Title

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After World War 2, a novel application for architectural modernism was exhibited, quite literally, in the West German city of Hannover. The 1951 Constructa building exposition showcased Western European approaches to postwar planning, mass housing, and state-of-the-art construction methods. Architectural modernism also mapped a novel global imaginary within Constructa's West Berlin pavilion. Side-by-side photographs compared two new structures: East Berlin's Soviet Embassy, designed in the Stalin-era neoclassical style known as Socialist Realism by a team led by Anatolii Strizhevskii, and West Berlin's George C. Marshall Haus, a US trade fair pavilion by Bruno Grimmek in the idiom known as International Style modernism. A single sentence telegraphed the meaning of this juxtaposition: *Zwei Welten bauen in Berlin* – "Two worlds build in Berlin" (Stadtamt Hanover, 1951: 319). Staged two years after Germany's division into separate cold war nations, Constructa used architecture to depict Europe's conjoined East and West as worlds apart.

Fig. 3.1 Soviet Embassy, East Berlin, 1947-51. Architects: Anatoli Strischewski et. al. Period postcard (collection of author).

Fig. 3.2 George Marshall-Haus ERP (European Recovery Program) Pavilion, West Berlin, 1950. Architect: Bruno Grimmek. Period postcard (collection of author).

The cold war, anthropologist Katherine Verdery notes, was not only a military and political struggle but also "a form of knowledge and a cognitive organization of the world" (Verdery, 1996: 7). The battle to propagate competing cold war world views also made it "a struggle of representations," as Susan Reid observes (Reid, 2010: 4). Used to transmit ideological messages about modes of production and consumption as well as the values attached to them, architecture gained renewed political significance as the US and USSR emerged from World War 2 as victors and superpower rivals. Opposing "informal empires," as historian John Lewis Gaddis calls them, pitted a capitalist "First World" – the U.S., Western Europe, and their allies – against a socialist "Second World" – the U.S.S.R., Eastern Europe, and confederates including China, Cuba, North Korea and North Vietnam (Gaddis, 1997: 27). This binary also defined countries that fell into neither camp. Nations already transformed by industrial modernity were described as "nonaligned." The emergent postcolonial realm in Africa and Asia was clumped with longstanding Latin American democracies as the "Third World": a contested arena in which the superpowers vied to expand their influence. [1] Competing First and Second World templates for progress added another charge to architecture's cold war brief. In addition to marking geopolitical turf, new buildings incorporated stylistic and spatial semaphores said to represent the socioeconomic progress accessible through American and Soviet assistance programs aimed at modernizing "backward" economies. By putting superpower aid missions in "competitive coexistence" with each other, astute non-aligned regimes, most notably Ghana and Afghanistan, became zones of contact and transculturation where, for example, US advisors provided and installed electronic equipment for an airport built by engineers from the USSR, and Soviet housing experts

counselled colleagues back in Moscow to study the quality control and client feedback practices used by Western builders abroad. (Avermaete, 2012: 476; Stanek, 2012: 301; Beyer, 2012: 312). As adroit consumers of competing modernization schemes proffered by First and Second World powers, Third World nations sometimes discovered a source of agency within economic dependency that could short-circuit the bilateral struggle for territorial hegemony and authority to represent the future.

As an analytical tool, "Cold War modernism" is weakened when used as a catch-all for any architecture built during the forty years following World War 2. This article limits the term's application to building types and one-off constructions with a history of ideological deployment. Rather than a period style, cold war modernism was a cultural contest that deployed specific building types, construction materials and production technologies, approaches to design and construction labor, and modes of domesticity and consumption to locate subjects within the geopolitical and temporal imaginaries associated with either "Free World" capitalism or the socialism of the "People's Democracies."

Conscripting modernism

The terms and tools of engagement mobilized on the cold war's architectural front trace their lineage to the Interwar era (1919-1939) and can be fully understood only within this genealogical context. Following the Russian Revolution of 1917, pioneering design accomplishments by Soviet Constructivists gave the USSR a commanding lead over the US in devising an arsenal of modernist architectural form. A predilection for the decorative filigree of Beaux-Arts and Art Deco architecture made the US a provincial backwater with respect to European experiments in built abstraction. Any Soviet advantage in harnessing modernism as a symbol of progress evaporated in the early-1930s, however. Stalin's cultural revolution repudiated modernist aesthetics as bourgeois and foreign, disorienting the Soviet design profession and unleashing vicious denunciations among architects vying for leadership within a congealing hierarchy of state-authorized neoclassical practice. At precisely the same time, a hemisphere away, young insurgents at New York's Museum of Modern Art (MoMA) plotted to overthrow American architecture's Beaux-arts establishment and install in its place a modernist avant-garde. These two antithetical design upheavals on opposite sides of the planet configured the cultural terrain upon which architecture's cold war would be waged a generation later.

