ARCHITECTURE +
COMPUTATIONAL DESIGN
M.ARCH 2012
WASHINGTON UNIVERSITY
IN ST. LOUIS
B.S.ARCH 2009
UNIVERSITY OF VIRGINIA

SARAH AIPRA KOTT
SARAHKOTT@GMAIL.COM

nbbj | 2015-2018

SEATTLE OPERA AT THE CENTER

Seattle Opera At the Center (SOATC) is a 105,000sf facility completed in 2018 that marks the gateway to Seattle Center's new Theatre District. SOATC creates a reenergized front door for the Seattle Opera at McCaw Hall, showcasing the production side of its extraordinary craft. The new home for Seattle Opera is celebrated with a large shared performance space at the corner, to engage the community with the creativity and drama of making opera.

The building's facade formally links the existing performance space of McCaw Hall to the new community performance space with theatrical "scrim"-like panels. This performative facade prompted the team to leverage a parameter-driven process and computational design.

I led the team's computational modeling and design to study a range of options for the scrim facade, with parameters built in at multiple scales-- from controlling the overall formal expression, to instantiating different panel designs across the facade, and ultimately comparing different connection details at each individual panel.

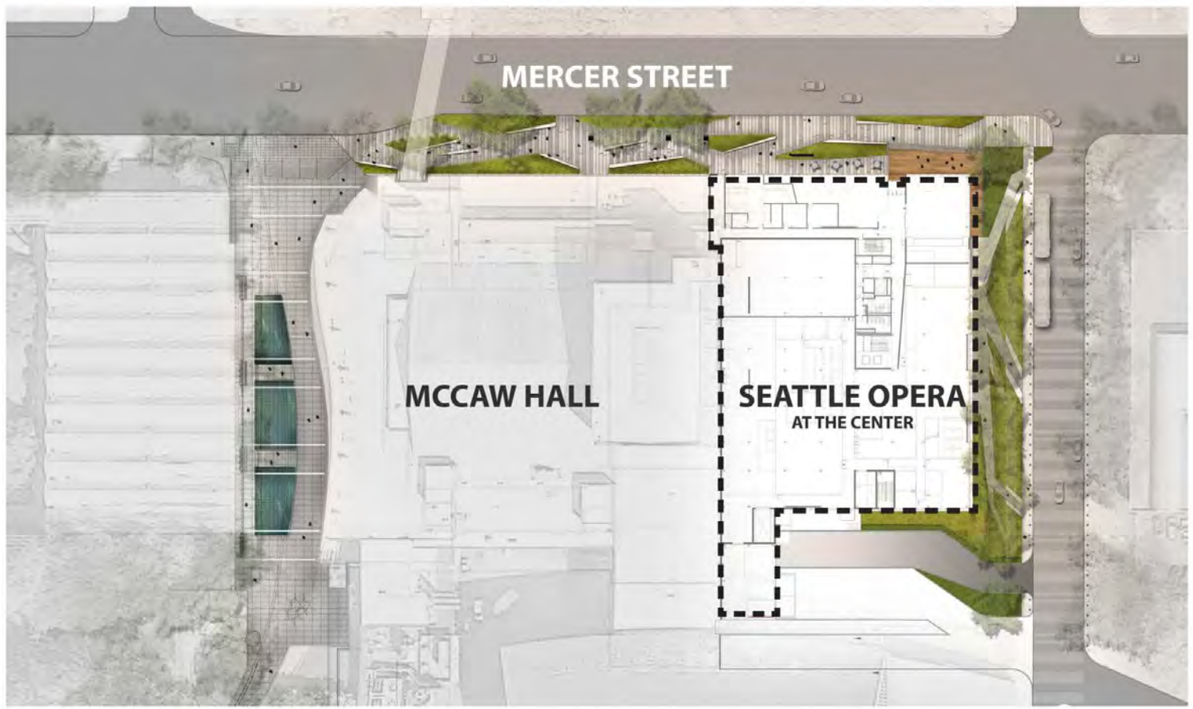
Additionally, I authored a series of computational tools in order to analyze glass maintenance access and lighting integration.

