The Aestheticization of Mechanical Systems: 
Gio Ponti’s Montecatini Headquarters, Milan, 1936–39

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On 28 October 1938, the Montecatini Building opened in the center of Milan (Figure 1). The corporation presented the premises of its new headquarters as a showcase for technologically sophisticated building solutions. The prominence of the building would have been evident even to casual passersby, who could not but notice that the building was the largest and tallest in the densely built neighborhood. To a more architecturally attuned observer, the façade would have been particularly striking: perfectly smooth and punctuated by a regular grid of windows, framed in aluminum. By contrast, the surrounding buildings were almost uniformly encrusted with decoration, with windows of differing dimensions, framed in thick timber; the nearby Central Station, the largest railway station in Italy, built seven years earlier, was covered with a profusion of sculptures, reliefs, and mosaics (Figure 2). At night, with its “gala lights” illuminated, the Montecatini would have stood in especially bold contrast to its neighbors.

Modern architectural features such as those on display at the Montecatini Building were at that time all but absent from the evolving cityscape of Milan. A few recent buildings in the country shared aesthetic features with the Montecatini headquarters, among which, and most popular with young architects eager for innovation, were the Casa del Fascio (1932), designed by Giuseppe Terragni and located in Como, 35 miles north of Milan; the recently opened Santa Maria Novella railway station in Florence, designed by a local group of young architects led by Giovanni Michelucci; and the new university campus in Rome, whose school of mathematics was designed by the same architect who created the Montecatini, Gio Ponti. But such modern design was still rare in Italy. Furthermore, the buildings in Como, Florence, and Rome were public ones, commissioned by different branches of the Fascist regime. The Montecatini headquarters was a private building.
that did not embody the political or aesthetic ideals of the regime. Instead, it represented the self-image of a burgeoning corporation. To understand the aesthetic principles underlying the design of the Montecatini, we need to trace the questions and anxieties faced by Italian architects in the 1920s and 1930s. The frame of reference, then, should be their understanding of Fascist reactions to the economic and technological challenges posed by modernity.

Italy entered industrial modernity only in the early twentieth century, and modernization remained incomplete for many decades. This belated industrialization shaped the architectural field. The first attempts at creating a national modern architecture, occurring between the 1880s and the 1910s, responded more immediately to debates in the field of visual arts than to the utilitarian concerns of engineering. Even later, architecture was more generally seen—even by architects—as a branch of the visual arts, not as a discipline contiguous to engineering. In the 1930s, Marcello Piacentini, the de facto court architect of the Fascist regime, began commissioning works from young architects practicing in international avant-garde styles. Aesthetic differences aside, these architects all eschewed radical utilitarian functionalism and focused instead on form.

Like many facets of Italian culture, debates in architecture in the 1920s and 1930s were informed by the thinking of the neidealist philosopher Benedetto Croce (1866–1952). For Croce, aesthetic purity was the highest ideal to which humankind could aspire. Mere technique—the utilitarian, the scientific—was, by contrast, inherently debased. In architecture, this stance was moderated by the impossibility of a complete disregard for utility, but it nonetheless fostered a deep-seated suspicion of functionalism.

The primacy accorded to aesthetics in this historical moment shaped the distinctive quality of contemporary Italian buildings. Not surprisingly, in such a cultural milieu, the influence of structural and mechanical engineering on the design of buildings was overlooked. Scant attention has been paid to the fact that architects could no longer design buildings alone, given the increasingly complex technological and systemic demands placed on them. Whether made of reinforced concrete or steel, modern buildings were now equipped with systems for heating, ventilation, and occasionally air-conditioning, with plumbing, sewage disposal, electricity, and other technologies—systems designed not by architects but by engineers. In this essay, I will demonstrate how Ponti questioned the boundaries of architecture in his design of the
Montecatini headquarters, turning building systems themselves into vehicles of aesthetic expression.

Ponti’s Education and Early Professional Years

Gio Ponti (1891–1979) graduated in 1921 from the school of architecture of Milan, a small enclave within a polytechnic, the Regio Superiore Istituto Tecnico, otherwise committed to engineering.7 When he enrolled in 1911, among the 897 students at the polytechnic, only 48 were studying architecture; the rest of the student body was distributed between the schools of industrial engineering and civil engineering.8 This proportion did not change significantly during Ponti’s enrollment, which was prolonged by the years he spent on the Italian–Austrian front during World War I.9

In the two engineering faculties little attention was paid to aesthetics. The yearbook for 1912–13 notes that industrial engineering students visiting Berlin were impressed by the scale of the machines at the recently completed AEG Turbine Factory, but the same report does not mention Peter Behrens’s architecture there.10 The aesthetic education of the architecture students was more robust, though it largely revolved around reproducing the designs of early modern palazzi in Milan and the surrounding areas. At the same time, the architecture curriculum emphasized the importance of technological innovation, with the technical demands of designing for reinforced concrete and steel at the forefront. Students even had to take fourth- and fifth-year courses in “practical architecture,” which focused on modern heating, ventilation, and plumbing systems.11

In many senses, Ponti was a traditional student at the polytechnic. At a time when Italian architects came largely from the upper class, Ponti was no exception: his father was a well-to-do civil engineer and his mother came from a family of industrialists.12 His social background was central to his approach to design, as it instilled in him the cardinal industrial values of rationality and efficiency. But Ponti’s early career straddled the fields of decorative art and architecture. Beginning in 1923, he designed vases and plates for Richard Ginori, a well-known Italian manufacturer of porcelain.13 In those years, he shared an office with Emilio Lancia and Giovanni Muzio, whom he had met at university. The collaboration among the three young architects did not prevent Ponti from pursuing his own commissions, and in 1933 he founded his own office.

