Columbia University
Graduate School of Architecture, Planning and Preservation
Arch 4005 / Fall 2016
Michael Bell Professor of Architecture
Hamza Sarout, Associate in Architecture
Colloquium Partner, Professor, Michael Shanks, Urban Futures, Stanford University

# Architecture

## after Scarcity, after Risk and after Assets

## (becomes what?)

Studio Programming: Design an architecture for a world where energy is no longer scarce but understanding its path, presence and means is near total. What becomes of architecture when some forms of scarcity and risk are highly controlled and diminished and others are highly disrupted. The studio will work on three sites, two of which are surrogates, for a wider upheaval and transformation of the sprawling urban landscapes of the United States and the assets that construct its economy. The studio will rely on a series of software protocols to work precisely with energy, light and architectural mechanics but also seek broader critical evaluation of changes in the economy and technologies of cities. Our primary focus is the Concord Naval Weapons Station and we will propose planning and architecture for its redevelopment.
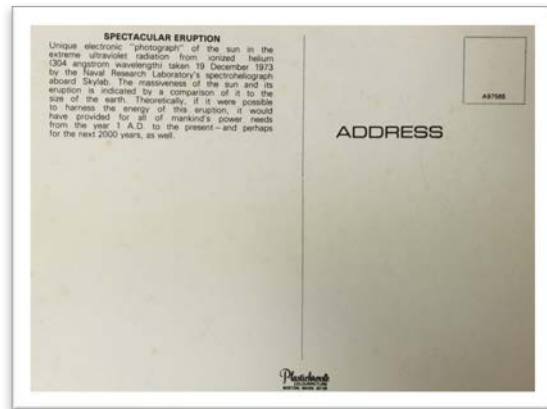


*"Unique electronic photograph of the sun in the extreme ultraviolet radiation from ionized helium (304 angstrom wavelength) taken 19 December 1973 by the Naval Research Laboratory's spectroheliograph aboard Skylab. The massiveness of the sun and its eruption is indicated by the comparison of it to the size of the earth. Theoretically, if it were possible to harness the energy of this eruption, it would have provided for all of mankind's power needs for the year 1 A.D. to the present – perhaps the next 2000 years."*

*Query: Markets and a reconciliation with scarcity have often gripped the architectural imagination— is this the norm for our future? We are increasingly advanced agents in modeling risk and opening new means—what will this enable?*

*Architecture and development are to a tremendous extent realized inside financial and economic risk models. Will this continue to the case in our future?*

At the annual Berkshire Hathaway shareholders meeting (which is often seen more as a state fair) Jack Bogle, the founder of Vanguard Group, and a confidante of Warren Buffett offered a proclamation on risk by discussing the state of index trading—a use of algorithms to essentially trade the probability and momentum of an entire stock exchange. Indexing removes stock picking or the discrete, strategic, construction of a portfolio (as a means to hedge risk) and instead seeks to harvest the movement of the intelligence evident in the broader trading of the exchange itself. It harvests what everyone else is figuring out via artificial intelligence, machine learning or simply immense computational and stochastic modeling. For many index trading is a low cost way to diminish trading

risk and yet harvest the collective insight of the market itself.

Indexing, while far from mathematically total, aspires to limit risk associated with accessing a small (minute) or even large sector of the exchange. Bogle seemed to be seeing this aspiration to the removal of risk as a disincentive to trading—if there is not risk and no unrealized opportunity (that is identified by the trader as opportunity) there is not a need to trade. Indexing relies on an active underlying market—it models a propensity that it then seeks to mine. Without real traders there is no risk to mine according to Bogle. According to Bogle about 1/3 of United States' stock trading is done by indexing: he predicted a turning point, a threshold at which markets would freeze as indexing would arm everyone with a same ability to react to and forecast risk—each trader would in effect thwart the trajectory of the other. "If everybody indexed, the only word you could use is chaos, catastrophe," he said. "There would be no trading, there would be no way to convert a stream of income into a pile of capital or a pile of capital into a stream of income. The markets would fail."

*https://goo.gl/88bmjo*

Artificial intelligence, machine learning and robotics are often proclaimed to be a threat to labor markets. What do they portend in financial or economic markets? Aside from displaced jobs what do they incentivize or indeed make almost inevitable in development and the distribution of economic resources. What will be built in such a world if, for example, A.I. alters job migration, or collapses asset values.

Markets may fear uncertainty but risk is a driver and motivation and it is the unseen or undervalued asset that has historically been a source of future wealth production—if you can see a potential and you are (nearly) alone in knowing its existence the trade is yours. The wealth could be yours—it could belong to a nation, a city or a state. A neighborhood and constituency.

Today we see new means to model risk of every kind. But we also increasingly imagine ourselves less at the brunt of some forms of risk while others form immense crisis and undermine stability of all kinds. From structural mechanics to chemical engineering to fluid dynamics and geography and economics. Risk as its forecast within relatively low level computational systems is today increasingly made transparent to analysis and thus adjudication. Inside realms of engineering or medicine, advertising or banking or autonomous

mobility and safety the prospects of a world driven more by choice then necessity is often depicted as offering a new model of liberty and indeed freedom. From social media to personal delivery—limits seem diminished even as crisis of all kinds still exists. Counter the immediacy of some forms of risk control vs the global migration from war or climate change.

