

## METRICAL DEVICES | iteration 01 : temporal constructs

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*“If we can think of architecture as an instrument revealing the presence of light and therefore giving it a precise measure, then these instruments are proto-architectural. With their richness in variation of shapes, colors, textures, they inform the design of more complex programmatic structures.” - Lebbeus Woods*

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*“If a straight horizontal thread one meter long falls from a height of one meter onto a horizontal plane twisting as it pleases [it] creates a new image of the unit of length.” - Marcel Duchamp<sup>2</sup>*

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Time, the steady staccato of its hours, minutes and seconds mark a tempo, an experiential metronome. We take the metrics of time for granted, and absolute. In our daily lives it manifests with universal acceptance despite its manifold natural and artificial expressions; collectively we conceptualize a steady, linear flow.

In architecture, the conceptualization of space, has become increasingly complex. The complexity of space necessitates the deployment of a variety of abstractions (often referred to as instruments of service) through the design process. Coursework that makes underlying intellectual, analytical and critical frameworks explicit, and thereby directly editable, has the potential to radically enhance a student’s ability to grapple with the complexity of space and lead to design production in a more expansive field of spatial potential.

This project explores the implications of treating architecture as a device that reveals the presence of time and asks how the experience of time can be shaped, augmented, implicated, changed, measured, or altered. In contrast to an architecture that seems to exist independently of time, this is a spatial device that registers change, cycle, rhythm and other temporal phenomenon. A nontraditional temporal metric is developed and explored spatially through drawing exercises leading to the design and fabrication of a Metrical Device.

Metrical Devices are a series of [proto]architectural constructs intended to codify the production of a spatial language and corresponding process through the creation of an integrated [explicit] design framework. As the Metrical Device encompasses both the intellectual and physical constructs, the project begins with a deconstruction of the time-concept. A process related framework including analytical, operational, and synthetic mechanisms is developed through a series of exercises deploying architectural instruments.

### Post Fact, Post Truth | Neo Realities

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<sup>1</sup> Woods, L. (2002). Measuring Light. [Blog] *Lebbeus Woods*. Available at: <https://lebbeuswoods.wordpress.com/2012/04/30/measuring-light/> [Accessed 10 Feb. 2018].

<sup>2</sup> A note from “The Box of 1914” Marcel Duchamp, American (born France), 1887 - 1968

Architects have long been crafters of [diverse] newly imagined realities. Like reality, experience [and space] is a complex and intangible phenomenon, [familiar ground for an architect] and must be abstracted / subjected to some sort of analysis to be understood.

Certainly, it is possible to live inside constructed reality. Our collective cultural institutions have provided conventions and points of common reference for millennia. The Family, the Church, etc. There have been many bodies of thought that have structured the way that (humans) have moved through the world; how we understand ourselves, and have informed, in turn, the constructed realities of our spaces of physical existence.

As architects, the ground we tread involves idea and material in equal measure. Though it can be interpreted as a primarily material endeavor, it is in fact, through the medium of space that architecture is realized. Space, in its nearly infinite complexity. It is the production of spatial potential, and its realization that are the subject of the architect's instruments. Architecture, both material and abstract, and subject not only to the forces of nature, but to a body of ideas developed and understood through the medium of humanity's shared experience through time.

Humanity has stored the accumulated data of its existence through a variety of cultural constructs. Oral histories, origin myths, cave wall paintings, the advent of writing, philosophy, and religion are all are devices that provide a framework for existence that allows the interpretation of individual experience through the lens of the accumulated experience of the broader community.

The contemporary manifestation of this broader community is an increasingly flexible construct. An unprecedented access to information has the capacity to inform any number of Differentiated realities. Layered, overlapping, and at odds these new realities have a much greater capacity to become assemblies, created from any range of components gathered from across the time and space. In this world, we have the ability to select or privilege inputs, sampling, distortion, and feedback have become fundamental acts.

Who are the elders? The perpetrators of tradition? Oral histories and origin myths? Weaving shards of information. Weaving shards of data into stories, narratives, into myths of spontaneous creation. This is increasingly a territory of alternate (shifting) realities. Iterative, ephemeral.