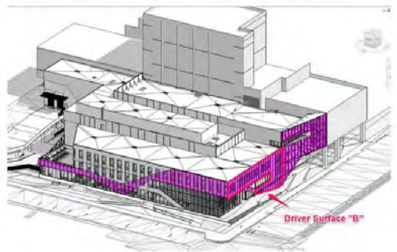
rendering by Motiv

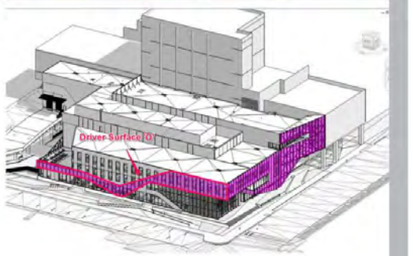
Build Relationships

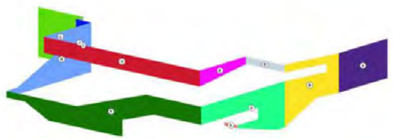
Extend Existing Identity

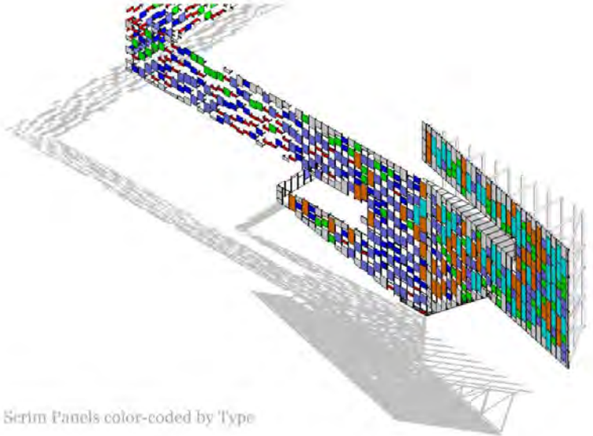
Form Connections



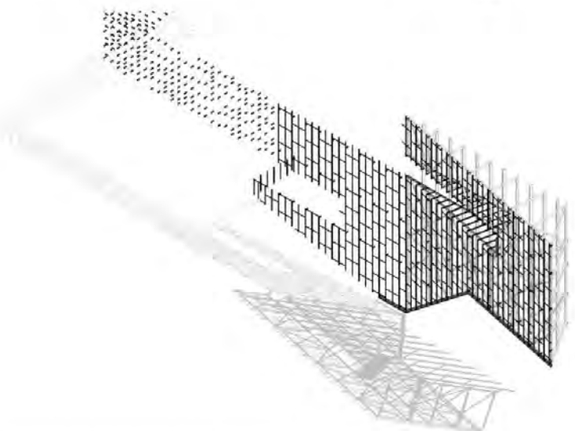




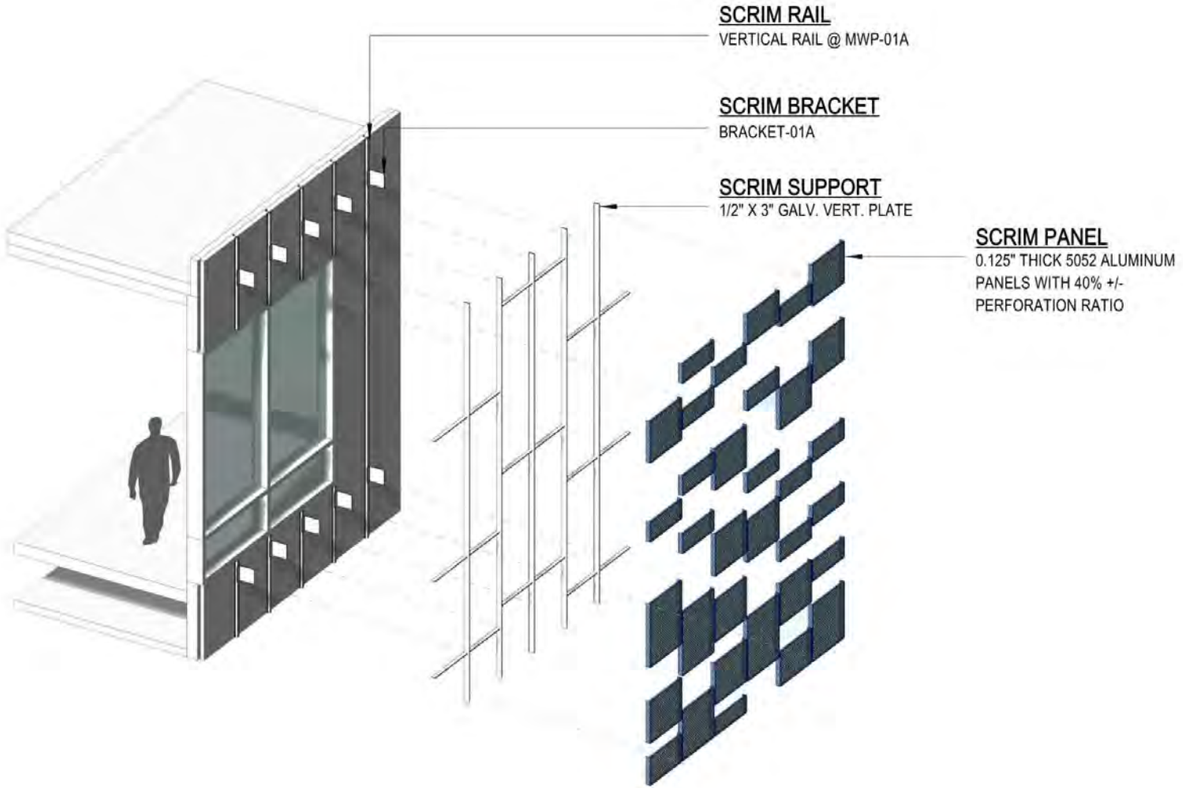


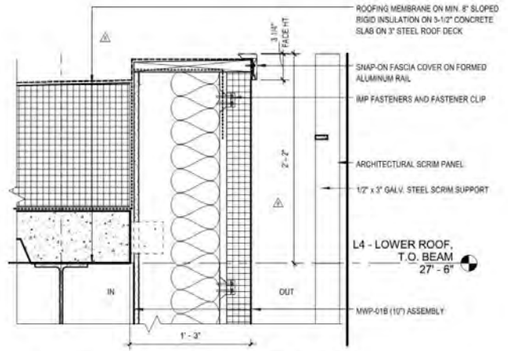


Scrim Panels color-coded by Type

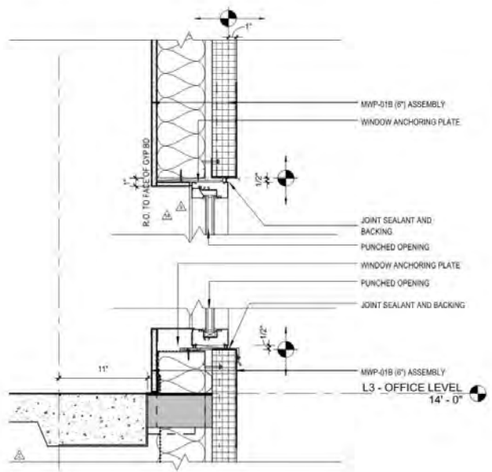


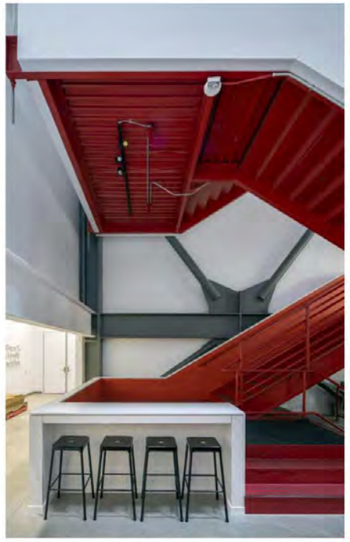
Scrim Back-up System Frames and Brackets

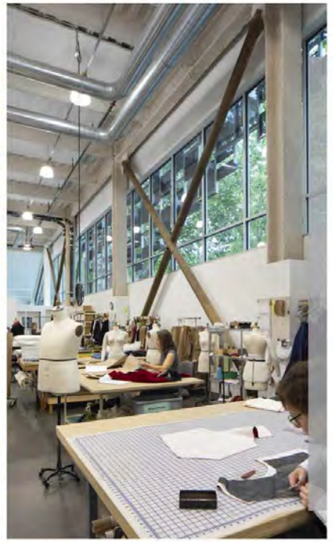




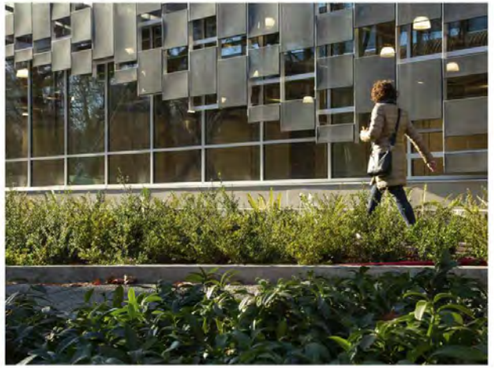
1 ROOF FASCIA @ MWP-01B ON 6.5" ROOF DECK
SCALE: 1 1/2" = 1'-0"







photos by Sean Airhart, Nbbj



nbbj | 2021

PENPLACE AMAZON'S HQ2 AT ARLINGTON

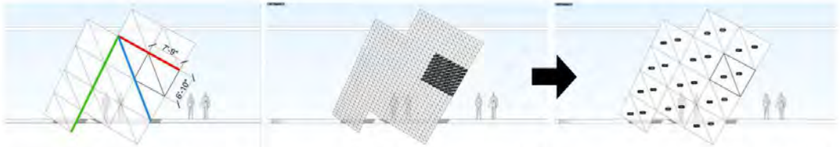
I was invited to assist the PenPlace design team, led by Dale Alberda, with the solar analysis and facade louver ('fin') study. This study was in an effort to reduce the building's overall cooling loads. In order to do so, I set up a baseline incident solar radiation model using the latest Ladybug for Grasshopper (Rhino) plug-in.

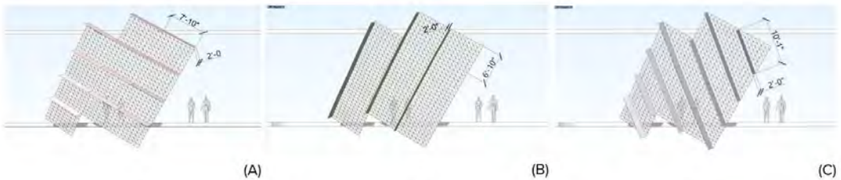
The baseline insolation model allowed the PenPlace design team, including our Design Performance Group leads Nate Holland and Peter Alspach to visualize the "high impact zones" across the facade (the areas glowing red and orange), and define targeted insolation (kwh/m2) thresholds-- to identify where a louver intervention would be the most impactful.

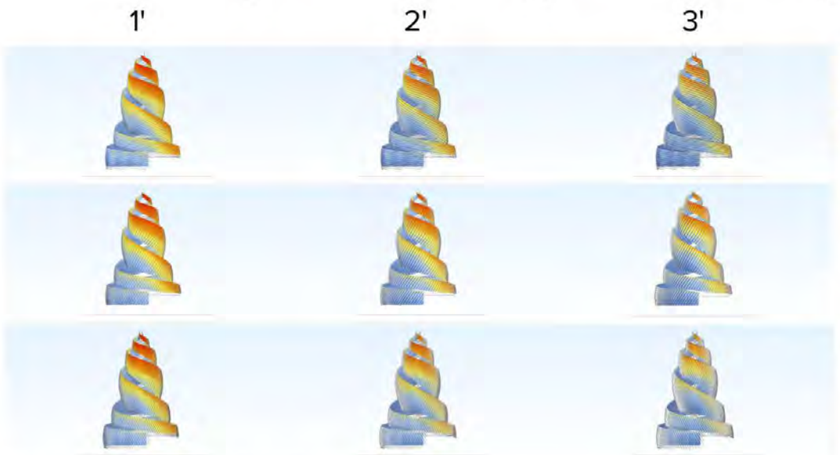
I worked with lead facade designer Carsten Stinn to dial in the depth of scheme 'A', keeping our target (kwh/m2) thresholds in mind. This allows us to strategically sculpt the fin depth where it is needed most, and will do the most work (material area : performance ratio)

The end result was a series of smoothly sculpted fins, which elegantly enhance the underlying helix geometry while increasing in depth where solar shading is needed the most.