Much of the confidence (when it occurs) seems to rise from a new and more granular scale to modeling. Risk modeling has opened a finer parsing of the value of what have been seen as stable or older assets: indeed, often exhausted assets. A re-monetization of private housing (Airbnb) or the private automobile (Uber, Lyft)—risk models made possible by anonymized but secure transactions (peer to peer) in effect begin to revise the privacy and value of entire asset classes. You can share a latent temporal value in your home. But do they change the assets themselves and when, if at all, will these new models give rise to entirely new assets. After all the private car – relied upon by Uber or Lyft – is only a century old as a human invention—an entirely new asset that drove 100 years of urbanization (and de-urbanization).

What are the next assets, how do we find them and more so do we trade them?

What are their risk qualities? What can they not pay attention to?

**After Remonetizing**

Borne of new risk models and in effect not bound by former constraints older assets are made more pliant but do they still remain in place as their assumed nomenclatures. For example: Airbnb does not (seem) to alter the valuation of housing to make it more affordable; it might in fact make it more valuable and expensive. It (sort of) addresses a scarcity of housing, by instead seeking to unlock a latent but unassessed value in the temporal aspects of occupancy. Housing may become more affordable because the owner has relinquished part of its use and thereby gained income that offsets costs. But it also creates a class of housing subjects whose tenure is highly temporal. Uber is similar. In fact, these two services (as they are known) seem to accelerate the stress of scarcity by removing what was **excess** capacity from an assets value—you index that value and sell it to someone else. What happens when that value is drained or made essential?

If the privacy of a home (and household) prevented such a sharing economy in prior decades, today it seems the anonymous and encrypted means of a

peer to peer transaction secures both privacy and transparency at once--in one mathematic equation. This is not personal trust between a buyer and seller but instead an outsourcing of risk and perhaps an even greater form of distance between persons who are otherwise deeply proximate: you are in my house and my car but I have no idea who you (really) are. I may not need to either.

**Have we seen real Disruption Yet?** *or* **Why Silicon Valley can't do this alone:**

Embracing the disruptive claims that swath Silicon Valley and the technology sector today our studio will seek to invert the equations of scarcity and the drive towards risk reduction that accompanies so much of the innovations we see today. We will seek ways to see the modeling of risk as instead liberating; as allowing instead a form of excess and a world for which architecture and new architectural nomenclature have yet to be designed. To do this we will take on themes and research vectors such as artificial intelligence or machine learning and its possible effects on labor markets (jobs) and on commodity prices. The studio will seek to understand the themes around disruption and game their potential long term affects but more so to see or postulate the outer edges of risk models. We will explore how new decentralized energy production and storage might alter urban development and housing economies, and indeed how artificial intelligence (and robotics et all) might diminish one and half centuries of drive to urban density (will people come to cities for work if there is no work). What happens when we can imagine the entire housing economy, when a small computer can do it for us? When real estate fails to keep up with energy innovations or transportation and mobility deeply alter property values (again). What happens if millions of households exit the grid before we are ready?

Risk modelling today does offer an immense return on investment: a projective enterprise that can forecast stability allows new invention. Architecture has grown in strides as it took on risk modeling but it has also often done so in a drive to efficiency. This may include showing heat gain or daylighting effects, verifying the optical aspects of a view or a window size. Monitoring expansion and contraction of materials and thereby safety and maintenance. At the aggregate scale it may reveal a denominator of immense scale: residential real estate valued at 26 or 27 trillion dollars in the United States, or where and when entire regions of housing were built or what new energy protocols could affect this region or that. How does autonomous mobility affect what we imagine as possible in development when we know land values have been tied to mobility (and proximity to work) for the past century?

The studio will over the semester ask that each designer divide their attention between three sites and five zones of enquiry. The sites are meant a constellation—a simultaneous view to how we hedge development. What thrills and scares us. What causes invention?

The zones of enquiry are attractors: thought structures that will, as played out, possibly deeply alter what is possible in development and in architecture.

We are not concerned with the right or the wrong, but instead with what could be.

The right or wrong will follow after experiments.

*Below: GoMentum Station: Concord Naval Weapons Station.*

Where do we go from here?

**Imaginary and Real**

The studio will initially work on a series of three sites in an analysis phase and then narrow our work to the Concord Naval Weapons site.

https://goo.gl/maps/XykAVEeALs22

The studio will rely on three sites as *real places* and *people* but also as a form of imagination; a seeking of building a new kind of place, people and needs, but also to build for a site as yet unnamed. These sites are assets in transition. They are people in transition—new subjects and new places. A world we have never seen before.

We will work within and from a series of provocations about an architectural future; a zone of thought and indeed practice for which we do not have a historical reference.

This is in effect a model of risk: risk related to essential human need (in this case the homeless); risk and nature (a primordial forest co-present with the modern city) and the delamination of industry from war and security in the re-use of a former military weapons site. If all these sites are characterized by near catastrophe and indeed near violence how do we delimit the risk and move past it even as we monitor its means and techniques closely.


**Concord, California**: Naval Weapons Station (+ Quinault Village)
-    The outer edge of the unaffordable epicenter of technology. A horizon of new settlement in a region struggling to produce affordable housing.

**Denver, Colorado**, Homelessness, Veterans and Community Solutions
-    an unindexed constituency becoming visible (and becoming a market)

**Long Island, New York**, the Pine Barrens
-    fear of losing nature keeps it semi-untouched


**The three sites are, however, a misnomer—they are not quite sites.**

-    the first site is indeed a property currently being hotly debated as to its future and <u>coveted by deeply competing agendas and demands</u> that bridge government and private industry and a near century of technology.

