION
= setting up for growth

INTIMACY
= transitioning from public to private

*Fifth step helps you define your parti volumetrically — you are describing the theme of your project with space. If your parti is FAMILY and parti diagram is a pictogram of a HEARTH, then, for instance, "togetherness and comfort" can be expressed with SEATING while "warmth and softness" — with COLOR. Now is the time to go with your gut. **Immerse yourself!***



FYI For Your Inspiration™

"Design should do the same thing in everyday life that art does when encountered: amaze us, scare us or delight us, but certainly open us to new worlds within our existence."

— Aaron Betsky

ANDREA PALLADIO'S VILLA ROTUNDA

Parti: MACHINE OF THE WORLD

Echoing the Greeks, Andrea Palladio — widely considered the most influential individual in the history of Western architecture — believed architecture to be an organic metaphor of the world in all its harmony; he called it the *"machine of the world"* as he aspired to reproduce nature's structure and motion. Palladio wrote: *"...indeed, if we consider this beautiful machine of the world, ...the little temples we make, ought to resemble this very great one."*

Parti Diagram: A CIRCLE WITH FOUR ENTRY POINTS — A PERFECTLY SYMMETRICAL COMPOSITION

Villa Rotunda, unburdened by functional demands of a farm house, takes the purity of Palladio's vision to its peak. The architect employs centrality as a unifying and balancing device in his quest for most harmonious arrangement.

3-d Parti Diagram: A DOME WITH FOUR PORTICOES

To fuse all parts of the Villa into a perfectly refined whole, Palladio wraps the domed central space with identical terraces facing in four directions. Philosophically, the building becomes the extension of the countryside.

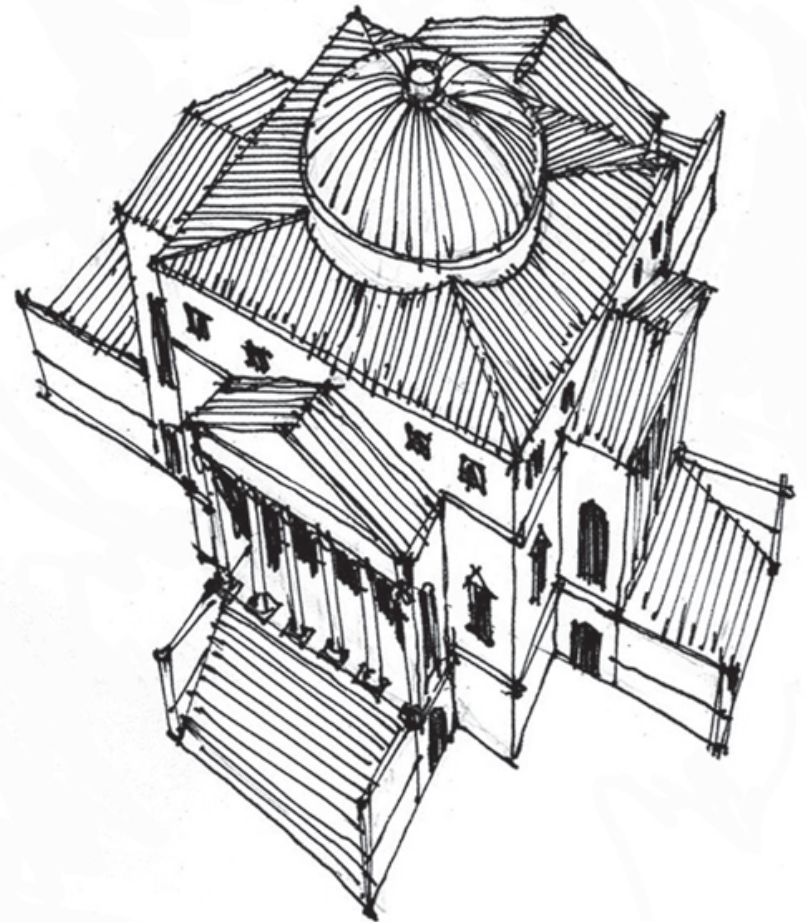
Actual Building:

Palladio attempts to do away with front or back and to merge four distinct sides of the building into one uninterrupted experience, but realizes that it could only be achieved in theory. As human beings, we are not capable of gazing in four different directions at once. Furthermore, it is not possible to make all four facades identical, as prescribed by the *"ideal"* plan, based on the fact that each projecting facet of the structure is built with slightly different conditions of terrain. Necessary modifications in the frontal planes, in the width of steps and retaining walls have

to accommodate varying context. Thus, although completely congruent in appearance, each surface of the perimeter has to be addressed individually.

What's the lesson here?

My architect within can't determine ahead of time the exact course for me to embark on. The only way I am able to discover if I am making progress toward a set goal is by going ahead. I have to be able to divorce myself from a simplified diagram sooner or later. I have to take the next step. I can achieve the ideal in reality not by striving for perfection, but by being flexible and working with real conditions at hand. Instead of fear, which translates into avoidance, I can decide to approach things with curiosity, to trust my gut. I can decide not to kick and punish myself in case the course I choose ends up nowhere and say: *"I can go out and try it. And learn from my own mistakes."*



STEP .06 Program

PROGRAM is the inventory of all of your requirements. This is the time to zero in on your design objectives and to set up a framework that encompasses all of the components. You are returning to your mind map equipped with a certain knowledge that allows you to organize it. The trick is to be very clear and specific.

VOCABULARY

- + PROGRAM - a statement setting forth the context, conditions, requirements, and objectives of a design project
- + SPACE - the three-dimensional field in which objects and events occur and have relative position and direction; it has a defined shape and a sense of boundary
- + SPACE PLANNING - organizing objects or spaces to accommodate functional requirements

SUGGESTED SUPPLIES

- + Sketchbook
- + Color markers and/or pencils, highlighters

RECOMMENDED READING

- + *A Pattern Language*
by Christopher Alexander



PROCESS

- + Study your original mind map.
- + Make a new one adding what you have discovered throughout the diagramming process.
- + Organize elements from the standpoint of distinct spaces to accommodate activities you listed in the original mind map.
- + Account for future needs, not yet anticipated.
- + Consider the over-all order while marrying function with a particular space — from public to private.
- + You are not laying anything out yet, just making an inventory.
- + Do not get hung up on how you are going to achieve what you want. List it all.
- + As you are enumerating and itemizing, keep in mind your parti. Let's say your parti is LIGHT, think of the ways to incorporate light throughout.
- + Give it some time. Don't try to finish it in one sitting. Make it as detailed as you possibly can!
- + Meditate on it. Reflect.

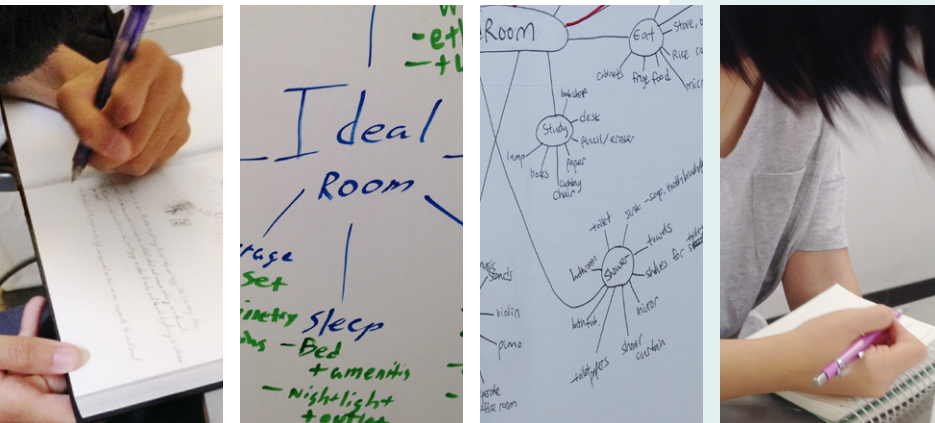
FOR EXAMPLE:



8 WAYS TO BRING LIGHT IN

- + windows on at least two walls of each room
- + skylights / high ceiling
- + low partitions instead of walls
- + openings in interior walls
- + mirrors reflecting pools of light
- + no dark or heavy colors / warm colors
- + staircase as a light well
- + doors with glass

*Sixth step helps you articulate exactly what to plan for. You have completely understood your parti and now is the time to apply it to served and servant spaces. If your parti is FAMILY and parti diagram is a pictogram of a HEARTH, then, you might want to consider including a LIVING ROOM WITH FIREPLACE — the heart of the project — in your program. Now is the time to give your ideas a chance to incubate. **Dig deep!***



FYI For Your Inspiration™

"Every part is disposed to unite with the whole, that it may thereby escape from its incompleteness."

— Leonardo da Vinci

SALK INSTITUTE

When Dr. Jonas Salk, inventor of the polio vaccine, first comes to Kahn to discuss Salk Institute project, he speaks of it as the kind of place where Picasso could be invited to meet the scientists, verbalizing a distinct program requirement that evokes a certain quality of experience and leads an architect on a certain path of design exploration.

