

Interface: Contextualizing the workplace of software design in Seattle's Pioneer Square

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A thesis
submitted in partial fulfillment of the
requirements for the degree of

Master of Architecture

University of Washington

2015

Committee:

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Program Authorized to Offer Degree:

Architecture

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Abstract

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The physical environment of digital workplaces, particularly those of software development companies, typically do not have a functional relationship with the type of work being done there. As a result, the architecture of these workplaces is often treated as an unessential part of the workplace. This thesis proposes a solution to this problem by incorporating the architecture as a vital component of the workplace that reflects and responds to the needs of software developers and designers.

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I: INTRODUCTION

Over the last several decades the nature of work has changed dramatically, fueled by new industries and new technologies. However, the built environment of the workplace has changed little over this time, clinging instead to the old building typologies that followed the Second World War, designed to maximize productivity for the greatest variety of uses. This approach has little functional relationship with the type of work being done and has not kept up with the changing demands of the modern workplace. Furthermore, electronic communication and mobile computing have served to diminish the importance of the physical environment of the workplace, relying on email and telecommuting instead. As more and more businesses begin to adopt team-based models of working, the importance of collaboration is greater than ever before, allowing businesses that facilitate an environment for innovation and collaboration to thrive.

This is perhaps most clearly seen in the field of software design which lives at the cutting edge of technology and whose impact is now firmly entrenched in our daily lives. In order to remain relevant, software must keep pace with modern technology and the needs that are created from it. With the technology industry dominated by giants like Microsoft, Apple and Google, competition is fierce, so software design must be innovative to be successful. Many of the larger companies have continued to utilize the old building typologies for their work environments, relying instead on a “campus” approach to create a collegiate environment for collaboration. This approach leads



Figure 1. Original Microsoft campus in Redmond, Washington.

to isolation from context, an invaluable resource for innovation through exposure to new ideas and fresh points of view. It also serves to further separate the software designer from the people who use the software. The generic approach of the office floor plate reinforces a hierarchical status-based system of organization and not one that complements the team-based structure that is associated with software design.

In addition to being a team-based profession software development also requires cross-team communication and collaboration to advance ideas and solve problems. Like many design professions, a more successful team relies on distribution of expertise among its members. Rather than facilitating it, reliance on digital communication can actually hamper access to this expertise in a team environment where collaboration and consultation is essential. A work environment that creates opportunities for regular interaction and easy access to team members can be much more effective and timely than waiting for an email response, and has the advantage of providing more interaction. These things can support an environment of creative problem solving and idea generation which are essential to software design.

This thesis proposes a different approach to the digital workplace of software development where the architecture responds directly to the needs of the profession of software design. By focusing on the creation of work environments that support the needs of creative problem-solving, collaboration and cross-pollination of ideas, the digital workplace will have a complementary relationship with the type of work being done. This will result in the best work getting done in that location rather than through virtual communication mediums like email and telecommuting.

To strengthen the role of the workplace, it will be located where daily interaction is possible with like-minded people from similar professions as well as providing the opportunity to cross paths with the users of the devices that the software is for. This will maintain a connection between the software designers and their target market, allowing for the end product and the design process that directs it to retain a strong level of congruence. For this reason, the project will be located in Pioneer Square. In addition to being a lively urban village with a consistent level of activity extending beyond work hours and throughout the week, it has a consistent architectural character as most of the buildings in this preservation district were built immediately following the Great Seattle Fire in 1889. Being the former commercial core of the city, Pioneer Square also has a long history as being a place of work – but also work in proximity to other activities.

By placing a modern workplace within one of these historic buildings in an adaptive reuse strategy, a dialog can be created between the old building forms of the past and the needs of the modern workplace that responds to the type of work being done. In addition, by siting this workplace in Pioneer Square, the project can respond to and be served by its context, allowing software design to remain relevant and constantly exposed to new ideas, potential partners and, ideally, the users of their labor – all while creating a strong sense of place within the existing urban fabric.

II: THE DIGITAL WORKPLACE

The Software Development Cycle

Advances in computers and software over the past three decades have fundamentally changed the nature of work and the dynamics of the modern workplace. Michael Brill was an internationally-acclaimed expert in workplace design and he characterized the organizational changes facing the modern workplace as being fundamental and permanent.¹ At the forefront of this change are the software development companies that design the software that drive this change. These companies are faced with the technical challenge of designing and producing software to meet specific tasks in a short period of time. Also in line with Brill's assessment of businesses of the future, these companies must be nimble and entrepreneurial in nature, in order to be successful.

Software development companies, in addition to being faced with the enormous technical challenges of designing software for the most advanced digital devices available, also follow a well-established process for designing, producing and delivering software. This cycle determines the requirements of the workplace which change at a given point in the cycle. In the initial design stages, collaboration and innovation are of greatest importance. The architectural implications of this are an increased need for meeting spaces and greater access to knowledge and expertise. When the process



Figure 2. The many stages of the software development cycle. (see appendix for larger image)

¹ Michael Brill, *Now Offices, No Offices, New Offices*, p. 2

moves into the coding stages, these requirements remain, but a greater emphasis on focus work (coding) and creative problem-solving takes precedence. As the process moves into the testing and staging phases, prior to deployment, space is needed to test the software. If the software is for a specific device, all possible variations of those devices must be accounted for in order to foresee any incompatibilities.

The changing needs of the software development cycle require a flexible work environment that supports a variety of activities ranging from quiet focus work to active group collaboration. Also necessary is the need to accommodate a distribution of staffing while retaining proximity to expertise. Most workplaces of software development companies do not provide an architectural solution to these requirements, either due to limitations of the physical environment or a reliance upon mobile computing for virtual communication and collaboration.

The larger tech companies like Microsoft and Amazon attempt to supplement the quality of their work environments by establishing a “campus” of buildings to foster collaboration and common interests, but this is a company-wide approach and does not address the team-based organization of a software development group at the building-level.

Office Typologies

During the twentieth century the design of the workplace saw dramatic changes with the introduction modern building materials. The design of the workplace began to take on a universal quality, favoring an open framework with a neutral relationship to the use rather than reflecting a particular type of work or its spatial needs. Frank Duffy, an architect well known for his work on the future of the office and the flexible use of space, associates this trend to the Anglo-American model of the economically-driven office supply chain.² Essentially, this chain starts with investors and developers, then through designers and builders and eventually delivers an office building design that maximizes profit for the widest range of business uses.

The general failure of this strategy is the inefficiency of the use of space through a twenty-four hour period, reaching only 60% utilization during the busiest periods.³ Moving beyond the 24-hour cycle, the inflexibility of a generic floor plan fails to address the changing needs of the software development cycle and the needs of team-based design by not providing accessible spaces for collaborative work and idea generation, and failing to adapt easily to the different demands on the space when staffing isn't at peak levels.

Office building typologies have also been shaped by corporate interests. Rheinhold Martin is an associate professor of Architecture and Planning at Columbia and his book *The Organizational Complex* identifies the role that corporate identity has

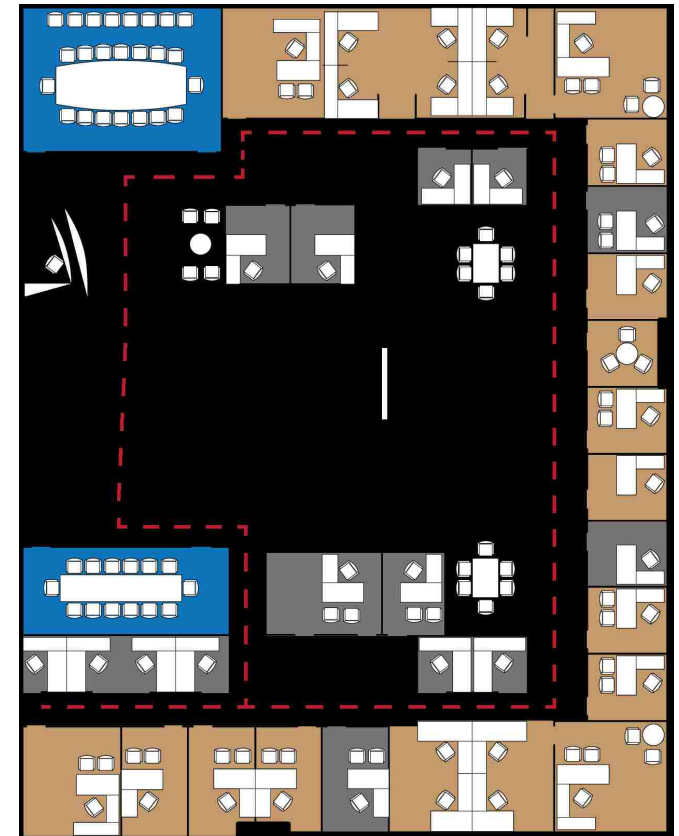


Figure 3. Typical floor plan meant for generic use showing empty offices when staffing isn't at peak levels (grey), simple circulation routes that don't support encountering or interaction (red dashed line) and isolated, inflexible conference rooms that remain unused for much of the day and the work cycle (blue).

² Duffy, Frank, *Work and the City*. London, Black Dog Publishing Ltd. 2008. p. 27

³ Duffy. p. 13

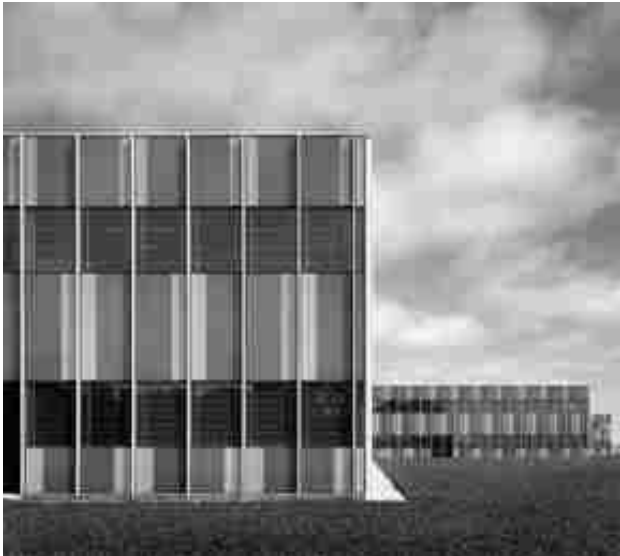


Figure 4. Architecture and corporate branding: IBM manufacturing and training facility, ca 1958

played in the architectural design of building facades and floorplans for companies like IBM. The IBM manufacturing and training facility in Rochester, Minnesota, is an example of this. In architect Eero Saarinen's own words, the building's own enclosure system was meant to evoke a sense of corporate identity.⁴ Rather than reflecting the type of work being done within, the exterior of the building dehumanizes the architecture, resulting in a building that appears as if it were "made up of logically precise, machine-manufactured parts."⁵

Another example of the rigid expression of the workplace was Skidmore, Owings & Merrill's 1957 design for the IBM headquarters in Armonk, New York. As Andrew Ross points out, in his book *No-Collar*, the building's layout was governed by a "military regimentation to a workspace already heavily regulated through the administration of rules and tasks,"⁶ reflecting a white collar, production-based work environment with little utility for adaptation or fluidity.