New World hubris pervaded "Modern Architecture," the 1932 MoMA exhibition that marked the debut of "the International Style" as a US franchise. Curators Henry Russell Hitchcock and Philip Johnson advanced a nationalist reading of modernism informed by architectural study tours of Europe they had made in the company of MoMA director Alfred H. Barr Jr., all of them recent Harvard graduates. Like a previous generation of

American elites who embarked upon a European "Grand Tour" in pursuit of cultural edification and social status, Hitchcock and Johnson both absorbed and appropriated contemporary continental design. In reinterpreting Europe's diverse modernist practices as a unitary International Style, Johnson declared: "We saw an incredible implosion; everything started looking alike. Russell and I decided it existed and Europeans weren't seeing it right" (Dean, 1982: 9). "We have a tremendous advantage over everyone else," Johnson declared, "in that we have seen more than everybody and that we have no national bias whatsoever" (Howard, 2016: 72). In fact, overtly nationalist goals underpinned Johnson and Hitchcock's reformulation of architectural modernism as an easily replicated set of compositional rules emphasizing volumetrics rather than mass, regularity versus symmetry, and an emphasis upon construction detailing instead of ornament. Success in marketing their design formula in the US would fulfil the claim made by Hitchcock in 1929 that "It is already America which appears to have the greatest significance for the development of a new architecture. There very possibly in the future it will take the most individual and characteristic form" (Hitchcock, 1929: 203). A 1932 MoMA exhibition press release went so far as to frame European modernism as a byproduct of New World technology: "It was in America and by Americans that the true modern architecture of today was given the impetus which started it on the way to its present well-advanced state of development" (Kantor, 2002: 299). American exceptionalism and International Style modernism went hand in hand in Hitchcock and Johnson's aesthetic vision of manifest destiny.

Accounts of MoMA's International Style often mischaracterize it as "a depoliticized version of the modern style beginning to appear in Germany, France, and the Netherlands." (Merwood-Salisbury, 2013: 117). Riven by politically polarized approaches to architectural practice, the 1932 exhibition was, in effect, two shows in one. With Hitchcock and Johnson in charge of the primary displays, critic Lewis Mumford, aided by housing activists Catherine Bauer, Clarence Stein, and Henry Wright, guest-curated a secondary installation showcasing modernist *Siedlungen*: the term for new residential districts built to improve working-class living conditions in German cities governed by the Weimar-era Social Democratic Party. At a MoMA symposium, Mumford proclaimed that when designing such communities "you must plan them as though you were working for a communist government" (Mumford, 1932: 4). Broadcasting from the other end of the ideological spectrum, Hitchcock and Johnson argued in *The International Style* – an exhibition spin-off written, according to Johnson, "in a fury against the functionalist, German Social Democratic workers' approach to architecture as part of social revolution" – that "in European *Siedlungen*, the functionalists build for some proletarian superman of the future," an approach "not based on the actual situation in the contemporary world outside Russia" (Eisenman and Johnson, 1982: 14; Hitchock and Johnson, 1995: 92, 104). As curators, Hitchcock and Johnson instead emphasized the luxurious modernist villa as a decisive International Style building type. Their portrayal of moneyed patrons as idealized design subjects was anachronistic, to say the least. The

1932 “Modern Architecture” exhibition debuted at the darkest moment of the Great Depression. After seeing the show, museum visitors could proceed to a contrasting display of contemporary residential architecture located within strolling distance of MoMA: the muddy shantytown erected in Central Park by destitute, unemployed New Yorkers evicted for non-payment of rent. While Hitchcock and Johnson infused Social Darwinism with avant-garde panache, Catherine Bauer applied European architectural precedent to goals of social reform in *Modern Housing* (1934), a treatise informed by her work on Mumford’s installation at the 1932 exhibition. Camouflaged by the white walls and ribbon windows of a universalistic International Style, the spectre of class warfare haunted MoMA’s duelling attempts to affect an American transplant of European modernism.

The “America first” origin myth advanced by the 1932 International Style exhibition received full elaboration ar MoMA’s 1933 show “Early Modern Architecture, Chicago 1870-1910.” Hitchcock and Johnson’s rehabilitation of Chicago’s early commercial architecture as “the most important creative period in American architecture,” according to a museum press release, championed late-19th century office blocks rendered unfashionable by the stepped and spired art-deco towers of the 1920s, while asserting modernism’s origins in a building type native to American corporate capitalism (Merwood-Salisbury, 2013: 119). This seemingly minor exhibition had an enormous influence in scripting the modernist canon, which came to incorporate the hypothesis that structural advances in the commercial buildings of a frontier boomtown set a vital precedent for Europe’s Interwar avant-garde. MoMA popularized the “Myth of the Chicago School” (Bruegmann, 2005) through exhibitions, film, and radio broadcasts throughout the 1930s – just as Walter Gropius, Ludwig Mies van der Rohe, Josef Albers, László Moholy-Nagy, and other Bauhaus masters fleeing Nazi Germany were arriving in the US to establish expatriate design careers. Through historical coincidence, MoMA’s mythmaking efforts and German sagas of modernist exile converged as a coterminous narrative, rendering prophetic Hitchcock’s earlier assertion of an International Style born in America and fated to assume its “most individual and characteristic form” there.

At the height of the cold war, as Socialist Realist neoclassical structures rose across the USSR and Eastern Europe in a wave of Stalin-era reconstruction, Philip Johnson declared neoclassicism dead. His catalog introduction for the 1952 MoMA exhibition “Built in USA: Post-war Architecture” proclaimed: “The battle of modern architecture has long been won. […] The International Style, which Henry-Russell Hitchcock’s book of 1932 heralded, has ripened, spread, and been absorbed by the wide stream of historical progress” (Johnson, 1952: 8-9). In the US, facts on the ground supported his assertion. On Park Avenue, just two blocks from MoMA, the new glass and steel slab of Lever House, the headquarters of a detergent manufacturer, established the International Style as a global icon of corporate capitalism. Designed by Gordon Bunshaft of Skidmore Owens and Merrill (SOM), Lever House soon inspired look-alikes across the US and as far

afield as Terminal Sud in Paris, the Europa-Center in West Berlin, and Ankara's Emek Business Center in Turkey. In the meantime, Mumford's New Deal vision of US working-class communities built in the International Style and planned "as though you were working for a communist government" had receded from postwar reach like a shimmering fata morgana.