As an imaginer of potential futures, potential spaces, the architect is positioned to both curate and inhabit an increasing diversity of potential realities. The instruments of service must be expanded to include explicit frameworks. Tracing lineages (back) (forward) through the history of ideas, acknowledging key elements and inputs, deploying structured strategies for data mining and curation. Structured linkages and the gaps necessary to provoke future potentials. These expanded instruments of service allow an architect to understand, inhabit, design, analyze, and synthesize a diversity of (potential) realities with an unprecedented *agility*.

Very often it is a project's idea that stands a bit brighter and taller than its material manifestation. As architects, we often deal in ideas and abstractions. Whether implicit or explicit, our experience of reality, our physical and mental environments are fundamentally linked to intellectual constructs. By [exposing] making implicit frameworks explicit and opening them to the analysis and synthesis of the design process, we can create hard linkages between idea and process, concept and realization. These explicit frameworks identify and critically evaluate the linkages between idea and material realizations.

Manifest in physical and cultural registrations, time has permeated humanity's endeavors from the sundial to the train station, the obelisk to the sky scraper. Embedded in these material acts, are the diverse relationships and that humanity has developed to time. Ideas about life and death, permanence and decay, change, and complexity are embedded cultural artifacts, and our collective attitudes inform our interactions with and common understanding of time (or timelessness). The dwelling, the

monument, the ruin, nature, and our cities are all spaces into which we project our various and multifaceted relationships to time.

Throughout history, the measurement and conceptualization of time as evolved through relationships to our bodies, the cosmos, and the history of ideas. The year, which nominally marks a complete transit of the earth around the sun has been understood for millennia with various permutations of the calendar. Time was a concept embedded with diurnal cycles and a connection to nature. Technology continues to shape our relationships to time. The sundial, the mechanical, and atomic clocks have all increased the accuracy of time keeping, and now (time is money) the value of time can be computed to the millisecond.

What would happen if we were to question not the existence of time, but the metrics? How does the measurement of time shape our experience of it? What are the spatial implications of alternative measurement schemes? What are the spatial potentials of reinterpreted or newly imagined temporal metrics?

## Design Devices | Research Objective

### Device:

1 : something devised or contrived: such as

- f : a piece of equipment or a mechanism designed to serve a special purpose or perform a special function
- a (1) : plan, procedure, technique
- a (2) : a scheme to deceive : stratagem, trick
- b : something fanciful, elaborate, or intricate in design

As architects, the ground we tread involves idea and material in equal measure. Tasked with developing potential of not any Space, but a particular space which responds to specific context and constraints, architects are asked to inhabit increasingly large and diverse constellations of information, ideas and concerns through design. The ability of a designer to organize information and calibrate the production of spatial potential with *agility* is a fundamental skill.

Deploying [usually implicit] [intellectual/conceptual] frameworks often developed through education, convention and practice, in a single day an architect may be asked to traverse territories from the history of ideas to the flashing detail. The project brief, code conditions, local historical context, atmospheric conditions, energy flows, labor conditions, product specifications, and individual variations can form a complex interrelated web of often conflicting concerns to be organized and addressed through design.

Metrical Devices are a series of [proto]architectural constructs intended to codify the production of a spatial language and corresponding process through the creation of an integrated [explicit] design framework. As structured explorations, they examine themes encompassing the fundamental acts of developing spatial potential. The delineation of [intellectual] cultural and historical frameworks, critical, analytical and synthetic mechanisms, and acts of translation are addressed explicitly. Production trajectories address contextual analysis, curational strategies, translational mechanisms, [im]material phenomena and tectonic expression. Privileging the production of space over object, the Metrical Device project addresses the design of both the process and the product.

If we approach design as an assembly of acts, with both conceptual and physical elements, it becomes something more akin to a device. Both product and process are an assemblage of components that can be clearly structured with an idea of a desired range of possibilities. By considering linkages between concept, operation and outcome, a process can be structured that allows us to mine the rich territories, adjacencies and tangents. As an apprentice often begins by building the tool (which produces a range

of possible actions and results) they will use to ply their trade, this device delineates a production through the creation of an explicit framework. Functioning as a jig, analytical, synthetic, and operational protocols structure ground the development of process in the project's informational context. Points of registration related to spatial themes, situational structures, historical and conceptual context(s), critical mechanisms, and reflective operations allow the assessment, and development [modification] of the framework.