One strategy employed today by the larger tech companies is the campus approach. This organizational strategy still employs the old office typologies of building type but groups them together in geographical proximity to one another, creating a campus-like environment for the workers. This only strengthens the sense of corporate identity or presence evoked by the old building types and although it provides a sense of belonging to the employees, it does little in terms of the architecture to facilitate the type of work that they do. Similar to how media buildings are centered in midtown Manhattan, as Shannon Mattern writes, with the goal of "communicating their

⁴ Martin, Rheinhold. *The Organizational Complex*. p. 163.

⁵ Martin. p. 163.

⁶ Ross, Andrew. *No-Collar*. p. 110.

supremacy” in the field of software development.⁷ It’s also worth noting that these campuses are often located outside of city centers, away from the urban activity that could be a potential source of inspiration and new ideas.

Sense of Place

An important part of a successful workplace is the degree to which it supports the activities of work and facilitates the completion of tasks. For a team-based, entrepreneurial workplace such as a small software development company, this requires the presence of the workers as well as a physical environment provides spaces for focus work, collaboration and spontaneous generation and sharing of ideas. Due to the advances in digital technologies and mobile devices in particular, the shortcomings of the workplace are often circumvented through means of virtual communication. In fact, mobile devices are now the primary means through which people consume digital information and media.⁸ For the consumer, this is good news, but for the workplace that relies upon team dynamics and collaboration, it introduces obstacles to the design process. Instead of using mobile technology as a replacement for the workplace, the digital workplace should provide an environment that complements the type of work, allowing for the best work being done in that location rather than remotely. This calls not only for an array of spaces to accommodate different degrees of solitary and group work, but also a geographical context.

⁷ Mattern, Shannon. *Edge Blending in Media Houses: Architecture, Media and the Production of Centrality*. p. 141.

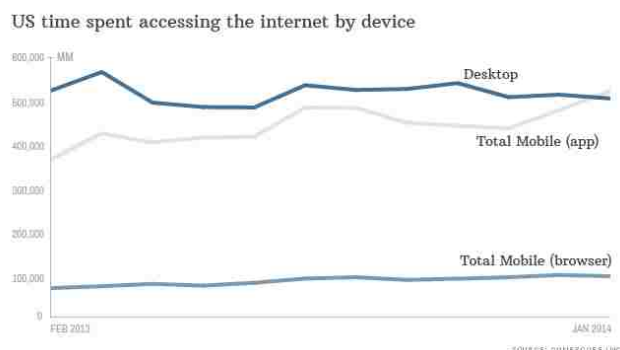


Figure 5. Graph tracking internet access by device platform.

To maintain relevance, software must be made for a particular task and those tasks are defined by the prospective users. Interaction and presence among these users is of paramount importance to this goal. The campus approach creates an enclave of corporate buildings that is inward-focused, with little attention directed toward the outside for the admission of new ideas or innovation. This creates an environment of isolation that completely ignores the potential benefits of its physical context. Placing the digital workplace in a location where daily interaction is possible with merchants, laborers, commuters and tourists greatly expands the likelihood that ideas will permeate into the work itself.

In his article on the Verberg market in Sweden, David Seamon illustrates this interaction as “place ballet,”⁹ an environmental theory that describes the interaction between the regular and the unexpected as a process of shaping spatial behavior for a community or an environment. In his example, the quality and the experience of the market has a regular component that is known by all the shopkeepers who set up their stalls day after day, but it is the unexpected changes and the interaction with customers, residents and other business owners that dynamically shape the quality of the marketplace. This results in a series of human interactions that might not otherwise occur. This interaction, as Seamon puts it, “interprets place as a whole rather than the sum of its parts.” This type of interaction is an ideal component for any design work where fresh ideas and perspectives can lead to novel approaches to problem-solving or reveal new opportunities for innovative software design.

Another benefit to rooting a workplace in a particular location beyond the

⁸ <http://money.cnn.com/2014/02/28/technology/mobile/mobile-apps-internet/>

⁹ Seamon, David. *Marketplace as Place Ballet*. *Landscape*, 24,3 (1980)

opportunities for interaction and innovation is the association with work through historical precedent. Rather than locating the workplace in a financial district or wherever space allows for a campus of buildings, placing the digital workplace in an area historically associated with work allows for a rootedness of place that will strengthen the workplace as a component of the work rather than simply a place to do the work. Similar to Henri LeFebvre's hydrological model of social space,¹⁰ the benefits of tapping into existing flows of work that have historically shaped the area, a sense of identity can be formed with the workplace and its physical context. In his book, *The Bridge to Dalmatia: A Search for the Meaning of Place*, Francis Violich describes the importance of identity with a place.¹¹ Environments with a strong sense of place, whether it is derived from historical references or the dynamic community-generating quality of healthy interaction, create a dynamic character that is fueled by each person's identification with that place. Conceiving of the project as part of a larger social space is a direct response and an alternative to the inward-focused campus environment created by the larger tech companies.

¹⁰ LeFebvre, Henri. *The Production of Space*. Social Space.

¹¹ Violich, Francis. *The Bridge to Dalmatia*. p. 297-8.

III: SITUATING THE DIGITAL WORKPLACE

Innovation and entrepreneurship require a certain degree of freedom. Locating the digital workplace in an area that is only occupied by new office buildings limits the types of businesses that can exist there. In her book, *The Death and Life of Great American Cities*, Jane Jacobs points out that businesses located in areas occupied only by newer buildings must be able to support the costs of new construction.¹² Similar to how the money-driven supply chain has influenced office building typology and the focus on productivity and profit, this would dominate the process of software development to be one focused on profitability and market share, as it has for larger tech companies like Amazon and Microsoft. To paraphrase Jacobs, there is no allowance in new construction for the risks that are required of innovative ventures.

¹² Jacobs, Jane. *The Death and Life of Great American Cities*. p. 187.

The experimentation that leads to new ideas requires greater freedom than that allowed in new construction which offers no recourse other than to meet the cost demands of being located there. Older buildings provide lower rents and lower property costs, allowing for greater emphasis on the type of work and the attitude taken toward that work. This is why, as Jacobs puts it, “Old ideas can sometimes use new buildings. New ideas must use old buildings.”¹³

To better facilitate the needs of the digital workplace and define it as a component of the collaborative process of software design, it is the intent of this project to situate it in an area that has been historically associated with work and is populated by buildings of various ages and construction types. Proximity to pedestrian traffic and similar business types will allow for greater degrees of interaction and a rootedness to place that is often found lacking in new construction or campus environments.

On Adaptive Re-Use

In order to respond to the inadequacies of the older building typologies commonly associated with the workplace with respect to the changing nature of the workplace and to take advantage of the benefits of locating the workplace within districts of older buildings, a supplemental intent of this project is to locate the project within an older building, specifically one associated with work. By retaining much of the building façade and redesigning the interior spaces to reflect the work of software



Figure 6. Pioneer Square activity, early 1900s.

¹³ Jacobs. p. 188.



Figure 7. Yesler Mill established in 1852.



Figure 8. Pioneer Square became the center of regional activity during the Klondike gold rush in 1898.

design and development, a dialog can be created between the type of work and the physical environment. This is meant to create a functional relationship between the physical work environment and the activities of the digital workplace, but is also intended to be a reinterpretation of the workplace in the context of the past, present and future notions of what that means.

Beyond the interpretive value of the workplace, the social and civic value of adapting older buildings to new uses is well documented in Jacobs' book. Referring to the diversity and appeal given to neighborhoods through modern adaptation of older buildings, Jacobs writes, "among the most admirable and enjoyable sights to be found along the sidewalks of big cities are the ingenious adaptations of old quarters to new uses."¹⁴ Jacobs points out that bringing modern businesses into these older buildings adds vitality to the neighborhood and responds directly to human needs.¹⁵

Seattle's Pioneer Square Neighborhood: An Analysis

The historical roots of Seattle's Pioneer Square neighborhood date back to the late 1800s as a place associated with work, but also of activity. Yesler Way's association with Seattle's timber industry with the Yesler Mill at one end, and the factories and warehouses that occupied the surrounding streets. The character of the neighborhood of bringing together work, live and play is seen in the history of the Occidental Hotel. Occidental Place, the area in front of the hotel, was often a site of public gathering and

¹⁴ Jacobs. p. 194.

¹⁵ Jacobs. p. 194.

celebration.¹⁶ Many of the buildings that survive to this day were constructed following the Great Seattle Fire in 1889 in Richardsonian-Romanesque style. This established a continuity of appearance, but also addressed many of the concerns raised after the fire, namely the need for wider streets and safer, more durable buildings to support the growing city. Furthermore, since the well-established residential district was largely undamaged by the fire, there was a strong incentive to rebuild in close proximity.

The area continued to grow through the 1920s, but began to suffer decline as Seattle's business core moved northward. This can be attributed to waning growth during the Depression years which remained lackluster until after World War II. However, the resiliency of the neighborhood has been demonstrated by a number of events. The rebuilding after the fire solidified the presence of a workforce in buildings of brick and stone where once stood only wooden structures.

Amidst the decay of the 1960s, after the Seattle Hotel was demolished (where the "Sinking Ship" garage is now located) the community came together to have the neighborhood designated as an historic preservation district. What remains is a holistic view of Seattle's working past, preserved and celebrated. In 1966, Pioneer Square was described by preservation activist Victor Steinbreuck as the only regional location "where a significant group of older buildings of one period remain to form a cohesive whole...buildings whose real value lies in their historical association, visual delight, and potential use to the community."¹⁷

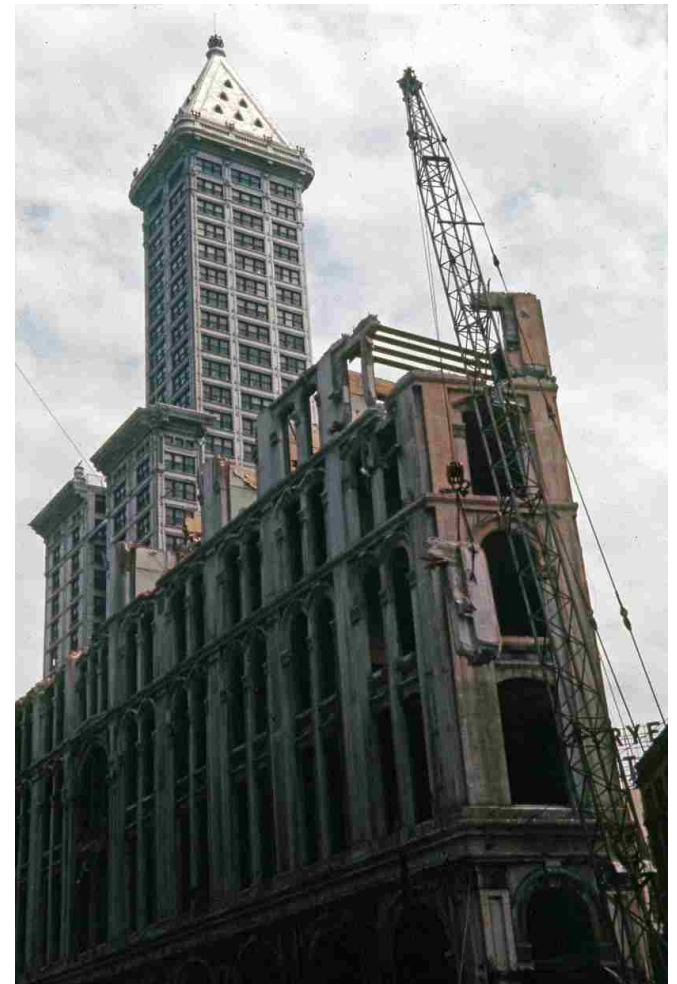


Figure 9. The Seattle Hotel, successor to the Occidental Hotel destroyed in the 1889 fire, being demolished in 1961. The "Sinking Ship" parking garage was built in its place and its destruction was a key event in establishing the Pioneer Square Preservation District.