Waging a culture war

The "cultural cold war" – a term coined by Melvin J. Lasky, an anti-communist journalist in West Berlin (Saunders, 2013: 25) – weaponized International Style modernism for the ideological battle being wage in divided Europe. In "Architecture as a Political Weapon," US State Department consultant Hugo Leipziger-Pearce called for an overseas building program to counter communist rhetoric with evidence of American democratic prosperity. "In contrast to the blaring techniques adopted by the other side, our purpose consists of demonstrating the American way of life to the Germans under the watchful eyes of Europe as a whole" (Leipziger-Pearce, 1950: 204). His distinction between physical demonstration and rhetorical indoctrination was illusory. Tactical delivery systems – ranging from books, films, and exhibitions to full scale buildings created to represent the US abroad – deployed American architecture as propaganda in the original sense of the term, used by the 17th century Catholic church to denote its efforts to "propagate the faith" (*propaganda fide*).

Consistent with MoMA's role in forging a nationalist narrative for architectural modernism, the museum's International Program of Circulating Exhibitions (ICE), established in 1952, spread the gospel of America's International Style overseas. (McCray, 1977) ICE organized a global tour of MoMA's 1952 "Built in USA" exhibition, which travelled to Brazil, Argentina, Mexico, Italy, Poland, England, Ireland, Denmark, Finland, and Romania from 1953 to 1958. (MoMA, n.d.) The exhibition's inclusion of works by European-born Bauhaus expatriates Walter Gropius, Marcel Breuer, and Ludwig Mies Van der Rohe demonstrated that "American architecture is not an isolated phenomenon: in architecture, as in many other things, we are the heirs of Western civilization." The ICE program showed overseas audiences that, beyond military prowess, US superiority also encompassed technology, economy, politics, and culture – programmatic ingredients of the International Style, which was rapidly becoming the calling card of postwar American foreign diplomacy.

America projected its status as an architectural superpower far beyond the white walls of exhibition venues in the 1950s. The US State Department commissioned dozens of modernist overseas embassies, consulates, libraries, information centers, and diplomatic staff residences to support the nation's expanding global influence. Arguing the case for the "international modern" style, Leland W. King, the director of the U.S. Foreign Building Office (FBO), argued that "the [State] Department should conform to

this contemporary trend, in which the United States is the undisputed leader, if its buildings are to be truly representative of the progressive and characteristic way of American life" (Loeffler, 1998: 114-115). "No country can exercise political world leadership without exercising a degree of cultural leadership as well," declared the editors of *Architectural Forum.* Their diplomatic advice had a profit-driven subtext: they hoped that the State Department's international building boom would herald "a major 'export drive' in American architecture (Editors, 1953: 102). Just as federal defense spending had created an international market for US military products, the State Department's building investments could do the same for the nation's design and construction firms, or so the theory went.

Synergies between federal and corporate building commissions were evident in Tokyo, where Antonin Raymond and Ladislav Rado designed both the new Reader's Digest Building, a masterful work of regionally inflected corporate modernism, and the Perry House, a similarly detailed block of diplomatic staff apartments commissioned by the FBO (Loeffler, 84-86). Nowhere was the export of American modernist expertise more visible, however, than in West Germany. Prior to assuming his post as FBO director, King made a pilgrimage to Manhattan's Lever House, which he regarded as New World version of Bauhaus modernism exceptionally appropriate for the West German building program of State Department facilities. Its brief included seven consular offices, six public information centers, a headquarters for Voice of America radio, and nineteen staff apartment buildings. The FBO awarded the huge commission to SOM with Gordon Bunshaft as lead designer; Otto Apel headed the German partner firm providing working drawings and cost estimates (Loeffler, 1998: 88-89). Across West Germany, Bunschaft's corporate interpretation of the International Style supplied the US State Department with glossy monuments to American power and prestige.

Otto Apel's employment as the architect of record for US State Department facilities in Frankfurt, Stuttgart, and Dusseldorf pointed to an unanticipated use of the International Style as a Third Reich professional exit strategy. Apel previously had worked under Heinrich Tessenow and Albert Speer planning Berlin's reconstruction as a new Nazi imperial capital (Kitchen, 2015:49). The International Style attracted new German adherents to its proclaimed democratic politics throughout the western zones of Allied military occupation. Egon Eiermann, whose Nazi-era practice specialized in commissions for the Third Reich military/industrial complex, declared two years after Hitler's defeat: "In that [modernism] finds its best examples in countries that have protected and defended peace and freedom, our belief is confirmed that this architecture's roots are nourished by humanitarianism" (Eiermann, 1947: 46). His declaration of allegiance had a subtext: allowing Allied authorities to set norms for postwar practice enabled Third Reich architectural virtuosos to be rehabilitated as progressive cold war modernists. Eiermann was something of a poster child for the process, successfully shedding his collaboration with the Nazi armaments industry to design West Germany's pavilion at

the 1958 Brussels World's Fair, the West German embassy in Washington DC, and an office tower for the West German parliament in Bonn (Castillo, 2011). As a form of American cultural capital, International Style modernism proved transformative in West Germany, where its effectiveness at "visual denazification," in Paul Betts's memorable phrase, seemed boundless (Betts, 2004: 191).

