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PARSONS THE NEW SCHOOL FOR DESIGN

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SCHOOL OF CONSTRUCTED ENVIRONMENTS
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The modern corporate office is frequently portrayed in popular media as a soulless landscape of beige cubicles and fluorescent lighting — a regularized, homogenous collection of boxes suspended in a field of ambient, artificial light. The abundant, shadowless illumination of fluorescent lighting that represents the triumph of modern technology over the circadian and spatial limitations of daylighting in the mid-twentieth century has become semiotic shorthand for the depersonalization of the individual office worker by the end of the twentieth century. In the 1990 film, *Joe Versus the Volcano*, the film’s protagonist, Joe Banks, who works for the fictional American Panoscope Corporation, labors day after day in a windowless, institutionally grey-green office lit by a series of flickering fluorescent lights. Within this setting a telling ballad plays out between fluorescent light, representing the oppression and psychic leveling of the modern corporate office, and incandescent light, symbolizing the warmth, protection, and individuality of the domestic sphere. Plagued by a number of mysterious illnesses and feeling the office environment is contributing to his increasing malaise, Joe brings a small portable incandescent lamp with a scenic lampshade to work. Placing the lamp on his desk and switching it on, Joe huddles close to the pool of yellow light. This flagrant assertion of personality and human frailty poses an immediate threat to the standardization of the office and the worker. Joe’s boss, Mr. Waturi asks, “What’s this lamp for?” “I need enough light in here for you,” Joe responds, “The fluorescents affect me. They make me feel blotchy and puffy. I thought this light would...” Mr. Waturi has no time for Joe’s complaints, “Get rid of the light. This is not your bedroom, Joe. This is an office.”

The juxtaposition of the bedroom and office is critical in understanding the deep transformation of the workplace for the white-collar worker in the twentieth century. Building systems and technology are implicated in this change, both contributing to the social staging and architectural formalization of modern, rationalized office work. Lighting in particular has had a key role in the design and popular perception of the modern office. The social and formal effects of the introduction and integration of electric lighting, and moreover, fluorescent lighting into the modern office largely has been overlooked, both critically and historically. As Donald Albrecht has argued, “The office is a microcosm of American social transformation and a yardstick of cultural progress... The shifting interaction between building design, technology, finance, and employees has yielded a dynamic environment whose significance extends beyond its physical boundaries.”

While Albrecht calls attention to the multiple physical factors contributing to the cultural complexity of the modern office, he does not mention lighting technology specifically. Owing to its fundamental intangibility, light is not typically discussed as a principle driver in the architectural design process nor as a cultural artifact. However, a reevaluation of the development of the white-collar workplace in the twentieth century reveals that lighting has indeed served both as an architectural and social agent, particularly in relation to the bottom-line of corporate office architecture.

The pre-history of the modern office began in the late nineteenth century as the production of the industrial revolution spawned unprecedented growth in clerical and financial industries. At this time the typical office was designed and decorated following the expectations of the domestic realm. It was common to have heavy fabrics, area rugs, artwork, and decorative lighting fixtures — all recognizable from the Victorian parlor. A photograph of the turn-of-the-century offices of the F.G. Day Compiling Company in Glenwood, Iowa illustrates the organization and decoration of a pre-modern American office (Fig. 1). It is interesting to note that a stark contrast existed between the domestic interior and the place of white-collar work being articulated, both in office design and in the critical understanding of these spaces as cultural constructions. Charles Rice, in his reevaluation of histories of the interior, suggests that for the nineteenth-century bourgeoisie, “the [domestic] interior emerges as a space separated from sites of work and productive labor, and becomes a place of refuge from the city and its new, alienating forms of experience.” This polarizing of the domestic interior and the workplace in the mid- to late nineteenth century into opposing realms of public and private was accompanied (and exaggerated) by the rapid development of construction and building systems technologies. The introduction of steel frame construction and the passenger elevator in the late nineteenth century ushered in a new age of office towers and the proliferation of office space for the emerging white-collar industries. It is during this period that the United States witnessed an explosion in the managerial sector.

The Victoriana aesthetic of this turn-of-the-century office reveals the close connection between the organization and decoration of the domestic and office environments.

A typical clerical office from this period reveals the symbiotic relationship between the principles of daylighting and natural ventilation in the functional design of the office façade. The opening of a clerical office was supervised in the open interior transom windows on the right — allowing the continual circulation of fresh air. Similarly, the high ceilings, large windows, and shallow office depth ensured that daylight would be able to penetrate the whole of the office. Less obvious perhaps, but expressive of the nineteenth-century sensibility is the relationship between the electric lighting and the office furniture. In this architectural sense, the office itself was the envelope for the work, and enclosed desk either with or without pigeonhole storage.