rendering by Luis Padron, Nbbj

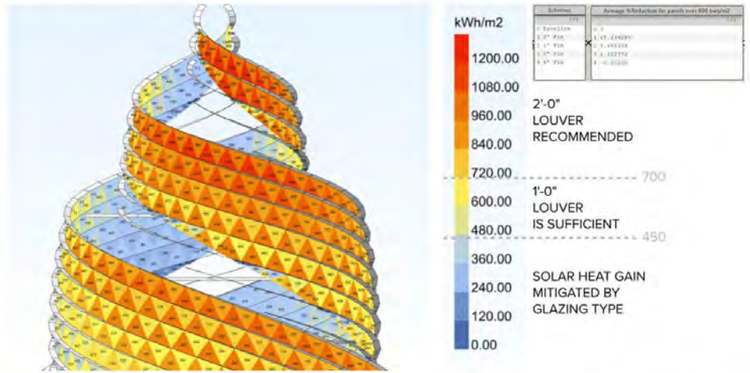






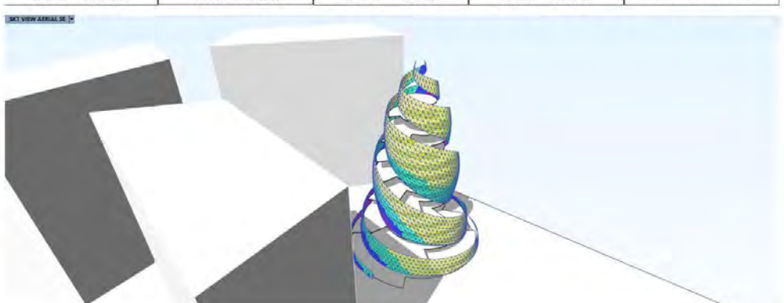
Incident Solar Radiation "Fin" Study - South Elevation

A1	B1	C1	A2	B2	C2	A3	B3	C3	Baseline (kW/m2)
4,912,700.00	5,084,100.00	4,986,100.00	4,115,200.00	4,507,200.00	4,277,800.00	3,487,400.00	4,040,900.00	3,732,600.00	5,351,600.00
8.201%	4.999%	6.830%	23.103%	15.778%	20.065%	34.834%	24.492%	30.253% percent reduction	



TOTAL INSOLATION (KWH)	% REDUCTION	TOTAL QTY 'FINS'	TOTAL 'FIN' AREA
4,400,300	15.11%	2,081	23,426 SF

2'-0" FINS	1'-6" FINS	1'-0" FINS	0'-6" FINS	NO FIN
600 - 1250	400 - 600	300 - 400	200 - 300	LESS THAN 200



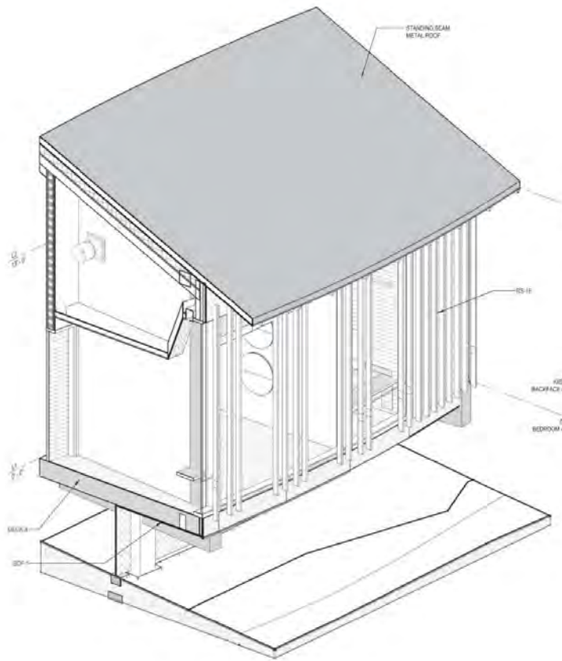
nbbj | 2021-2022

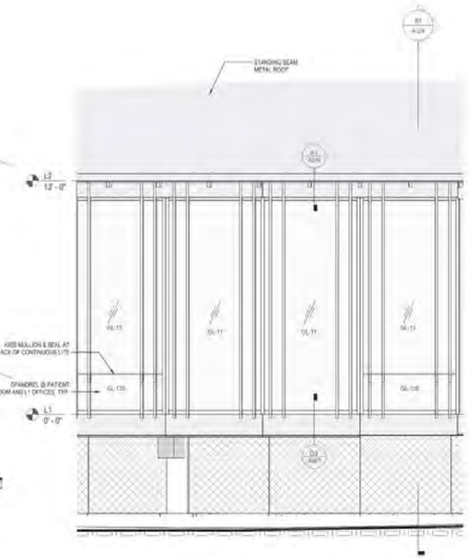
MONTAGE OHANA CENTER FOR HEALTH

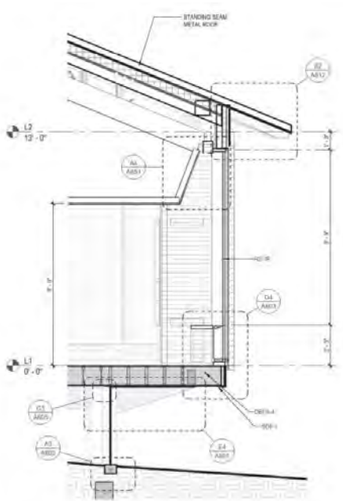
Montage Ohana is 55,000 SF Behavioral Health facility nestled in the undulating hills of Monterey, CA. The overall building form is created from intersecting circular curves, which result in three tiers of serpentine-esque pavilions. These pavilions frame various outdoor gardens, private patios, and a communal outdoor amphitheater. The primary load-bearing structure is Cross-Laminated Timber (CLT), a pre-fabricated engineered wood that is able to be assembled in modular components off-site. The use of CLT contributes to the building's low embodied carbon goals, as well as helping to streamline cost and schedule.

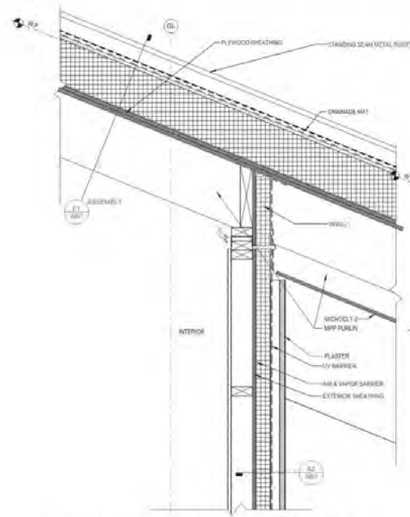
I was invited to join the Montage Ohana project team during Construction Administration to help evolve a series of interior and exterior details regarding constructability. Our small team worked directly with the contractors and fabricators to detail the exterior Micro-CLT rainscreen panels as well as interior Micro-CLT ceiling panels. While the exterior cladding was faceted, and able to take on orthogonal geometries-- the interior ceiling panels adhered to the conical geometry of the building's vaulted roof. Our team studied a series of panel layouts in order to minimize material waste, as well as organize and coordinate the associated ceiling devices.

exterior rendering by Joo Oh, Nbbj

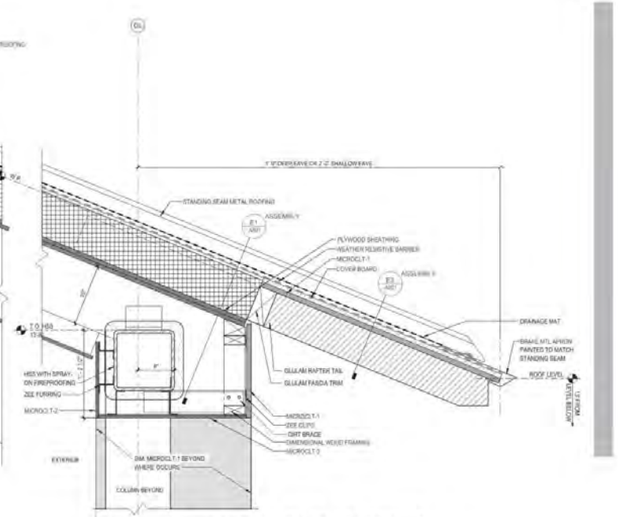




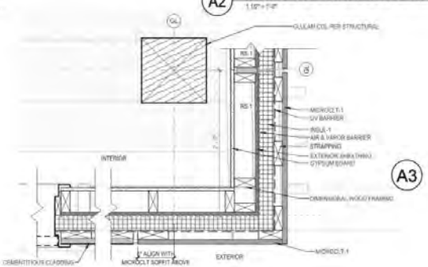




A1 SECTION - ROOF-1 TO OVERHANG @ RS-2
1 1/2" = 1'-0"