-    one of the *sites* is actually a <u>constituency of people </u>(a specific group of the homeless);

-    the other site is a <u>quasi-untitled property</u> (a sort of anti-asset held off the market by government)

**Faculty**

Michael Bell
www.bell-seong.com

*Michael Bell is Professor of Architecture at Columbia University Graduate School of Architecture Planning and Preservation. Bell is founding Chair of the Columbia Conference on Architecture, Engineering and Materials, a multi-year research program hosted at GSAPP in coordination with Columbia's Fu Foundation School of Engineering and Applied Science and the Institute for Lightweight Structures and Conceptual Design (ILEK) at the University of Stuttgart. Bell served as Director, Master of Architecture, Core Design Studios, (2000-14) and the Coordinator of the GSAPP Housing Design Studios (2000-11).*

*Research conference convened by GSAPP in collaboration with: Fu Foundation School of Engineering; the Institute for Lightweight Design and Conceptual Structures, University of Stuttgart. https://goo.gl/EUEJ1W / https://goo.gl/WHM9EB / https://goo.gl/LH2Kc3 / https://goo.gl/HrzaQD*

*Bell's architectural design has been commissioned/exhibited by The Museum of Modern Art, New York; The Venice Biennale; the Architectural League of New York; the University Art Museum, Berkeley and has been shown in museums and galleries in Europe, Mexico and China. Architectural design by Bell is included in the Permanent Collection of the San Francisco Museum of Modern Art. His Gefter Press / Binocular House is included in American Masterwork Houses of the 20th and 21st Century by Kenneth Frampton. Bell has received four Progressive Architecture Awards.*

*Books by Michael Bell include Engineered Transparency: The Technical, Visual, and Spatial Effects of Glass; Solid States: Concrete in Transition; Post-Ductility: Metals in Architecture and Engineering; Permanent Change: Plastics in Architecture and Engineering; 16 Houses: Designing the Public's Private House; Michael Bell: Space Replaces Us: Essays and Projects on the City; and Slow Space. Bell is the editor of a monograph on the architecture of Stanley Saitowitz.*

*Bell taught at the University of California at Berkeley (1987-94) and Rice University (1994-99) and held visiting professorships at the Harvard University, Graduate School of Design; Cornell University, School of Architecture; the University of Michigan, Saarinen Visiting Professor of Architecture; and Berkeley, the Howard A. Friedman Professor of Practice in Architecture. Bell is a former Fellow of the Joint Center for Housing Studies, Harvard University (2011-13). During 2016/17 Bell was Visiting Professor at the Stanford University, School of Engineering, where he collaborates with the Center for Design Research in the Department of Mechanical Engineering.*

*Michael Bell received a Master of Architecture degree from the University of California, Berkeley and a Bachelor of Science degree from the Catholic University of America in Washington DC. He established his practice while teaching at Berkeley. Today the practice also includes Eunjeong Seong and is based in New York City and the Berkeley, California.*

Hamza Sarout

*Hamza Sarout, is a digital design specialist and a BIM leader at Gensler. Hamza holds a Masters degree from GSAPP and currently works on developing BIM strategies and workflows for various design projects for Gensler's global practice. He focuses on developing building performance tools using computational methods and processes to bridge the link between macro climate modelling and thermal human comfort.*

*Sarout's focus is on redefining the building envelope and on capitalizing on residual data of the BIM process.*

*Sarout has taught at GSAPP and other NY universities and schools and has worked closely with Michael Bell in studios on several occasions.*

https://goo.gl/maps/XykAVEeALs22

The Concord Naval Weapons Station served as munitions depot and transfer station for weapons during World War II. Today the site is currently dormant and unused by the military; it instead serves in part as a test track for GoMentum Station—an autonomous automobile vehicle testing grounds. Apple made headlines when it sought access to the site; the application was taken to indicate Apple was indeed at work on autonomous mobility.

https://goo.gl/9ZE71N                    http://gomentumstation.net/

The 2,200-acre site is on one had a former industrial site—as such it bears issues of reclamation (this is a matter of risk in the form of remediation). But it also a target for redevelopment in part by Lennar and Five Points—a large scale housing and real estate entity that bridges all scales of development. Immediately adjacent to the Naval Weapons Station is Quinault Village—a 58-acre site formerly held by the Navy as housing and currently being used as a site for special operation training. Our site includes the entire assembly of property.



*Duplex housing sits vacant on the site invoking an image of tranquil domesticity adjacent to a former nuclear weapons transfer complex. Concord Naval Weapons Station is Quinault Village Click to Play Video*

https://goo.gl/maps/YhysG8fnvZ32


**Creating an Asset**

The City of Concord is actively seeking development rights over the property in part to alleviate a critical shortage of Bay Area housing.

The histories of the Naval Weapons Station and Quinault Village are vivid yet a cursory look at the property on Google Maps shows little naming and one begins to imagine there is a concerted to alter the perception of the history of a ruin of the war, munitions and the wider military history of the Bay Area.