¹⁶ Dorpat, Paul. *Seattle Now & Then*. 12: Skid Road.

¹⁷ Dorpat. 32: Hub of the Past.

A Software Development Workplace in Pioneer Square

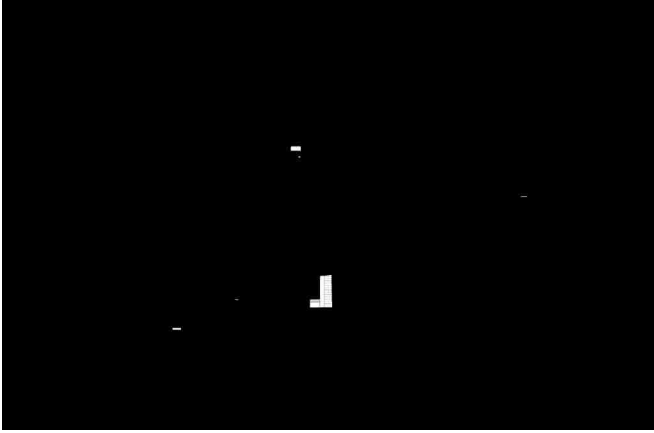


Figure 10. Building Section facing East, State Building. (See Appendix for larger image)

In order to respond to the demands of the digital workplace, this project aims to provide an array of spaces that support the changing needs of software development. This includes the collaborative meeting spaces associated with the early stages of software design, but also the quiet work areas associated with focus tasks. Most importantly, however, it will introduce flexible, in-between spaces that allow for regular collaboration between team members and adaptation to needs that arise at given points in the software development cycle. Locating the project in Pioneer Square within a historic building provides many benefits related to a sense of place that strengthen the role of the workplace but also allows for a response to the old building typologies commonly associated with work. Designing a workplace ideally suited to the task of software development has specific goals and requirements that will create a functional relationship between the architecture and the activity of work. Employing an adaptive re-use strategy to design the workplace within an historic building will allow for a dialog between the neutral office typologies of the past and allow for a new interpretation of what the digital workplace is within an established urban context like Pioneer Square.

Pioneer Square has a long history as a place associated with different types of work and it has continued to evolve in this capacity. Once populated by factories, lumber mills and warehouses, Pioneer Square is now home to many high-tech companies and design firms. Given the preserved scale and architectural character of the neighborhood through urban village classification and Seattle's DPD South

Downtown Livable Plan,¹⁸ Pioneer Square’s capacity for supporting entrepreneurial businesses is assured.

The market-like atmosphere of Occidental Avenue, shown here as a pedestrian mall (Fig. 3.4) fosters a persistent degree of interaction between merchants, customers, commuters and tourists. Due to the proximity of so many businesses associated with design and technology, the opportunities for cross-pollination of ideas are abundant.

Addressing the Work of Software Design and Development

One of the goals of this project is to distill the various stages of the software development cycle into the demands they make upon the workplace, paying special attention to peer-level cooperation in dealing with creative problem solving. In an interview with a senior software developer at Amazon, one of the common problems of the workplace at software development companies is referred to as “feedback loops,” where developers on a team struggle with the best way to safely and efficiently advance a particular project.¹⁹ This is a problem that is exacerbated by hierarchical status-based office layouts where there is a single point of contact for the expertise needed to get resolution to these problems.

The problem is further complicated by distributed staffing and remote, virtual communications that result in mobile computing being used as a substitute for a more

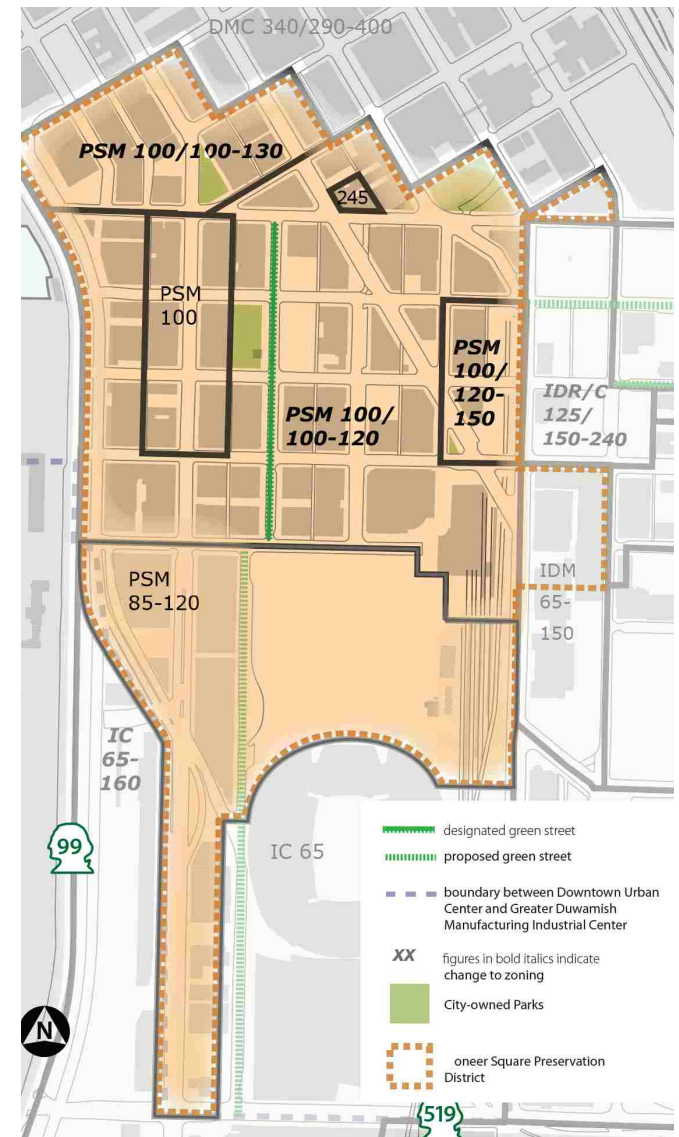


Figure 11. Pioneer Square Preservation District and zoning heights as outlined by the Seattle DPD South Downtown Livable Plan.

¹⁸ http://www.seattle.gov/dpd/vault/cs/groups/pan/@pan/documents/web_informational/s048359.pdf

¹⁹ Rafn, Mark. Personal communication, May 2015.

collaborative workplace environment. By providing spaces for software developers to conduct peer-level reviews and test ideas, projects can maintain momentum without the restraints of a hierarchical system of resolving technical coding problems. These “challenge spaces” must be located between regular office areas and more public, collaborative and meeting spaces in order to feel more intimate and conducive to free exchange of ideas.

With the needs of private focus areas for individual work, intermediate group areas for collaborative problem-solving and established common spaces for meetings and interaction, the spaces of the workplace are divided into three zones. In order to avoid the isolation that occurs within the generic office floor plans where a workforce is distributed, a more nodal organization of spaces must be employed, placing common areas at the center and teams located around the periphery, with intermediate spaces for impromptu meeting and “challenge spaces” in-between. This is meant to create a gradient between the individual work spaces and the designated common areas. Some of these gradient spaces will be placed in circulation paths to encourage interaction and invite ideas and contributory involvement from all employees.

To further strengthen the connection to the larger, urban context, a public component will be added to reflect the staging and deployment phases of the software development cycle. This will be executed through the use of a public component to the building, including a cafe and "showroom" area at the ground level of the building. Near the end of the development cycle, the workplace will be extended into this space

and out into the public realm to engage the public in the process of software design and demonstrate, as well as advertise, the product of the work that goes on in this workplace. This will create a greater sense of connection and involvement in the local fabric and a greater sense of relevance to the software being developed.

IV: Integrating Software Development into Pioneer Square

A software development workplace in Pioneer Square



Figure 12. February 2014 real estate map assembled by Colliers showing tech businesses in Pioneer Square.

Pioneer Square is a very vibrant urban village with consistent levels of activity throughout the day and into the weekend. Close proximity of workplaces to restaurants, cafes, art galleries and transit results in a shift of activity type at the close of the workday, but not necessarily a change in the level of activity. The streets of Pioneer Square remain active on evenings and weekends with businesses open to cater to tourists and regulars alike. Since this active environment is one of the main reasons for choosing this location for the project, it is necessary to get an understanding of the flows and concentrations of the neighborhood. It is also necessary to establish what kind of character the area has professionally, and how it can help a software designer flourish by being embedded within such an environment.

Pragmatically, it is beneficial for a software developer to have regular contact with similar businesses, whether these are potential partners, collaborators, vendors or even competitors. Pioneer Square is home to dozens of tech companies, from startups that prefer the smaller, quirky spaces within historic buildings for their accessibility to the public, to vendors like HTC and Dell. Even Intel has leased 50,000 square feet in the Union Square Station building. In 2013, looking at the real estate landscape of Pioneer Square, Colliers characterized the urban village as a “waterfront technology ecosystem”²⁰

²⁰ <http://www.seattleofficespaces.com/2013/02/pioneer-square-tech-map.html>

that was positioned to fuel high tech innovation and an ideal place for additional technology companies to set up shop.

Pioneer Square can also be characterized as an established design community, being home to over a dozen architecture and design firms including longtime Seattle-based firms like Olson Kundig and The Miller Hull Partnership. The neighborhood is also host to many art galleries, a tour of which is organized by Seattle’s art dealers on the first Thursday of every month. This Art Walk was the first of its kind in the United States, established in 1981. This self-guided tour has established Pioneer Squares as home to the highest concentration of art galleries in the city. Taken together, the presence and density of high-tech and design-oriented businesses that call Pioneer Square home support the characterization of the area as a high-tech design community – one that would serve as a fitting location for a software design workplace.

Public amenities in Pioneer Square are also not found to be lacking, with ready access to parks at the Pioneer Square Park, Waterfall Garden Park and the largest public space, Occidental Park which rests on a wide pedestrian mall that serves much of the area. It is on this mall that the State building is located.