## **Temporal Metrics | Deconstruction**

As architects, the ground we tread involves idea and material in equal measure. Beginning with a dismantling of the time-construct, and leveraging concepts and devices drawn from diverse fields such as astronomy (sundials, astrolabe), theoretical physics (relativity), geology (sedimentary layering analogues and scalar shifts), science fiction (time travel), clock making (water clock, cuckoo clock), and film (*Memento*, *La Jetee*), comparative precedent studies are undertaken through the lens of temporal experience. How can we interpret the experience of Mies' Brick Country House through a relativistic aberration or the narrative structure of Christopher Nolan's *Memento*?

Each of these projects expose time as an intellectual construct and create a framework for grappling with fundamental questions pertaining to the fluidity of experiencing space- not as a moment, but as a fluid and dynamic experience existing over time. Analytical and synthetic operational protocols are developed through 2D drawings. Deploying text, line, and diagram in conjunction with source (site) materials, concept-operation linkages are made explicit, and a larger integrated framework is developed. Drawing exercises lead to the production of a full-scale design object. Detailing and craft are carefully considered at each phase of the project, and each product considered as a tectonic assembly.

The collection, analysis, and curation of site information is a fundamental architectural act. This exercise begins by inverting the normative What/How condition.

Architecture is ~~never~~ burdened by the blank page.

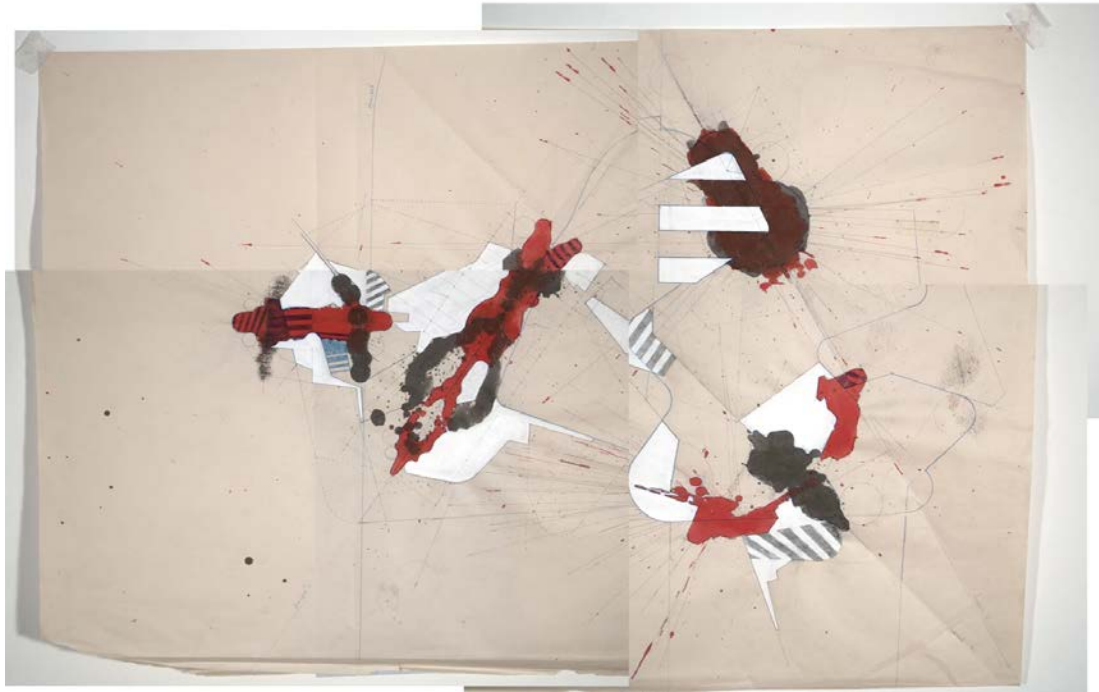
There is an assumption that architecture never happens in a vacuum. That it's origin is inseparable from the cultural and physical context of site, and that there exist absolute material constraints that can not be superseded, overcome, or altered. The tendency in the studio is to focus on the what, rather than the how. Architects roundly deny any dominance of subconscious [intuitive] (thought), in favor of functional logics and culturally accepted solutions to blank page subversion. Historical, cultural, and physical contexts are presented through accepted and unquestioned frameworks such as the grid, standardized units of measurement, etc. We deploy systems that we use to violate white-page space with confidence and security, but rarely question those systems critically or attempt to design them in relationship to their content. No context contains a foregone conclusion, and it is through a process of deciphering context or a curatorial framework that we can develop more expansive potentials.