*Concord, California is a kind of dream state. With little humidity, seemingly no winter. Lots of room and quasi-affordable housing at the outer edge of the Bay Area--at the northeast corner of the Bay Area and in this case immediately adjacent to an underutilized Bay Area Rapid Transit (BART) station. The conflation of autonomous vehicle testing and the BART rail system instigate a new impetus in development and mobility.*
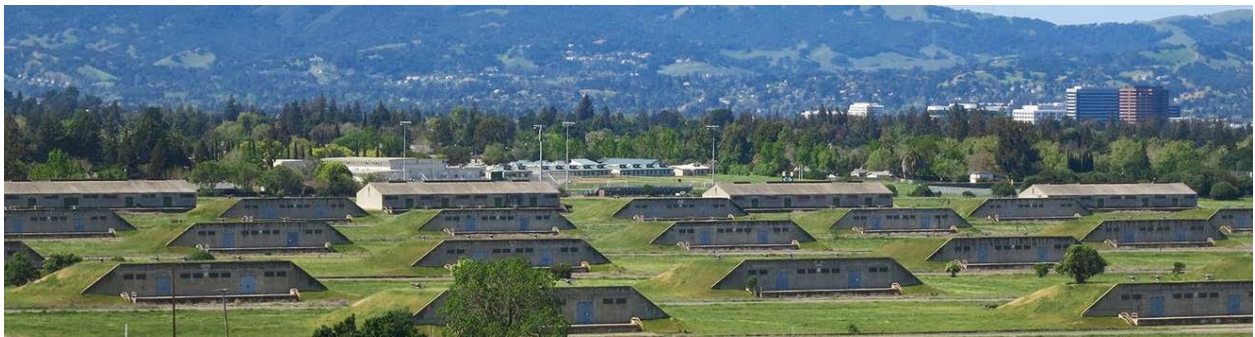
**Redevelopment Planning Documents** (expanded documents available at studio outset)

Government:                                    http://www.concordreuseproject.org/
Private Development                            http://www.concordreuseproject.org/
                                               http://lennarconcord.com/


Site Two: Denver, Colorado: A Pro-forma: 100 building or 300 people


A barely Visible and until recently Barely Registered Constituency forms a new Housing Economy.

In the United States affordable housing is supported at the transaction level by federal as well as state and local subsidies for sale and rent costs. Yet with the deep resources of government there are tremendous swaths of the country that are severely housing cost burdened (we will cover this in depth). Estimates today place as many as 60,000 plus chronically homeless veterans in the United States.

https://endhomelessness.org/homelessness-in-america/homelessness-statistics/state-of-homelessness-report/

Our studio will join with NYC based Community Solutions (CS) and their national campaign to end homelessness. In particular, we will take part in the CS *Built for Zero* project to end veteran homelessness. CS works to address the loss of housing for the homeless by streamlining and coordinating the diverse array of support means for the homeless that is often unallocated and unreachable by the homeless. Much of this support goes un-used and fails to serve the actual people who need help.

Our goal is to combine the energy and creative leadership of Community Solutions (CS) and their *Built for Zero* program with a deep range of engineering, and architectural resources to explore solutions for affordable housing today and in the future.

We seek housing where innovations in engineering, energy and design of all kinds achieves breakthroughs in how we fund and produce housing.

Community Solutions has long been dedicated to ending homelessness in the United States and works to prevent homelessness before it occurs. They model risk factors that can lead to homelessness and seek to move support into place by better using and allocating existing government funds.

Community Solutions uses a broad range of social and data driven tools to engage people who are at risk of homelessness and help them affirm support and garner resources preemptively. Before the crisis of homelessness occurs.

Working across the United States CS teams coordinate and creatively fuses the resources of government at all levels, but also make use of their own achievements in harnessing information. While this may (magically) count as a form of charity or philanthropy it also a deeply innovative and professional project to get better results for people from already available but underutilized government and private recourses.

CS has a start up like drive; they hold an entrepreneurial spirit.

**We will study CS's plans for housing for 300 People in Denver: their ability to create a new a new housing economy in need of a new housing asset.**

With a current plan to purchase and renovate as many as 100 three to four-unit apartment buildings, CS would provide housing to the group in a distributed / scatter site format. Veterans would have a home in a small-scale (meaning not institutional) neighborhoods and have the pride of independence that comes with this.

Smaller apartment buildings deinstitutionalize the housing and thus helps achieve pride of place for people. But if one introduces new energy means, new mobility and need for community to this equation we begin to imagine and realize new housing and new housing types.

The funding to achieve this comes in part from the men and women making use of housing assistance available to them in the form of vouchers, but currently un-used and thus not allocated. CS helps people access the benefits they are eligible for and have earned but are not using. Our goal is to explore how to imagine what is essentially hedging the financial risk of development with the social risk and privacy needs of those in need of housing. A snapshot of how these benefits work is shown in this link. We will have access to CS's financial models for this project as well.

VASH Benefits:          https://goo.gl/HAiNQz

Community Solutions:    https://www.community.solutions/
                        https://www.community.solutions/what-we-do/built-for-zero

Homelessness is Bad *Design* by Rosanne Haggerty, CEO of Community Solutions
April 11, 2016

https://www.bloomberg.com/features/2016-design/a/rosanne-haggerty/

*The CEO of Community Solutions, a nonprofit that combats homelessness, on designing a system that actually puts roofs over people's heads.*

Homelessness is what happens when people fall through the cracks of different systems, so if we're to put an end to it, we need to create integrated teams—the U.S. Department of Veterans Affairs, the mayor's office, the nonprofits, the housing authority. It's only when you get everyone together in the same room that you can construct a well-performing housing placement system that isn't sending vulnerable people down all sorts of dead ends.