Above each desk hangs a single incandescent dusk lamp suspended on a knotted cord — seemingly individually tied individually to accommodate worker preference. The solitary lamp above each worker’s head emphasizes the combination of the spatial and psychological privacy afforded by the semi-isolated closed desk. On the worker’s winter’s evening where the setting sun brings dusk to the largely daylight office and the suspended incandescent lamps illuminate each worker’s desk individually with a pool of warm light, the singular individuality it allows — one desk, one focused source of light, one worker — can only be fully understood when viewed in comparison with the rationalized design of an office façade. Here, daylight and the seeds of standardization are visible even in these early twentieth-century offices. They represent the beginnings of the modern corporate company office, undated. But it was not until 1911 that the efficiency of the daylighting in this period allowed for higher levels of artificial illumination, which is historically and culturally tied to notions of supervision and control, to define the modernized office interior. The radical shift in the cultural and spatial construction of the modern office was given a powerful thrust into the twentieth century in the early teens by the application of the rationalizing principles of Taylorism to office interiors and the management of white-collar workers. Frederick Winslow Taylor codified his theories of worker productivity in the 1911 book, _The Principles of Scientific Management_. For the first time, workers were brought together as a single collective from an assembly line. The newly streamlined machines, day-to-night, and holy days, workers found themselves laboring to an increasingly ridged timetable, within enclosed spaces, and new forms of surveillance. The “individuality and privacy of the late-nineteenth century office, as embodied in the large desks and the directional downward, was eradicated by first quarter of the twentieth century’s basic core of electric lighting, the low cost, efficiency, and high degree of constant illumination, and increased levels of constant indirect, ambient light. Early American cinema explores the psychological context of the increasingly artificial and rationalized white-collar office. In King Vidor’s classic silent film, _The Crowd_ (1918) the protagonist John Sims moves to New York City to find his fortune and to define himself apart from the masses. Instead he finds himself a numbered employee in a vast windows office, filled with identical desks and innumerable workers (Fig. 4). The somber tone of the film’s narrative and of the oppressive presence of the crowd — in the office and on the street — serves as a critique of the dehumanizing conditions of the city as well as the rationalized workplace. Similarly, turn-of-the-century German sociologist Georg Simmel in the seminal essay _The Metropolis and Mental Life_ (1903) begins his examination of the psychological implications of mod- ern urban life, stating, ‘The deepest problems of modern life derive from the claim of the individual to preserve the autonomy and individuality of existence in the face of overwhelming social forces, of historical heritage, of external culture, and of the technique of life.’ 16 Simmel also called attention to the effects of the quantification of daily urban life — in particular a reliance on pocket

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8 — Abrecht, 18.

9 — On the history of the ‘vernacular period’ of skyscraper design in New York City and Chicago see, Carol Willis, _Form Follows Finance: Skylines and Skyscrapers in New York and Chicago_ (New York: Praeger Architectural Press, 1995).


11 — ‘The typewriter itself is a significant example of the influence of standardization in the modern office. After the introduction and popularization of the electric typewriter, many other aspects of clerical production were standardized—letter paper took on a precise format, as did envelopes, mail bags, folders, ring cabinets and so on. For more on the standardization of office equipment see, Albrecht, 22.

12 — The Modern Efficiency Desk, developed in 1915 for the Equitable Assurance Company, was one of the most advanced office furnishings in the modern office, and in particular with respect to the office’s impact on the worker’s health and well-being. See Wolfgang Schivelbusch suggests that, “Surveillance and light, visibility and control: these pairs compliment each other: too much control/privacy and darkness/light are parted in myth and psychology.” See Wolfgang Schivelbusch, _The Poking of Street Lighting_.


15 — A more recent survey of modern office, many sociologists and efficiency experts argue that light levels in the workplace might have a direct effect on the psychological well-being of employees. See, for example, Frederick Ellingsworth, _Works study of 1924 was conducted to measure the effects of increased and decreased illumination_ (Cambridge: Cambridge University Press, 1991). Regarding contemporary research into daylight and increased production see, Richard Pearson Gillespie, _Manufacturing Knowledge: The Crowd_ (New York: Routledge, 1991).

watches and the precise measurement of time in both work and leisure. The increased observance of measured time and the constructing of the workplace around artificial measures — rather than in relation to the rising and the setting of the sun as in pre-industrial, rural cultures — had significant impact on the “mental phenomenon of the metropolis,” he believed. The atrophy of daylight and the increasing domination of electric light in white-collar office in the first-third of the twentieth century must be considered a key factor in the transformation of the “mental life” of the urban office worker in this era.