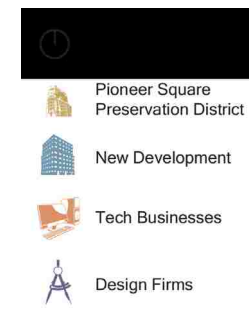
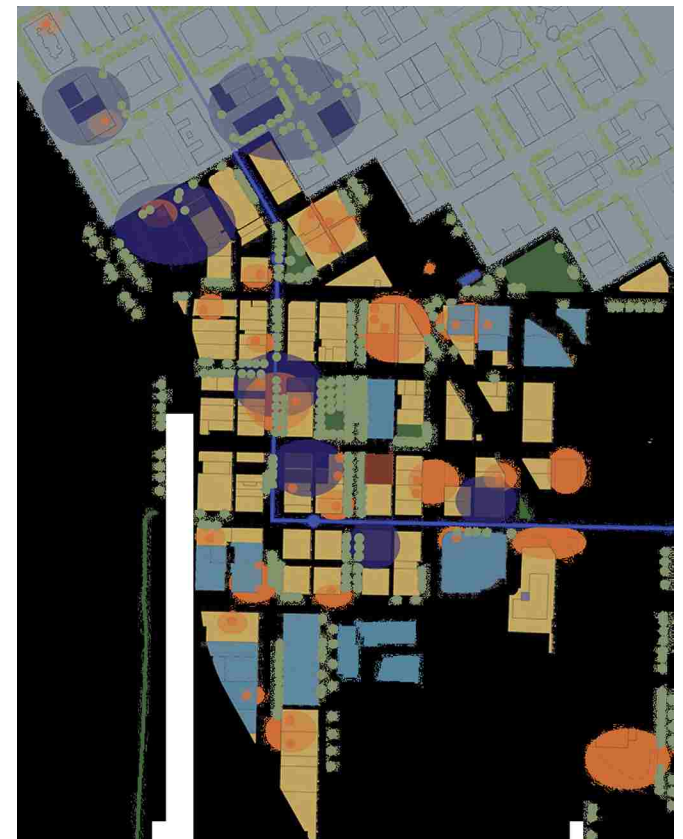


Figure 13. Concentration map showing locations of technology and design firms.



Figure 14. Schwabacher Brothers & Co. State building, ca 1910.

Site Selection: The State Building

The State building was constructed in 1890 following the Great Seattle Fire by the Schwabacher Brothers Company as a grocery and warehouse for dry goods. Similar to many other post-fire construction, this building adopted heavier construction methods, using a brick facade, iron columns, steel beams and heavy timber floor joists. This was required not only by the post fire construction efforts but by the need for storage and lifting of heavy loads inside the warehouse. The resulting structure was designed to accommodate loads of up to 500 pounds per square foot on each floor.²¹

The building is one of the last major commercial projects by architect Elmer Fisher, whose firm designed several post-fire buildings in Seattle. The State building is the largest of his projects to survive to this day, and was restored in 1990. It is one of the most beloved (and protected) buildings in Pioneer Square today.



Figure 15. State building, 2015.

²¹ Ochsner, Jeffrey. Distant Corner. p. xxx

Flows and Concentrations

Looking at the locations of these various business types and public attractions generates some areas of concentration where activity is highest, but it also shows a great deal of overlap between business and leisure activities. Also of interest, the overlap between technology business locations and the larger architect and design offices creates an existing cohabitation between technology and design. For a successful integration into its context, the software development workplace must respond to these conditions.

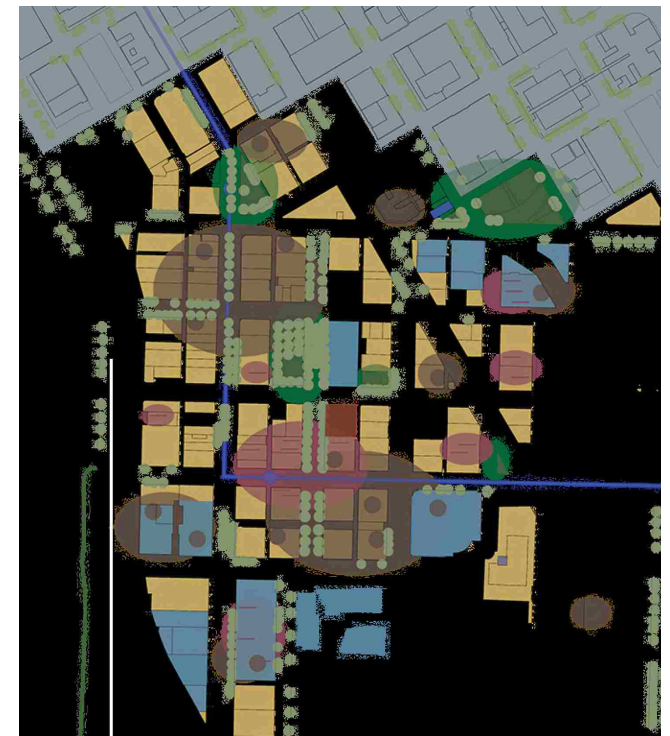


Figure 16. Concentration map showing centers of non-business related activity.

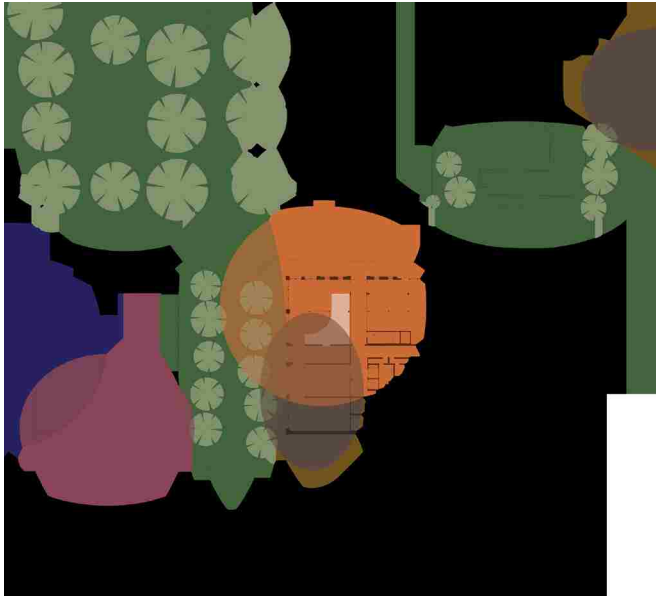


Figure 17. Conceptual Site Plan (see Appendix for larger image)

Design Methods

To respond to the flow of people and sustained level of activity of the site, this workplace must have a strong public presence at the street level. This will be an area that is open to the public beyond normal working hours but also an area that is distinctly part of the workplace and used by the employees, allowing an area of seamless interaction between workers and the public. This will serve to reinforce the connection the workplace has with the community, strengthening the sense of place that makes the workplace an essential physical component of the work, but also establishing a presence – and membership in – the community that is Pioneer Square.

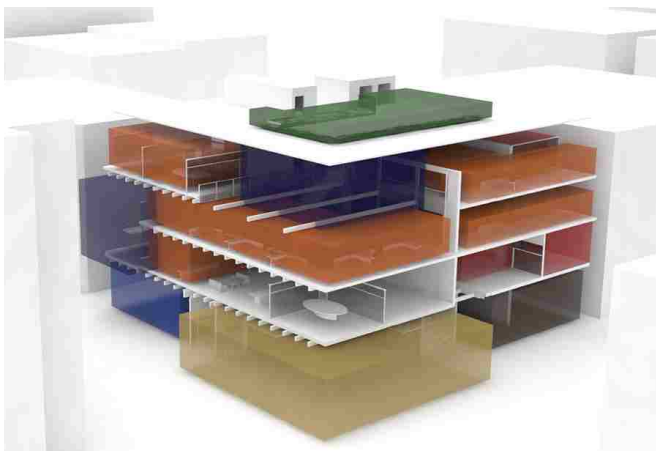


Figure 18. Building massing diagram

A café at the southwest corner of the building and an overflow seating area and mezzanine at the northwest corner, on S. Main St. and Occidental Ave., will provide this public presence and a grand stair with generous seating will provide access. Designed to expose and celebrate the existing structure of the 1890s warehouse’s brick masonry and cast iron columns, this will be a space that fits in with the historic quality of many Pioneer Square buildings. What sets it apart, however, will be the integration of a “showroom” space as part of this public area where the software company can set up demonstrations, deployments or hands-on kiosks for using their software on a variety of devices. This will provide an opportunity for the public to interact with the work of software development by trying new device and new applications and providing valuable feedback for the designers. Events can be held to get the community involved in the process of software development, enlisting help through “Crash the App” events,

rewarding café patrons for using, testing and providing feedback on the company's product in development.

Both the café and the grand stair can also be used by the entire firm for group meetings when confidentiality is not the primary concern, as well as providing a convenient venue for hosting events with partner firms or with the community itself. Firm employees can also use it for after-hours functions, further strengthening the team structure and increasing the value played by the workplace environment.

A Place Where People Want to Work

With the addition of the Seattle Streetcar and close proximity to two major Metro tunnel stations (Pioneer Square and International District), the State Building is in a prime location for people who do not want to sit in traffic or deal with the costly effort of commuting by automobile. This was one of the major reasons developer Urban Visions chose to pursue a sustainable building design for the parcel located just north of the State Building (previously a parking lot) just east of Occidental Park.²² Driven by the conviction that people wanted to work in an urban environment where they could live nearby and walk to work or easily get to work by bus, bike or streetcar, the developer worked with architect Mithun to create a 100,000 s.f. office building that could blend in with the surrounding Pioneer Square character. Only after securing funding and finalizing the design did the developer learn that Weyerhaeuser expressed interest in



Figure 19. 200 Occidental, rendering. Mithun.

²² <http://urbanvisions.com/?properties=200-occidental>

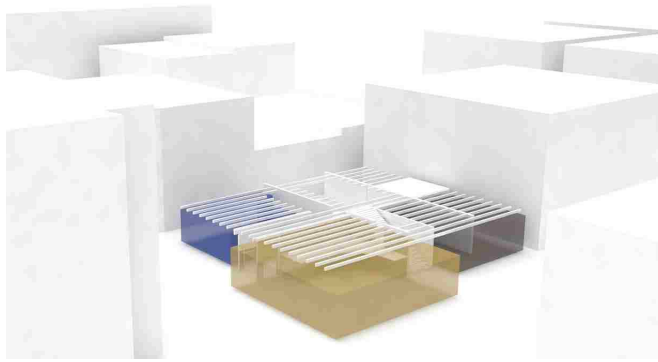


Figure 20. Massing of ground floor spaces open to the public.