Thanks to his work for Ginori and his position in the industrialist circles of Milan, Ponti by the early 1920s had grappled with the challenges posed by industrialization: to what extent could—or should—design remain a primarily aesthetic enterprise? One way forward seemed to lie in a synthesis of architecture, product design, and art. Ponti’s first attempts in this direction focused on the private house, following the path opened by the Wiener Werkstätte.14 To promote discussion of this new aesthetic program, Ponti founded the monthly journal Domus (Latin for “home”) in 1928. Dedicated to “the architecture and the furnishing of the urban and the suburban modern dwelling,” Domus was aimed at a general audience, whose tastes in interior decoration and furniture Ponti sought to refashion.15 Domus published projects from Italy as well as from abroad; deco-style projects were shown alongside more avant-gardist ones. Thanks to this aesthetic eclecticism, the journal maintained a distance from politics. Unlike other architects, including Terragni, who promoted their own architecture as explicitly Fascist, Ponti was never considered a camicia nera, or Blackshirt—a Fascist militant.16

It is surprising, then, that in 1932 Piacentini, who was close to the top ranks of the Fascist regime, invited Ponti rather than the “Blackshirt” Terragni to design the building for the school of mathematics at the new university campus in Rome.17 Piacentini believed that Fascist architecture should not be too avant-gardist; he therefore preferred the moderate approach of the seemingly apolitical Ponti to the more radical aesthetics of Terragni. In 1936, the same year he gained the commission for the Montecatini headquarters, Ponti was named professor of interior design at the polytechnic of Milan, confirming the widely shared sense that his approach was compatible with the status quo.18 But Ponti never felt fully at home there, preferring instead to focus his efforts on Domus and, above all, on his work at the office.

The Rationale of the Montecatini Project

The Montecatini headquarters was the largest commission that Ponti’s office had received to that point. Mining sulfur and manufacturing chemical fertilizers, Montecatini was one of the leading private Italian corporations, with the various branches of the company employing about forty thousand people, including the workforces at two plants in Holland and Belgium.19 Additionally, Montecatini exported its industrial expertise at a time when Italian firms were for the most part technologically backward.20 From the mid-1930s, the Fascist regime’s autarkic policies only reinforced the prominent role of Montecatini in the Italian economy: the company’s fertilizers promised to help make Italy self-sufficient in food production.21

Despite its large size and its presence in a number of foreign markets, Montecatini was organized in a strictly hierarchical way, with little resemblance to the increasingly prevalent American corporate management model.22 By the 1920s, specialist managers, rather than company founders or their descendants, ran the day-to-day operations of large American corporations, with individual branches and subsidiary companies functioning relatively independently in a corporate form intended to stimulate internal competition.23
Montecatini, however, hewed to a traditional business model: the president and CEO Guido Donegani, son of one of the founders, Giovanni Battista, made all final decisions.24 His vision alone dictated corporate policies. Even top-level managers had little strategic autonomy; likewise, all branches and subsidiary companies remained under Donegani’s control.25 As a consequence, there was little incentive for mid-level managers to attempt to climb the corporate ladder, and Donegani could describe the Montecatini as a disciplined and harmonious organization under his firm control.26 By the end of the 1920s, less than two decades after assuming leadership, Donegani had successfully transformed Montecatini from a mining company with no export revenues into a chemical group with a near monopoly in Italy and a respectable market share globally.27 In 1928 the company headquarters building was completed in the center of Milan, Italy’s economic capital, its façades concealing the concrete structure under classical decoration. However, the seven-story building soon proved too small for the fast growth of the corporation, and Donegani planned new premises, to be attached to the existing ones.28

Donegani was Ponti’s final, though rarely direct, interlocutor for all features of the headquarters project. The CEO insisted that the new offices reflect the corporation’s identity; the design had to embody the company’s commitment to innovation as well as to efficiency.29 The architecture therefore had to be forward-looking but not provocative, and Ponti sought above all to give material form to these values.30 For instance, in a note about the interior design of the offices, he wrote, “Never Figini and Pollini colors, but colors that please Commendatori,” or individuals recognized by the Italian government for notable professional achievements.31 To Ponti and his coterie the word Commendatori would have carried connotations of conservatism and bourgeois taste. Luigi Figini and Gino Pollini represented the polar opposite, both aesthetically and politically; they were part of the rationalist avant-garde in Milan’s architectural scene, which was linked to the second generation of futurism.32 Their interiors were too boldly colored—fit for avant-garde artists, not for corporate personnel. Ponti opted instead for a more subdued aesthetic. A lavish book showcasing the Montecatini Building, published at the time of its opening in 1938, includes some full-page color photographs devoted to the interiors (Figure 3). There are no “Figini and Pollini colors”; indeed, the dominant tone is beige.33 The Montecatini Building represented Ponti’s transposition of the corporation’s management philosophy into architecture. After all, in a promotional presentation published in 1935, the Montecatini corporation was compared to a “harmonious building.”34 The new headquarters’ volumes and layout, façades, lighting, interior colors, and technological systems were subordinated to the company’s self-image. It was the building’s technological systems, however, that represented the apotheosis of this design program.

The “Qualitative” Solution

Describing the design process for the magazine Casabella after the building was completed, Ponti explained that he began by studying the trapezoidal plot, keeping in mind its spatial relationships to nearby buildings and the angle of natural light.35 Archival records confirm this account. Ponti initially presented two proposals, one he called “quantitative,” the other “qualitative,” these names suggesting his preference for the latter (Figure 4).36 The “quantitative” scheme maximized density by building on the plot’s perimeter. It comprised three sections of the same height and depth as the nearby preexisting Montecatini headquarters, in addition to an internal section that created two narrow courtyards. Ponti clearly hoped that Donegani would choose the second scheme, which he ultimately did. This “qualitative” proposal consisted of an H-plan: the central tower of the building was intended for company directors and managers, and the two longer, lower side wings for the employees. The tower was set back from the street, and the converging lateral wings were aligned with the façades of the preexisting company offices, to which the new building would be both physically and functionally joined.
The “quantitative” and “qualitative” proposals thus differed in their respective relationships to urban texture: the first filled the block, whereas the second made the new building partially independent from its surroundings.