Domestic Subjects

On both sides of the cold war divide, the mass-produced home provided an opportunity to shape and support human subjectivities associated with modernity. Applying the logic of Fordism to housing, modernist schemes for what Le Corbusier called "assembly line houses" and "machines to live in" proved far easier to theorize than to realize, however. In both the US and Europe, postwar demand for living space rekindled the previous generation's "dream of the factory-made house." Housing production had lagged since the Great Depression of 1929. World War 2 made matters worse by shifting economic activity towards weapons manufacturing, leaving bombed cities and their housing stock in ruin. Various attempts to retool military aircraft factories for housing production ultimately failed (Gilbert, 1984). More successful were attempts to apply assembly line logistics to craft labor on the building site. Across the Soviet Bloc, variants of Taylorism – the "scientific management" of workflow through time-motion studies, first developed in the US by Fredrick Winslow Taylor to boost efficiency – transformed bricklaying. So-called "socialist competition," organized by construction site managers at Party behest, pitted work crews against each other as rivals vying for awards and special privileges. (Nicolaus and Obeth, 1997: 184-199). For a different building material – wood framing – American builders devised a mass production method that staged single-family home construction as a linear process. Tradesmen, rather than houses, moved down the suburban "assembly line" on successive home sites, with pallets of building supplies, from precut lumber to plumbing and electrical fittings, delivered in the order needed. (Wright, 1983: 251-253) The resulting product, a modernized single-family vernacular dwelling known as the "ranch home," was made affordable for returning war veterans through generous Federal benefits and low-cost mortgages: government subsidies that financed America's suburban building boom and belied its propagandistic use as an icon of free market capitalism.

Promoted in Western Europe to advertise "The American Way of Life," the suburban single-family home celebrated capitalist advances in production and consumption. "America at Home" (*Amerika zu Hause*), a 1950 Marshall Plan exhibition staged in West Berlin, established a template for deploying the private home in overseas propaganda. Working in round-the-clock shifts for five days, West German crews assembled a house imported as a kit of prefabricated components: a productivity stunt said to demonstrate the advantages of US manufacturing and its harmonious labor relations. (Castillo, 2010: 26). Two years later, inside West Berlin's George Marshall-Haus trade pavilion, American

economic advisors erected a full-scale single-family dwelling realized down to its furnishings and kitchen gadgets but built without a roof. Titled “We’re Building a Better Life” (*Wir bauen ein besseres Leben*), the installation featured a model family of actors performing the rituals of daily life in a consumer wonderland. All household objects on display were modernist in design and manufactured in a Marshall Plan nation, demonstrating that “rationally designed products from different countries in the Atlantic community can be combined harmoniously,” and “just as these items from the various countries can combine to form a homogeneous whole, so the nations themselves can combine to form a homogeneous community.” The exhibition travelled to Stuttgart, Hannover, Paris, and Milan, providing future EU citizens with a preview of an affluent lifestyle stripped of trade barriers and unified by consumption *à l’Américaine* – the macroeconomic future charted for Western Europe by the architects of the US Marshall Plan (Castillo, 2010: 64-78).

Fig. 3.3 “We’re Building a Better Life” model home exhibit, West Germany, 1952. A narrator dressed in white coveralls (in crow’s nest) explains the interaction of the display’s model family with their modern household environment. US National Archives (RG286 MP GEN 1841).

The advent of modern mass housing in the Second World upended Stalinist socialism. Visions of mechanized construction had long haunted the Soviet building industry: in his autobiography, Russian president Boris Yeltsin recalled how his father, an amateur inventor, had toiled ceaselessly over drawings and calculations for a machine designed to mix mortar, lay one brick, remove excess mortar and move forward, tirelessly repeating the functions of its wall-building program (Yeltsin, 1990: 24). As long as Soviet Bloc housing utilized brick and mortar construction, however, mass production remained a pipedream. It took a "revolution from above" to topple the architectural status quo the housing crisis it perpetuated. "On Wide-Scale Introduction of Industrial Methods, Improving the Quality and Cost of Construction" – a two-hour address delivered in 1954, the year after Stalin's death, by his successor Nikita Khrushchev – declared war on the decorative imperative of Soviet neoclassicism as well as architects who reproduced it. Khrushchev envisioned a socialist utopia assembled from of prefabricated concrete panels, which he insisted would reduce cost and waste, turn construction workers into skilled factory operatives, and yield better housing faster than ever before (Forty, 2012: 150-159). As a totem of the Khrushchev era, precast concrete was endowed with the power to transform Soviet cities and citizens alike. The campaign came with its own battle cry: "Architects, into the factories!" (Gerchuck, 2000: 86). Confronted with elemental structures shaped by engineering rather than the classical canon, Soviet design theorists struggled to disentangle Khrushchevian construction from First World modernism: an aesthetic legacy that, while sometimes yielding parallel forms, remained under ideological quarantine as a symptom of capitalist cultural decay.