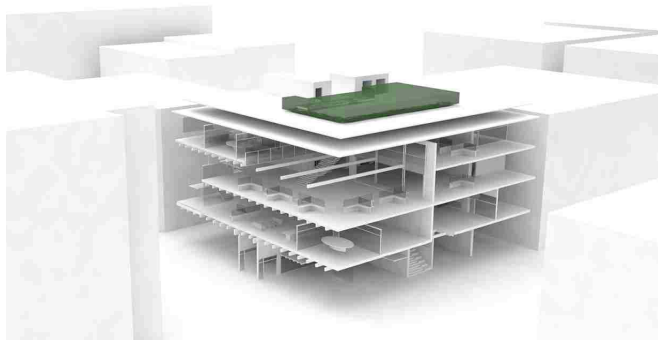


Figure 21. Rooftop terrace with generous setbacks in order to preserve the public expression of the building (as per preservation guidelines).

moving their headquarters from Federal Way into the new facility. This is a powerful statement of support for living and working in vibrant urban communities that are well-served by public transportation and public amenities. Commenting on the firm's move to Pioneer Square, Seattle Mayor Murray stated, "Businesses want to be where there are creative people, where there are vibrant streets, where there are active parks, where there are walkable, bicycle-transit oriented neighborhoods. That is Seattle and that is Pioneer Square."²³

To capitalize on this, in addition to the other public amenities on the ground floor, a bike storage area is provided at the southeast corner of the building just off the alley. This will provide a means for employees to commute to work on bicycles. With a pair of restrooms and showers, this bicycle storage area prevents cluttering the Occidental Mall with bicycles and addresses security and access concerns over leaving bicycles in the workplace or in the alley. In addition to these amenities, a rooftop terrace is provided for employee use, referencing the generous open park spaces within view of the building - most prominently Occidental Park.

Leveraging the Building's "Interior Façade" and Interfacing Elements

Many older buildings from this period have been renovated and repurposed for modern uses, but the adoption of single floor layouts populated by a sea of desks and cubicles results in a claustrophobic atmosphere against the smaller brick-lined

²³ <http://www.seattletimes.com/business/weyerhaeuser-moving-to-seattlersquos-pioneer-square/>

windows of these former warehouses, hotels and shoe factories. Originally constructed as a warehouse for dry goods, the State building's structure is very accommodating to interior redesign, including the removal of areas of the floor to accommodate a greater expression of the building's non-structural masonry wall and its distinctive window forms (which vary from floor to floor). By pulling the floor plates away from these walls in specific areas, it becomes possible to create an expression that previously was only visible from the outside. This "interior façade," will create double-height meeting and circulation spaces, well-illuminated by two rows of windows of different shape and size depending on which floor they are located. These spaces are strategically located throughout the building to reference different concentrations of activity in the greater site context, specifically the Occidental Mall, Waterfall Garden Park and Occidental Park. This is to continually reestablish the relationship the workplace has with its broader context.

These locations are also located along a secondary, circuitous circulation path that runs through the building, allowing for a more leisurely means of vertical circulation that encourages interaction. These double-height spaces are served by open stairs that address another shortcoming of rigid, generic floor plans by providing greater "proximity to expertise;" allowing easy access to individuals from different teams by way of a quick jaunt up or down the stairs rather than using the elevators. Since software development teams typically rely on a collective mastery of knowledge, making that knowledge as accessible as possible is essential. Providing a quick means for a face-to-face conversation can help to avoid delays that come from relying on email for such

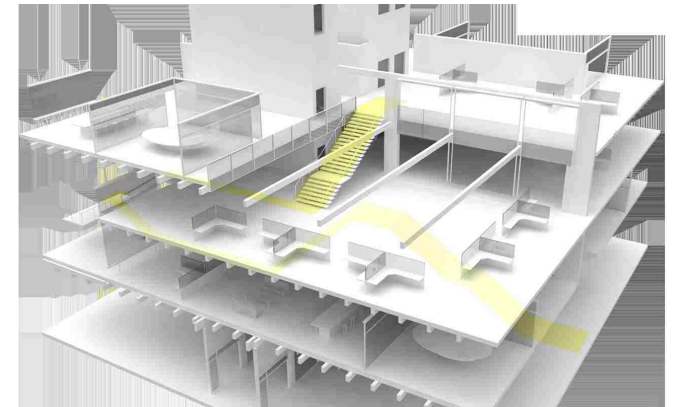


Figure 22. Secondary circulation route starting from the main entrance on Occidental Ave. and leading through both double-height spaces.



Figure 23. Interface screen diagram showing placement on circulation route and interactive role in linking the two floors.

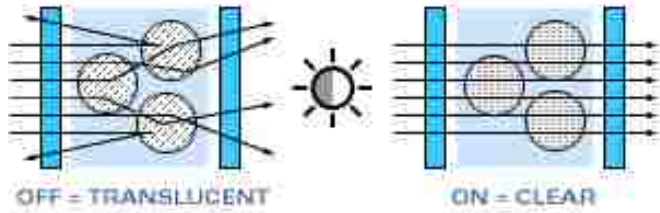


Figure 24. SwitchLite Privacy Glass

correspondence.

Also located at these circulation nodes are a series of interfacing screens. These screens use SwitchLite Privacy Glass,²⁴ a liquid crystal sheet, permanently bonded between two layers of annealed glass. What makes this unique is that in its default state, the liquid crystal molecules disperse light, creating a translucent surface that supports projection and other means of displaying information. When voltage is applied, however, these molecules orient in a manner that allows parallel light to pass through the glass.



Figure 25. Rendered view of double-height space located at NE corner of the second and third floors (see appendix for floor plans).

Constructing these screens from this material and placing them at key circulation nodes allows them to organize the space with a controllable degree of transparency. Architecture firm Olson-Kundig employed this same glass in the Microsoft Cyber Crime Center in Redmond, Washington to allow the individual labs to maintain transparency with the rest of the workplace under normal operating procedures and to provide security and privacy when the same labs needed to address a critical security threat.²⁵

By allowing for easy transmission of information in a medium that can span two floors, these screens serve to link the different floors, serving as an information “interface” in the same manner that the stairs facilitate circulation and the cut-away floors allow for a new expression of the building’s exterior wall.

²⁴ <http://www.switchlite.com/home.html>

²⁵ <http://www.olsonkundig.com/projects/microsoft-cybercrime-center/>

Behind the Firewall

Regarding the issue of security, the work of software development cannot always be front and center. Data needs to be stored and secured and code is constantly being updated. Any software product requires testing in various physical and software environments – and this requires computers. Lots of computers. Server and device labs are an essential part of software development and they must be kept secure in a climate controlled environment. One of the interesting features of this building is its diverse material palette and construction. In addition to its brick masonry façade, atop a concrete basement, the structure consists of cast-iron columns, steel beams and heavy timber floor joists. The southern third of the building is subdivided by two parallel brick masonry firewalls, presumably to control fires in the old dry goods warehouse. On the second, third and fourth floors, the area behind the southern-most firewall is where these computer labs are located. Despite being located between a brick masonry wall and a party wall (with the adjacent Burke building), each of these labs has a glass and steel wall allowing light to penetrate from the east and west ends of the building. The larger labs, located toward the interior of the building floors, are dedicated to the server labs that store the code, applications and tracking data used throughout the software development cycle. These areas typically do not see a lot of human habitation, but they are intended to be as pleasant as possible. The smaller labs and the east and west ends of the building are meant for more flexible use – device testing or specific environment testing, and will likely shift with the needs of the particular product being worked on.

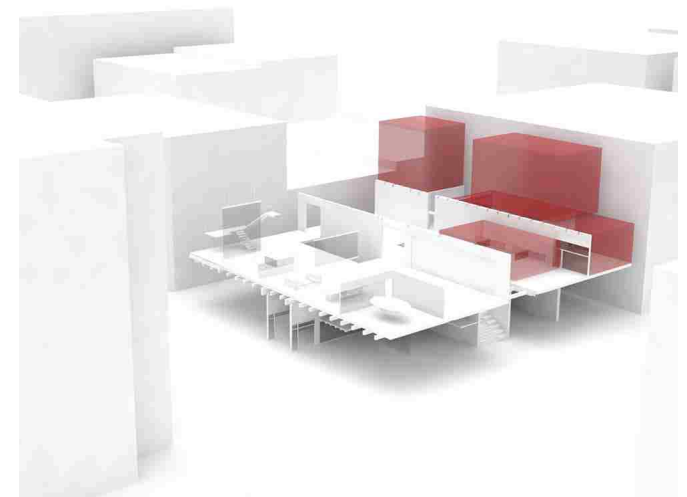


Figure 26. Massing of spaces devoted to labs and device setup.

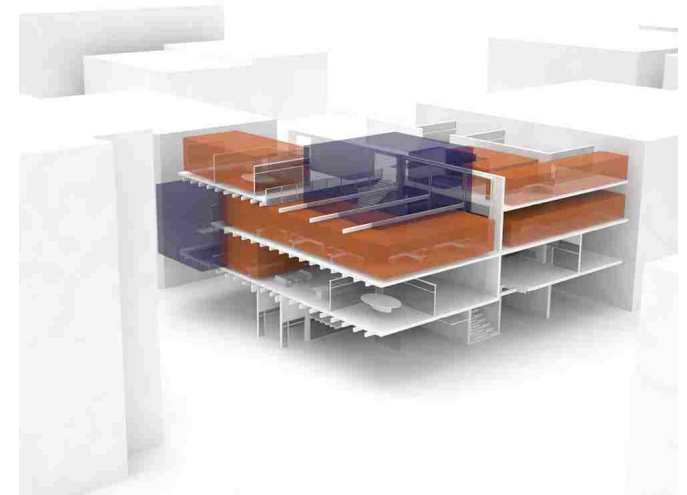
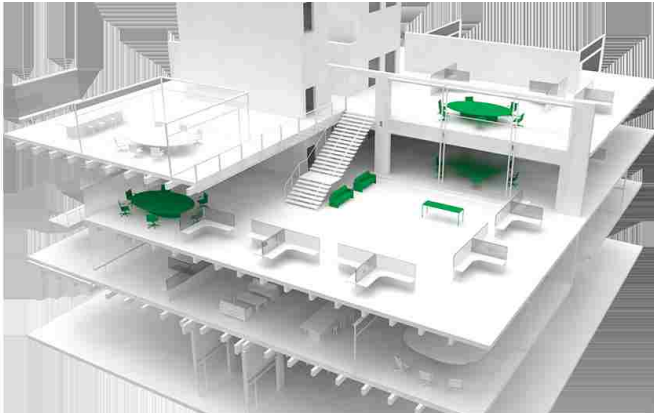


Figure 27. Massing of primary work areas. Note the overlap between default work areas (orange) and double-height collaboration spaces (purple).



An Agile, Adaptable Workplace

Although concerns of public interface, circulation and space for computer labs is important, the nature of the workplace is at the core of this architectural response to the problem of the inflexible workplace. How the physical environment responds to the changing needs of the workflow is essential. The software development cycle can be translated into spatial requirements – demands on the workplace that make distinct shifts at given points of the cycle.

Figure 28. Diagrammatic view of work area usage during the *planning* stage. Elements in white remain fixed to serve space requirements that remain consistent throughout the software development cycle.