Elevators and stairwells were situated at the two intersections between the wings and the tower (Figure 5). The building could accommodate up to two thousand people but required only two guards to monitor each floor, at the junctions between the wings.37 Long before the advent of closed-circuit television systems, this was no small consideration for a client who saw order as the key to corporate efficiency. Corridors were a decisive element in this strategy for maintaining order, as they rendered visible the entire length of a given floor. For a model, Ponti could look to the 1930 Palazzo Gualino in Turin, designed by Giuseppe Pagano and Gino Levi Montalcini, subject of the entire June 1930 issue of Domus. This building consisted of seven office floors, with a corridor on each floor of its two wings (Figure 6). Like Pagano and Levi Montalcini’s project, Ponti’s design represented a tacit rebuttal of the open plan proposed by Ludwig Mies van der Rohe in his 1923 manifesto project for a “modern office building.”38 By embracing the surveillance potential of corridors, Ponti gave physical form to Montecatini’s self-conception: the plan implied allegiance to a hierarchical corporate order, whereas an open-space plan would have suggested a multiplicity of possible organizational structures.

After Donegani decided on the H-plan, Ponti designed a square module for the structural grid of the building (Figure 7). Measuring just over 4 meters per side, this module, said Ponti, corresponded to the minimum space occupied...
The module underwent several revisions, as it had to fit in the volumes that the “qualitative” solution had already defined. Compositionally, Ponti began with volumes because they would define the headquarters’ public image; he emphasized the building’s monumentality by setting the management wing back from the street (Figure 8). This solution created a small plaza, which was raised slightly above the street and separated from it by an iron fence. Employees and visitors could enter the plaza through either of two side gates, which were connected to the building by ramps. The approach to the main entrance was almost processional, conceived primarily for visitors who would arrive by car, alighting under the overhang sheltering the space in front of the large glass doors, beneath the Montecatini sign. They would then enter a lobby where elevators provided access to the thirteen floors of the main tower—an exceptional height for Milan, where the tallest building was the mixed-use, fifteen-story Snia Viscosa Tower, completed one year earlier (1937).

In his “qualitative” solution, Ponti opted for the smoothest façades possible, clad in huge tiles of Apuan cipollino marble from the corporation’s quarries in Tuscany. An innovative jointing solution developed by the company’s technical service department ensured the stability of the heavy tiles; each was fixed with eight brass hooks that were bound to the vertical steel bars of the reinforced concrete (Figure 9). The aluminum windows, almost flush with the marble cladding,
were developed by a Montecatini research laboratory established to study the use of aluminum in the building industry, a practice largely unheard-of at the time, when aluminum was used primarily in the mass production of objects such as cooking utensils, industrial tanks, electrical cables, and car components (Figure 10).42

Ponti’s architectural use of aluminum came at a critical moment. Archival records do not indicate whether it was he or Donegani who first proposed the metal’s use; even if it was Ponti’s decision, it was probably prompted by the corporation’s desire to promote its image as an aluminum producer. From 1923 to 1927, Italian production of aluminum was able to satisfy only 40 percent of the national demand.43 Domestic production was largely under the control of Alcoa, the largest aluminum company in the world, based in Pittsburgh, Pennsylvania.44 To compete with Alcoa, Montecatini allied with the German firm VAW, though this alliance was inherently lopsided—the Germans contributed almost all of the practical knowledge to the enterprise—and soon disintegrated. In March 1935, Donegani founded a new subsidiary aluminum company to cover research and production, the SNAL (Società Nazionale Alluminio).45

During the period in which Ponti designed the Montecatini Building, the Italian government was aggressively implementing a program of economic self-sufficiency. Donegani’s interest in the aluminum market was encouraged by the Fascist regime, which sought to make Italy

Figure 8 Gio Ponti, Montecatini Building, Milan, 1938, central tower and main entrance (Il palazzo per uffici Montecatini, inaugurato a Milano il 28 ottobre XVII [Milan: Pizzi e Pizzi, 1938]).

Figure 9 Gio Ponti, Montecatini Building, Milan, 1938, details of joints for the marble cladding (Gio Ponti Files, Centro Studi e Archivio della Comunicazione, Università degli Studi di Parma, Abbazia di Valserena).
independent of aluminum imports. Montecatini could not but bow to this pressure, even if the enterprise was difficult.\textsuperscript{46} By combining Italian marble cladding and Italian-made aluminum windows, the Montecatini Building effectively demonstrated this program and the corporation’s contribution to it.

### Ponti’s Approach to Technology

In May 1937, Ponti wrote to Mario Gobbi Belcredi, the director of Montecatini’s technical service department: “Dear Belcredi, don’t make such a terrible face. Do the best you can. I’m not asking for my sake, but for the palazzo.”\textsuperscript{47} As an engineer, Belcredi played a leading role on the building site, and Ponti interacted with him almost daily during construction.\textsuperscript{48} The relationship between the two men epitomized the stereotype of the inventive architect and the finicky technician. Ponti often asked Belcredi to be patient with his design process: “I fully understand that you despair when I modify drawings to the very limits of the possible.”\textsuperscript{49} At other points, he called for Belcredi’s active participation, albeit with a note of sarcasm: “Do not fear, Belcredi! Being the impassioned and trustworthy executor of my ideas will eventually bring you much joy.”\textsuperscript{50}

While Ponti presented himself to the readers of \textit{Casabella} in his account of the project as an exacting supervisor, his correspondence suggests that he did not retain full control over the implementation of his own design.\textsuperscript{51} The Montecatini technical service department often relegated him to the role of architect-aesthete, as in one unsigned memo: “It is not . . . your aesthetic wishes, but . . . technical needs that . . . must be given precedence.”\textsuperscript{52} Ponti largely acquiesced in the realm of technical matters. When his design was criticized on aesthetic grounds, however, he was less tractable: “I think I don’t have to listen to suggestions from technical departments about my own building concerning the ‘aesthetic flaws.’”\textsuperscript{53} Eventually the dispute reached a fever pitch, and Donegani himself asked Ponti to soften the tone of his correspondence with the technical service department.\textsuperscript{54}

Ponti’s awareness of the complexity of the design process only fed his ambition to master all the disciplines that were involved. “Our passion for design came together with the enthusiastic revision of all the details, from systems, to procedures, to devices, to lamps, etc.,” he wrote in \textit{Casabella}.\textsuperscript{55} Ponti sought to extend to fields traditionally associated with engineering the same attention he gave to architectural aesthetics. It is not clear from the archival record that he did so from the beginning. His ambition may have reflected his growing appreciation of the role of systems in design.