In the final scheme, ten towers housing two scientist's private studies each are free-standing buildings that march on either side of the central court set high on the cliffs facing the ocean. Concrete 45-degree diagonal walls in each study tower produce triangular, full-height bays with views, one

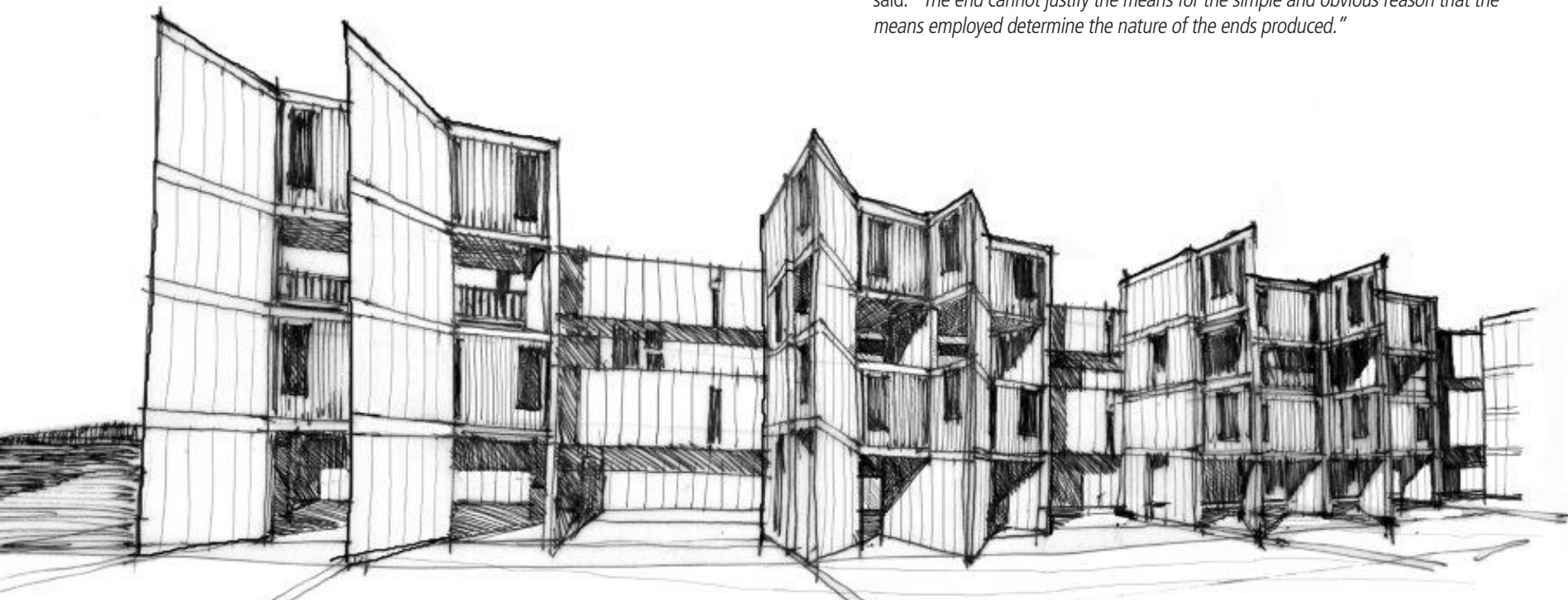
for each study. At the ground level, the walls act as an open arcade, giving shade to the stone-paved public space.

The towers and the laboratories connect at every other floor where Kahn inserts open-air balconies with views to the ocean. Each one serves as an outdoor meeting place — a middle ground convenient to both labs and studies. In keeping with the spirit of Salk's desire for fluid exchange of ideas, Kahn equips these passageways with wall-mounted slate blackboards. Furthermore, at the level of the studies, openings between concrete walls are filled with teak window panels. Each panel contains a pocket that receives three sliding fenestration components — glazing, screen, and louvered shade — preparing for every possible condition.

Interpreting the client's program, Kahn designs the towers as an *"architecture of the oak table and the rug"* and the laboratories with scientific equipment made of stainless steel are conceived as an *"architecture of air cleanliness and adjustability."* He believes that it is *"the architect's job, ...to find those spaces ...where availabilities ...can have better environments for their maturing into."*

What's the lesson here?

Salk Institute is a terrific example of how productive and meaningful activity can be programmed for. Truly understanding/programming for what my requirements are and how they might evolve over time will yield better outcome. Aldous Huxley said: *"The end cannot justify the means for the simple and obvious reason that the means employed determine the nature of the ends produced."*



Human Scale

HUMAN SCALE is something to be aware of. It has to do with relating physical dimensions of your body to the environment. Whatever you are designing will only feel right if it is compatible with the human proportions. The trick is to grasp it fully as you are drawing to scale — creating drawings that are reduced or scaled accordingly in order to fit on a reasonable piece of paper.

VOCABULARY

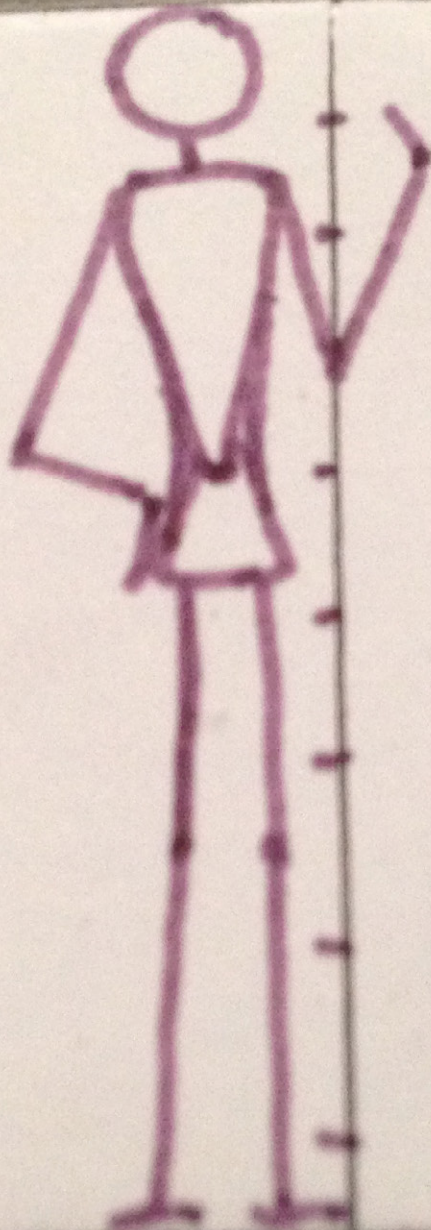
- + PROPORTION - relative size or extent
- + SCALE - a certain proportional size or extent usually judged in relation to some standard or point of reference
- + HUMAN SCALE - relative to dimensions of the human body

SUGGESTED SUPPLIES

- + Architect's scale
- + Color markers and/or pencils
- + 2" x 2" cardboard or foamboard

RECOMMENDED READING

- + *Powers of Ten A Flipbook*
by Charles and Ray Eames
- + *Gulliver's Travels*
by Jonathan Swift



PROCESS

+ To create an accurate drawing of yourself at $\frac{1}{4}" = 1'-0"$ Use an architect's scale - a specialized ruler designed to allow for large areas to conveniently fit on a reasonable size of paper; it may be flat, with 4 scales or have a symmetric 3-lobed cross-section, with 6 scales.

+ Select $\frac{1}{4}"$ scale on the ruler. $\frac{1}{4}$ on the ruler is, in fact, a scale that converts $\frac{1}{4}$ inch on the drawing to one foot. Be careful when selecting the scale on the ruler, there are two scales on each edge. One scale reads left to right and the other right to left.

+ Draw a line close to one of the edges of your 2" x 2" piece of cardboard or foamboard — this line will be an imaginary ground plane. Line up the zero mark on the scale selected with it, then determine at what point on the scale your height is. Find the number 5 or 6 (depending on your height in feet) on the scale first. Make a mark on the cardboard.

+ To add exact number of inches, go back to the zero end of the scale. Take the reading from this part of the scale (before zero) and add this number to the whole feet you marked earlier.

+ Draw a stick figure or take the time to draw a front view of yourself full-height.

+ Cut your drawing out. Now you can relate everything you will be designing to a model of you at $\frac{1}{4}" = 1'-0"$

MEASURING IMPLEMENTS:

yardstick

protractor

laser level

T-square

architect's scale

straightedge

ruler

compass

measuring tape

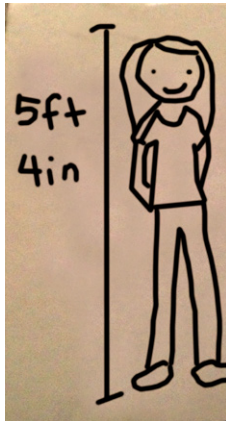
BY THE WAY

+ To be usable, steps, doorways, railings, work surfaces, seating, shelves, and other features have to be designed to correspond to your size and sensory capabilities.

+ Human scale is reflected in many older systems of measurement when units were based directly on the dimensions of the body, such as the foot.

+ Conventions of human scale can be violated to achieve a monumental or aesthetic effect; however, that should be done deliberately.

*Seventh step helps you understand how big all of the components ought to be. You are getting ready to create architectural scaled drawings and need to be aware of certain conventions based on size, purpose and function as they relate to human dimensions. You have programmed and generated a list of all the spaces you need. Now is the time to focus on physical measurements. **Make it personal!***



FYI For Your Inspiration™

"Always design a thing by considering it in its next larger context—a chair in a room, a room in a house, a house in an environment, an environment in a city plan." — Eliel Saarinen

ANCIENT GREEK CITY OF MILETUS

The invention of formal city planning is attributed to Hippodamus (or Hippodamos) of Miletus (c. 498 — c. 408 BC), an ancient Greek architect, physician, mathematician, meteorologist and philosopher. His orthogonal plans of Greek cities, such as Olynthus, Priene and Miletus, are characterized by organizing intelligence. For the first time, functional freedom within a rigid framework of intersecting streets forming quadrilateral city blocks is planned in advance.

Miletus, first settled as early as the 5th millennium BC, was razed following a Persian victory at the naval battle off the island of Lade (now a hill 4 kilometers from the city), and is rebuilt according to a plan designed by Hippodamus. The buildings and the streets of Miletus are arranged in such a way that the winds from the mountains and the sea close to Miletus could optimally flow through the city and provide cooling breezes during hot summer months. Furthermore, the houses are oriented to make use of the sun during winter, while obscuring its rays during summer.

Several writings attributed to Hippodamus, the originator of the idea that a town plan might formally embody and clarify a rational social order, deal with issues of the state. Most visionary in his plan is a wide central area, which is to be kept unsettled. He predicts that in time it will evolve into the center of both the city and the society. Subsequently, the open space serves as an assembly area and a backdrop for commercial, civic, social and religious activities.