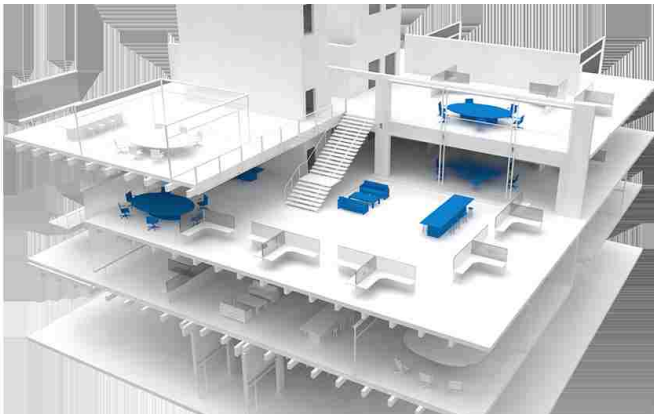


Figure 29. Diagrammatic view of work areas showing suggested use during the *design* stage.

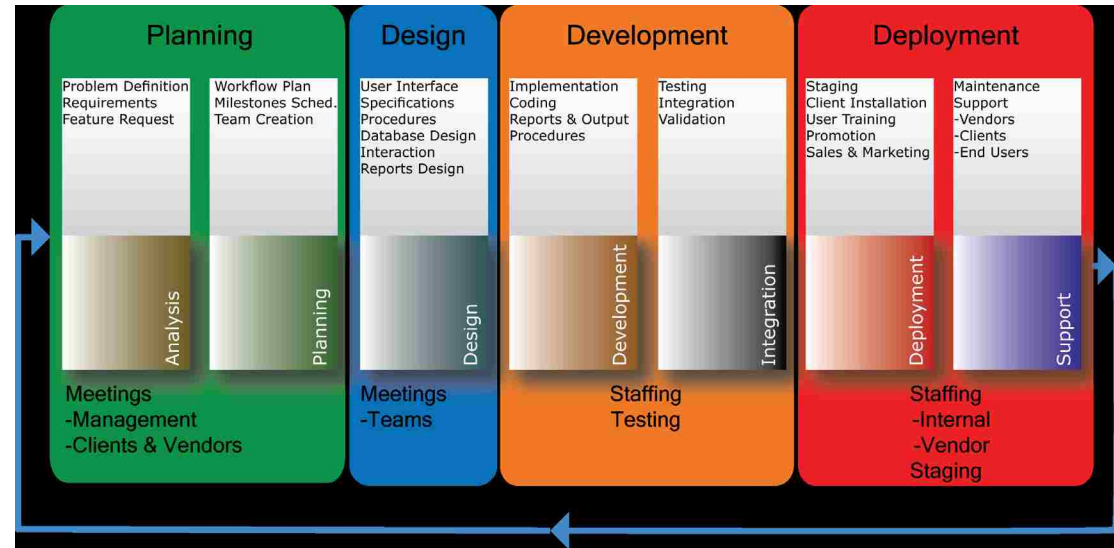


Figure 30. Stages of the software development cycle grouped by space demands on the workplace

During the *planning stage*, when a project is first initialized, meeting space is at a premium. This must accommodate meetings among employees (assembling teams, discussing strategies) and with external parties (clients, vendors). A great deal of preparation takes place during this stage and it requires regular meetings of a lot of people. Spaces that can accommodate meetings and later be shifted to some other use will enable this shift more adeptly.

The *design stage* still requires an emphasis on meeting space, but this tends to shift more toward internal meetings. Software and feature-tracking methods must be agreed upon and established to see the project through. Teams are assembled based on individual developer skills and experience and a schedule is created consisting of a series of milestones that the company as a whole can work toward a timely resolution of the project. These meetings can be very technical, often delving deep into existing code to determine the safest way to implement features. This requires more than the typical conference table, so review tables, display walls, large display screens and generous amounts of space are required.

As the cycle shifts to the *development stage*, there is a much greater emphasis on staffing. Staffing areas consist of collections of desks with privacy glass partitions located around the perimeter of the floor. This allows for an even distribution of focus work areas adjacent to circulation paths and collaboration areas. This configuration facilitates an easy transition between solitary productive work and collaborative or team-based work. The focal architectural move that creates this “collaboration gradient” is the court

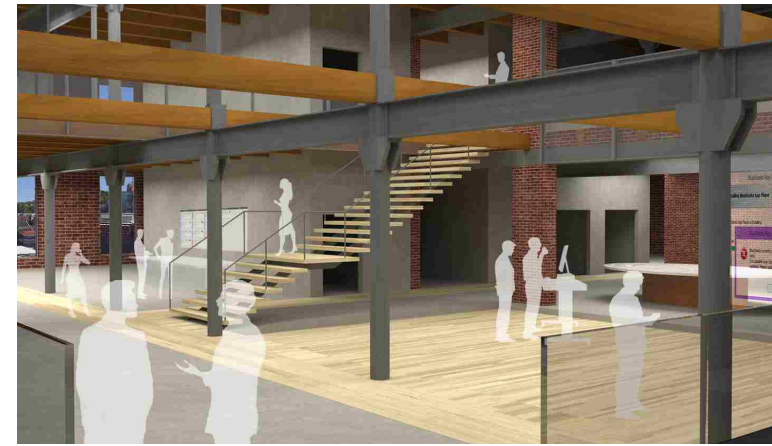


Figure 31. Rendered view of collaboration court on the third floor. (See appendix for floor plans).



Figure 32. Third floor collaboration court viewed from circulation path. Note the "interior facade" showing multiple rows of windows looking northwest over Occidental Park.

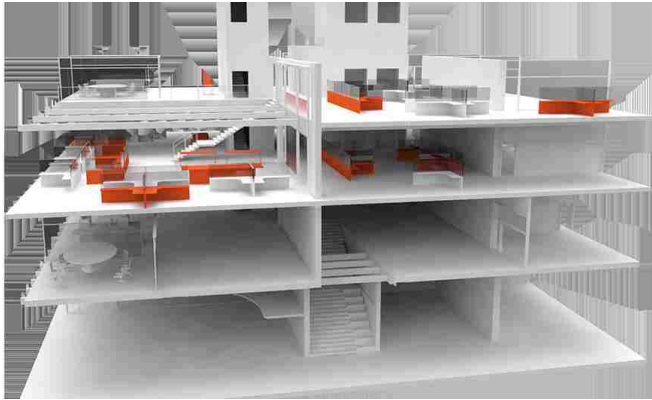


Figure 33. Diagrammatic view showing staffing-dominant use during the *development* stage.

located on the third floor where the fourth floor is cut away. This court serves as a free meeting and review area. The tall interfacing screens can be used for presentations and the generous landing of the open stair that runs adjacent to the court can function as a podium of sorts to for speakers. This makes the space ideal for presentations or company meetings and its central location, along with its double-height expression of the brick façade, make it the most prominent common space in the workplace. For this reason, interfacing screens provide a consistent source of information displays above the court, suspended from the fourth floor where a steel lintel spans the two extreme ends of what used to be the brick firewall on this floor. The new steel frame serves to hold up the glass informational elements while referencing the profile of the original firewalls.

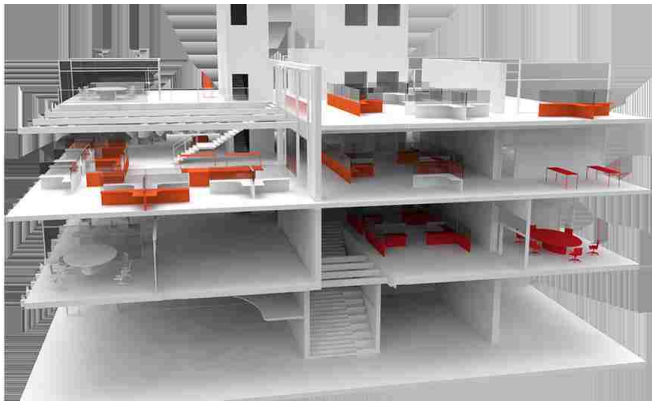


Figure 34. Diagrammatic view of spaces appropriated by the *deployment* stage, including second floor area outside reception and lab spaces on the second and third floors adapted to staging and meetings.

As the project begins to approach completion, the development cycle shifts into the *deployment* stage. Deployment includes staging of installation environments, or in the case of mobile devices, installation on products from many different manufacturers. This doesn't take up as much space as rack-mounted servers or desktop computers, but a mobile device is used by a person, and enough space must be provided for a one-to-one relationship between user and device. That being said, this space can move freely throughout the workplace, just as a mobile device would through normal use. As a result, this particular space requirement is more diffuse and is integrated into all of the other work areas during this stage including focus work spaces (desks), meeting rooms and review tables.

Another key element of the deployment stage is related to the coordination between the software developer and the client. In some cases this extends to vendors (computer hardware manufacturers). Some software is made to run on specific devices in very particular environments. In the case of medical software, this requires absolute precision and careful coordination with all parties, so meeting space and environment setup becomes more important. Even desktop software requires a certain degree of staging to insure a smooth deployment.

The deployment stage also includes support and maintenance, and a large portion of the second floor, located just outside the reception area atop the main entry stair, is devoted to this purpose. During other stages of the work cycle this area can be used for display, public events and informal meetings, but during the deployment stage it serves as additional staffing space, both for the software developer and for partner firms and vendors to work directly with one another. This area's proximity to the public interface of the building puts software and hardware support within easy access to the public. This is something unheard of among the larger software developers and serves to strengthen the public ties the workplace has with the community.



Figure 35. Rendering of "showroom" space from Occidental Ave.



Figure 36. Interior rendering of "showroom" space.

V. CONCLUSION

The problem of addressing the architecture of the workplace will produce a different solution for any given field of work. The larger context will influence the support and the direction of the workplace design as well as the supportive program elements and public interfacing elements. The particular demands that the various stages of the software development cycle have on the workplace provide a clear means of translating these demands into architectural solutions. The decision to pursue an adaptive re-use of an existing building was made in order to create a dialog between the old building practices, made evident here by the regular rhythm of the brick façade and its window designs, and the dynamic workflow of software development. Existing structural elements of iron, steel and heavy timber are exposed, but new additions do not attempt to blend in with the old. The adoption of an architectural language of light steel and glass for these new elements serves to add contrast to the dialog between old and new and is meant to further distinguish the relationship between the intangible nature of the work (software has no physical presence in any literal means, but its effect on us is nonetheless substantial) and the strength and mass of the former warehouse. This relationship and the architectural themes used are meant to materialize the intangible through a dynamic, adaptive workplace that transforms the function and the experience of the workplace to meet changing demands that are specific to the type of work being done.

Next Steps

Taking this project forward poses some interesting questions and possibilities. It would be possible to further leverage the public presence of the building at the ground level through interactive elements on the building façade. Old photographs show the ground floor used as a grocery, with retractable awnings to shelter customers and employees alike, effectively extending the building's ground floor out into the public realm. Although preservation guidelines limit what can be changed on these landmark buildings, there are provisions for architectural interventions that retain the original character of the building. Therefore, it would not be unreasonable to pursue a system of awnings that integrated and extended the interfacing elements used inside the workplace, making them accessible to the general public as a means to physically and directly interact with the building – and with the process of software development, essentially engaging the public in the work that is being done. This could be seen as a direct translation of how the original grocery awnings and produce stands would have worked except what is being exchanged now is information and technology in a manner that is consistent with the original character of the building.