By the mid-1930s, the dictates of efficiency in large office buildings had given rise to a set of engineering demands far beyond the architect’s traditional purview—a complex world of pipes, cables, and equipment devoted to controlling the building’s internal environment and to facilitating both internal and external communication. This was by no means a new phenomenon: systems had played an important role in the design of office buildings since the end of nineteenth century. Among Italian cities, Milan had the most developed service...
industry, and it was therefore home to some of the country’s most technologically advanced buildings. The pneumatic mail system of the Comit Bank headquarters (1911), for instance, included 2.5 kilometers of brass pipes and featured a centralized system of heating and ventilation, electrical lighting, telephones, and an electric generator.56 The building’s systems, however, were hidden from view and, as such, did not form part of its public image.57 The Palazzo del Toro (1939), designed by Emilio Lancia, likewise boasted state-of-the-art systems, including central air-conditioning, but they, too, were carefully hidden from sight.58

Ponti took the opposite approach. The Montecatini Building’s systems—including central air-conditioning, telephones, lighting, pneumatic mail chutes, and elevators—were path-breaking in Italy. Faced with their inevitability, Ponti approached these systems as an aesthetic opportunity rather than as a mere encumbrance. Elsewhere in Europe and in the United States, architects had adopted similar strategies: one might turn, for instance, to Otto Wagner’s Postsparkasse (Postal Savings Bank) in Vienna (1903), or to Frank Lloyd Wright’s Larkin Building in Buffalo, New York (1906). From the middle of the nineteenth century onward, systems diffused in buildings. The reconstruction of the Palace of Westminster in London (1838–50) was the first occasion when systems played a significant role in a public building of international note: the palace included a ventilation system that occupied nearly one-third of its volume.59 Yet Ponti mentioned no buildings as inspirations for his design. The only office building extensively published in Domus by this time was the Gualino building in Turin, covered in the June 1930 issue, and Domus did not emphasize the role of systems in the building’s design.

Earlier architects had employed three strategies to exploit the aesthetic potential of systems, and Ponti adopted all three (Figure 11). These consisted of putting systems on show in their bare materiality, using them as decorative motifs, and adding ornament to them. In the first strategy, the needs of engineers dictated the placement of systems within the design. The second strategy, by contrast, involved strategically positioning systems also for aesthetic effect. Neither the first nor the second strategy required the architect to intervene in the design of radiators, grids, and pipes. Only in the third strategy did the architect customize the constituent elements of systems.

The first strategy was illustrated by a small opening in a wall of the Montecatini’s lobby, where Ponti revealed air-conditioning ducts and valves (see Figure 11, left). This opening served no technical purpose; rather, it invited passersby to discover an otherwise hidden world of systems technology. By showing only a small part of the larger system, the architect did not so much clarify a mechanical function as suggest its presence, a presence that remained nonetheless mysterious. This trick of revealing while hiding was a counterpoint to the orderliness that Ponti pursued in the design of the Montecatini Building. A similar strategy characterized the Van Nelle Factory in Rotterdam, designed by Johannes

Figure 11 Ponti’s three strategies for dealing with the Montecatini Building’s systems, from left to right: window in the lobby showing HVAC components; air-conditioning grids used as aesthetic motifs in a corridor of a lateral wing; brightly painted machines in the basement (Il palazzo per uffici Montecatini, inaugurato a Milano il 28 ottobre XVI [Milan: Pizzi e Pizzio, 1938]).
Brinkman and Leendert van der Vlugt (1931), where, as Joris Molenaar notes, the pump room of the boiler house—completely visible from outside the building—served as “a display window for industrial aesthetics” (Figure 12).60

The large air-conditioning grilles in the Montecatini’s corridors exemplify the second strategy of transforming systems into decorative motifs. Ponti treated the grilles almost as abstract paintings that could be positioned to break up the visual monotony of the walls (see Figure 11, center). Like the doors of individual offices, they created a geometrical rhythm. In this case, the systems were subordinated to an aesthetic order, though their essential form remained unaltered. The Postsparkasse in Vienna, by Otto Wagner, employed a similar strategy (Figure 13). Wagner designed two parallel arrays of hot-air diffusers in the main hall, aligning them with the hall’s structural columns and integrating them into the room’s decorative program. Ponti, by contrast, did not design his grilles himself but acquired them as ready-made components. He positioned these within his larger design so that they would resonate with other architectural elements, such as the doors and partitions. The movement from Wagner’s self-designed diffusers to Ponti’s commercially produced ones illustrates how, during the first few decades of the twentieth century, it became increasingly rare for architects to intervene in the design of systems themselves. The increasing availability of prefabricated components—such as air diffusers, grilles, knobs, and switches—made it easy for architects to avoid the expense and impracticality of custom designing these items.