Although adopting a Western sensibility remained ideologically suspect until the 1970s, Soviet authorities encouraged appropriation of Western technology. When invited to tour US housing projects in 1955, a delegation headed by the Soviet Minister of Construction snapped photos systematically while collecting 'souvenirs' of building materials. On visits to construction supply companies, they placed orders for hundreds of products (Castillo, 2010: 130-134). American homebuilders mistrusted this acquisitive mania with good reason. Soviet reverse engineering – dubbed the "Western option" by historian of technology Raymond Stokes – allowed the USSR to achieve industrial parity with the West at a fraction of the cost of original research and development (Stokes, 1997). East Germany exercised the Western option at West Berlin's 1957 International Building Exposition (*Internationale Bau-Austellung*), known as Interbau. Its showcase of advanced residential prototypes, located two subway stops from the East Berlin border, featured modernist housing designed by architects from Austria, Brazil, Denmark, England, Finland, France, Israel, Italy, Sweden, Switzerland, the United States, and West Germany. West Berlin's mayor proclaimed it a display of "the free world's technology and creative strength." An East German newspaper retaliated with the headline "Berlin's Biggest Rental Barracks." Despite condemning Interbau as "a fantasy from a decaying world," members of the East German Building Academy (*Deutsche Bauakademie*) scrutinized the exhibition's model housing. Their internal report decried

the “astonishing carelessness” with which windowless kitchens were located away from exterior walls, thus requiring artificial light and mechanical ventilation. Five years later, the same features would be incorporated into new East German housing prototypes, their plans disseminated throughout the Soviet Bloc in Second World design journals (Castillo, 2010: 183-188, 195). After decades of Stalinist xenophobia, Western European architecture architectural publications began to appear in unauthorized Russian translations after 1956, providing another transmission belt conveying First World innovations across the so-called “Iron Curtain” – by this point, something more akin to an osmotic “Nylon Curtain,” as György Péteri notes (Péteri, 2004; Fox, 2014: 33).

Russian experiments with prefabrication dated back to the Stalin era, but the results were crude and impractical. The Soviet search for a building technology transfer source bypassed an East Bloc ally, Czechoslovakia, where by 1956 housing authorities were preparing to launch a national building campaign employing a locally developed panel system – at a time when the USSR had yet to produce a workable panel prototype (Zarecor, 2011: 225-226). In 1958, Moscow’s Party leaders commissioned a French housing contractor, the Société Raymond Camus et Cie, to set up factories for precast concrete components in the Soviet cities of Baku and Tashkent. (Anderson, 2015: 220-221; Paskins, 2016: 64) Within a decade, hundreds of *Domostroitel’nye kombinaty* or DSK (“homebuilding plants”) were in operation across the USSR. Given the “economic miracle” sweeping Western Europe, the stakes of a successful housing program seemed nothing less than the triumph or failure of the socialist project (Fehérváry, 2013: 81, 84). The results were indeed revolutionary. In the USSR alone, industrialized production yielded over two million new apartment units every year between 1957 and 1975. Khrushchev’s reform of the Soviet command economy reversed a long decline in housing standards. The official “sanitary norm,” adopted in 1927, had called for 9 square meters (97 square feet) of living space per resident at a time when the average Soviet citizen enjoyed under 6 square meters (63 square feet) of space, and only one out of five lived in a city. Stalin’s “great leap” into industrial development, mapped in successive Five-Year Plans beginning in 1928, triggered massive demographic growth in urban center without a corresponding investment in housing. Scarcity prompted Party authorities to tolerate private home construction, which contributed one fifth of all new residential space in the pre-war years, but produced speculation and private rental income, both anathema to socialist ideology. Meanwhile, living space continued its downward slide to a nadir of 4.67 square meters (50 square feet) per capita in 1950. Khrushchev-era investment in industrially manufactured housing, a means of production ideally suited to the centralized socialist command economy, raised the average to 7.18 square meters (77 square feet) by 1967 and prompted a suspension of land allocations for private housing (Herman, 1971). The slogan “A single system of construction for the whole country” summarized Soviet architecture’s shift from craft-intensive building methods and a mixed economy of housing production to their state-monopolized, assembly line alternative (Forty, 2012: 156-158).

So-called “dwellings on conveyor belts” (*doma na konviere*) assembled from factory-produced concrete panels in accordance with standardized designs (*tipovye proekty*) transformed architectural labor. Large bureaucracies coordinated materials research, designed and tested prototypes, and manufactured and transported building components to new planned neighborhoods. Architects chafed at their profession’s marginalization within this new industrial complex. As planning and building institutes absorbed responsibilities formerly vested in state architecture bureaus, young talents increasingly opted for degrees in engineering rather than design. (Molnar, 2010: 65-66; Pugh, 2014: 136-138). Opportunities for architectural design careers shrank in proportion to growth in the fields of theory and criticism: disciplines that required a total overhaul in the wake of Khrushchev’s dismemberment of a Soviet neoclassical tradition in development since the 1930s (Pugh, 2014: 139). The construction worker, a heroic figure deployed in propaganda as a metonym for the building of socialism, underwent an equally radical evolution. Khrushchev boasted that he had transformed “peasant” workers trained to “slap bricks and mortar together” into the skilled professionals of panel factories and mechanized building assembly (Varga-Harris, 2015: 29). The elimination of artisans from construction sites served another purpose: it eliminated remnants of trade union autonomy (particularly in Eastern Europe), a source of resistance to campaigns aimed at increasing production through lowered labor costs. Masons, in particular, bitterly resented the ongoing reduction of piecework wages advanced by the “socialist competition” schemes mandated by Party authorities. In East Berlin, schemes to rationalize labor sparked a construction worker strike on 17 June 1953 that quickly spread throughout the nation before being suppressed through Red Army intervention (Nicolaus and Obeth, 1997: 199-216). From a managerial point of view, efficiency engineering unimpeded by artisanal resistance proved wildly successful. Compared with similar industrialized building methods in the West, housing productivity per worker in the USSR was by 1964 “much higher than is usual in British labor practice,” according to a UK source. (Diamant, 1964: 132).