It would also be interesting to pursue means of more directly engaging the strength of the building's structure as a means for making the workplace a more transformative space. Furniture systems that move or are suspended from the ceiling – or more dramatic examples of floor plates that extend or retract based on the needs of the space. The stair located at the collaboration court could be made to move along an

east-west axis, for example, adding further flexibility to the space but more importantly, adding a dynamic experience of the workplace. Imagine working in a building that is transforms its space much more noticeably from one part of the workflow to another. The experience of working in such an environment that is capable of such physical transformation would have a substantial effect on the perspective of those that work there. That is, in fact, the reason for locating the digital workplace in the vibrant urban context of Pioneer Square rather than an isolated suburb campus. It is the opportunity for chance interaction and the potential for points of view to be challenged and reevaluated that makes this important. Making the building a more physically rather than just functionally transformative environment would allow this effect to penetrate into the workplace rather than be something that surrounds it.

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BIBLIOGRAPHY

TEXTS

Brill, Michael. *Now Offices, No Offices, New Offices; Wild Times in the World of Office Work*. Teknion. 1995.

Dorpat, Paul. *Seattle, Now & Then*. Tartu Publications, Seattle, WA. 1984.

Duffy, Frank. *Work and the City*. Black Dog Publishing, London. 2008

Jacobs, Jane. *The Death and Life of Great American Cities*. Vintage Books, New York. 1992.

LeFebvre, Henri. "Social Space," in *The Production of Space*. Blackwell Publishing, Malden, MA. 1984.

Martin, Rheinhold. *The Organizational Complex: Architecture, Media and Corporate Space*. The MIT Press, Cambridge, Mass. 2003.

Mattern, Shannon. Edited by Ericson, Staffan. "Edge Blending" in *Media Houses: Architecture, Media and the Production of Centrality*. Peter Lang Publishing, Inc., New York. 2010.

Ross, Andrew. *No-Collar*. Basic Books, A Member of the Perseus Books Group. 2003.

Seamon, David. "Marketplace as Place Ballet" in *Landscape*, 24,3. 1980.

Violich, Francis. *The Bridge to Dalmatia: A Search for the Meaning of Place*. Johns Hopkins University Press, Michigan. 1998.

WEB ARTICLES

<http://money.cnn.com/2014/02/28/technology/mobile/mobile-apps-internet/>

<http://www.seattleofficespaces.com/2013/02/pioneer-square-tech-map.html>

http://www.seattle.gov/dpd/vault/cs/groups/pan/@pan/documents/web_informational/s048359.pdf

OTHER

Rafn, Mark. Personal communication, May 2015

IMAGES

IBM Manufacturing and Training Center, The MIT Press, Cambridge, Mass. 2003.

US time spent accessing the internet by device, Comscore, Inc., Feb. 2014.

200 Occidental rendering, http://mithun.com/projects/project_detail/200_occidental/

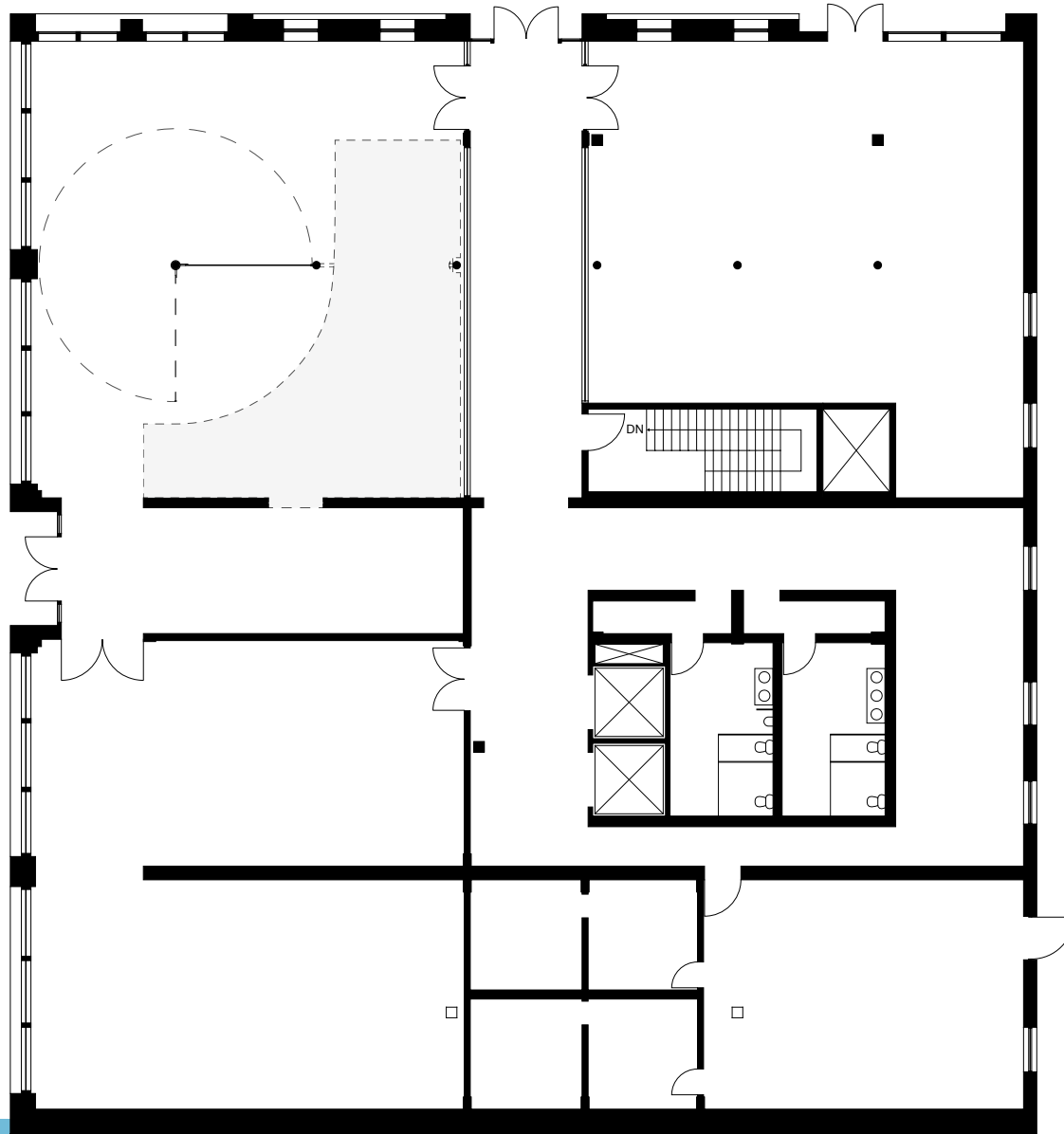
Seattle Hotel Destruction, Paul Dorpat, <http://pauldorpat.com/tag/sinking-ship-garage/>