The third strategy—decorating the components of systems—is exemplified by the Montecatini’s engine rooms. Although black paint would have made oil splashes less visible and thus reduced maintenance costs, Ponti asked for all parts of the machinery to be painted red. The presentation book shows that parts of the machinery were painted in red and others in yellow; such careful and labor-intensive work plausibly demonstrates the supervision of Ponti himself (see Figure 11, right). As these parts were normally visible to only a few maintenance workers, the request reflected Ponti’s aesthetic sensibilities more than anything else.61

Ponti maintained that he had raised the Montecatini systems to “maximum honor,” freeing them from the aesthetic disregard to which they were usually confined, as things for basements.62 In other words, he transformed systems into architectural elements, akin to traditional elements—window, façade, roof, and wall—that avant-garde architects such as Le Corbusier, Walter Gropius, and Ludwig Mies van der Rohe were modifying. Whereas these elements had always belonged to the purview of architecture, technological systems were conventionally relegated to the realm of the subarchitectural. Ponti transformed these systems from purely technical features into aesthetic resources. Significantly, in the presentation volume issued by Montecatini, the building’s systems were compared to “the nervous system in a human body.”63 This metaphor adds an intriguing example to the history of anatomical metaphors in nineteenth- and twentieth-century architectural discourse, which already includes structure as skeleton, distribution as circulation, and façade as skin.64

Illumination and Decoration
As part of this process of aestheticization, Ponti used windows and lighting to transform the Montecatini Building into a giant urban lamp. In designing the lighting, he distinguished between utilitarian lighting and what he called “gala”
Utilitarian lighting—built-in spotlights and wall lights in the corridors, hanging lamps and desk lamps in the offices—took its cues from everyday life; its form and position were defined by the objects that it had to illuminate and the tasks it was expected to facilitate (see Figure 3). The “gala” lighting, by contrast—hidden spotlights embedded in the windowsills intended to highlight the building during special occasions—shone out toward the city, lending itself to public life. Ponti planned to illuminate the gala lights for the first four nights and on the first Sunday after the completion of the project, to introduce the new building to the city.66

While the façades were still under construction, he promised to make a model of the building to study the effect of the illumination.67 Ponti’s careful calibration of this effect is visible in nighttime photos: the marble façade blurs into the dark sky, becoming the background for a series of shining rectangles, the illuminated windows (Figure 14). In daytime, with the gala lights turned off, the effect is exactly reversed: the façade is light, the windows are dark. This reversal depends on the coplanarity of the windows and façades: the lights do not illuminate the façades themselves. Ponti exercised careful control over the design of the internal lighting elements and insisted on the invisibility of the gala lights. In general, his approach to lighting mirrored his approach to systems: he meticulously oversaw the aesthetics but relinquished control over the technicalities. Regarding lamps, he wrote to Gobbi Belcredi, “I am always at your disposal for the aesthetic part... I have left technical-economic considerations to your specialists.”68

The contrast between the new Montecatini headquarters and neighboring buildings was striking. The façade of the company’s previous headquarters, for instance, completed only ten years earlier, was characterized by elaborate decoration. A still greater contrast was with the building directly opposite: Cà Brüta, a residential block completed in 1922 by Giovanni Muzio, with whom Ponti had once shared a studio.69 Cà Brüta (Milanese dialect for “ugly house”) was so named by locals shortly after its completion (Figure 15). Its façade combined a convoluted collection of arches, tympana, cornices, niches, balustrades, and rustication taken from traditional architecture. This amalgamation of seemingly discordant styles was inspired by recent paintings by Giorgio de Chirico. In the early 1920s de Chirico was among the main figures of Novecento, a group of Italian artists in search of a new classicizing aesthetic, inspired by Mediterranean imagery and light. The façade of Cà Brüta reflected concerns with natural light and shadow; Muzio aimed at giving depth to it, as if it were a bas-relief.70 By contrast, Ponti’s design neither plays with natural light nor combines curves and straight lines. Unabashedly flat, the façades of the Montecatini are marked only by the serially repeated rectangles of the windows. Further, in adhering to the aims of the Novecento movement, Muzio evoked a classical mythicized past, something that was embedded in the Novecento program. Cà Brüta became part of the Novecento repertoire, establishing a close dialogue with the fields of painting and sculpture.71 With the Montecatini Building, Ponti envisioned an embodiment of the present and thus departed from allegiance to historicism. The building responded merely to the needs of the client, the constraints of the site, and the prescriptions of urban regulation; no mythic, classical past was evoked, and Ponti did not aim to add a piece to the repertoire of any visual arts movement.

Visual arts did have an ancillary role in the design process of the Montecatini, however. Unsure about the proper
The design process for the building’s main entrance unfolded in a similar manner. Above the front doors, Ponti initially included three statues of unknown material and iconography. Donegani enthusiastically accepted this proposal, but the statues ultimately did not appear on the building (Figure 17).74 Meanwhile, for the building’s central tower, at the point where the façades and the inclined slopes of the roofs met, Ponti designed a “diadem” of aluminum elements (Figure 18).75 Like Italian baroque architects in palatial design, he preferred to hide the slope of the roof, and thus he crowned the façade with a balustrade. For rhetorical emphasis, he proposed “placing horizontal flagpoles on the crowning to be used on special occasions.”76

Presentation

The Montecatini Building was one of the first buildings in Italy whose architect and client planned its media launch. The new headquarters was inaugurated on 28 October 1938, exactly fifty years after the company was founded. Two days earlier, the book I have noted above was published, presenting...
the project in 152 lavishly illustrated pages (Figure 19). Three years earlier, Donegani had commissioned a promotional book about the Montecatini corporation. The resulting volume boasted modern graphics and opened with a portrait of Donegani himself. The CEO did not appear in the book about the new headquarters, however; this publication focused instead on the building itself and cast it as a standard-bearer for the modern Italian spirit. The introduction described the
This unabashed functionalism was largely out of step with Italian architectural trends of the day. Italian architects rarely considered a building’s interior microclimate, for instance, its lighting or fire-prevention systems, or its facilities for internal and external communication. Ponti did, yet his functionalist focus could not be separated from his aestheticization of these systems. In treating the systems as an aesthetic opportunity, Ponti tried to give external—indeed, to their otherwise invisible mechanical elements.