Everyone at an initial meeting would say, "We get that we need to collaborate, but how?" We need a performance management system that helps a collection of local organizations focus on a common goal and test their way into a solution, but that's grounded in person-specific data, so you can see if a situation is actually working for certain users of the system.

Another design principle is the notion of housing first—you redesign your approach to getting people housing as your first order of business, then help with the other issues that have been confounding them. Moving a single person from homelessness would require more than 50 steps. We worked with designers to create a magnetic board that looks like Chutes and Ladders. We asked people to map out what's required for a single person to move from the point where you identify them on the street to a stable home. You'd see this crazy, winding trail.

Washington, D.C., looked at the amount of time it was taking from when an apartment becomes available to a lease-signing and turning over keys. They created a day where they'd have all the landlords and all the people who had been matched to them show up and sign their leases at the same time and get their keys. Imagine that.

https://www.community.solutions/what-we-do/built-for-zero

For Sale - Active

New VA Loan Limit for Veterans - $0 Down on $424K

## 965 Brentwood St

$485,000

Lakewood, CO 80214 · Directions | Commute Time

Estimate Payment

4 beds · 4 baths · 1,560 sq ft · 7,260 sq ft lot

View Rates

Denver Colorado
https://goo.gl/XEvKxQ

Housing for four individuals: CS would purchase as many as 100 such buildings: A property available for sale in Denver: Community Solutions is studying the possibility of purchasing as many as one hundred three to four-unit apartment buildings in the Denver metropolitan area. Most of these structures are stand-alone structures and often in low density areas of the city's suburbs.  Denver area has a wide availability of small scale dispersed apartments buildings.

These buildings are a ubiquitous part of any cities fabric: What options exist to both retrofit these properties and also consider entirely new options for how they form an aggregate new form of design and agency. How do energy saving factor into this equation and how can we multiply the savings in assisting more people to achieve independence?

**Designing today for nature today. Design for the risk associated with settling (way) off the grid.**

An infamous episode of the HBO television series "The Sopranos" depicted two mafia hitmen lost and increasingly unwound in (and by) the New Jersey Pine Barrens.

Reeling in the snow and freezing winter weather, unable to determine direction or path, Paulie and Christopher increasingly collapse into fear in the face of an expanse of the pine forest.

The topological quality of a seemingly boundary less interior of trees and snow (the Pine Barrens) finds the otherwise ruthless characters unable to garner direction.

The Pine Barrens for us is a stand in: a prop for a concept and literal quality of nature that persists in the midst of even the most industrialized states. A zone of nature that is both a demonstrative act of preservation (control) but also of concern and hesitancy (fear). A forestalling of extinction, the forest is another ruin, signaling a hands off anxiety and fear or damaging a deeply primordial site.

Paulie and Christopher, two mobsters, panic and as it turns out have zero skill to navigate in the face of nature. Normally the inflictors of risk, punishment and fear they instead reel into panic attacks as night falls.

The Pine Barrens is our conceptual site: a zone of nature preserved on the edge of the sprawling metropolis.

Perhaps a new zone or interior that now serves as the origin of an architectural habitation. Instead of the other or periphery of the settled and codified metropolis.

Our studio will make use of the Long Island Pine Barrens rather than those of New Jersey.



Case Studios: Taliesin West, Broadacre City…

## What is disruption in architecture: Four Vectors

## Condition One: Architectural invention would mean what?

Is there another design evolution possible inside the architectural nomenclature of window or doorway? Of roof or wall or floor—in foundations?

Historically we can point to pivotal moments when terms have changed and where new technologies instigated changes and innovation to the very DNA of an architectural element.

In the past decade one can point to what seem like pivotal moments: collaborations between SANAA and Transsolar at the Toledo Art Museum – a glass plenum space becomes a thermal and optic barrier that forms a room. The design was of the thermal conditions. Or Gehry Partners Louis Vuitton Foundation where a dilated enclosure, structure and thermal barrier seemingly invert a century of asymptotically thin curtain walls creating an un-sprung void or a kind of lapsed plastic space. Glue lams turned on their side, a weakened span condition.

But are we using the wrong terms in an attempt to stabilize key components of architecture and buildings against history?

Architectural work is deeply rooted in geometry and form: we are reminded of the emergence of the "ribbon window" and of Bruno Reichlin's later declaration of its extended horizon, a topology of space, that curves and threatens the vertical reciprocity with a standing person. Reichlin's reading of the *ribbon window* still allowed the term window to persist, but he saw Le Corbusier's window as threatening the stability that his mentor, Auguste Perret, saw as essential to the very term

window. For Perret the vertically proportioned aedicule window delineated a threshold between inside by way of its tense and short horizon line. Yet the *ribbon window* was still called a window. Was it? Formally, perhaps this is the case but what of the experience?



Today where do we see these terms—is there an elastic limit to their meaning?

Today relatively inexpensive software offers a technology to examine (to see) materials and structural behavior in ways that could render old categories obsolete. Structural analysis allows us to see stress/strain but the computer is modeling chemical behavior: molecular stressing of chemical materials here depicted in geometrical mesh. Can we model our way out of the past and indeed find new architectural elements?

## Condition Two: Is real estate still the denominator

Buildings secure immense amount of economic risk: they are a form of collateral.

While architects are routinely imagined to be in a struggle (if not a victim) of real estate practices how could we in turn see the built environment as the backstop to leverage and debt. Its security.