A2 SECTION - ROOF-1 OVERHANG
1 1/2" = 1'-0"



A3 PLAN - CORNER PANEL
1 1/2" = 1'-0"

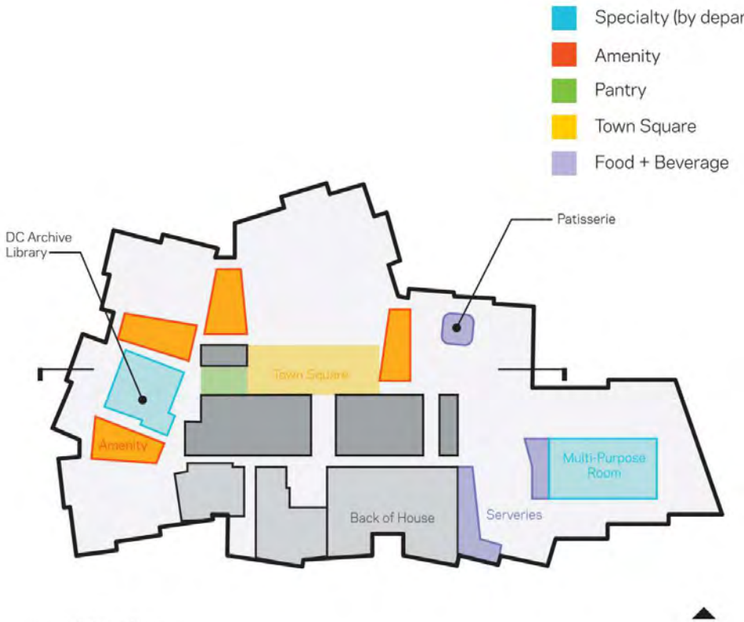
nbbj | 2019-2020

WARNER BROS. SECOND CENTURY TI

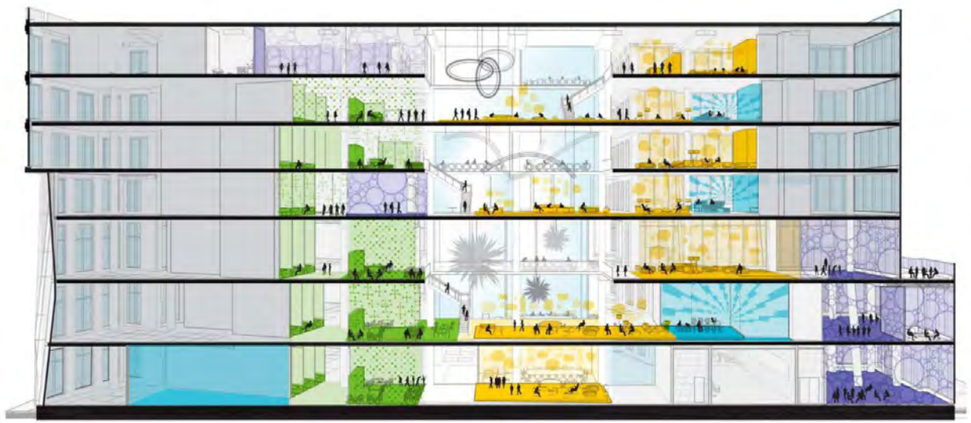
Warner Bros. 'Second Century' Headquarters is a 800,000 SF commercial office building constructed 2020 - 2023. Core/Shell design is by Gehry Partners with all Tenant Improvement scope-- programming, design and coordination by NBBJ. The two towers are divided into 'Phase 1' and 'Phase 2', 7 floors and 9 floors respectively, and accommodate a total of 3,600 employees across 30 departments. The NBBJ project team was led by Corporate/Commercial practices leaders Kelly Griffin and Andrea Vanecko alongside Lead Interior Designer Ashlie Fuller.

I supported our lead interior designers as the team's job captain-- provided technical coordination and documentation, and acted as the primary liaison between TI design and the Core/Shell architect. I partnered with another Architect on the project to divide the coordination scope up by trade. I led Structural, MEP, Food Service, Waste Management, and Fire Life Safety coordination while my PA counterpart led Acoustics, AV/Low Voltage, and Sustainability. We alternated leading the weekly consultant coordination meetings in order to break down the scale of the project into smaller zones, and continue the development of design and documentation along the way.

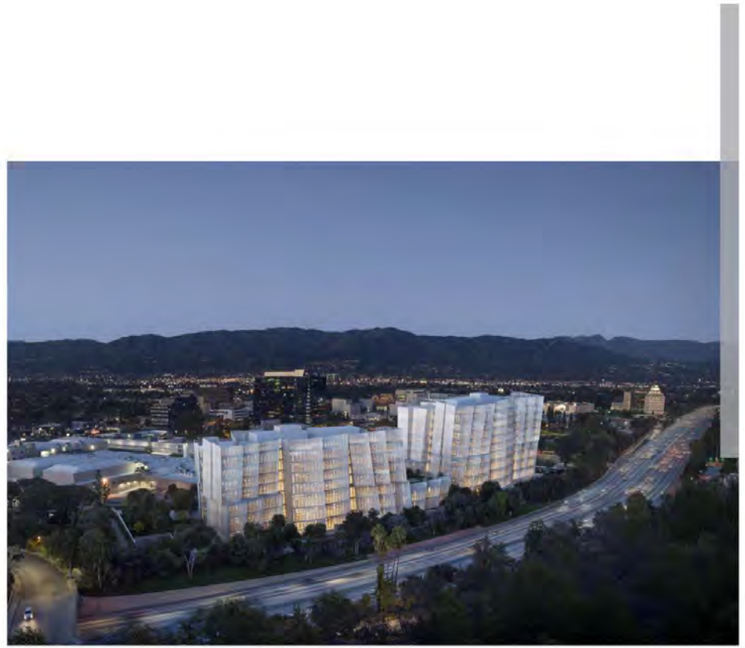
interior design and rendering by Josie Park, Nbbj



ground floor diagram

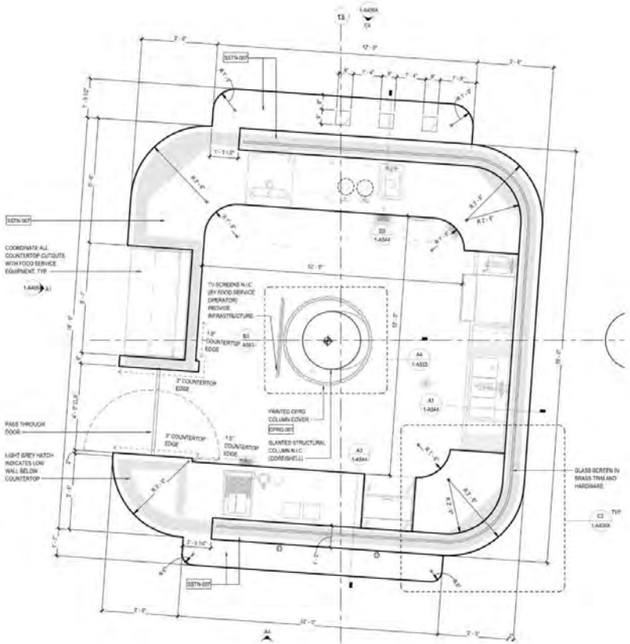


section diagram



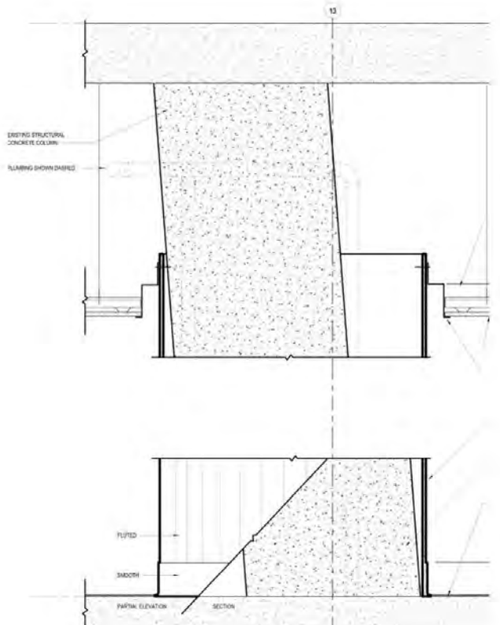
core-shell rendering c/o Gehry Partners

patisserie coordination and documentation



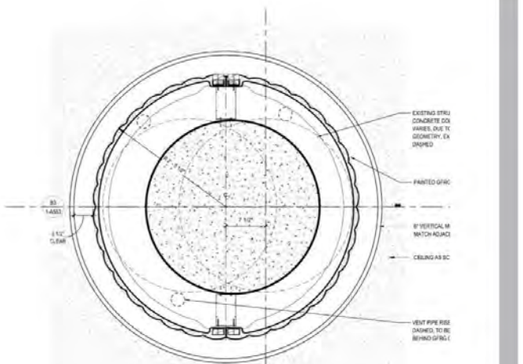
A1 ENLARGED FLOOR PLAN - L1 - SERVERY 04 PATISSERIE