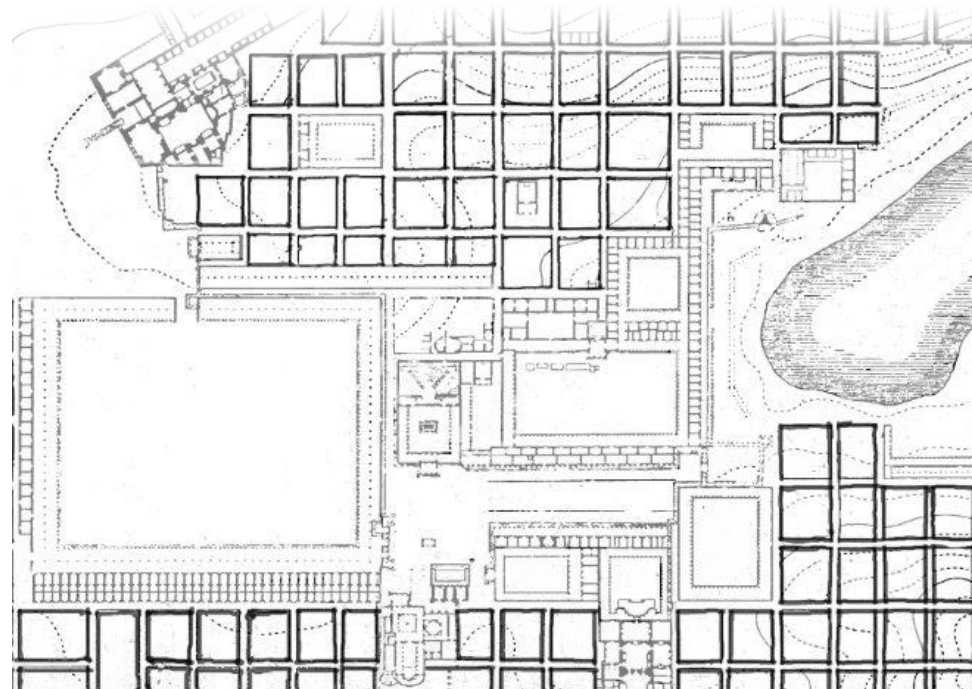
Hippodamus does not dictate the final outcome; he simply offers a method of thriving within boundaries. According to Aristotle (*Politics*), Hippodamus devises an ideal city plan for 50,000 inhabitants. As he studies the functional problems of cities and links them to the state administration system, he arrives at a practical tool, which makes planning and building of new colonies easier. Hippodamus discovers a workable approach to manipulating vast open space with a neutral

framework of set guidelines. He eases the task of starting anew every time by facilitating a certain place of departure.

What's the lesson here?

Is the concept of a grid relevant to my life and work? I've never been to Miletus — its ruins are located near the modern village of Balat in Avdın Province in Turkey. The grid of Manhattan, however, is very familiar. Along with its unmitigated variety, it has a certain predictability that is comforting. It can be gauged according to human scale, my own frame of reference. It lets me find my bearings. As long as I know how it works, I can dive in; there are built-in safeguards. Its constraints or fixed boundaries help tolerate uncertainty, making it easier to approach unfamiliar as an adventure.

Human scale is a frame of reference that can be used when contemplating variances in the process of synthesizing unfamiliar components. Indeed, the only way I can get a glimpse of something very complex is by breaking it down into most basic, recognizable units. By deconstructing what I do not understand, I can measure it. I love what Antoine de Saint-Exupéry said: *"A rock pile ceases to be a rock pile the moment a single man contemplates it, bearing within him the image of a cathedral."*



Scaled Drawings

SCALED DRAWINGS (plans, sections, elevations) are a conventional and systematic representation of your design in a way that others can understand. Drawn in proportion to actual size, they should be treated as integral parts of one coherent composition. The trick is to work simultaneously in plan, section and elevation — constantly going back and forth from familiar to fresh — shifting, tweaking and refining.

VOCABULARY

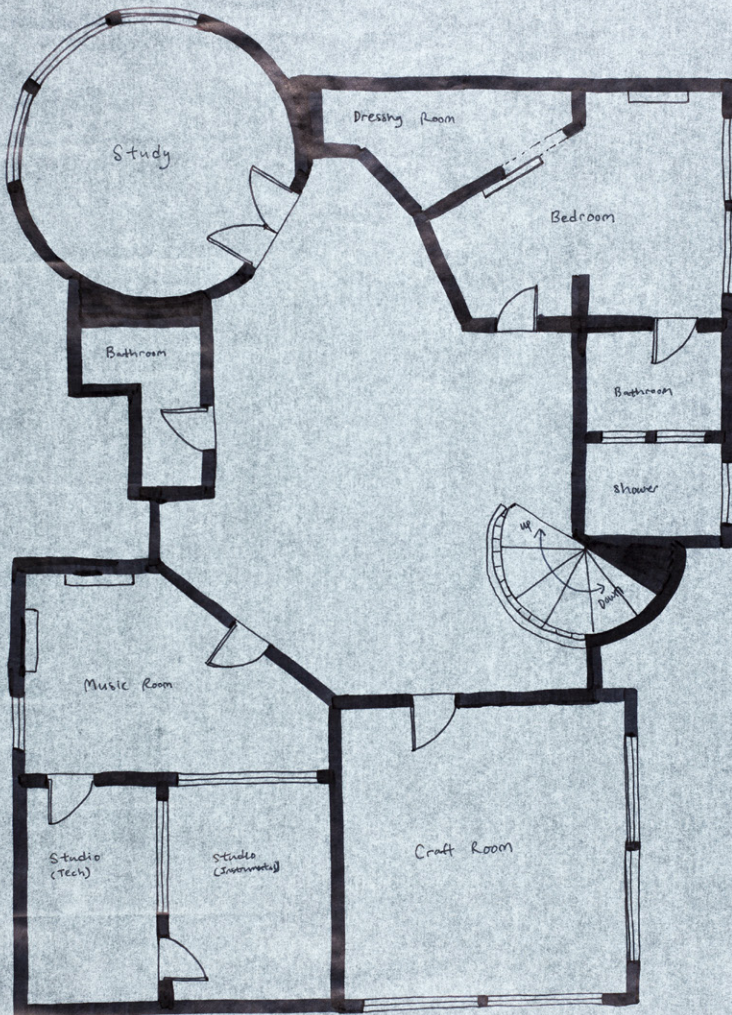
- + BALANCE - the pleasing or harmonious arrangement of elements in a design composition
- + DESIGN PROCESS - a purposeful activity aimed at devising a plan for changing an existing situation into a future preferred state
- + HOMOGENEOUS - uniform in structure throughout or composed of parts that are all of the same nature or kind

SUGGESTED SUPPLIES

- | | |
|---------------------------------|-------------------------|
| + Tracing paper in a roll (12") | + Pentel sign pens |
| + T-square | + Pilot fineliners |
| + Architect's scale | + Tape or drafting dots |
| + Lead holders with lead | + Measuring tape |

RECOMMENDED READING

- + *Architecture: Form, Space, and Order*
by Francis D.K. Ching



PROCESS

- + Begin with a floor plan. Use $\frac{1}{4}" = 1'0"$ as your scale.
- + Add wall thickness for both exterior and interior walls.
- + Draw wall openings such as windows and doors.
- + Locate stairs. Keep in mind that you need 11" in plan to go up 7" (see reference guide).
- + Locate and draw bathroom and kitchen fixtures (see reference guide).
- + Show scale and function by including built-in elements, such as counters, sinks, etc.
- + The way you move from room to room requires careful consideration. Create passages that are welcoming. Breathe life into circulation that ties spaces together. Avoid long hallways by connecting individual rooms with common spaces. Create points to walk towards.
- + Mentally walk through the spaces you are designing. Be mindful of barriers you might be creating.
- + Relate first and second levels to each other by overlaying drawings. Treat a staircase as an architectural feature. Place it in the key position.

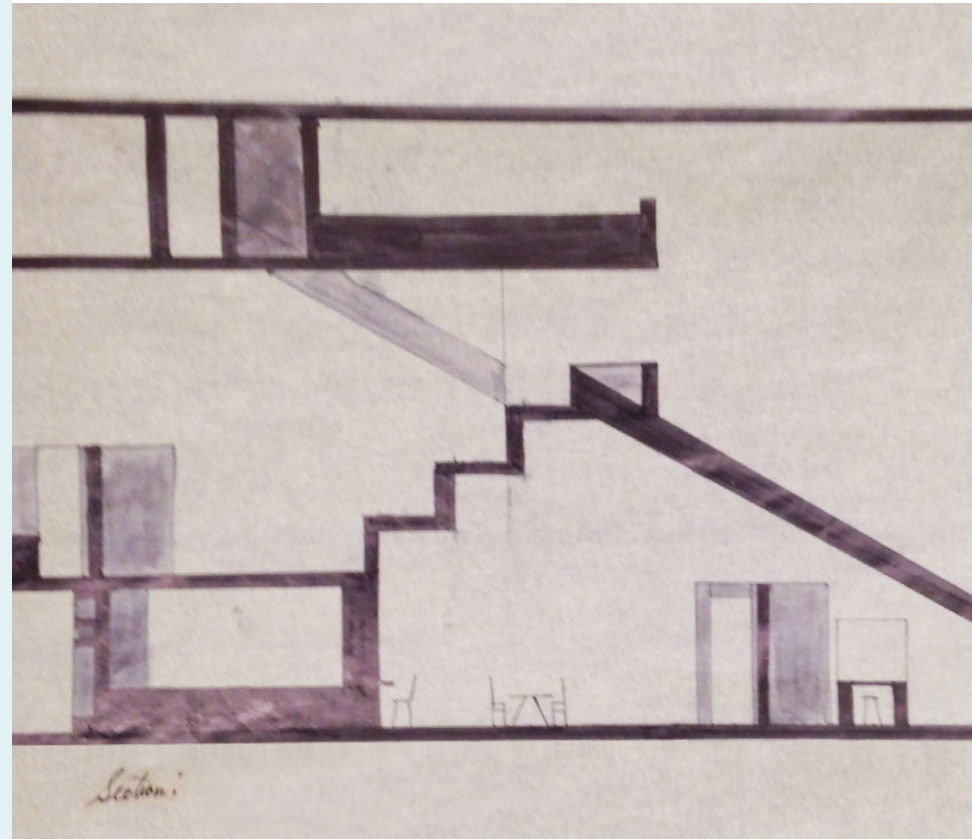
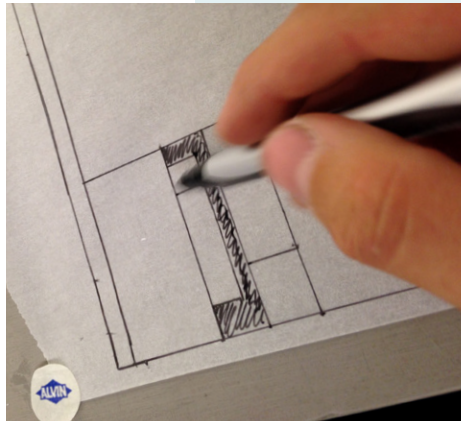
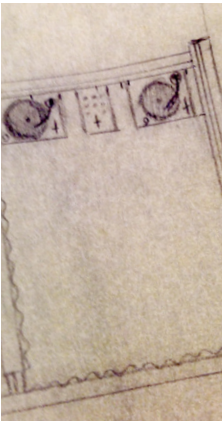
CONSIDERATIONS:

entrance
flow through rooms
children's realm
short passages
sequence of spaces
following the sun:
morning, afternoon,
evening
cluster of spaces
view
contained corners
formal
center of gravity
transition spaces
informal
parent's realm
shared realm