So, what are the potentials when a new set of 'truths' is adopted? How can we structure our [process] framework to consider (temporal) context more expansively? The suspension of gravity, the layering, bending, or materialization of time, how do we structure the field in which this potential will unfold?

Rethinking currently accepted paradigms through a (defined) critical / analytical framework gives us the opportunity to build a curatorial strategy from the ground up. If we consider each project as a blank page, and a specific metric or construct as the context, how can we begin to design the way that we collect, extrapolate, operate upon, that information?

## **Provocations**

### **01. Fishing with Dynamite | Proto-Perceptual**



*Figure 1 Conceptual Prompts: Translational Acts, Transitional States, Sampling, Distortion, Feedback Operational Protocols: Layering, Masking, Extrapolation*

The subconscious something that can never be seen, but only captured through foils, or perhaps a projection. What would a section of a subconscious look like? A plan? Can the Rorschach be considered a site? Can it be developed, materialized, a foil for an architectural subconscious, a projection?

Referencing the Surrealist automatism, the Rorschach test, and perceptual mechanisms, this first drawing exercise begins with an extrapolation of chance events. Ink blots subjected to analytical operations become a ground, a drawing-site. Graphical and notational languages develop through a considered approach to chance, intuitive, and logical constructs. A drawing log is developed as an integral part of the process and tracks the development of drawing and space.

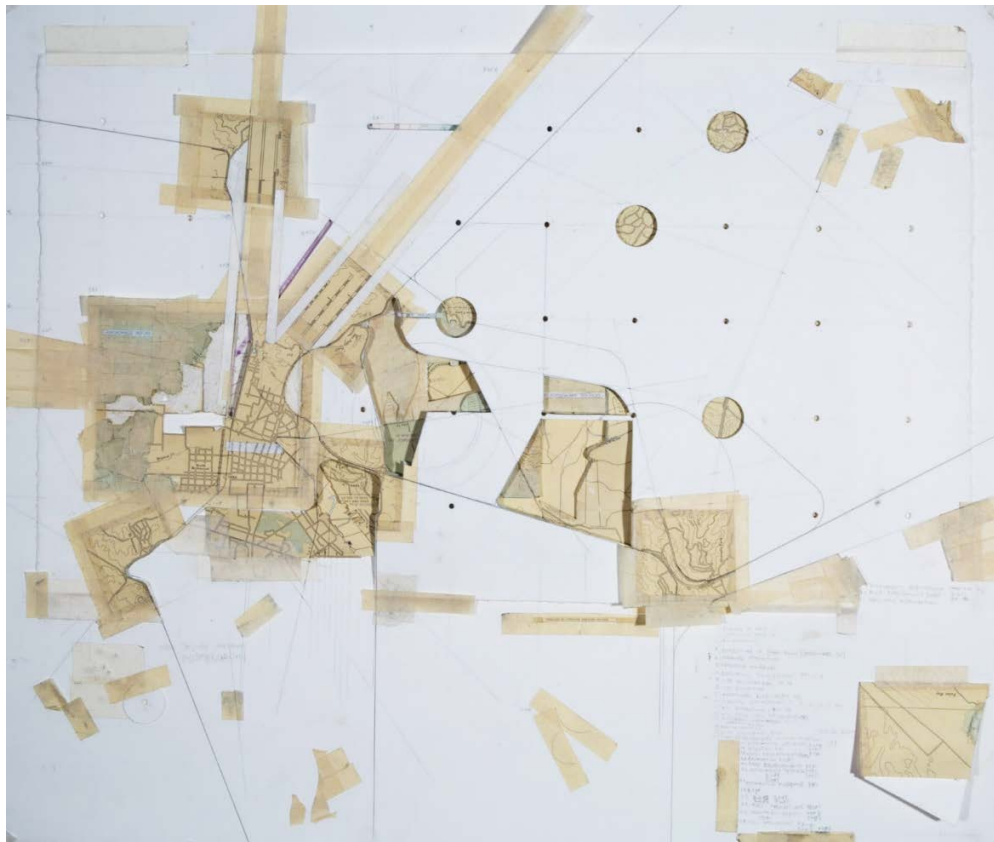
One of the fundamental goals here is to create a process to produce something that is like something else, but not the same as something else. This is the synthetic component. Establishing clear points of reference is a fundamental part of the framework. These points of reference may be drawn from diverse fields but should include at least (1) clearly architectural precedent. An analysis of projection, form, line, color etc. will inform the development of future work.