1/2" = 1'-0" REF: 1.A.01



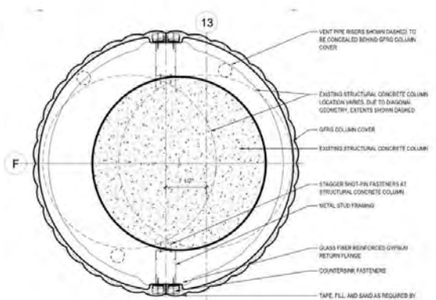
B3 L1 PATISSERIE COLUMN - SECTION

1 1/2" = 1'-0" REF: 1.A.02



C2 L1 PATISSERIE COLUMN - RCP DETAIL

1 1/2" = 1'-0" REF: 1.A.01



A4 GFRG COLUMN WRAP @ L1 PATISSERIE

1 1/2" = 1'-0" REF: 1.A.02

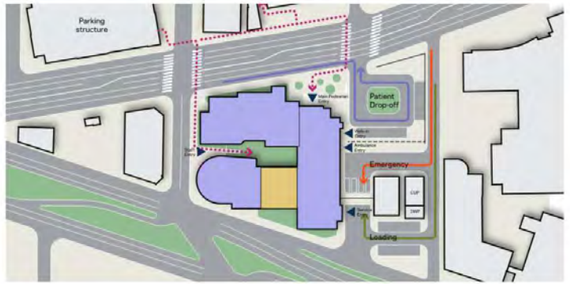
nbbj | 2022

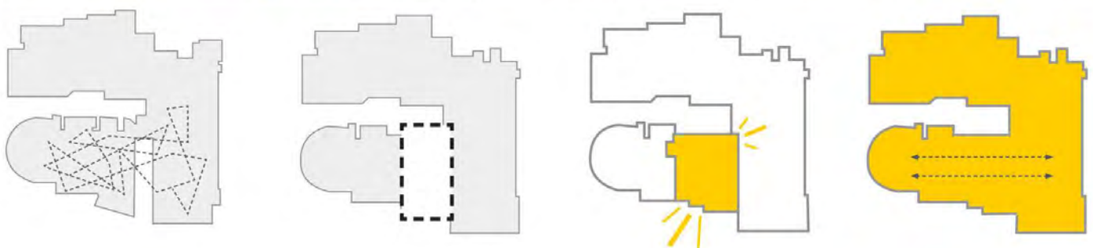
D/B PROPOSAL FOR BEHAVIORAL HEALTH HOSPITAL

We partnered with a General Contractor on a Design/Build renovation of an existing medical building to become a new behavioral health hospital in the Mid-Wilshire neighborhood of Los Angeles. For this 6 week competition I worked directly with the Design Principle to iterate on formal, organizational, and exterior facade concepts. I also led the building performance narrative including our goals for reduced embodied carbon, renewable energy, and LEED Platinum. The larger team included medical planners, technical architects, and engineers.

rendering by Atchain

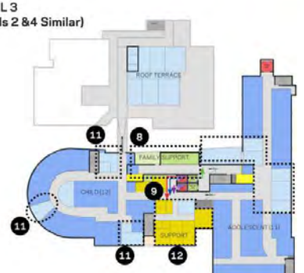
rendering by Atchain





LEVEL 1

LEVEL 3
(Levels 2 &4 Similar)



Lifecycle Carbon Reduction

We estimate being able to maintain 60% or more of the total existing building structure and envelope. For the upgraded facade area, we project there to be a carbon emissions trade-off from the enhanced operational performance that will offset any embodied carbon required for the new construction.

Self-Shading Facade

The facade geometry is designed to self-shade the glazing, specifically on the east, south and west facing facades. This passive strategy reduces overall solar heat gain on the building, improves thermal comfort and helps to reduce HVAC peak cooling loads.

High-Performing Materials

All facades will be upgraded to improve the overall thermal envelope performance. Proposed facade materials include a terracotta rainscreen assembly which prioritizes high thermal performance as well as low embodied carbon.

PV Ready

Penthouse roofs provide capacity for 190 kW of PV, with an annual estimated production of 312,000 kWh/yr. Future PV area accounts for 3.7%* of the estimated facility energy use.

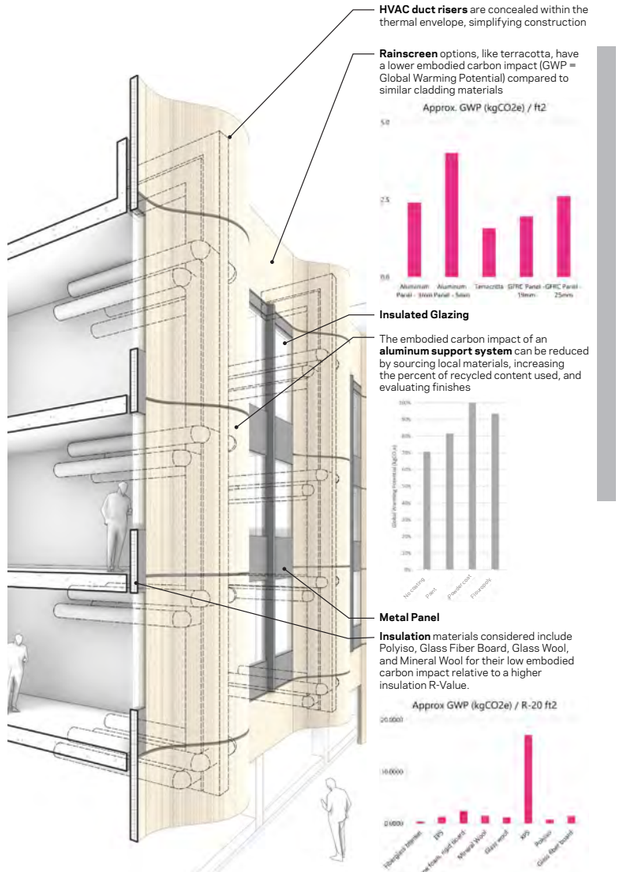
**Percent estimated is of an all-electric facility meeting OCEAN EUI target of 160 kBTU/SF-yr.*

Access to Nature

Glazing is maximized at the north-facing facade to take advantage of views to the planted courtyard and roof decks. Direct access to an exterior porch or roof terrace is provided at every level to allow all patient groups and staff the ability to access nature.

Envelope Integrated HVAC

The exterior ductwork has been integrated into the thermal envelope, informing the facade geometry. This simplifies exterior detailing and removes the need for a second facade "screen"-- eliminating visual noise and providing increased access to unobstructed views.



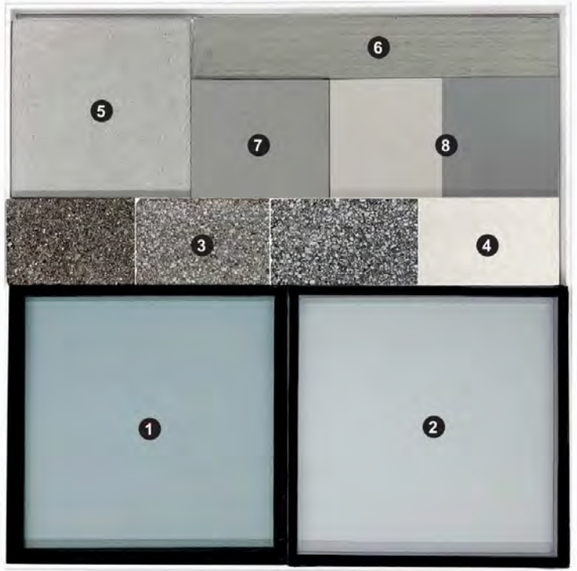
SOM| 2019

LA WORLD AIRPORTS POLICE HQ

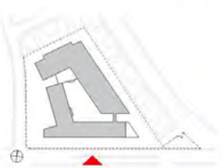
As a Project Designer and Project BIM Lead at Skidmore Owings and Merrill, I contributed on both commercial and civic project teams-- including the 160,000 SF Los Angeles World Airports Police Department Headquarters.