The continued distancing of the average office worker away from natural light and air continued throughout the first half of the twentieth-century, reaching levels of total artificial suspension in the boundless office landscapes of the hermetically sealed post-war glass towers. Technological advances in the performance of fluorescent lighting and HVAC systems removed the barriers posed by a reliance on natural systems to the potential depth or expanse of a modern office. While fluorescent lighting was first introduced in the late 1930s, it was not until the post-war building boom that it was widely adopted into the workplace. In this period incandescent lighting was swiftly replaced by the higher output, cooler fluorescent lamp. The high levels of diffuse artificial light afforded by the new generation of fluorescent lamps were perfectly suited to the ideological shift in corporate architecture in the post-war era. As James S. Russell suggests, leading American corporations “wanted to put a face on the increasing importance of advancing technology in business success and economic growth. This coincided with American architects’ belated love affair with European modernism.”

The boom in the construction of monolithic glass-curtain wall towers in the mid-century, predicated on the import of European architects and ideals, transformed the American corporate landscape — both internally and externally. From Pietro Belluschi’s Equitable Building (Portland, Oregon, 1948) to a series of towers by Skidmore, Owings, & Merrill in the 1950s — the Lever House (New York, 1952), Inland Steel (Chicago, 1958), and Union Carbide (New York, 1960) — to such prestige commissions as the Seagram Building (New York, 1958) designed by Philip Johnson and Ludwig Mies van der Rohe, in the mid-century the glass tower became the sine qua non of corporate excellence in the United States. Even in the suburbs where towers were unnecessary, architects simply oriented the glass-box horizontally, designing long, low-slung glass-skinned corporate campuses such as Eero Saarinen’s Thomas J. Watson Research Center for IBM.
light pattern with the “absence of any design or configuration in the diffusing panels” in order to create a sense of “natural” illumination. 19 Comprised of translucent vinyl diffuser panels in an anodized aluminum-trimmed modular grid, the suspended ceiling hung below the fluorescent lighting system (Fig. 5). The soft diffused light produced by the luminous ceiling emphasizes the grid super-structure of the ceiling panels and the rigorous geometry of the supporting metal frame, rather than the light source. The smooth vinyl panels also neatly disguised the lamps, water pipes, electrical conduits, and other services, hiding the working systems of the tower’s services behind a clean, visually uniform ceiling. A unifying solid horizontal plane of light, the luminous ceiling, suppresses the messy workings of the building’s systems and presents a uniform, controlled visual environment.

The aesthetics of control were a central issue in the design of the mid-century corporate office. As Robert Bruegmann suggests in his critique of post-war American architecture, Modernism at Mid-Century, the country’s glass-skinned office towers represented an attempt to “present a cool, technologically advanced image to the world. 20 Uniformity was essential to this expression. Jurgen Joedicke’s 1962 survey, Office Buildings, warns against deviation from the accepted standard of high levels of ambient light in the open-plan office. Joedicke argued that, “In a large office of the open layout type, localized lamps mar the overall visual aspect of the office and will convey a restless impression.” 21 This notion of avoiding a “restless impression” — which clearly threatens the uniformity of the office as a controlled, designed volume — recalls the image of Joe Banks with his small incandescent decorative shaded lamp disrupting the order and psychic control of the office. The disruption of individuality in a field of homogeneity was a constant and subversive threat to the harmonious balance of sameness in the mid-century white-collar office. The organization and regulation of space and bodies is a primary sub-plot to the history of the modern office. Somewhat facetiously, Stanley Abercrombie makes this point in his essay on modern office furniture, “Office Supplies,” writing:

Union Carbide’s structural system, its fenestration, its luminous plastic ceiling panels, its metal partitions, its filing cabinets, and its desks — all these were ordered by a single modality of thirty inches. It may once have occurred to the designers that only sixty-inch-tall workers should be employed, but some exceptions to the module were finally allowed. 22


The architectural, tasks of the office design can easily be represented by an electric circuiting diagram: While keeping the voltage as steady as possible, working impulses introduced into a widely ramified network are required to lead, as directly as possible, to a productive power output. For a long time already, this model concept has been adopted in practice on the basis of careful studies: Efficiency experts organize the flow of papers; suitable office furniture and equipment of all kinds serve to eliminate more and more of the "resistances." 34