Proud of his work and eager to build his reputation abroad, Ponti also developed a promotional campaign for foreign audiences, sending photographs and letters presenting the Montecatini Building to the main architectural journals in Germany, Britain, Sweden, France, Portugal, the United States, and Japan. Most of the journals he approached agreed to publish feature articles on the building. In his 1939 application for tenure at the Milan school of architecture, Ponti listed these publications as evidence of his international prominence.

The Fascist government’s desire for economic autonomy notwithstanding, Ponti had to look abroad in his quest for state-of-the-art components. The commission for the building’s telephone system was awarded to the Italian branch of the German corporation Siemens. The elevator cabins were copied from “modern American cabins” (considered the best in the world) at the request of Donegani himself, who sent Ponti photographs of American elevators to emulate. Donegani’s request reflected the widespread fascination in interwar Italy with American technology and modernity. The largest Italian factory of the time, the Fiat Lingotto in Turin, praised by Le Corbusier in his 1923 manifesto Vers une architecture, was the product of the same Americanism. Indeed, Ponti was inspired by American corporate architecture: the multiple elevators, air-conditioning, pneumatic mail chutes, lantern-like office windows that gleamed in the night—in short, the systems he designed to embody the client’s self-image were all based, in part, on American models.

However, in 1939, when the Architectural League in New York planned to organize an exhibition on new Italian architecture, office buildings were not even considered. American architectural discourse had taken up the very questions that animated Ponti’s work. In June 1940, Architectural Record reviewed with exceptional enthusiasm the Des Moines, Iowa, headquarters of Bankers Life, a large insurance company. Like Ponti, the architects, the local firm Tinsley, McBroom & Higgins, sought to elevate the place of systems within architectural design. While there is no evidence that Ponti was aware of this building or that the architects of the Bankers Life Building knew of the Montecatini, the photographs of the American building in Architectural Record bear striking affinities with the published photos of the Montecatini headquarters. The singular quality of the Bankers Life, according to Architectural Record, lay in the architects’ recognition that architecture could no longer exist without ducts, cables, and equipment. Many of the photos that accompanied the article were dedicated to systems: air-conditioning, heating, cleaning, lighting, pneumatic mail, and telephones. The architects even designed a mezzanine in the compressor room to allow visitors to admire the machines there from above (Figure 20). Like Ponti, Tinsley, McBroom & Higgins allowed systems engineers significant latitude in their work, thanks to the extensive use of market-available solutions, such as fully extended dropped ceilings made of perforated tiles and under-floor cable ducts. In their attention to systems, these architects acknowledged the increasingly circumscribed...
role of traditional architecture in the design of modern buildings, and of corporate buildings in particular.

The case of the Montecatini headquarters reveals one architect’s struggle to define his role in the design of buildings by embracing modern mechanical systems and the largely nonvisual values they embodied: comfort, safety, and security. This new triad of concerns radically transformed the Vitruvian triad of *utilitas, firmitas*, and *venustas*—or function, structure, and form or beauty—by dramatically expanding its first term. Before modern mechanical systems entered architecture, the primary consideration for most architects had been beauty. In the nineteenth century, however, the emergence of these systems brought new sorts of professionals—and, by extension, new philosophies—into the field of building design. The same years saw the marginalization of aesthetics in the design of new building types, such as greenhouses and scientific laboratories. Nevertheless, aesthetics remained central to architectural debates through the first decades of the twentieth century. Indeed, several prominent architects of this period also had ambitions as visual artists. The manifestos published by Le Corbusier and the Bauhaus program are obvious cases of the new triad of concerns radically transformed the Vitruvian triad into the field of building design. The same years saw the marginalization of aesthetics in the design of new building types, such as greenhouses and scientific laboratories. Nevertheless, aesthetics remained central to architectural debates through the first decades of the twentieth century. Indeed, several prominent architects of this period also had ambitions as visual artists. The manifestos published by Le Corbusier and the Bauhaus program are obvious cases of the

Ponti was no exception to this trend. Indeed, his main activity as a young professional in the 1920s was designing decorative motifs for the porcelain-manufacturing company Ginori, whose image he recast according to the principles of the Novecento movement. Likewise, *Domus*, the journal that he founded in 1928, was largely devoted to interior decoration and visual art. Ponti even cultivated painting as a hobby. In his design for the Montecatini, Ponti struggled to reenvision systems as aesthetic resources; in so doing, he insisted on the primacy of sight to architecture, treating the other sensory organs as subordinate to the eyes. There are few references to other parts of the human sensorium in the presentation volume for the building, and the success of the project was ultimately attributed to architectural style. Ponti emphasized how the Montecatini was “very visibly consistent” with his recent major works, making clear that the building was designed primarily as an aesthetic object. If modern architecture reflects the complex relationship between aesthetics and utility, between visual and nonvisual concerns, the history of the Montecatini headquarters embodies that very complexity.

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**Notes**

4. The modernist movement in architecture and painting was very visibly consistent with his recent major works, making clear that the building was designed primarily as an aesthetic object. If modern architecture reflects the complex relationship between aesthetics and utility, between visual and nonvisual concerns, the history of the Montecatini headquarters embodies that very complexity.

**Notes**

4. The modernist movement in architecture and painting was very visibly consistent with his recent major works, making clear that the building was designed primarily as an aesthetic object. If modern architecture reflects the complex relationship between aesthetics and utility, between visual and nonvisual concerns, the history of the Montecatini headquarters embodies that very complexity.

6. As late as 1969 the architect and critic Agnoldomenico Pica referred to Croce when he distinguished the "merely economic" from the "exercise of art" in the work of the structural engineer Pierluigi Nervi. Agnoldomenico Pica, *Pierluigi Nervi* (Rome: Editalia, 1969), 12, 8.

7. The official name of the school, founded in 1863, was changed to Regio Politecnico di Milano in 1927.


12. "Ponti was first and foremost a bourgeois: he was the son of a well-to-do civil engineer and he married my grandmother Giulia, who was related to the Borletti—the Milanese industrialist family." Paolo Rosselli, grandson of Ponti, email correspondence with author (in Italian), 5 Oct. 2015.