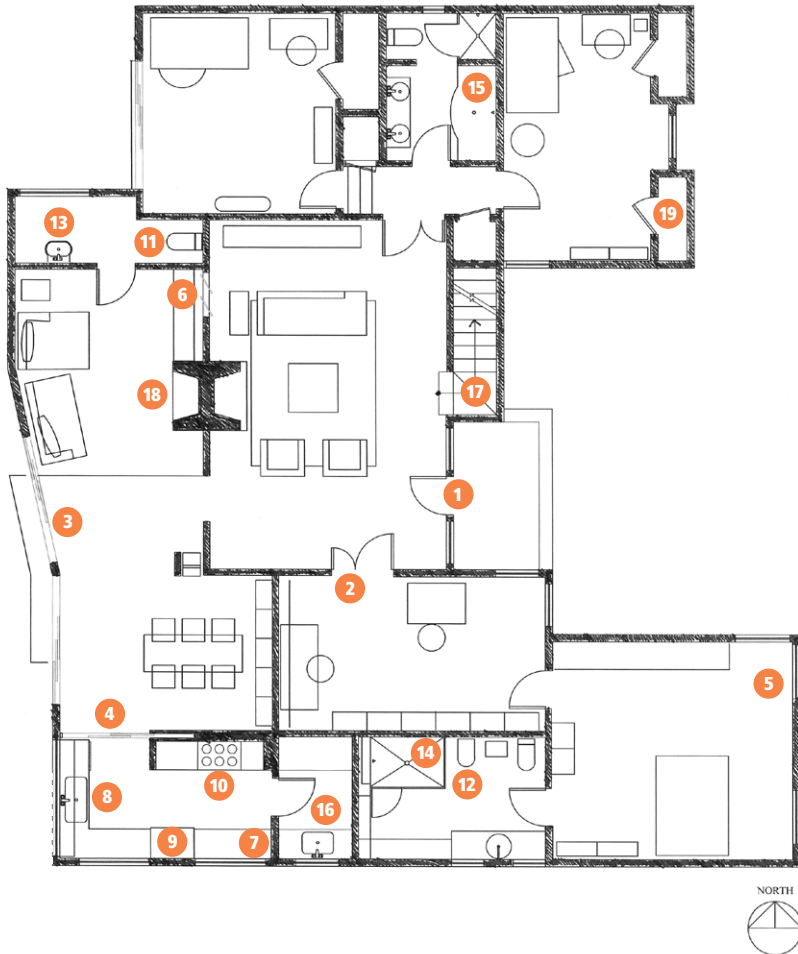
WORD OF ADVICE

- + You are quick to draw what's familiar. However, it's time to step back and think across boundaries. What about the entry sequence and how it relates to the rest of the layout? What about service and served spaces: kitchen and dining room or bedroom and bathroom/dressing room?
- + To establish hierarchy, one needs to devise ways of directing attention by leading from general to specific while providing order-giving clues. Be very deliberate about door locations — they are extremely important!

*Eighth step focuses on being precise while conveying the feelings you have conjured up in the previous steps. It's the time to make drawings to scale, keep geometry pure and align elements thoughtfully — you are thinking in terms of best use and efficiency. Now is the time justify every line you draw — "I like it" is not good enough of a reason. **Be deliberate!***



REFERENCE GUIDE



KEY

exterior door	1
interior door	2
sliding door	3
pocket door	4
window	5
interior window	6
kitchen counter	7
kitchen sink	8
refrigerator	9
stove	10
toilet	11
bidet	12
lavatory	13
shower	14
bathtub	15
laundry sink	16
staircase	17
fireplace	18
closet	19

- + **FLOOR PLAN** is a view from above drawn as if an imaginary horizontal plane cuts through a section being drawn so as to remove a part above the cutting plane. A plan is represented best if the horizontal cut is taken through all openings (such as doors and windows) as well as all structural elements (such as columns). When solid mass is cut through, it is shown with heavier line weight or is shaded in. Thinner lines indicate objects below the cutting plane. Dashed lines indicate objects above.
- + **REFLECTED CEILING PLAN** is the image reflected into an imaginary mirror placed on the floor plan below.
- + **ROOF PLAN** shows a roof configuration projected onto a horizontal plane.
- + **SECTION** is a side view drawn as if an imaginary vertical plane cuts through a section being drawn so as to remove a part in front of the cutting plane. It shows what happens between ground and sky — section is a vertical “cut” through a building, just like a plan is a horizontal “cut” through it. Section arrows shown in plan indicate the observer’s direction of sight.
- + **ELEVATION** is an image projected onto a vertical plane; it primarily shows vertical dimensions, materials and relationships. Any surface not parallel to the drawing plane will appear foreshortened. All parallel surfaces produce true shapes. Elevation views are identified by the compass directions (e.g. South Elevation, Northwest Elevation).

FYI For Your Inspiration™

"Design is not just what it looks like and feels like. Design is how it works." — Steve Jobs

THE CEILING OF LOUIS KAHN'S YALE UNIVERSITY ART GALLERY

The moment I enter Louis Kahn's Yale University Art Gallery, I am brought to a sudden stop by something astonishingly powerful hovering overhead. The web of the ceiling spanning the entire volume alerts, evokes awe and, finally, draws me in. I close my eyes; the depth of emotions is overwhelming. What's going on?

It's all good. I am just responding to *"architecture of mass."*

Louis Kahn chooses to expose how the building is made by intentionally leaving hollow tetrahedrons of the ceiling immediately visible. The hard-working structure is revealed and glorified. As a matter of fact, Kahn postulates that it is his moral imperative to unveil methods of construction. Convinced that carefully designed joints are the ornament, he insists that there is no need for further embellishment. Consequently, as a visitor, I am endowed with an opportunity to observe how it all comes together in the orchestrated composition. The encounter is quite stirring.

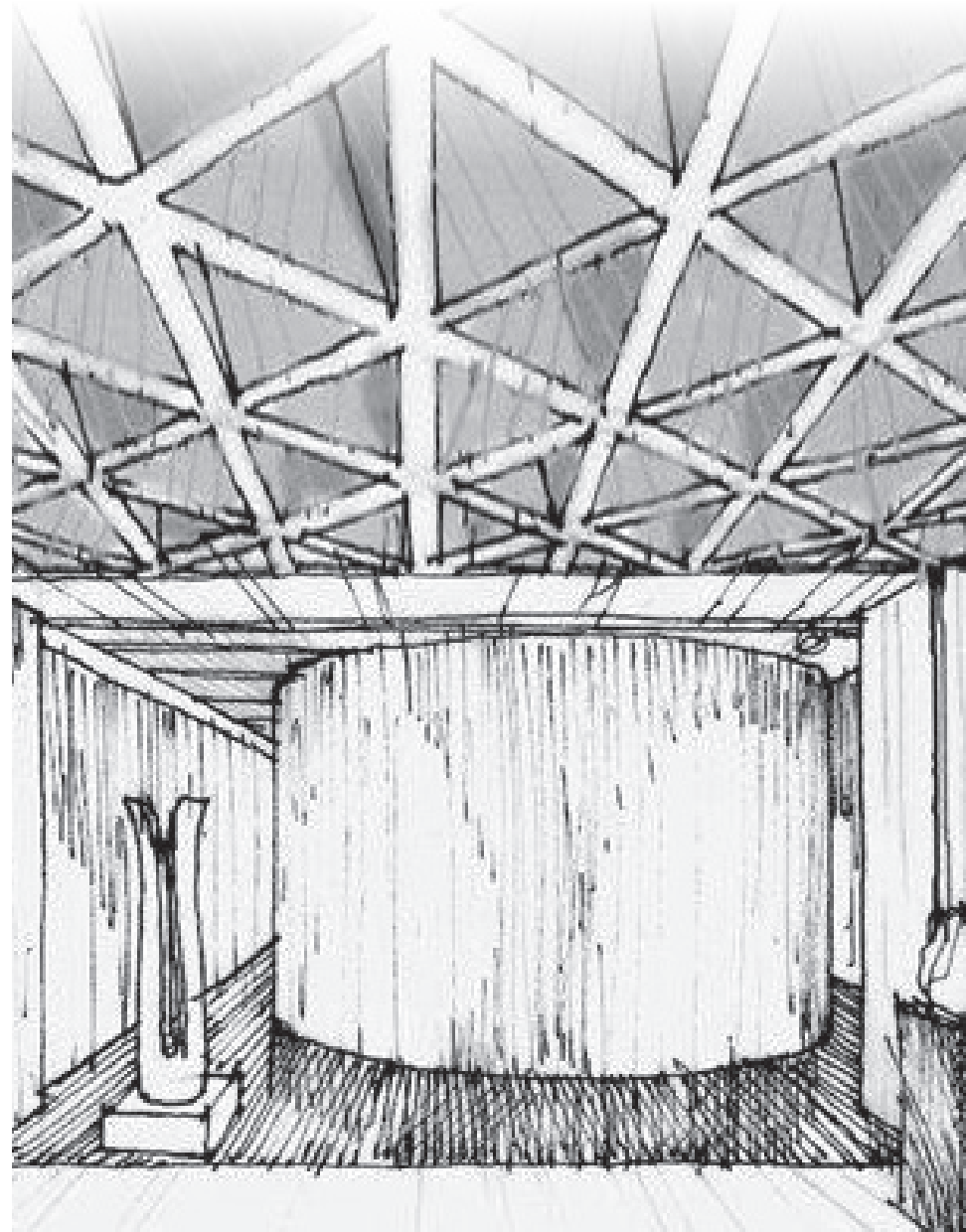
Louis Kahn breathes life into a building through the *"act of making."* Kahn's philosophical stance of meticulously narrating every single detail and relationship empowers me to be deliberate, leave nothing to chance!

In my opinion, Kahn's sensitivity and commitment to the way structural components come together, with even mechanical needs of a building celebrated, embody true architecture. He lectures that it is *"intolerable"* to bury *"tortured ducts, conduits and pipelines."* As the integral parts of the organism they deserve recognition and their own well-engineered service zones.

What's the lesson here?