Beyond providing shelter for socialist citizens, mass-produced housing anchored them within the logic and practices of an administrative system founded upon “the reliability of scientific planning and the seemingly limitless possibilities afforded by modern technology, when combined with the ultimate science of society, Marxism” (Kotkin, 1997: 30). As a universal housing type, Khrushchev-era slabs served as building blocks for an urban unit called the *mikrorayon* (“micro-district”), a Russian term subsequently transliterated into the languages of many Second World nations. Neighborhood building ensembles included retail and recreational amenities, daycare centers and schools, and public transit nodes situated within walking distance of apartments for a population capped at 20,000. Echoing Le Corbusier’s archetypal ‘city in the park,’ the *mikrorayon* became the dominant socialist settlement form, unlike the First World’s superficially similar modernist working class districts, which remained annexed to urban landscapes

of more privileged citizens (Smith, 2010: 117). The prefix "micro" identified the *mikrorayon* as the low end of "a tightly orchestrated hierarchy of increasingly larger spatial units" culminating in planned development on a national scale (Maxim, 2012). "Infrastructural thinking," enabled by the power of centralized institutes to regulate land use and title; the location of industry, housing, public services, retail outlets, and recreational amenities; and the distribution of transport networks, harnessed the functions of a command economy to the goal of revolutionary societal transformation. Five-year planning projected socialist urban development into a future far more distant than that of the capitalism's brief real estate cycle. This protracted timeframe could frustrate apartment residents, who endured years of delay as the infrastructure of their *mikrorayon* crawled to completion. Whether fully achieved or merely pledged, what Kimberly Elman Zarecor calls "the socialist scaffold" – an "integrated system of parts and the logic of how they fit together" – cast the socialist city as "a synchronized instrument of economic production and social transformation in physical space," and the *mikrorayon* as the everyday environment of this ideological and temporal order (Zarecor, 2017: 5, 7).

Residency in Khrushchevian *novostroiki* ("new buildings") reshaped socialist subjectivity, although not always according to plan. While space in new mass-produced apartments was tight – initially, a total of 55 square meters (600 square feet) for a two-and-one-half room, four-person dwelling – its provision of privacy heralded the end of Stalinist civilization. Before Khrushchev's intervention, single-family apartments had been a perquisite of Soviet elites. Typical families occupied a room or two in a unit originally built as a single residence but made communal through ad-hoc subdivision. Shared kitchens and toilets sparked bitter feuds; household surveillance by petty informants enforced social conformism (Fitzpatrick, 1999: 46-50, 147-148). A 1955 Party decree disrupted Stalin-era domestic realities by promising that every Soviet family would receive its own housing unit within a decade. Called "separate" (rather than "private") apartments, they were purposely designed to be too small to be subdivided into collective flats by local housing authorities (Harris, 2013). Intended as artifacts of Marxist "scientific and technological progress," the new units were plagued by poor layout and shoddy construction details: the result of rushing prototypes into production without adequate testing. Resident campaigns demanding repairs, adequate services, and maintenance of public order in shared spaces produced novel forms of grassroots community (Varga-Harris, 2015; Harris, 2013). Rather than monuments to the failure of state socialism or the collapse of its utopic doctrine, concrete apartment slabs are recalled in oral histories as settings for communitarian relationships and activities as well as a significant upgrade in living standards (Rubin, 2017). In film, literature, and popular memory across the Soviet Bloc, the efficiency flat in a new neighborhood of housing blocks remains an icon both of freedoms and failings associated with socialist life after Stalin.

Fig. 3.4 Construction workers of the Kulikov building brigade set a pre-fabricated concrete wall section in place on the fifth floor of a new Moscow apartment block, June 1960. Everett Collection / Alamy EG6PT5.

Standardized construction of concrete panel housing across the Second World did not yield a singular experience of socialist domestic modernity. Instead, reproduction within a variety of contexts yielded diverse cultural outcomes (Kuliç, 2016). For example, the Afghan Ministry of Public Works cajoled Soviet advisors into adapting, at great expense, a concrete panel factory to produce not only apartment blocks but also freestanding homes with up to twelve bedrooms: a house type better suited to patriarchal extended families (Beyer, 2012: 316). In embracing Soviet mass-produced construction methods, Cuban Party authorities displaced a home-grown architectural revolution perhaps better tailored to the island's climate and economy (Loomis, 1999). Concrete panel buildings became tools in the Party's rural relocation of secondary schools so that Cuban students could add collective agrarian labor to their academic routine (Togores, 1979). Chinese Party authorities also considered mass-produced concrete housing as an instrument of rural collectivization (Lu, 2006: 122). In Hungary, where Soviet military suppression of a popular national uprising in 1956 generated enormous public resentment, state news services portrayed the new mass housing as "Western" rather than Russian in origin (Molnár, 2010: 65-66). Nowhere did cold war politics mark the fortunes of Soviet-style mass housing more than in Chile, however. The 1970 election of president Salvador Allende launched the nation on a "Chilean Path to Socialism." Two years later, a manufacturing plant donated by the USSR began fabricating concrete housing components. Not content merely to portray factory-produced housing as a portent of Sovietization, Allende's opponents spread rumors that the panel factory was actually a

secret Russian weapons installation. In the wake of the US-backed military coup that overthrew Chile's socialist government, Soviet advisors were expelled and the factory's workers incarcerated. Some endured torture; others were murdered. When Chile's military junta opted to restart the production line, skilled machine operators were retrieved from prison camps and employed as virtual hostages. Concrete prefabricated housing reappeared in Chile for two more years, albeit purged of socialist cultural associations through the addition of gable roofs and decorative balconies, before private building contractors had the plant dismantled to eradicate all vestiges of centralized economic planning and production (Alonzo and Palmarola, 2009). In Chile, the propagandist's trope of the cultural cold war as a life-or-death struggle overstepped its rhetorical bounds to become the law of the land.