In an imagined contrite posture toward finance the perceived burden of investment (real estate; return on investment or ROI) the architectural industry frequently seeks to deliver a higher level of efficiency. To make a better asset. A penance

offered to increase ROI. One can point to demonstrative success: housing, for example. today consumes 40% less energy per square foot then it did in 1985. One can find such data at almost any level of construction and design over similar periods of time.

If one seeks such efficiency, we quickly find ourselves in two benchmarks of capital markets: productivity and innovation. Increased productivity offers more potential for wealth accumulation. Innovation, where it's possible, changes the equation entirely offering new ways to increase

productivity or indeed allows altogether new achievements. An expansion of the markets and thereby wealth. Architecture routinely seeks both of these claims yet rarely ask (it seems) what is the out limit of this expansion. Indeed, does wealth production inextricably link itself to architecture or building or can we imagine an architecture that has less of a connection to capital accumulation.

Why, do we monetize housing in the first place? Is that inevitable?

Warren Buffett returns to the scene of our studio: again, in 2017. "Change is painful for a lot of people," said Buffett at the Berkshire annual meeting. "I think it's absolutely essential to America that we become more productive, because that's the only way we increase consumption per capita."

https://goo.gl/Bb4W7g

"*Buffett, 86, said that gross domestic product per person in the U.S. is six times higher now than when he was born, reiterating his optimism about the nation's ability to generate wealth. That contrasts with the view of Donald Trump during his successful presidential campaign, when he said that the U.S. was ripped off by free-trade agreements. The president spoke in his inaugural speech in January about "American carnage" where rusted-out factories are scattered like tombstones.*"

While Buffets optimism is understandable it also can be coupled and seen in light of several decades of expanded leverage and debt. A deepening cycle of credit at the level of central banks and households that is often seen as unsustainable. In this context how we gage an architectural role for building as real estate, as material repositories of wealth or as jobs creators changes. What is sustainability in this regard. What happens if credit expansion reaches a real or even virtual limit where the credit regimes we consider the norm in building are simply not tenable.

Studio readings will supplement this question and we will couple this with design work that ideally could affect and instigates new economies of housing.

https://www.bloomberg.com/news/articles/2017-05-06/buffett-laments-roadkill-who-lose-jobs-says-u-s-must-help



## Condition Three: What will artificial intelligence mean for urbanization and energy?

*A.I. Upends Real Estate Speculation: How will artificial intelligence and machine learning alter the what is possible in the built environment? Will AI and machine learning couple with energy to alter development potentials?*

As we see wide movement towards an aggregation of the now ubiquitous term *big data* in science, medicine, banking and communications (et all) what will these means afford in construction, real-estate development and in how we build cities should we begin to truly conflate information at immense scales. Will old models simply be made obsolete and their ROI be too small to be of concern.

We often seem to expect more of the same only more efficiently and pervasively planned? This is not to reference *smart cities* but a more pervasive and global mining of information regarding finance, economics and energy that would have the

potential to deeply alter what is possible and perhaps inevitable.

Will A.I. and machine learning undo entire professions and render the United States or China's housing economies as a few terabytes of data?

What is the future of urban density? Is high density development the best alternative or more so the only sustainable alternative to cities in our near and far future? Instead of mass transit and of high urban density a new low density but energy immersive land use. Discussion of future urban development inevitably points to a standard refrain: cities in the future will need to be developed at a higher density. Claims that urban density is a necessary denominator of sustainable cities are the norm but with new energy production and storage means is this the case?

Land Costs Mean High Density Development but also New Design Engineering: For most of the last century automobiles and low cost fuel (and tax systems) allowed housing and urban development to sprawl and effectively keep housing land prices flat—to control appreciation in land costs as a component of development you could go further from the urban core. That sprawl has long ceased being tenable and land costs at major urban areas are rising faster than building costs. It is possible we are again entering a new phase of expansion reversing this trend to density.

## Condition Four: Renewable or Excess



SIZE OF EARTH
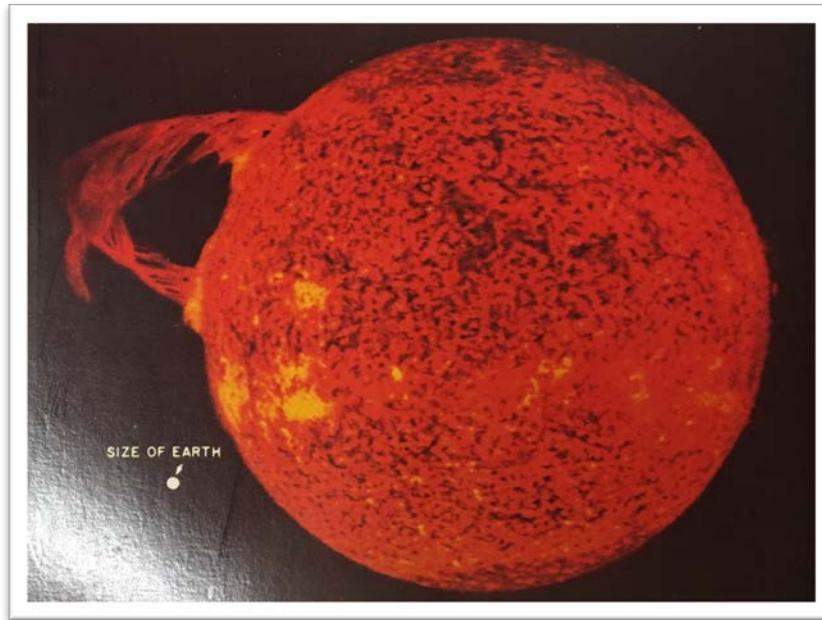
*The author:* George Bataille
*The book:* The Accursed Share

The Accursed Share was a rare but vivid presence in architecture schools in the 1990's.