My architect within takes Kahn's approach to heart. While working on floor plans, I keep the structure in the foreground, organizing served and service spaces. I make sure that every move is inherently logical. Lofty ideas and aspirations call for appropriately expansive and well-lit volumes. Main rooms have to be offset by smaller ones for contrast, variety and impact. Mechanical needs of a building

cannot be ignored. Lighting plans cannot be left to chance. I sketch and muse, marveling at how awesome it is to be immersed in this process of thinking by drawing and say: *"I have to be able to go back and forth, considering both big picture and very small details."*



STEP .09 Model

MODEL is a tool used to test your design ideas three-dimensionally. Built to the same scale as your scaled drawings, it should be treated as an integral part in the process of distilling relationships between various elements. The trick is to let it help you order space with structure.

VOCABULARY

- + STRUCTURE - the organization of elements or parts in a complex system as dominated by the general character of the whole
- + ACCESSIBLE - barrier-free

SUGGESTED SUPPLIES

- + 3/16" white foamboard 20"x30"
- + Hot glue gun and/or white glue
- + X-Acto knife (#11 blade)
- + Metal straight edge
- + Architect's scale
- + Cutting board
- + Cardboard base

RECOMMENDED READING

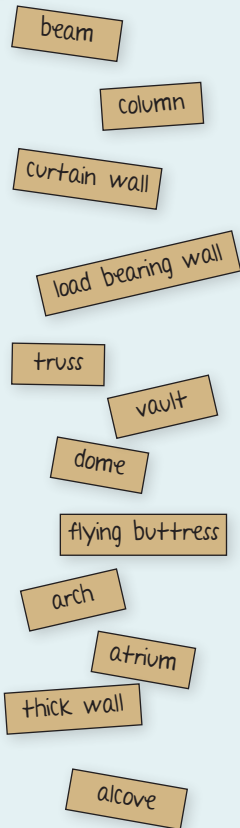
- + *Building Construction Illustrated*
by Francis D.K. Ching



PROCESS

- + Get a piece of cardboard big enough for a base. Use foamboard to make walls — at $\frac{1}{4}$ " scale it's just the right thickness.
- + Study how the space feels in a model form.
- + Columns define space and should be treated as special elements making a statement.
- + Doors and windows are openings in the wall membrane; protect them from rapture by having enough wall surface all around.
- + Manipulate the ground plane to delineate separate areas by defining space with steps or various flooring materials, not necessarily just walls.
- + Play with the ceiling plane. Adjust ceiling height in rooms that are not intended for large gatherings.
- + Create alcoves for seating with low ceiling for contrast.
- + Consider the quality of spaces: your piano room, foyer and a place to sit in front of the fireplace.
- + Test how much space a staircase requires. Every staircase occupies a two-story volume; it must form a complete structural bay.

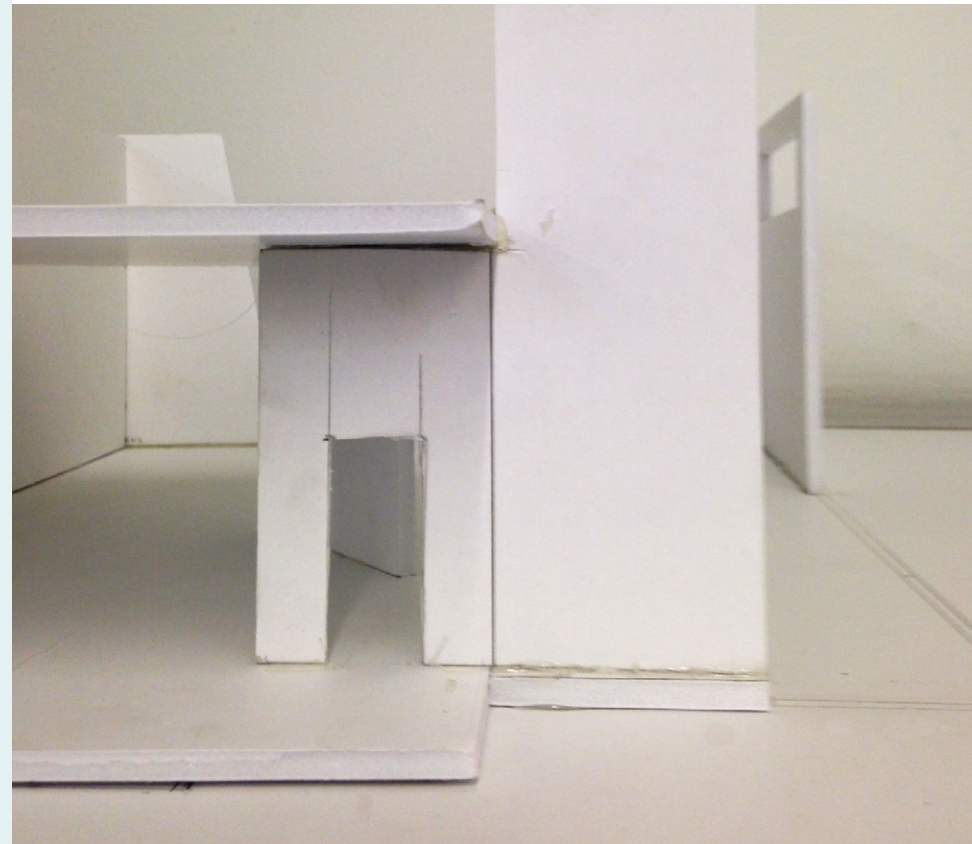
STRUCTURAL ELEMENTS:



WORD OF ADVICE

- + Maintain sight of the starting point, your parti. Go back, if you need to — it wouldn't be going back to square one — you know so much more than when you started! If it's getting too complex — simplify, distill and compress. At this stage of the design process, it's OK to be sloppy and rip things apart.
- + Do not get bogged down with functional considerations. The challenge is not to compromise, not to abandon initial clarity and simplicity.

*Ninth step focuses on the quality of experience as well as structural implications — how what you are designing will stand up if it's mainly glass, for example? Sketching with models allows you to explore, try things out and learn from your mistakes — you are reconciling conflicting ideas. Now is the time to think across boundaries. **Concentrate on the process, not the end result!***



FYI For Your Inspiration™

"Architecture comes from the making of the room." — Louis Kahn

THE GREAT MOSQUE OF CORDOBA

Testing ideas with models is a must. A plan helps me get started — a model lets me evaluate it. The Great Mosque of Cordoba strategically treating a functional post as an essential design ingredient that can be multiplied at will and in any desired direction allowing uninhibited progress is an inspiration.

The Great Mosque of Cordoba, Spain is most renowned for its abundance of over 856 (of an original 1,293) columns of jasper, onyx, marble, and granite. They are made from pieces of Roman temples that originally occupied the site and the vicinity. If the pillar was too long, it was sunk into the ground and reshaped to fit in with the others. The result is a mysterious space with rows after rows of columns often described as a "forest of stone."

The construction of the Great Mosque of Cordoba, or the Mezquita begins in eighth century A.D. when a Christian Visigoth church is refashioned as a mosque under the supervision of the emir Abd ar-Rahman I, who uses it as an adjunct to his palace. Under Abd ar-Rahman II, it holds an original copy of the Quran and an arm bone of the prophet Mohammed, making it a major Muslim pilgrimage sight.

The Mezquita stands as a record of frequent invasions — each conqueror wants to leave his own mark on the architecture. However, prolific augmentation by the efforts of various rulers is accomplished quite seamlessly. Numerous alterations are made possible with the help of the individual load-bearing element, which could be added or subtracted at will, subdividing the enormous complex into small demarcated parts with relentless flexibility.

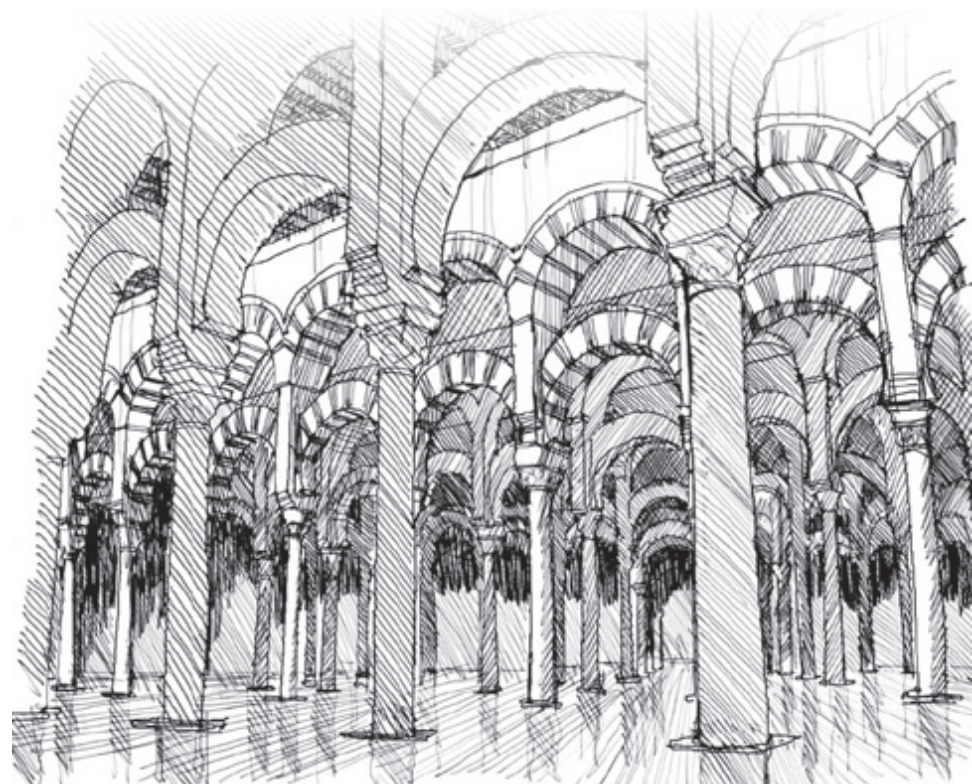
What's the lesson here?

In fact, this fascinating building can be thought of as a metaphor for resilience. I can learn from it. According to John Homer Miller, *"Your living is determined not so much by what life brings to you as by the attitude you bring to life; not so much by what happens to you as by the way your mind looks at what happens."*

My architect within can design an appropriately flexible system that monitors and modifies my perception on the path toward the project I have mind-mapped, collaged and diagrammed. A single column of the Mezquita supports, embellishes and organizes — what an image to uphold while rapidly prototyping! Indeed, it bolsters my sense of self-reliance.