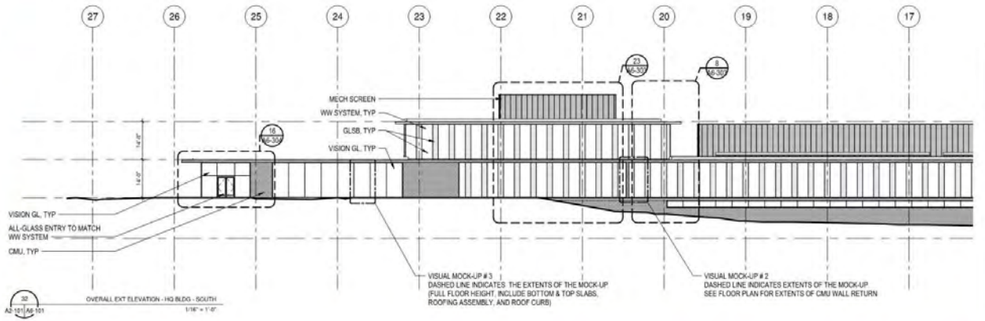
On the LAWA Police HQ, I worked with the Design Director to study options for facade articulation, the Community Room and main entry, as well as the facility's feature stair.

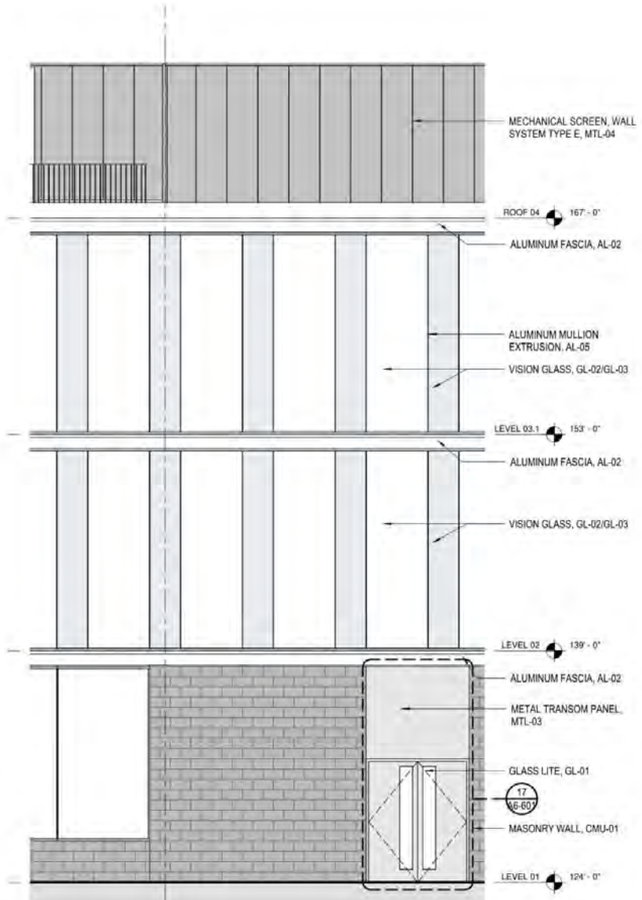
In addition to project specific roles, I participated in firm-wide design technology initiatives, and assisted project teams with GIS mapping, parametric 3d modeling in Rhino/Grasshopper, and data management in Revit/Dynamo.

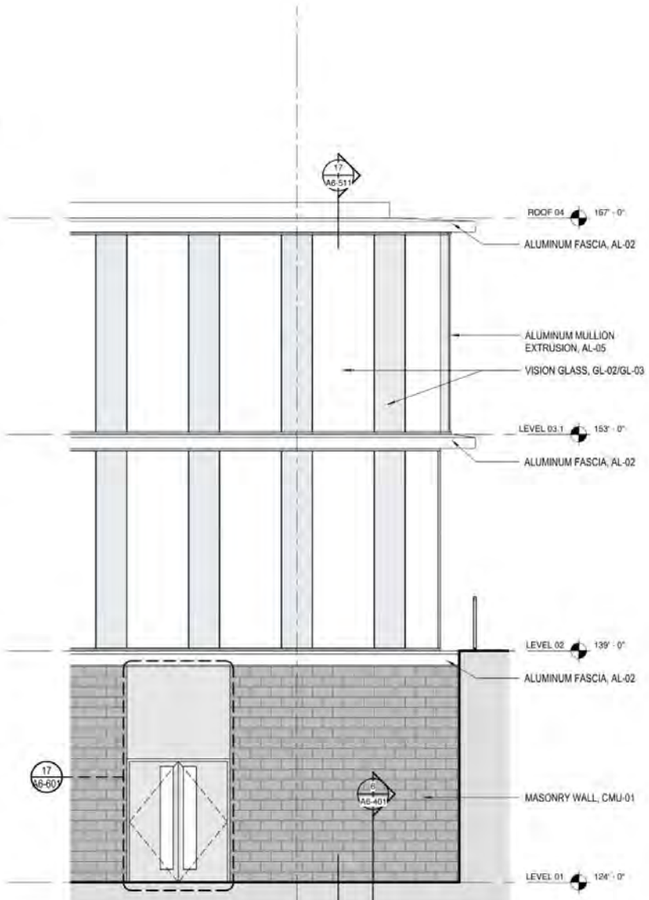


1. VISION GLASS PANEL
2. OPAQUE GLASS PANEL
3. CONCRETE MASONRY
4. STAINLESS STEEL
5. POLISHED CONCRETE
6. ARCHITECTURAL CONCRETE
7. PAINTED CONCRETE
8. PAINTED METAL