'Unique Constructions'

The "compare and constrast" opportunities offered by international expositions spurred the development of a cold war building category known in the USSR as "unique construction" (*unikal'noe stroitel'stvo*). Its bespoke modernist monuments stood in flamboyant counterpoint to the typologically standardized housing called *tipovoe stroitel'stvo* (Anderson, 2015: 260). The USSR pavilion at the 1958 Brussels World's Fair exemplified the genre. Designed by a team headed by Anatoly Polianski, the pavilion debuted a fresh approach to Soviet representational architecture. Gone were the neoclassical flourishes and stacked massing said to embody socialist beauty during the Stalin era. Instead, a pleated glass façade rose 22 meters to intersect a flat roof plane supported by slender steel pylons, cables, and openwork trusses, yielding a structure as sleek as its ceiling-hung *Sputnik*: as the world's first orbital satellite, a proud icon of Soviet technological achievement. Within the pavilion, a model apartment outfitted with contemporary furnishings promoted advances in housing and domestic fittings. Together, the pavilion and its contents conveyed the spirit of a Marxist "scientific-technical revolution": another Khrushchev-era project that redefined state socialism (Reid, 2010). Adjacent to the USSR pavilion, its US competitor featured a Coliseum-like form free of internal columns, its translucent plastic roof framing an oculus open to the sky. Inside, displays of American fashion, furnishings, and domestic goods used suburban home culture as cold war propaganda. In sharing a common vocabulary of progress, the US and USSR suddenly seemed to have embarked upon a convergence course. From the late-1950s onward, Second World nations increasingly predicted a date by which they would attain or outstrip First World achievements in science, technology, and the supply of consumer goods (Castillo, 2010: 189). State socialism had embraced "the economic and technological models and standards of success prevailing in the advanced core area of the global system" – that is, exogenous measures of modernity imported from the capitalist West (Péteri, 2004: 119).

Soviet policies of "peaceful coexistence" and "peaceful competition," announced in

1965, overturned Stalinist dogma declaring the inevitability of armed conflict between communist and capitalist camps. Expositions and trade fairs became arenas for the ensuing global campaign to win over hearts and minds. The US unveiled a novel architectural battle strategy at the 1956 Jeshyn International Trade Fair in Kabul. Flyovers of the fairgrounds revealed Soviet plans to construct a massive pavilion. With little time left to build a worthy competitor, Jack Masey, a US Information Agency (USIA) advisor, contacted Buckminster Fuller, the visionary engineer who patented the geodesic dome. Three days before opening day, when all that could be seen of the US pavilion was a poured concrete slab, a DC-4 cargo plane delivered the building to the Kabul airport. It arrived as a set of color-coded aluminum struts and hubs for a geodesic frame supporting a translucent nylon skin. An Afghan work crew assembled the 100-foot diameter dome in 48 hours (Wulf, 2015:70-74; Turner, 2016). The architectural ambush inaugurated a decade of American cultural diplomacy that mobilized Fuller's dome in a variety of applications. More than a mere symbol of American innovation, geodesic domes provided a setting for what communications historian Fred Turner calls "the democratic surround": a multi-media habitat engaging behaviors believed to characterize democratic subjectivity, namely: "mobility, choice, the constraint of emotion, the elevation of rational thought, and the assertion of individuality within an egalitarian group" (Turner, 2015). At the 1958 American National Exhibition in Moscow, designer George Nelson deployed a gold-anodized geodesic dome as "a kind of information machine." At the pavilion entry, an IBM mainframe computer answered thousands of questions posed by Russian visitors about life in America. Farther inside the faceted dome, *Glimpses of America*, a seven-screen spectacle produced by Charles and Ray Eames, depicted everyday living in the US through 2,200 flashed images. When released from the hypnotic barrage of light and sound, visitors proceeded to a glazed hall stocked with consumer goods, three different model kitchen installations and, beyond them, a prefabricated suburban home imported from Long Island, New York. Officials in Washington declared the USIA Moscow exhibition, which used architecture – from the monumental to the domestic – to showcase America's consumer paradise, as "the most productive single psychological effort ever launched by the US in any communist country" (Castillo, 2010: 148-158).

As a theater of cold war operations in the battle for cultural and technological primacy, Montreal's Expo 67 expanded the boundaries of architectural representation. The lead designer for the Soviet pavilion, Mikhail V. Posokhin, embodied Soviet architecture's post-Stalinist transformation, having abandoned his past successes as a neoclassicist to win a 1962 Lenin Prize for the cautiously modernist Kremlin Congress Hall of 1959-61. Posokhin put his Pauline conversion to even better use in the design of Montreal's Soviet pavilion. Heroically scaled v-shaped pylons hoisted an upswept roof, framing panoramic views of the fairgrounds through a gently curved curtain wall. Simultaneously delicate and muscular, the pavilion marked an apogee in the Soviet genre of "unique constructions."