But it's not just me. One of my students wrote: *"It was during the middle of the summer, I tried finishing up my floor plans when you instructed us to start working on our models. I was astonished; I didn't think I'd be able to construct a model with unfinished floor plans. Nevertheless, I had to proceed with the model, with old floor plans. I constructed a first model and I grew frustrated with its general appearance and I felt that I wasn't going to be able to pull it off. As I questioned my model and concept, you approached me in class. I expressed my concerns to you and you helped me rework my concept. You suggested that the house have different ceiling levels and spaces.*

I was amazed; I thought a space could only be ECLECTIC (my parti) with furniture or décor (which is what I was planning to include), but I was so wrong. My parti had a completely different meaning to me now, and I was inspired to add more onto the model. I restarted it and applied all the concepts into the model, without a solid floor plan too, I just worked off of the concepts in my head. I was thrilled with the end result and learned not be afraid to take risks with ideas and just do it."



STEP .10

Exterior



EXTERIOR elevations are the building's facades or perimeter; they are views identified by the compass directions (e.g. North, South). Elevations show the relationship of a building's mass to the ground plane as well as its scale and exterior materials. The trick is to treat elevations as compositions of windows, entrances, open stairs and rooflines, aiming to tell a coherent story of synthesized components.

VOCABULARY

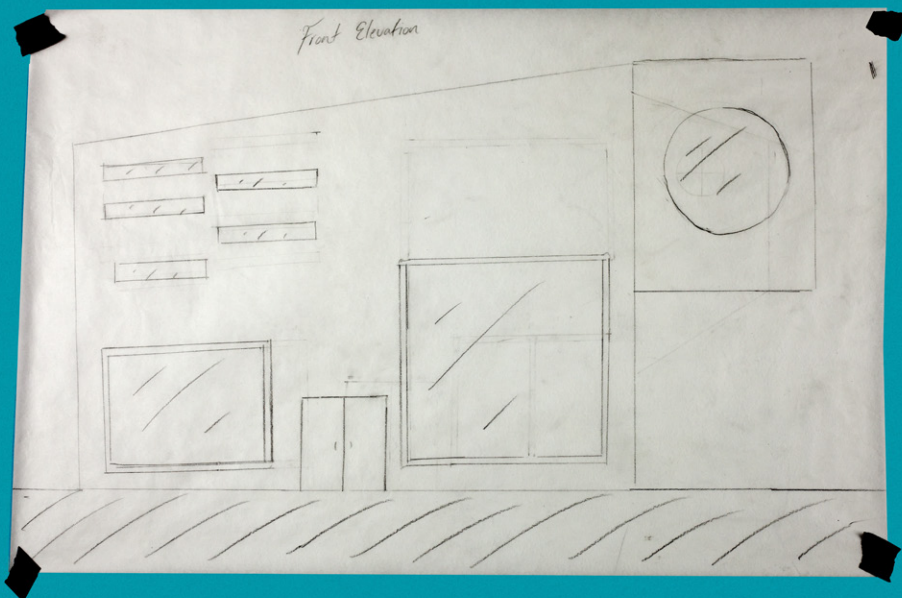
- + ORDER - a condition of logical, harmonious, or comprehensible arrangement in which each element of a group is properly disposed with reference to other elements and to its purpose
- + HIERARCHY - a system of elements ranked, classified, and organized one above another, according to importance
- + MASSING - a collection of parts of indefinite shape forming one body

SUGGESTED SUPPLIES

- + Tracing paper in a roll (12")
- + T-square
- + Architect's scale
- + Lead holders with lead
- + Pentel sign pens
- + Pilot fineliners
- + Tape or drafting dots
- + Measuring tape

RECOMMENDED READING

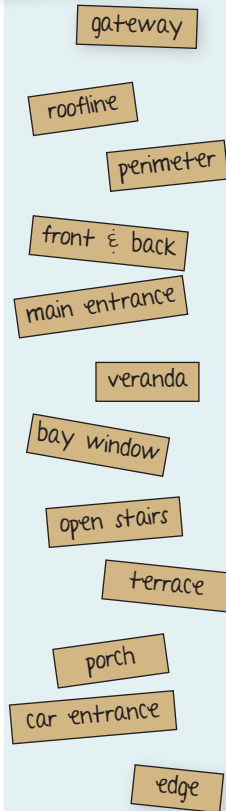
- + *Building Structures Illustrated: Patterns, Systems, and Design* by Francis D.K. Ching



PROCESS

- + When you start on elevations, find out if there is a height limit. If not, set your own height restrictions. It will probably depend on the location.
- + Organize everything around a focal point following a basic principle: visible shape/central position = main function. Contrast it with the rest by employing shape, finish and texture.
- + Anchor.
- + Give a roof a sheltering quality. Place the highest roof over the most significant area. Is it a pitched or domed? If it's flat, is there a roof garden?
- + Create a strong connection of the character inside the building and the world that belongs to everyone outside.
- + Infuse with activity by incorporating seating and trellised walkways.
- + Strike the balance between enclosure and exposure. Make it inviting.
- + Make windows to look out at something beautiful.
- + Go back to the plans as well as the model to make sure that your ideas correspond and are structurally supported.

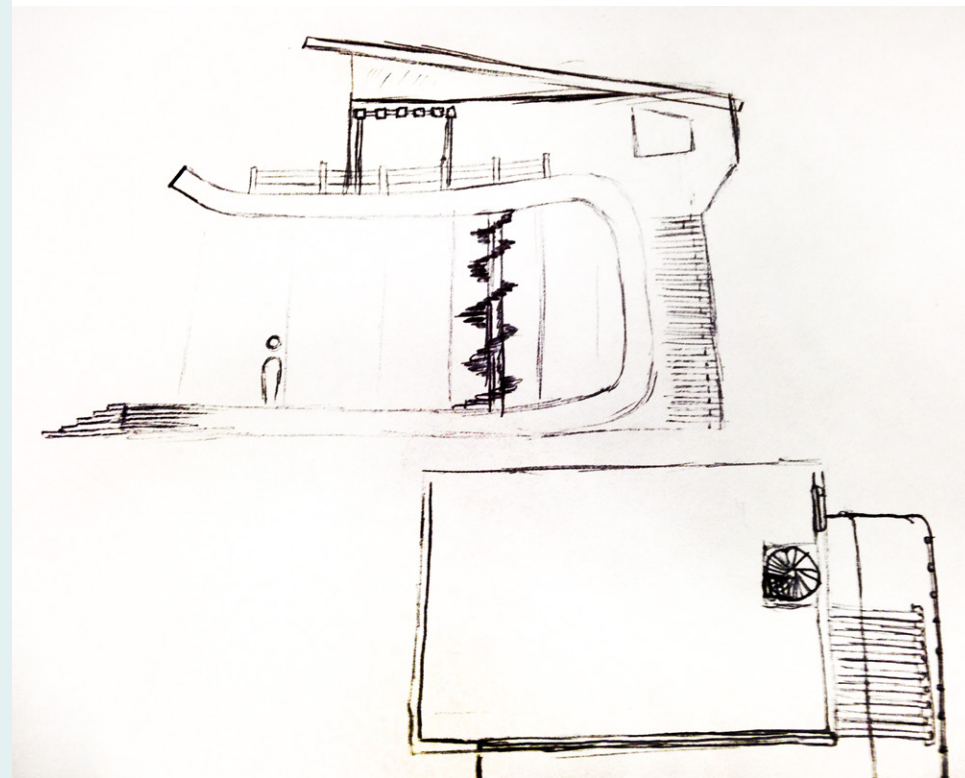
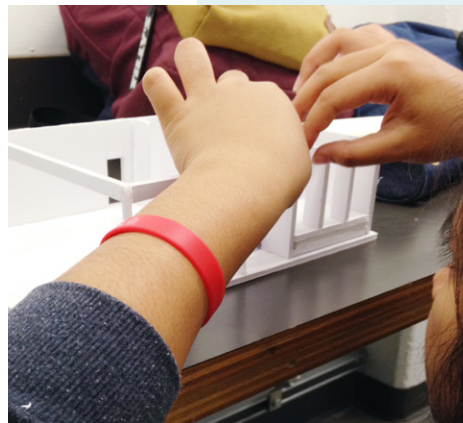
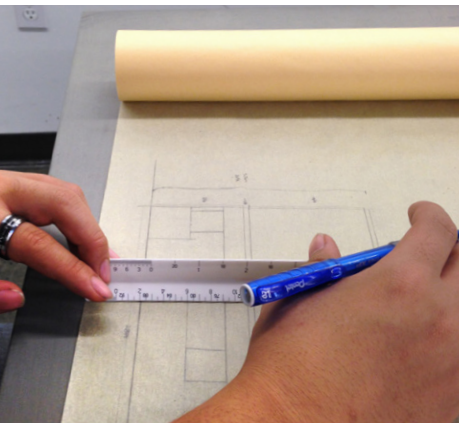
ELEMENTS:



DEFINING SPACES BY LIGHT

- + Place major rooms along the south edge of the building by stretching in the east-west direction.
- + Give bedrooms eastern exposure.
- + Flood the kitchen with morning and afternoon light by placing windows as well as the counters on the south and southeast sides of the kitchen.

*Tenth step focuses on identifying importance with size, shape and placement — people interact with buildings through their facades. Keep in mind that everything is still in flux. Do not hesitate to adjust a window or a wall placement on the floor plan in order to have a balanced design — you are considering massing as it relates to light, air and view. Now is the time to be forceful. **Move from general to specific and back!***



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"For he who would proceed aright ... should begin in youth to visit beautiful forms ... out of that he should create fair thoughts; and soon he will of himself perceive that the beauty of one form is akin to the beauty of another, and that beauty in every form is one and the same." — Plato

THE GLASS HOUSE BY PHILIP JOHNSON

Located on a 47-acre property, a simple glass box supported by slender steel I-beams, it was once one of the most famous houses in the United States. It challenged and re-defined the living environment. From the 1950's through the early 1980's, Johnson conducted regular architectural salons at the Glass House; to sit here with the architect was to enter the heart of the American cultural establishment.

Perched atop a crest, the house provides a panorama of wooded hills, rolling meadows, and a placid pond. The building makes natural landscape the most important thing about it. According to Johnson, the design is *"worked out from the landscape point of view."* He says: *"(I) take in nature, from all sides."* Hmm... Sounds familiar. Remember Villa Rotunda?