Appendix

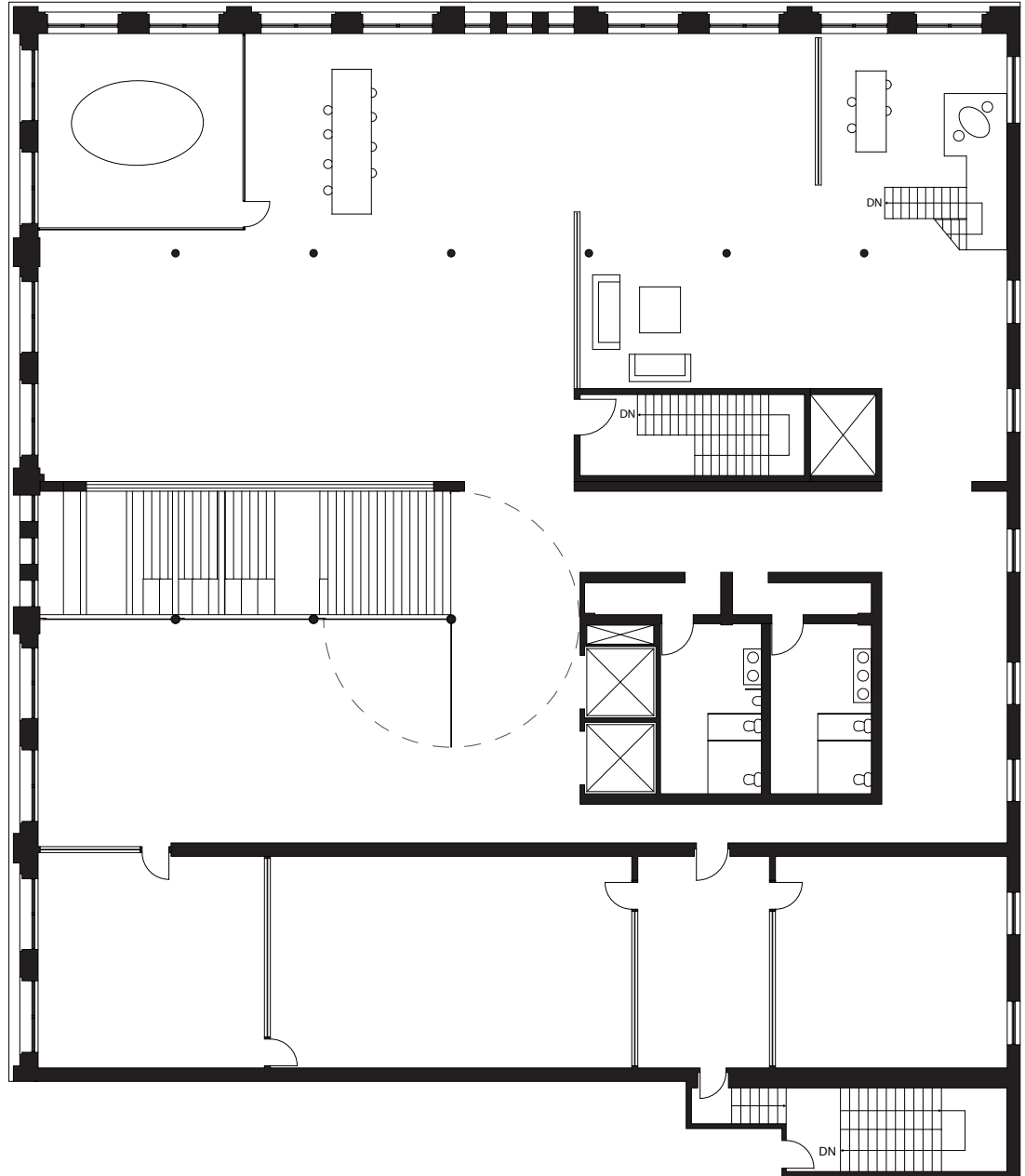
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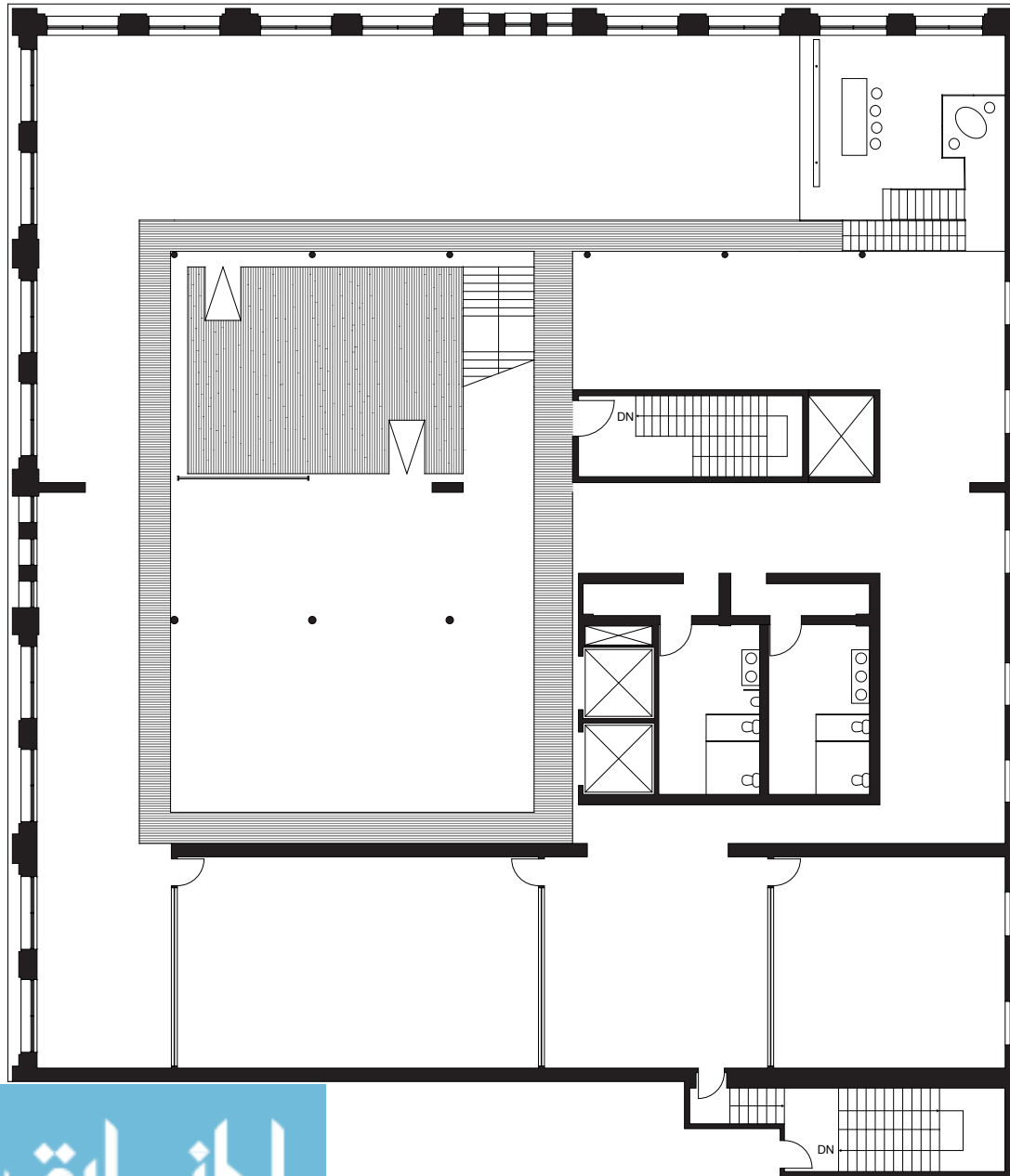
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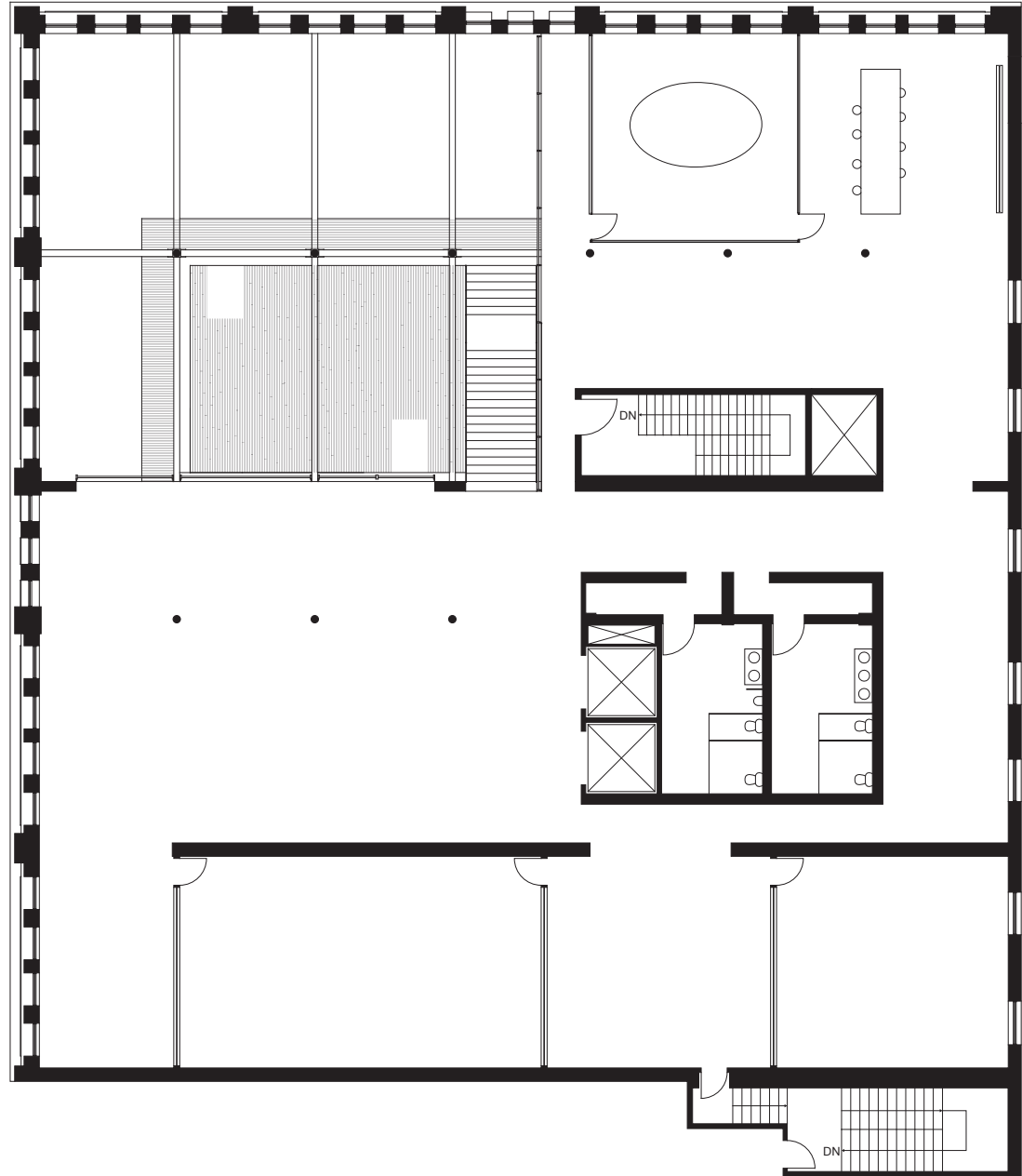
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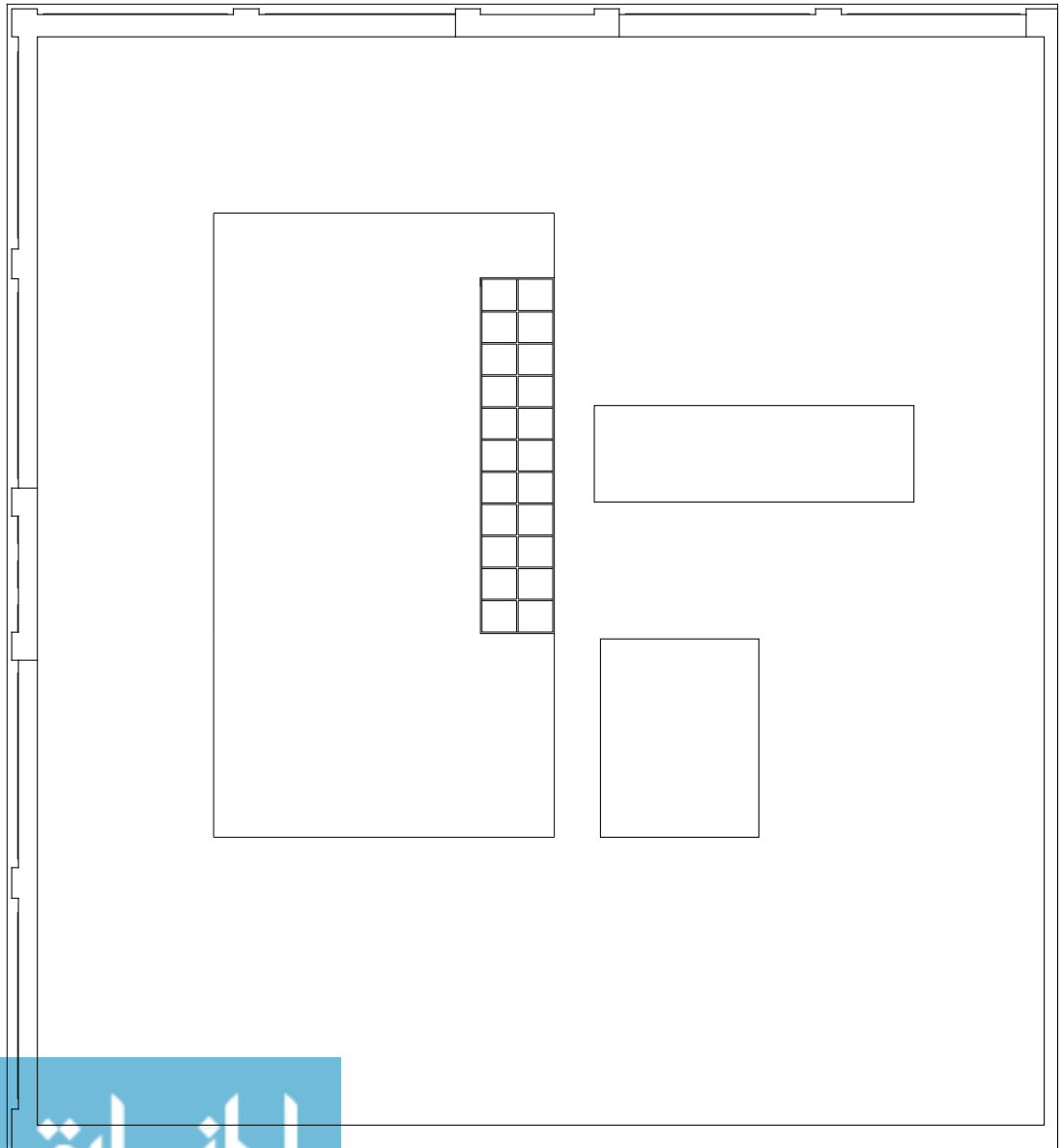
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Section Facing East