MECHANICAL SCREEN, WALL SYSTEM TYPE E, MTL-04
ROOF 04 167' - 0"
ALUMINUM FASCIA, AL-02
ALUMINUM MULLION EXTRUSION, AL-05
VISION GLASS, GL-02/GL-03
LEVEL 03.1 153' - 0"
ALUMINUM FASCIA, AL-02
VISION GLASS, GL-02/GL-03
LEVEL 02 139' - 0"
ALUMINUM FASCIA, AL-02
METAL TRANSOM PANEL, MTL-03
GLASS LITE, GL-01
17 A6-601
MASONRY WALL, CMU-01
LEVEL 01 124' - 0"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ROOF 04 167' - 0"
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ALUMINUM MULLION EXTRUSION, AL-05
VISION GLASS, GL-02/GL-03
LEVEL 03.1 153' - 0"
ALUMINUM FASCIA, AL-02
LEVEL 02 139' - 0"
ALUMINUM FASCIA, AL-02
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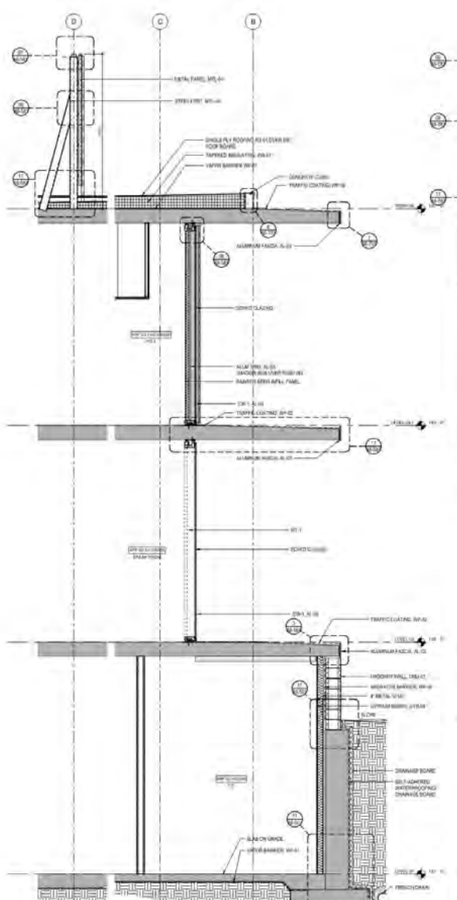
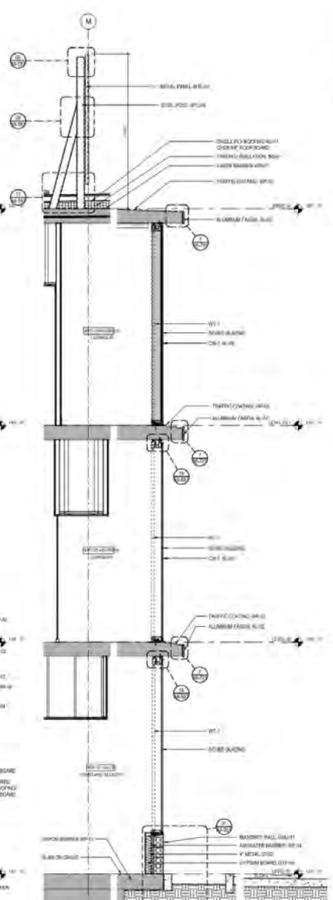
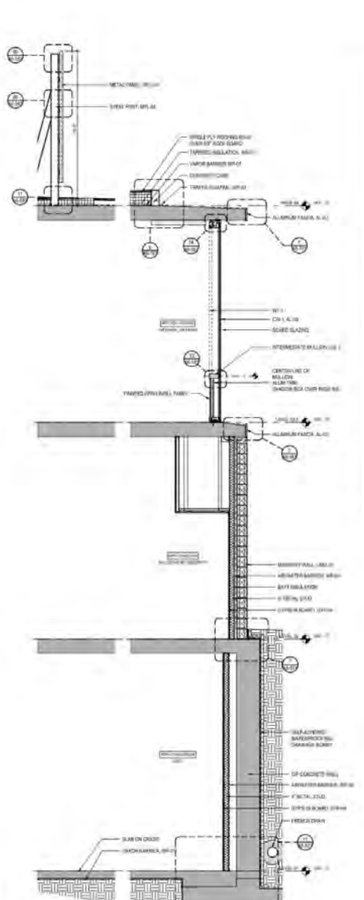
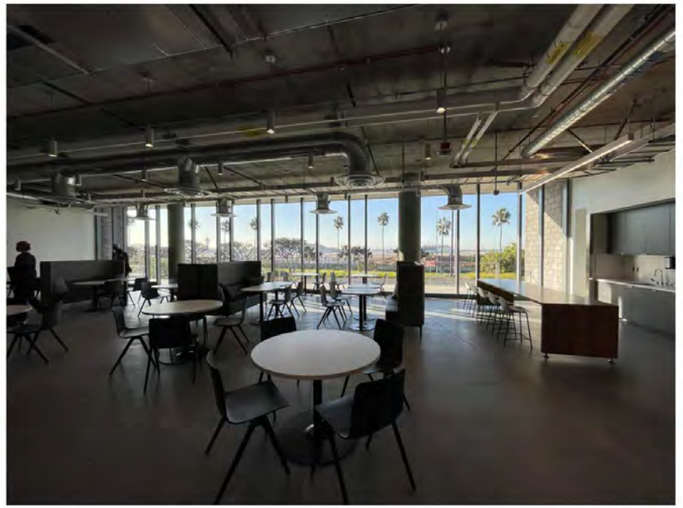
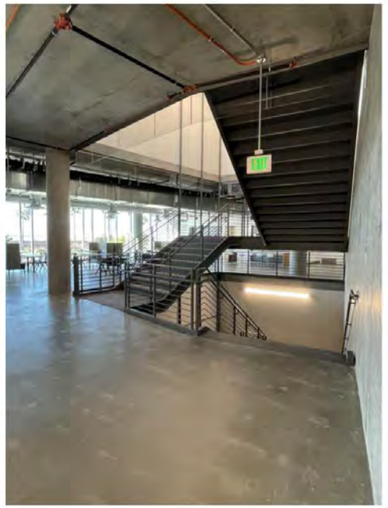
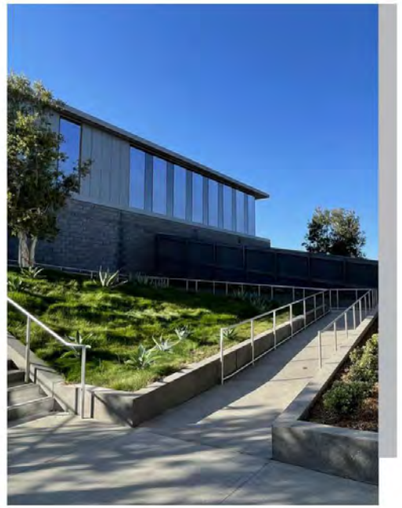
A A6-401
MASONRY WALL, CMU-01
LEVEL 01 124' - 0"









spf:a|2015

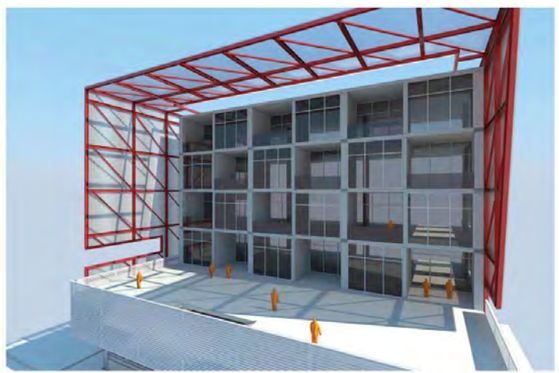
WE3 AT WATER'S EDGE

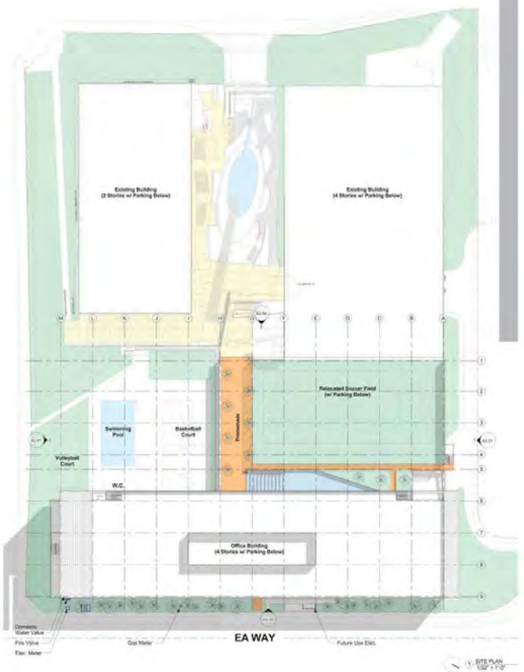
I joined Studio Pali Fekete Architects in the spring of 2015. Although only at SPF:A for six months before relocating to Seattle from Los Angeles, I was able to contribute to several built (or currently under construction) projects in the region including 'WE3 Water's Edge' commercial office space in Playa Vista, and the 'Michelle and Barack Obama Sports Center' (formerly the Rancho Cienega Sports Complex) in the Baldwin Hills neighborhood of Los Angeles.

'WE3 at Water's Edge' is 160,000 SF Commercial Office space designed with open floor plans that take advantage of the Southern California climate by providing access from an exterior walkway. The mass of the building is broken down and dematerialized by the playful perforated metal facade, which derives its pattern from pools of light and shadow across rippled water. My role included facade material research, design and development of the perforated rain screen, balcony design, wall section development, study models, presentation boards and final models, site plan development, as well as coordination with vendors, landscape architects, and structural engineers.

'WE3 at Water's Edge' was recently completed in 2021, and the 'Michelle and Barack Obama Sports Center' is currently in construction, scheduled to be completed by 2022.

photo by Spf:a




Existing Building
(2 Stories w/ Parking Below)
Existing Building
(4 Stories w/ Parking Below)
Relocated Soccer Field
(w/ Parking Below)
Swimming
Pool
Basketball
Court
Volleyball
Court
W.C.
Office Building
(4 Stories w/ Parking Below)
EA WAY

morphosis| 2013-2015

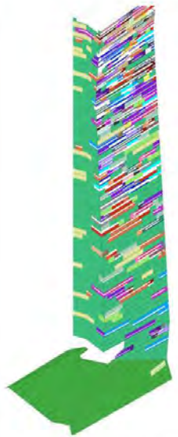
HANKING CENTER TOWER

Hanking Center Tower is a 360M tall tower that recenty completed construction in Shenzhen, China. I joined the team at the end of SD, and initially led the team in setting up a parametric massing model to test structural geometric constraints against formal and F.A.R. implications.