**Potential points of reference include:**

- -A plan, A section, works (from inside) of architecture. Very clear drawings (plan: ronchamp, plan: brick house, etc.
- -patent drawings
- -mechanical drawings
- -schedules (esp. Preprinted forms used in navigation, (accounting), etc.
- -charts
- -narrative elements
- -temporally themed references to cultural artifacts



## 02. Mining Operations | Site Operations



*Figure 2 Curational Strategies: Thematic, Syntactical, Relational, Notational  
Erasure, Aggregation, Erosion (geological analogues)*

*Operational Protocols:*

This collage-based drawing exercise begins with a blank page and develops as an aggregated assembly. Functioning as a thematic and syntactic catalogue, the drawing serves as both a repository for project-related information and ground for the development of graphic language, operational mechanisms, and analytical framework(s). The deployment of text, and a drawing log, create an explicit record of project relationships and linkages between concept, analysis, and (operation) synthesis.

There should be some collision here between a device drawing (patent drawing), existing temporal metric, and perhaps something from outside time, or more obliquely temporal. In this sense, we may be asked to think about some random object (an apple, a cloud, a tape dispenser, and extrapolate some sort of temporal relationship.) Everything it seems has some unique relationship to time.

Layered beneath the page are images selected according to a temporal theme. Patent drawings of cuckoo clocks, printed train schedules, dead reckoning logs, (etc.) form a geological stratum beneath the blank page. Specific excavatory operations are developed and executed with a specific relationship to a temporal concept. This revealed and extracted information becomes the subject of analysis and extrapolation, with a system of subsequent operations either masking or disambiguating informational areas according to a curatorial (editorial) strategy.

With a focus on temporal registrations, physical mediums (graphite, ink, paint, digital print, paper, tape) are deployed in the development of a drawing/site. Operational prompts, metrical frameworks, relational and curatorial strategies are delineated through hybrid drawing techniques and recorded in

the drawing log. This drawing aims to reveal and develop the frameworks used to decipher and cultivate “site,” explore strategies for the measure and conveyance of temporal experience, as well as form the basis of a graphic/spatial language.

### **Metrical Device 01 | Temporal Construct**



*Figure 3*

This physical construct will establish an original metrical relationship to time. Synthesizing work from drawings, it will leverage and develop the project’s spatial language, and further explore the potential of translational relationships. Production should convey formal, material, immaterial, and tectonic moments drawn from existing work with a high level of craft.

Through its manifestation as both a conceptual and physical construct, the Metrical Device asks us to [re]consider our individual and collective experience of time. Explorations could possibly include bending temporal trajectories, nonlinear narrative frameworks, non-solar temporal algorithms, simultaneous time, layered time, time/material relationships, decanted time, temporal expansion and contraction, and implicit histories.

Through the design of a Metrical Device, a design student is asked to fundamentally question assumptions about space, and to structure an explicit conversation about process. A more expansive conception of space, and the ability to probe fundamental assumptions in the context of any project has the capacity to enhance a designer’s agility and increase the breadth of potential solutions to any given brief. Demystifying the design through an explicit framework puts a designer in control of their production. Rather than depending on a moment of brilliance, design can be conceptualized as a jig with clearly articulated critical, reflective, analytical and synthetic mechanisms.