Hohls approach to office design aimed to reduce physical and psychological "resistances," and ultimately to engineer the most efficient workplace possible. This may explain in part why office lighting received so little attention in the rethinking of the office plan in the latter 1960s and early 1970s. As introduction, the Schneel bothers Baurolandschaft approach to office design was guided by no less than 68 rules (which one was obligated to follow) that strictly regulated the organization of furniture, workers, and paths of communication. One of the points required that "rigidly geometric patterns" be avoided in all instances, as they interfere with "flexibility in planning and replanning." 35 Diffuse, ambient fluorescent light avoids the problems of specificity and directionality in illumination distribution, and allowed office landscape designers to reconfigure office layout at will. Also continuing through the development of office lighting design was the late development of the discipline of professional lighting design, which only began to be recognized and practiced broadly towards the end of the 1960s. Prior to this, guidelines regarding ideal light levels for various tasks, including office work, were largely determined by committees or associations sponsored by lamp and fixture manufacturers or electric power companies. Under such guidance, standard recommendations for office lighting levels soared from 30 foot-candles to 80, 100, or even 120 foot-candles by the end of the 1960s. For electric utilities and lamp manufacturers, brighter was always better. 36

Throughout the history of modern office design, major changes always come back to preserving the integrity and legibility in buildings. During the crises of the 1970s, forced a fundamental rethinking of the midcentury approach to office lighting design. Quickly, it became fiscally and politically irresponsible to continue to light floor after floor of office space to 100 or 120 footcandles.

The new challenge was how to scale back all-ovar ambient light while maintaining sufficient light levels for office workers to complete necessary tasks. In the late 1970s task lighting was re-introduced as a way to avoid the excessive energy consumption needed to provide a uniform ceiling-bound ambient light source. In a sense, we return again to Joe Banks desk lamp. Only this time, the light source was integrated into the mobile office units characteristic of the 1970s and 1980s. With power transmissions located within the modular furniture components (concealing wiring and connectors) and lamps typically recessed behind suspended shelving or storage units, the visual uniformity of the office landscape remained intact. However, a significant change had occurred lighting migrated back to the individual worker, while remaining disguised within hybrid nature of flexible office furnishing systems. The reception of even this small shift in the illumination of the corporate office is telling of the human need for varied lighting. John Pile describes in his 1978 handbook for open office planning, "users reactions to task lighting are highly favorable. The space so lit tends to have a certain quiet, soft character suggesting residential lighting." 37 Pile recognized that office workers respond well to an environment that allows something of the individual and of the domestic within the corporate-controlled setting. Today we are seeing more of the domestic in the corporate workplace, as the division between the home and the white-collar place of work that began in the nineteenth century has begun a process of reversal. The internet revolution, the emergence of high-speed communication technologies and the practice of telecommuting have had significant impact on social expectations of the workplace. With the advancement of technology companies like Google are reaching out to potential employees with such non-traditional workplace amenities as children's day care, laundries, cozy reading-nooks, gyms, and basketball courts, as well as Astroturf carpeted meeting rooms and gaming stations. 38 Similarly, once strict dress-codes, written or simply universally recognized for example IBMs famous army of blue-suited "wing-tip wearing slower end of "casual Fridays." The sarntorial uniformity of the corporate dress code is losing cohesion with the influx of khakis and denim and the emerging acceptance of workers more inclined to t-shirts than button-downs.

Along with the de-corporatization of the modern office, the twenty-first century has seen a return to a greater reliance on the daylighting of buildings. Architects are finding that sustainable buildings, which incorporate and respond to the unique conditions of site and environment, foster a healthier and more productive workplace. 39 Offices sit for the majority of the day

with daylight offering significant economic advantages to management as well as contributing to the well-being of office workers are becoming more common. The rosewood-veneered walls of executive offices are being replaced with glass walls in order to bring daylight deeper into the office floor plate for the benefit of all, as recently seen in the design of the new Platinum LEED ranked Bank of America Tower (New York City, 2008) as well as in the previously mentioned Google headquarters (Mountain View, CA, 2005). Daylight no longer belongs only to the privileged executive with the perimeter windowed office, while the majority of office employees creation of an ever more powerful electric grid has enabled the construction of a new generation of "daylighting" systems. The overall effect is one of less need for artificial lighting, with more and more of the light entering through the windows. Yet, as was mentioned earlier, it is not always the job of the design team to use the available daylight. The designer is often faced with a situation in which the available light is less than desirable, and the lack of natural light is compensated for by the addition of artificial lighting. 40

27 Steven Izenour, "The Effect of Plants and Artificial Daylight on the Well-Being and Health of Office Workers, School Children and Health Care Personnel," Rotterdam (2002); Joel Livestad, "Daylighting and Sustainability, 2 Design + Construction vol. 5, no.8 (September/ October 2002), 28-33.
34 - Pile, 125.
35 - Pile, 125.
36 - Pile, 125.
39 - Pile, 125.
40 - Pile, 125.