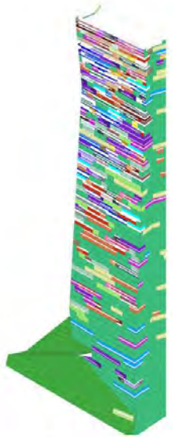
During my first year on this project, I led the design of a proposed second-skin facade as well as the design of the main interior commercial atrium space. This process included 50+ conceptual iterations using computational tools, progress rendering, and 3d printed physical models. The designs were developed further through the rationalization of complex surface geometry, optimization of infinite variability to a discrete number of panel types, and final documentation of these systems.

As we completed DD, I transitioned to a lead facade design role on another project, yet still provided computational support on Hanking Center Tower. This role included constructing and managing a 'Control Point Model' for the exterior envelope-- including the interface between eight different façade systems, over 100 control surfaces, and over 1,000 control points synchronized between multiple 3d digital models and their unrolled elevations.

rendering by Sam Tannenbaum, Morphosis

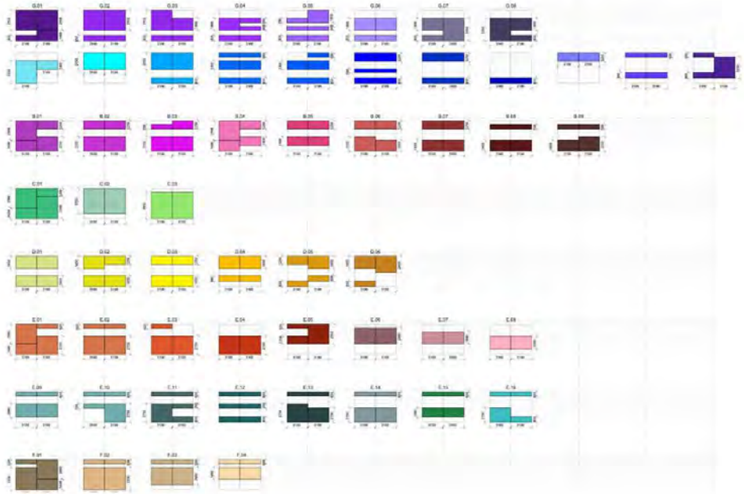


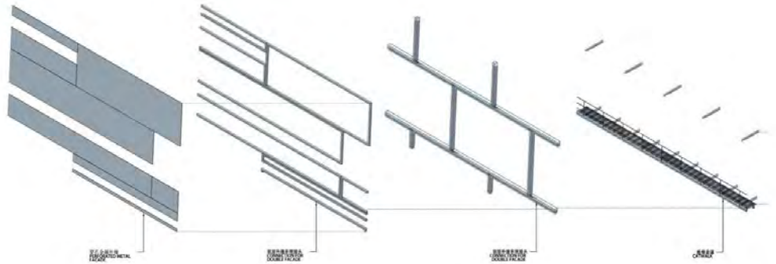
SW Outer Facade

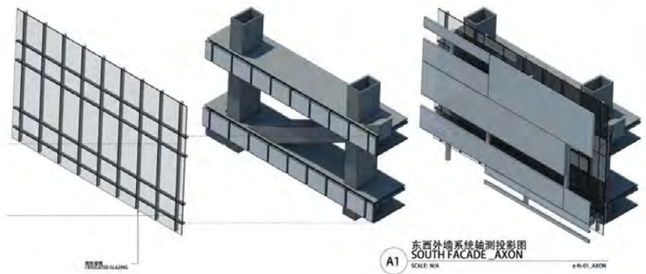


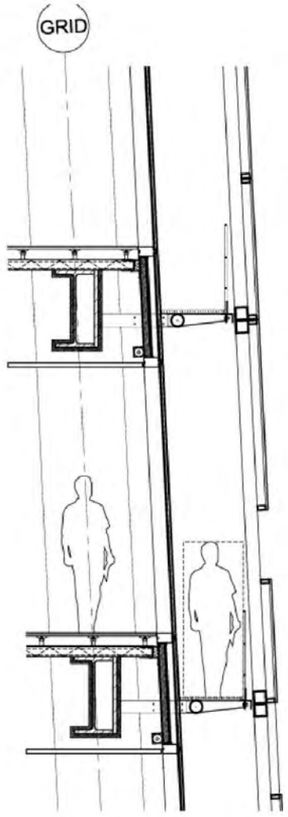
SE Outer Facade

NW Outer Facade









中区
MIDDLE ZONE
B

rendering by Luxigon

photo c/o Morphosis

morphosis| 2013-2015

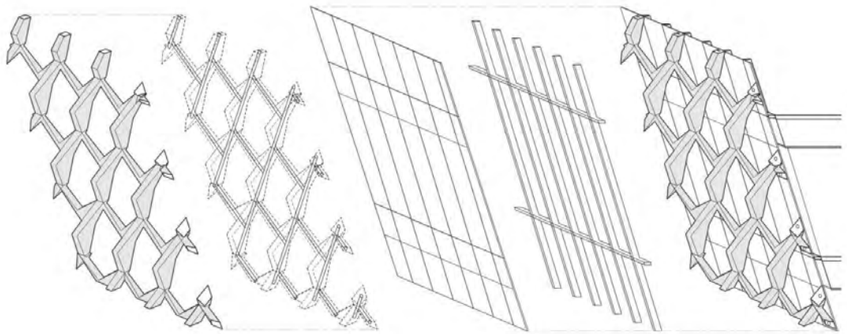
KOLON FUTURE RESEARCH PARK

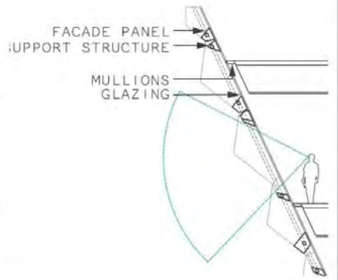
Kolon Future Research Park is a 67,000m2 lab building currently under construction in Seoul, Korea. I joined the team towards the end of Schematic Design to lead in the project's façade design and building performance integration.

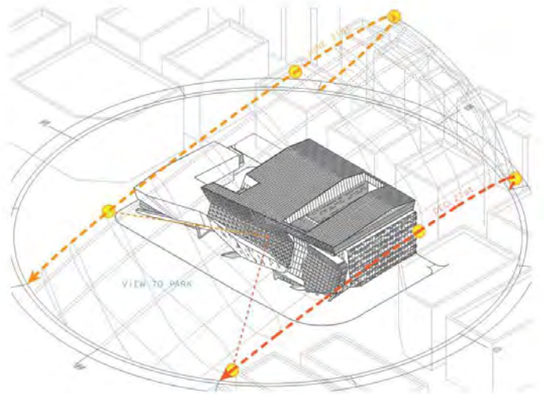
I led the team in optimal shading studies for the west and south facades, as well as incident solar radiation studies for the overall building. I inserted the analysis data as a parameter into a series of parametric form-generating algorithims, to consistently inform the design process as formal explorations evolved.

Through several iterations, I developed the preferred scheme to the level of a full-scale FRP fabrication mock-up. This process involved researching fabrication methods, types of assembly, and various material options. Simultaneously, I led our team's coordination with facade engineering consultants and developed the system in further techtonic detail, in order to produce working drawings for the 50% DD submission.

photo c/o Morphosis




FACADE PANEL
SUPPORT STRUCTURE
MULLIONS
GLAZING


VIEW TO PARK

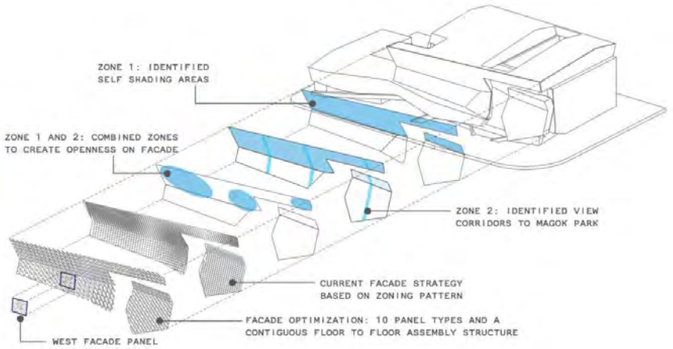

ZONE 1: IDENTIFIED
SELF SHADING AREAS
ZONE 1 AND 2: COMBINED ZONES
TO CREATE OPENNESS ON FACADE
ZONE 2: IDENTIFIED VIEW
CORRIDORS TO MAGOK PARK
CURRENT FACADE STRATEGY
BASED ON ZONING PATTERN
FACADE OPTIMIZATION: 10 PANEL TYPES AND A
CONTIGUOUS FLOOR TO FLOOR ASSEMBLY STRUCTURE
WEST FACADE PANEL

photo c/o Morphosis