15. The journal’s subtitle was *Architettura e arredamento dell’abitazione moderna in città e in campagna*.

16. "On politics and on the connections of Ponti with Fascism there is not much [in the Gio Ponti Archive]. I looked for letters from, or to, Mussolini, but I did not find anything. Probably, after the regime’s fall some ‘cleaning’ was done. In any case, Gio Ponti was not a camicia nera à la Terragni." Rosselli, email correspondence with author, 5 Oct. 2015.


20. Montecatini was renowned for nitrogenous fertilizers, invented in the early 1920s by the young chemical engineer Giacomo Fauser, a graduate of Ponti’s alma mater, the polytechnic in Milan. By 1935, nineteen foreign firms were using Montecatini’s method for producing the fertilizers under license, while Montecatini—beyond Italy—directly operated a plant in Belgium and another in Holland. *La Società Montecatini*, 314–29. The company’s focus on agricultural markets prevented it from becoming involved in other sectors of industrial chemistry. Franco Amatori, “Montecatini: Un profilo storico,” in *Montecatini 1888–1966: Capitoli di storia di una grande impresa*, ed. Franco Amatori and Bruno Bezza (Bologna: Il Mulino, 1990), 53–54.


23. Amatori, "La grande impresa," 715. By the 1920s the paradigm of the multidivisional corporate form (the so-called M-form) was embodied by General Motors; see Robert F. Freeland, *The Struggle for Control of the Modern Corporation: Organizational Change at General Motors*, 1924–1970 (Cambridge: Cambridge University Press, 2001), 2.

24. Guido was born in 1877 in Livorno, Tuscany, where the Donegani family was prominent because of the fortune built by Guido’s grandfather, a merchant. Guido graduated in 1901 from the Turin School of Engineering and in 1903 became managing director of the mine of Montecatini (a village in the Tuscan Apennine from which the company took its name). Amatori, “Montecatini,” 25.


29. The Gio Ponti Archives in Milan keep no brief, official or unofficial. However, a number of undated notes and sketches by Ponti, likely made following meetings with the client, are held in the Gio Ponti Files at the Centro Studi e Archivio della Comunicazione, Università degli Studi di Parma, Abbazia di Valserena. It is possible to infer Donegani’s requests from these documents.

30. After the work was completed, Ponti emphasized his close collaboration with Donegani. Gio Ponti, “Come è nato l’edificio,” *Casabella*, nos. 138–40 (June–July 1939), II.

31. This note is number five in a list of nine undated points handwritten by Ponti on two sheets from a small ring binder. Gio Ponti, notes about the Montecatini furnishing, Gio Ponti Files, folder 1475, Centro Studi e Archivio della Comunicazione, Università degli Studi di Parma, Abbazia di Valserena.


33. *Il palazzo per uffici Montecatini*, n.p. The volume’s last full-color page shows red machinery in a room for the control of systems, but this room was not accessible to employees.

34. *La Società Montecatini*, 4.

35. Ponti, “Come è nato l’edificio,” I, II.

36. The two schemes, labeled as *qualifi cativa* and *quantitativa*, are compared in two undated sheets (see Figure 4). See Gio Ponti and collaborators, sketches about the Montecatini, Gio Ponti Files, folder 14749, Centro Studi e Archivio della Comunicazione, Università degli Studi di Parma, Abbazia di Valserena.


façades (1921) featured a few short corridors, but in the second version (1922) they had disappeared. For typical floor plans, see ibid., 183, 188.


42. Perugini, Il farsi di una grande impresa, 126.

43. Ibid., 125–36.

44. Ibid., 126–27. Regarding Alcoa, it is worth noting that the corporation’s new, postwar headquarters building in Pittsburgh, by Harrison & Abramovitz (1951–53), was conceived to show how aluminum could be put to use in all elements of architecture.

45. Ibid., 135.

46. Franco Amatori, preface to Perugini, Il farsi di una grande impresa, 9.

47. Gio Ponti, handwritten note on the verso of Servizio T ecnico to Gio Ponti, 6 May 1937, Gio Ponti Correspondence for Montecatini, Gio Ponti Archives, Milan (hereafter GPAM). The typewritten version bears the date of the day after.

48. The official director of the building site was Pietro Giulio Bosisio, a civil engineer and a Montecatini employee. Il palazzo per uffici Montecatini, 20. On the same page the building is credited to its designers: Gio Ponti and his two office partners Eugenio Soncini and Antonio Fornaroli, both civil engineers.

49. Gio Ponti to Mario Golbi Belcredi, 8 Jan. 1937, Gio Ponti Correspondence for Montecatini, GPAM.

50. Gio Ponti to Mario Golbi Belcredi, 30 June 1937, Gio Ponti Correspondence for Montecatini, GPAM.

51. Ponti, “Come è nato l’edificio,” II.

52. Ufficio T ecnico to Gio Ponti, 26 Jan. 1937, Gio Ponti Correspondence for Montecatini, GPAM.

53. Gio Ponti to Commendatore Alberto Mancini, 3 Mar. 1937, Gio Ponti Correspondence for Montecatini, GPAM.

54. Guido Donegani to Gio Ponti, 26 Jan. 1938, Gio Ponti Correspondence for Montecatini, GPAM.

55. Ponti, “Come è nato l’edificio,” II.


57. Ibid., 21, 93–95, 98–99.


59. Two recent essays discuss the reconstruction of the Palace of Westminster as a testing ground for the relationship between architecture and systems in modernity. The first is focused on the sociology of design professions, the second on technology: Manfredo di Robilant et al. (Venice: Marsilio/New York: Rizzoli Internationale, 2014), 52–65; Henrik Schoenfeldt, “The Lost (First) Chamber of the House of Commons,” AJ Files, no. 72 (2016), 161–73.