Fig. 3.5 Expo 67, Montreal, Canada. Left, US Pavilion: Buckminster Fuller with Shoji Sadao and Cambridge Seven Associates; right, Soviet Pavilion: Mikhail Posokhin with A. Mndoyants, B. Tkhor, A. Kondratiev, and R. Kliks. Period postcard (collection of author).

Across a narrow river channel from Posokhin's elegant vitrine rose the 20 storey tall reticulated sphere of the US pavilion: a geodesic dome clad in transparent acrylic panels, engineered by Buckminster Fuller in collaboration with Shoji Sadao. Inside, stacked freestanding platforms designed by Cambridge Seven Associates provided floor space for exhibits curated by Jack Masey. The pavilion theme, *Creative America*, revolutionized US cultural diplomacy. Abandoning the USIA's familiar focus on American consumer goods, Masey created an epic developmental narrative staged in reverse chronological order. Ascending a 250 foot (40 meter) long escalator, visitors arrived at the upper platform's high-tech spectacle: a simulated lunar surface populated by full scale models of manned and unmanned spacecraft. From the dome above dangled life size rockets, satellites, and a space capsule trailing multicolored parachutes. Moving down one level, a display of Pop Art confirmed Manhattan's pre-eminence as "the imperial center of Western contemporary art." Descending further, visitors encountered an exhibit on Hollywood film culture followed by installations of folkloric and Native American craft. Masey's kaleidoscopic sensorium conveyed US technological superiority while radiating playfulness and humor. In contrast, the Soviet pavilion, laden with "every piece of hardware but the kitchen sink," according to a Canadian journalist, exuded an "oppressive impressiveness" (McKercher, 2016: 377, 382). Exactly coincident with Peter Eisenman's first attempts to devise a design practice based of the self-referential purity of the autonomous object, Masey employed curatorial assemblage to achieve its antithesis: a vision of architecture as an expanded field. Writing a half century later, Sylvia Lavin coined the term "superarchitecture" for installation hybrids "that not only superimpose themselves onto architecture but that intensify architectural effects… a

way to understand the seductive contact between architecture and not-architecture as a means of mingling one medium with another" (Lavin, 2011: 53). Considered as a total environment, the US contribution to Expo 67, in pushing architectural representation beyond its modernist limits, foreshadowed aesthetic theories and practices now associated with contemporary art.

Another kind of mingling, the "seductive contact" between cultures and geographies rather than artistic media, propelled cold war modernism into new territory in Ghana, the site of the 1967 Accra International Trade Fair (ITF). Unveiled two months before Montreal's Expo 67, the ITF included a UK Commonwealth display that implicitly recalled the colonial past, a US installation housed in a geodesic dome, contributions from socialist Poland, Hungary, Czechoslovakia, and East Germany, and, presiding over all else, the vast cantilevered roof of the Africa Pavilion. Thanks to Ghana's postcolonial strategy as a recipient of both First and Second World aid, cosmopolitanism at the ITF ran far deeper than mere fairground spectacle. The Fair's Ghanian chief architect, Victor Adegbite, had earned his BArch in the US and received a UN Fellowship to study at the Inter-American Housing Center in Bogotá, Colombia before returning to Africa. Adegbite's associates on the ITF project were Jacek Chirosz and Stanisław Rymaszewski, resident architects from socialist Poland (Stanek, 2015: 417). The US pavilion's geodesic dome at the ITF was designed by local students following Buckminster Fuller's visiting professorship at the Kwame Nkrumah University of Technology. ITF design labor invoked a different Third World: one that functioned as a space of hybrid modernities, a creative geography that eroded superpower binaries rather than being trapped passively between them (Lu, 2011). The attempt at synthesis was radical, visionary, and, from a superpower perspective, utterly improbable. Ghana's everyday environments of modern development ranged from a *mikrorayon* district of low-income housing, adapted for the tropical climate by a team of Soviet architects and engineers, to the drive-in window banking introduced at the ITF (Stanek, 2015: 430, 422). Despite government suppression of "tribalism" in the interest of national unity, traditions of indigenous knowledge were to take precedence over innovation and expertise introduced from the socialist East and capitalist West. Modernist architects were called upon "to eradicate the colonial mentality" and at the same time "project African personality in our buildings." "We have a culture which we are proud and determined to preserve," a local critic proclaimed. The ITF African pavilion reflected that mandate by integrating advanced technology and traditional culture in a cantilevered roof in the form of an abstract umbrella, a West African symbol of power and prestige. (Stanek, 2015: 430). While Ghana could not evade the geopolitical intrigues of postcolonial governance, as demonstrated by its non-democratic regime change in the mid-1960s, it charted an independent course between competing superpower cultures – and in the process forged a Third World modernism that was stylistically nuanced, temporally resonant, and which challenged any mapping of architecture's global avant-garde based solely upon the axis of cold war dominance.

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[1] The term “Third World,” coined in 1952 by the demographer and historian Alfred Sauvy with reference to French commoners of a “Third Estate” opposed to the clergy and aristocracy, proposed a taxonomy rejected by Mao Zedong’s formulation of the “Three Worlds,” which shifted China, as a nation historically exploited by the West, from the Second to Third World category.