George Bataille considered himself quasi-embarrassed by the subject of this writing but nonetheless opened the text by calling his work "a book of political economy." He was not an economist nor a specialist in the earth's physics and chemistry but he nonetheless had a fully formed discourse on an economy of energy—on how humans power the world and indeed distribute and share assets. He offered a theory of political economy and described as false the scarcity and lack of energy apportioned by financial markets under the broader auspices of an economy driven by capitalism. Bataille in essence offered a theory that scarcity was a false concept in realms of energy and the earth. Bataille linked economic thought to the world's energy sources in a manner that supposed as fact that the on a daily basis the surface of the earth received more energy than was needed to sustain life. The excess energy needed to be released and spent, indeed squandered to allow renewal and release of excess energy.

*Quote: For some years, being obliged on occasion to answer the question "What are you working on?" I was embarrassed to have to say, "A book of political economy." Coming from me, this venture was disconcerting, at least to those who did not know me well. (The interest that is usually conferred on my books is of a literary sort and this was doubtless to be expected: One cannot as a matter of fact class them in a pre-defined genre.) I am still annoyed when I recall the superficial astonishment that greeted my reply; I had to explain myself, and what I was able to say in a few words was neither precise nor intelligible. Indeed, I had to add that the book I was writing (which I am now publishing) did not consider the facts the way qualified economists do, that I had a point of view from which a human sacrifice, the construction of a*

*church or the gift of a jewel were no less interesting than the sale of wheat. In short, I had to try in vain to make clear the notion of a "general economy" in which the "expenditure" (the "consumption") of wealth, rather than production, was the primary object.*

The Accursed Share' An Essay on General Economy, Georges Bataille. Volume I Consumption; © 1988 Urzone, Inc. ZONE BOOKS, New York; Originally published in France as La Part Maudite © 1967 by Les Editions de Minuit. Distributed by The MIT Press, Cambridge, Massachusetts, and London, England

**Designing Energy**

Solar energy from the sun reaches the earth's surface in 8 minutes.

Fossil fuels, oil and gas form over 250 – 350 million years.

Anyone involved in sustainability and energy knows these measurements and have long sought a transformation of our energy regimes. Whatever the goals the compensatory challenges have seemed intractably staged to stop change (and thus stage environmental calls for change as "revolts"). Blocking sustainability has been market based; there is too much easy money to make in the old energy regimes, too many assets based in fossil fuel protocols, too many stakeholders dedicated to the past. Whatever the source energy expenditures, as we know, are bound to the very nature of modern life. Divided into nomenclatures of housing / office / retail or mobility / production /

leisure. Embedded or transitory. Communications and (solid-state) electronics (chips / transistors and batteries). Energy is our basis and every move removes something from the earth and re-releases it into the literal and social atmosphere. If sustainability has been an ethical question we may concern ourselves with doing the right thing; if sustainability is a matter of survival, we had better find a path. Ethics tied to every step—anxiety and conflict. At the moment, however, most of us cannot stop moving or consuming. Anxiety and conflict have often been a sustenance of sustainability debates, yet, today, the global turn to renewable energy is not only mature but perhaps bound to cause more change then we are prepared to imagine. Will a deep implementation of a renewable energy economy shore up old assets (houses, cars, offices et all) or will possibly instigate entirely new asset classes?

The past century did create new assets and new modes of risk. The economy of the past century also dramatically induced scarcity of all kinds; from food to housing; fuel to land; education to medicine. It simultaneously opened immense branches of low cost communication and global communication.

How will the new energy regimes meet new forms of intelligence; new networks for trade and new means to mine data and information?

Immensely choreographed experiences that has long dominated the experience of cites in the United States seem to face profound levels of change. Highways, Freeways—the transportation infrastructure of the United States portend vast collective expenditures and secure industries yet also have long created a tedium of time and focus. How will we imagine the expense of freeway systems in a new era of mobility?

What does living at the outer edge of a city mean today for social life and for architecture.

Concord Naval Weapons Station is the site of our work but our three sites combine to form a constellation that we hope is a view to the wider economy and its constituencies.



*Beltway 8 and Highway 59, Houston, Texas, Photograph, Michael Bell*

### Value of Construction Put in Place - Seasonally Adjusted Annual Rate
(Millions of dollars. Details may not add to totals due to rounding.)

| | | | | | | |
|---|---|---|---|---|---|---|
| Transportation | 45,901 | 45,656 | 45,382 | 44,989 | 45,118 | 43,395 |
| Communication | 18,295 | 21,532 | 22,628 | 21,777 | 21,033 | 16,368 |
| Power | 87,834 | 88,392 | 86,720 | 87,070 | 86,825 | 83,783 |
| Highway and street | 99,931 | 102,006 | 93,987 | 87,986 | 92,604 | 80,265 |
| Sewage and waste disposal | 25,292 | 25,910 | 24,166 | 23,247 | 24,843 | 24,731 |
| Water supply | 12,378 | 12,152 | 12,174 | 13,171 | 14,132 | 11,998 |

*The Value of Construction Put in Place Survey (VIP) provides monthly estimates of the total dollar value of construction work done in the U.S. The United States Code, Title 13, authorizes this program. The survey covers construction work done each month on new structures or improvements to existing structures for private and public sectors. Data estimates include the cost of labor and materials, cost of architectural and engineering work, overhead costs, interest and taxes paid during construction, and contractor's profits. Data collection and estimation activities begin on the first day after the reference month and continue for about three weeks. Reported data and estimates are for activity taking place during the previous calendar month. The survey has been conducted monthly since 1964.*

Chiaroscuro: Life at the Infrastructural Level Knee Play: Un Cities or Today's Last Mile

A fiction close to reality (see the photograph carefully).