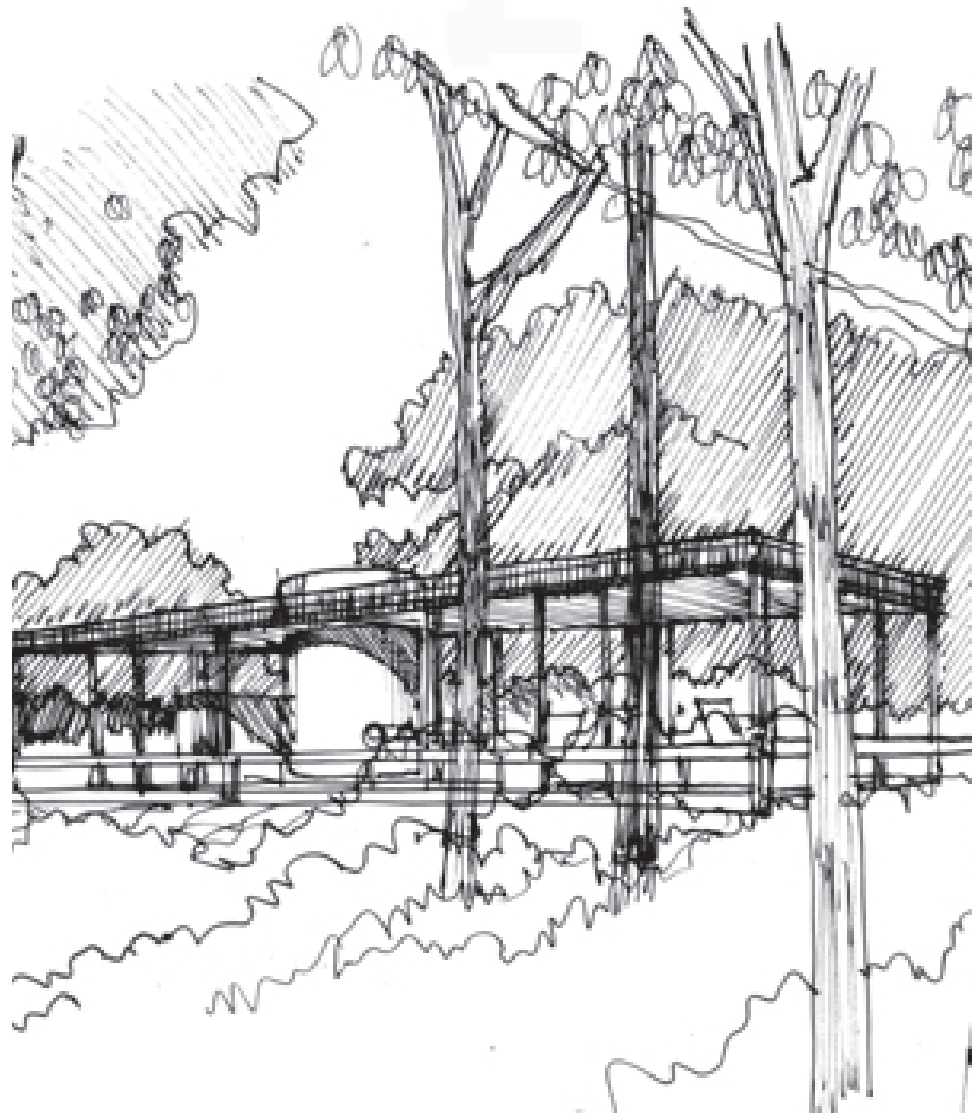
The architect devotes two full years to the design of his residence, producing 96 drawings and 27 definitive schemes. The Glass House is absorbed by the landscape but is not dissolved in it. *"Just shut up and look around,"* Johnson tells his guests who don't know what to make of its ephemeral walls. This 56-foot-by-32-foot structure is not only sleek and brittle. It's completely transparent.

What's the lesson here?

I am skeptical. Johnson had a separate pavilion built to house his bedroom. OK, practicality aside, what can I adopt from this see-through approach? I can look at the world with a fresh eye, appreciating and valuing what is around me.

My architect within can examine and eliminate barriers — whatever they are — by convincing the sabotaging voice inside, constantly nagging: *"You don't have what it takes..."* to change the attitude and ask instead: *"What are you waiting for? Hurry up! You have something important to reveal."* Opening up 100% certainly points in the direction of what needs to be stripped away.

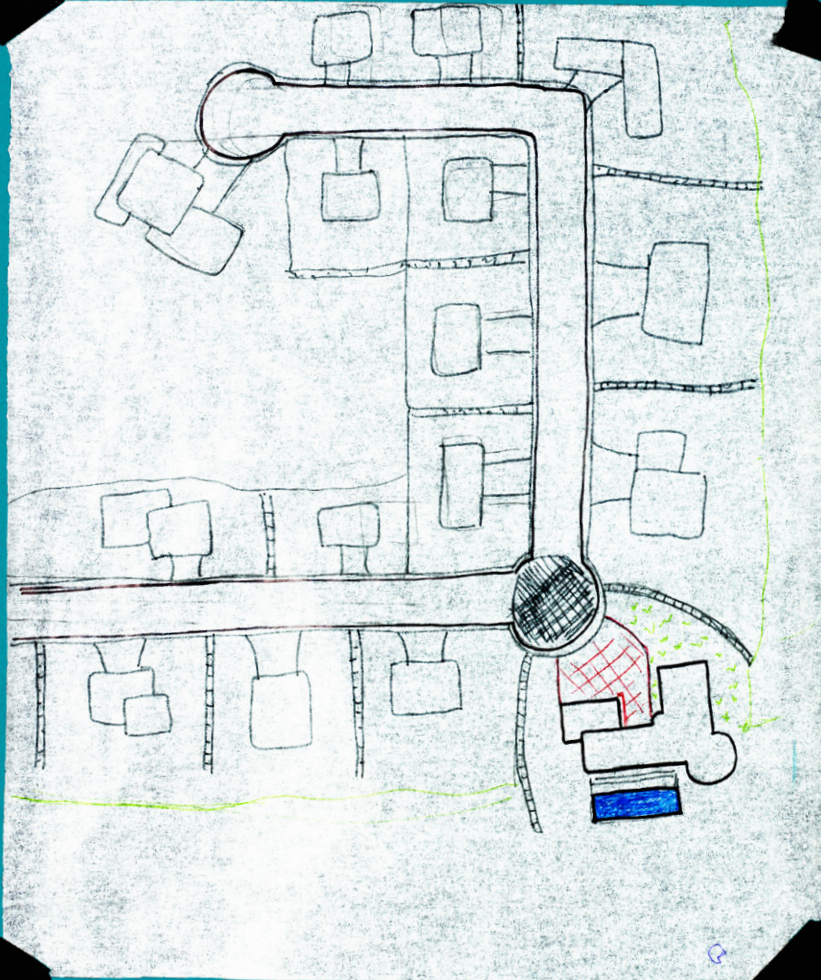
The way the Glass House both integrates with nature and preserves its autonomy might just be the inspiration I need to say: *"I will do everything in my power and more to be seen and heard."*



STEP .11

Site Plan

SITE PLAN is a drawing that defines your project's relationship to the street. It allows you to think of your project from a new point of view, not as an isolated phenomenon, but an indispensable part of a larger system — a neighborhood, a community. The trick is to think of your site as an outdoor room that requires coherence and order.



VOCABULARY

- + CONTEXT - architectural and experiential qualities of a place; conditions and circumstances that are relevant
- + SYSTEM / NETWORK - a group of interacting, interrelated, or interdependent parts forming a unified whole to serve a common purpose
- + CONTINUITY - the arrangement of the parts in a way that is logical

SUGGESTED SUPPLIES

- + A stiff board (*like foamboard*)
- + A pile of old magazines / advertising brochures
- + Scissors and/or X-Acto knife (*#11 blade*)
- + Glue stick, rubber cement and/or tape

RECOMMENDED READING

- + *Glimmer: How Design Can Transform Your Life, and Maybe Even the World*
by Warren Berger

PROCESS

- + How does your building relate to the street? Is the noise from a nearby street overwhelming?
- + Decide on what you like or want to disguise.
- + Relate to what surrounds you.
- + Create an edge that can be used; give it depth. It's a zone that has volume and acts as a buffer, a relief from noise.
- + Design carefully controlled layers of porches and terraces connecting the street with your site. Raise slightly and protect with a low wall to give it a feeling of an outdoor room.
- + Stay in touch with nature. Know your land: is it flat, undulating, steep? Is there a view?
- + Fit the land you are building on. Follow contour lines as much as possible to form terraces.

ELEMENTS:

south facing outdoors

paths discouraging traffic
(narrow and twisting)

screened cars

connection with
neighboring buildings

play space

paths connecting
activities

trellised walk / arcade

garden wall

community network

street as community

continuation of
existing patterns

trees / hedges

street as
a social space

nodes of activity

MAIN OBJECTIVES

- + Erase the boundary, make the site and the building as one whole — it should not be isolated from what surrounds it.
- + Focus on synthesizing the components, separating trivial from important, moving from existing to preferred.

*Eleventh step helps you focus on context while thinking of the site and the building as one whole. Sit at your future doorstep, watch the sun rise or set, listen to the sounds — you are deciding on what you like or want to disguise by creating carefully controlled layers of porches and terraces that connect the street with your site. Now is the time to foster growth. **Learn by doing!***



FYI For Your Inspiration™

"This is the real miracle, that all shapes, all colors, all images of every part of the universe are concentrated in a single point." — Leonardo da Vinci

GREEK TEMPLE IN THE LANDSCAPE

The Greeks turn the landscape into a dramatic stage for their sacred buildings. An ancient Greek temple is supposed to be seen and experienced from the outside, like a piece of sculpture, not an enclosure, and its surroundings are meant to complement, enhance, complete the composition. Greek temple and its site depend on each other to tell the whole story.