61. Gio Ponti to Direzione Lavori, 7 June 1937, Gio Ponti Correspondence for Montecatini, GPAM.


63. Il palazzo per uffici Montecatini, 27. It remains unclear whether Ponti was ultimately responsible for this language, since the volume provides no indication of authorship or editorship. When Ponti sent the volume to foreign architectural journals, however, he presented it as his own; this is made apparent in his correspondence with Deutsche Bauwarte, 15 Mar. 1939, The Studio, 17 Mar. 1939; and Form, 22 Mar. 1939, Gio Ponti Correspondence for Montecatini, GPAM.

64. During the 1930s, anatomical metaphors—structure as skeleton, distribution as circulation, façade as skin—were part of the wider architectural discourse. This trope can be traced to the nineteenth century, when Max von Pettenkofer and Gottfried Semper drew from the work of biologist Georges Cuvier to articulate their theories of architecture. See Didem Ekiçi, “Skin, Clothing, and Dwelling: Max von Pettenkofer, the Science of Hygiene, and Breathing Walls,” JSAH 75, no. 3 (2016), 284. On the wide influence of Cuvier on nineteenth-century debates in the sciences and the arts, see Martin Bressani, Architecture and the Historical Imagination: Eugène-Emmanuel Viollet-le-Duc, 1814–1879 (Burlington, Vt.: Ashgate, 2014), 268–69. For skeleton and circulation metaphors, see Adrian Forty, Words and Buildings: A Vocabulary of Modern Architecture (London: Thames and Hudson, 2000), 87–94, 278–80.

65. Ponti used the term “illuminazione di gala,” or gala illumination, in letters to Belcredi, 5 May 1937; Direzione Lavori, 5 June 1937; and Donegani, 18 Feb. 1938; Gio Ponti Correspondence for Montecatini, GPAM. See also Ponti, “Come è nato l’edificio,” II.

66. Gio Ponti to Guido Donegani, 18 Feb. 1938, Gio Ponti Correspondence for Montecatini, GPAM.

67. Gio Ponti to Direzione Lavori, 5 June 1937, Gio Ponti Correspondence for Montecatini, GPAM. The model that Ponti promised included only the main front on Via della Moscova. It is not clear if the model was ever made.

68. Gio Ponti to Direzione Lavori, 30 June 1937, Gio Ponti Correspondence for Montecatini, GPAM.


70. Two study gouaches by Muzio show how the chiaroscuro technique influenced the design of the Cà Brüta façades. See Fulvio Iraze, Cà Brüta (Rome: Officina Edizioni, 1982), 12–13.

71. In the introduction of the first monograph dedicated to him, Muzio is presented as “artist.” Pietro Torriani, Giovanni Muzio (Geneva: Maestri dell’Architettura, 1931), ix. In the same book much space is dedicated to Cà Brüta, but its systems are completely ignored.

72. Gio Ponti to Arturo Martini, 5 May 1937, Gio Ponti Correspondence for Montecatini, GPAM.

73. Gio Ponti Files, folder 103/1-2-3, Centro Studi e Archivio della Comunicazione, Università degli Studi di Parma, Abbazia di Valserena.

74. Guido Donegani to Gio Ponti, 6 Feb. 1938, Gio Ponti Correspondence for Montecatini, GPAM. These very draft statutes appear in a sketch on the verso of the second page of a letter from Direzione Lavori to Gio Ponti, 5 May 1937, Gio Ponti Correspondence for Montecatini, GPAM.

75. Il palazzo per uffici Montecatini, 23.

76. Gio Ponti to Mario Golbi Belcredi, 3 Jan. 1937, Gio Ponti Correspondence for Montecatini, GPAM. In this letter Ponti asked Belcredi to talk with Donegani about the possibility of including the flagpoles.

77. Il palazzo per uffici Montecatini, 23.


80. The journals that replied to Ponti’s letters proposing the publication of the Montecatini Building were as follows: the French La Technique des Travaux, 16 Mar. 1939, Le Dicró d’Aujourd’hui, 16 Mar. 1939, and L’Architecture d’Aujourd’hui, 27 Mar. 1939; the German Deutsche Bauwarte, 15 Mar. 1939, and Der Bauwmeister, 19 Mar. 1939; the English R.I.B.A. Journal, 14 Mar. 1939, and The Studio, 17 Mar. 1939; the Swedish Form, 22 Mar. 1939; and the Japanese Kokusan-Kenchiku, 6 Apr. 1939. Porfírio Pardal Monteiro, president of
the Portuguese Sindicato National des Arquitectos, in a letter to Ponti dated 1 March 1939, said that he would warmly recommend the publication of the Montecatini in the Portuguese journal *Arquitectos*. All these letters are in Gio Ponti Correspondence for Montecatini, GPAM.

82. Direzione Lavori to Gio Ponti, 12 Feb. 1937, Gio Ponti Correspondence for Montecatini, GPAM. The photographs were sent on behalf of the “Honorable President.”
83. A report on the planning of the exhibition was sent to Ponti by architect Gustavo Pulitzer, upon his return from a trip to New York. Pulitzer, who was in charge of the blueprints for the furnishing of the Montecatini offices, suggested that Ponti send a copy of the Montecatini presentation volume to the Architectural League. Gustavo Pulitzer to Gio Ponti, 22 Dec. 1938, Gio Ponti Correspondence for Montecatini, GPAM. There is no evidence in GPAM that Ponti followed the suggestion, and probably because of the political situation, the exhibition did not take place. The last occasion for Fascism to present its aesthetic vision in the United States was the 1939 New York World’s Fair, where the Italian Pavilion was a pastiche of rationalism and classicism, designed by the Roman architect Giuseppe Busiri Vici. See *Official Guide Book of the New York World’s Fair 1939* (New York: Exposition Publications, 1939), 134–35.
84. The journal presented the building as a milestone in the relationship between architecture and systems. The twenty-two pages dedicated to it were unusual for the periodical, and the building was introduced with an unapologetically fervent title: “Once in a Great While,” *Architectural Record* 87, no. 6 (June 1940), 46–68.
86. *Il palazzo per uffici Montecatini*, 138.