As she left the bus in suburban Orlando on July 18, 2006, at the height of the foreclosure crisis X might have felt the sun on her face.

That day in Florida the humidity was low for summer—85%—but the sun was high and the sky was clear. A clear eye despite the thick air.

She later reported that she was distracted by the jump from the bottom step of the bus to the curb. The gap was not minor and there was no way to bridge this so instead she stepped down onto the asphalt and then with a half gate, a syncopated stutter, she stepped back up the deep grained broom finish of the concrete curb (who had wielded the broom she thought instantly). The 9" wide solid surface, was momentary a floor: she then stepped back down again to the worn compacted grassless soil before finding another broomed concrete surface—an extensive sidewalk.

The nearly new vintage of the sidewalk meant it was supremely flat and planar (not a crack) but the soil on either side was far from even. The sidewalk was a pier. Absolute in its character. No one was here but herself. It seemed no budget had been afforded to control the grade or plantings.

The bus was already in transit before she reached the beam like, and white blinding sidewalk. The last mile—someone would pick her up at the nearby gas station. She had made it almost home: but now was standing near gas pumps, painted curbs and metal bollards that protected a near Styrofoam building. She waited patiently not making eye contact with anyone.

How was this built she thought. The bollard is stronger than the building.

News: In the New York Times, during the summer of 2011, as we were working at MoMA/PS-1 in Queens for an upcoming Museum of Modern Art exhibition on the future of the American suburbs we were alerted to the fact that Florida was home to the most dangerous roadways for pedestrians. Orlando and Tampa were in the top ten. Florida had five of the top ten most dangerous roadways for pedestrian.

Who faced this danger?

Researchers at the DOT had found that it was lower income families and individuals who used mass transit (well, what would be mass transit if it were mass). Navigating the city by bus and then stepping on(to) roads that were never intended for people, the risk of the city was born inordinately by the poorest in the city. After a slow bus ride home in a city of private cars they then stepped into the terrain vague almost as exiles—the risk was real. But if conflated with the emotional timbre of the exposure and objectification of being examined by 1000's of drivers…it is doubly brutal.

Counting the cars on the New Jersey Turnpike: they've all come to look for American. In Florida— down cast eyes conceal anxiety as one traverses the no man's land of the last mile.

*"Albuquerque, New Mexico, 1972," by Lee Friedlander.*

*Friedlander said he deliberately included "those poles and trees and stuff." Things other photographers avoid.*

*The urban world we know and that we constructed this past sixty year has relied on a synthesis of private automobile, private house and public infrastructure. The public and private spending was interlocked in a form of hardware; dimensionalized as concrete, asphalt, metals, polymers, glass and into an energy grid. To many it has become an opaque semiotic field of signals: stop, start, wait, accelerate/velocity. An anthropology of experiences and fundamental human actions—we built this world and laced it into every aspect of our lives.*



*Google Streetview: Albuquerque, New Mexico 2017: 45 years later. Image located by Xiao Wang*
*Change comes slowly in the built environment.*
*How Little Change was made over 45 years. A close examination shows even the same slumped asphalt in the corner of parking lot. The Chevrolet Impala has become a Toyota Prius, C.*
*What kind of change can we expect in the next four decades? How did this change so little in the past?*

SCHEDULE

SEPTEMBER

<u>WEEK ONE</u>

Wednesday      9-6                    Studio Presentations      3:00PM Avery Hall, Wood Auditorium

Thursday       9-7                    First Day of Studio       Avery Hall 600 Level

<u>WEEK TWO</u>

Monday         9-11                    MB Lecture

Thursday       9-14                   HS Workshop / 6 to 8PM

<u>WEEK THREE</u>

Monday         9-18                   HS Workshop / 6 to 8PM

Thursday       9-21

<u>WEEK FOUR</u>

Monday         9-25                   HS Workshop / 6 to 8PM

Thursday       9-28

OCTOBER

<u>WEEK  FIVE</u>

Monday         10-02

Thursday       9-05

<u>WEEK  SIX</u>

Monday         10-09                  HS Workshop / 6 to 8PM

Thursday       10-12

<u>WEEK  SEVEN</u>

Monday         10-16
Wednesday                             MB Studio
Thursday       10-19                  HS Workshop

WEEK EIGHT

Monday          10-23
Wednesday                         MB Studio
Thursday        10-26             HS Workshop


WEEK NINE

Monday          10-30             Mid Term Review        Avery Room 115

Thursday        11-02


NOVEMBER

WEEK TEN

Monday          11-06

Thursday        11-09


WEEK ELEVEN

Monday          11-13

Thursday        11-16


WEEK TWELVE

Monday          11-20

Thursday        11-23             No Studio Meeting


WEEK THIRTEEN

Monday          11-27

Thursday        11-30


DECEMBER

WEEK FOURTEEN

Monday          12-04

Friday          12-08             Buell 300 North and South, Final Review