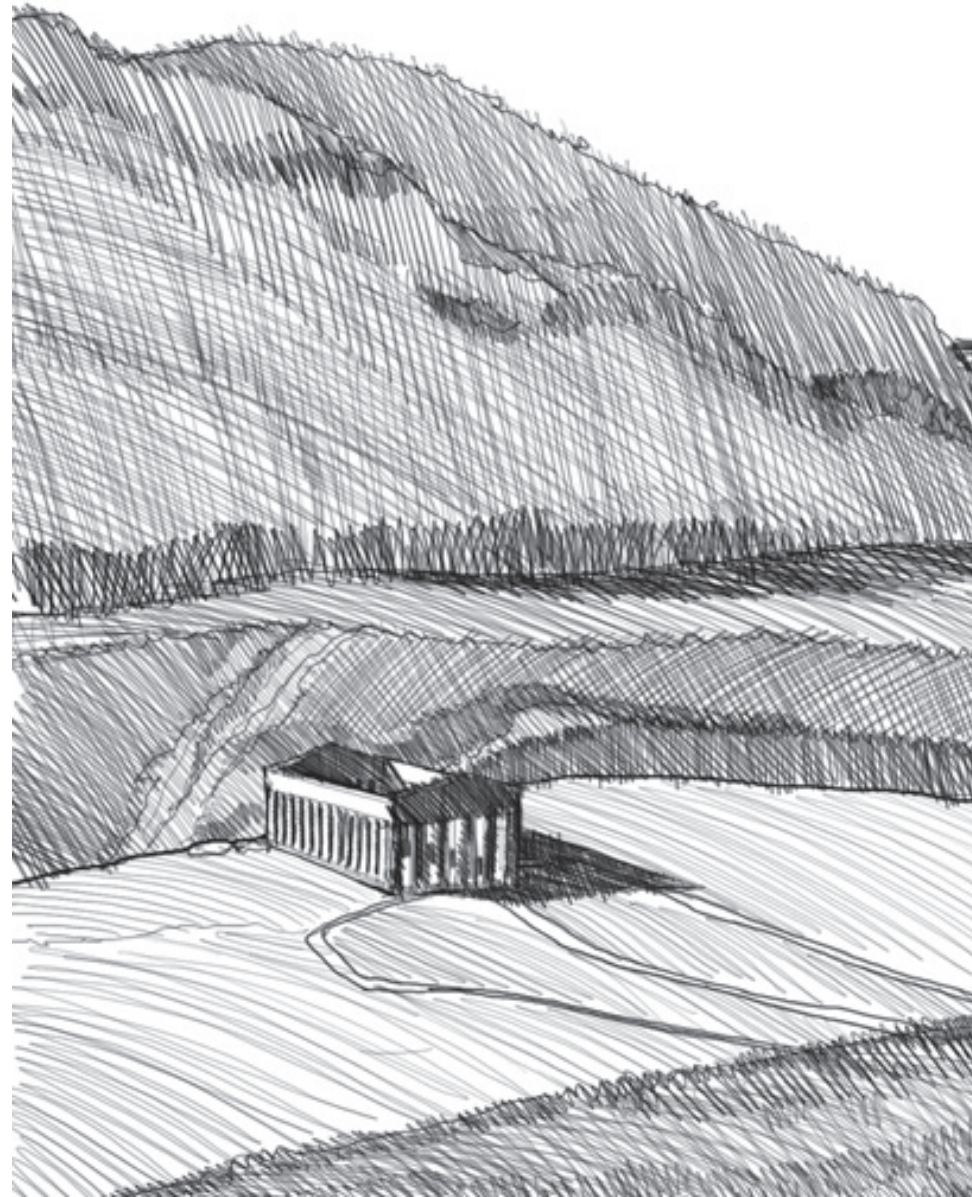
Since Greek landscape is shaped by a great variety of topographical conditions, it embodies a range of natural forces — fertile valleys are bounded by barren mountains. One place appears to offer protection and presents an advantageous location for a human settlement, while another looms as a threat. Various sites are defined by natural elements of a specific shape or function, such as horned rocks, caves or wells.

The Greeks find a way to make sense of this ever-changing context; they codify and organize their environment by attributing properties of the terrain to a particular deity. To induce order in their world, they interpret and personify landscape. They build in the middle, another words they embrace existing conditions of a site by erecting temples to gods that embody the character of the land.

Thus, places where nature is dominant are dedicated to chthonic deities Demeter and Hera, and places where man's intellect and discipline complement and oppose the chthonic forces are dedicated to Apollo. The places where life is experienced as harmonious whole are dedicated to Zeus. And places where men had come together to form a community are dedicated to Athena. Before any temple is built, open-air altars are erected in the ideal position from which the whole sacred landscape could be observed.

What's the lesson here?

The building and the environment it is in are inseparable from each other. As built forms are placed in the middle of the landscape, their positioning deliberately takes advantage of existing conditions. That it is the strategy to work with. I say: *"I will make the most of what I have by engaging all senses, paying attention, asking questions, keeping an open mind."*



CONCLUSION

About to embark on my next project, I wonder: *“Do I have in me? Can I rise to the challenge? What would compel me to stubbornly assume control? Do I have the confidence to go after the thing I want with all my might?”*

I am only human. I make mistakes. I have plenty of false starts. Just writing this down makes me anxious.

Eventually, I begin, despite uncertainty. Even if there are no guarantees, I can’t just sit around and wait for something benevolent to happen without my input. Nervous or not, wrong or right — life cannot be avoided and I might as well plan for my thoughts to support, not undermine my efforts. Engaging the architect within can help me cultivate being at ease with dubious hesitancy. And you know what, acknowledging human genius that makes great architecture possible might give me the tools necessary.

I heard a talk by Dr. Brene Brown, Ph. D., a social worker-researcher-author, exploring the meaning of vulnerability. Dr. Brown argued that it takes courage to accept ourselves for who we are, to feel compassion — not shame — for ourselves.

Do I have the courage that would permit me to shamelessly accept my inner beauty? How do I begin to cultivate this courage Dr. Brown is referring to?

Suppose I can start by bravely enduring ambiguity and diving right in, here and now — the precise moment when I can unleash my creative potential. OK. What if I play a mind game and pretend to be the architect of Rome’s Pantheon? Am I capable of designing one of the most influential ancient buildings, a philosophical summation of what a monument should entail? Could I be the one to come up with something this original? Well, you never know until you try, right?

So, in my mind, I plunge into it, creating a building that has the largest dome of unreinforced concrete in the world. I plan for the all-embracing idea and the means to express it. I tame my fear by articulating the most engagingly balanced space — forceful, uplifting and soothing at the same time. Its majestic power is derived from purity of enclosure. I calm trepidation by implementing stability and

integrity of the room — the interior houses an imaginary sphere. It is composed of two simple volumes, a cylinder below and a dome above, both of the same diameter and the same height. It suits the Pantheon magnificently! Dedicated to all gods, the structure is a physical model of eternal cosmos assertively communicated through geometric clarity of the circle that has neither beginning nor end.

Furthermore, I quell negative self-talk by employing composite materials engineered to get lighter in weight as the structure rises to the top — unity of space and form is accomplished through innovative construction. The foundations are built of heavy basalt, with walls of tufa, brick and concrete. Coffers (*sunken panels*) cleverly reduce the mass of the dome of light pumice as it gets thinner approaching the oculus (*opening at the top*).

I absorb self-doubt by positioning the oculus that gives light at the dome’s center; it is a symbolic link between the temple and the heavens. It can serve as a cooling and ventilation method as well. I flush the insecurities by installing a drainage system below ground to handle the rain that falls through the oculus during storms. And finally, in my mind’s eye I land on my feet by designing a marble floor as a gorgeous representation of vast Roman colonies, yet another element working toward the goal of showcasing the all-inclusive, encircling concept of the edifice.

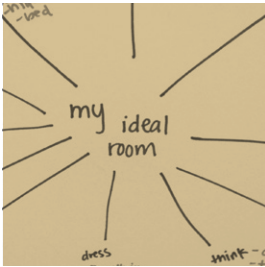
As my thoughts highlight the beloved details, I am empowered to courageously embrace vulnerability and say: *“How liberating! I am enough! I go on and do it.”*

“The beauty of architecture is that it deals with the recesses of the mind, from which comes that which is not yet said and not yet made.” — Louis Kahn

DIY

LIKE AN ARCHITECT

11 - step method at a glance



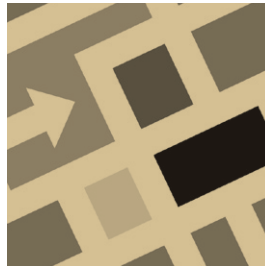
.01 Mind Map

Record your thought process. Activate 360-degree associations. Verbalize your highest expectations.



.02 Collage

Assess your preferences. Meditate and reflect to articulate your desires, become aware of what you are passionate about.



.03 Parti

Give your project a narrative. Devise a frame of reference in advance of confronting a blank piece of paper. Unleash your creative potential.



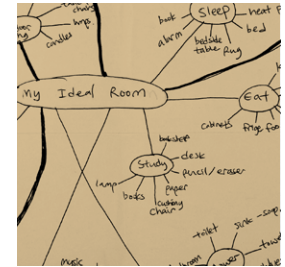
.04 Parti Diagram

Express your bold idea with a basic pictogram. Challenge your habitual thinking.



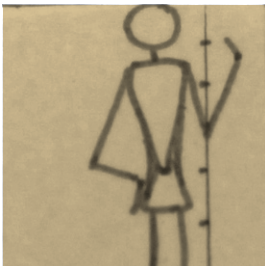
.05 3D Parti Diagram

Delineate your concept volumetrically – describe it with space.



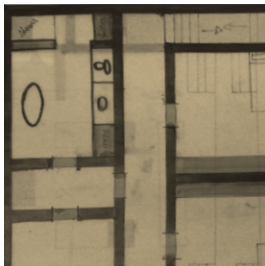
.06 Program

Zero in on your design objectives. Articulate exactly what to plan for.



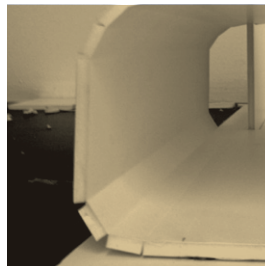
.07 Human Scale

Relate physical dimensions of your body to the environment.



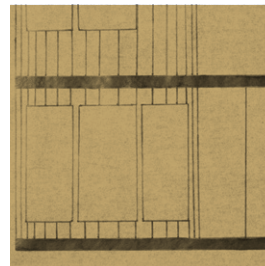
.08 Scaled Drawings

Represent your design in a way that others can understand. Convey the feelings you have conjured up in the previous steps.



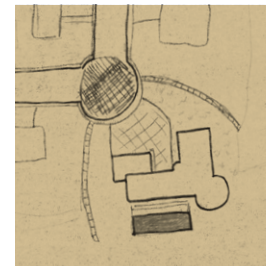
.09 Model

Test your design ideas three-dimensionally. Focus on the quality of experience as well as structural implications.



.10 Exterior

Study the relationship of the building's mass to the ground plane. Focus on identifying importance with size, shape and placement.



.11 Site Plan

Define your project's relationship to the street. Focus on context while thinking of the site and the building as one whole.