Entrepreneurial Vernacular

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PART I

THREE SUBDIVISIONS AND THEIR BUILDERS
Architect, building-craftsman, developer—which of these three groups was, in the case of the Ford Homes, the builder? The source of the ambiguity here lies in the use of the term in general, not just in relation to the Ford Homes. Traditionally, the builder was the artisan, or building-craftsman; today, the developer typically is referred to as the builder, although the term can also apply, especially on smaller jobs, to building-workers. By the turn of the twentieth century, builder had already become a contested term. This reflected conflicts among those involved in the production of buildings, conflicts that arose from the transformation of the nature of labor in the construction industry. Thus, in order to understand who were the builders of subdivision developments such as the Ford Homes in the 1920s, we need to consider not only the personnel involved in each individual project but also each group's historical relationship to housing construction and to the other groups involved in residential construction.

This chapter examines the building-craftsman's history, since the workforce assembled to construct the Ford Homes epitomizes the process by which craftsmen were replaced by less-skilled building-workers. This housing project literally borrowed its workforce from Ford's nearby factories, signaling the diminished role that skilled construction labor had come to play in the production process. By tracing the historical changes in the nature of building-craftsmen's work, it is possible to see how the evolution of building practices made the Ford Homes labor arrangement possible.

In a sense, the Ford Homes subdivision borrowed its developer, too. The Dearborn Realty & Construction Company, charged with the construction of the Ford Homes, was established by Henry Ford and his close associates to provide housing near Ford plants in Dear-
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born, just west of Detroit. Ford and his associates were not building company housing, nor were they professional real-estate developers. Rather, they intended the tract of 250 modest single-family houses to demonstrate to real-estate professionals the benefits of applying industrialized building methods to the problem of subdivision development. At a time when realtors were constituting themselves as a profession, the Ford Homes developers focused on some of the same issues of efficiency and organization that real-estate developers were concerned with as part of their claim to professional status. The ability of Ford and his associates to draw on their manufacturing experience to organize efficient housing construction reinforces the view that construction problems had become sufficiently abstract by the 1920s that building-craftsmen, despite their hands-on knowledge and experience, could be displaced from the central role in building.

Before examining the history and design of the project and how these shifting relations of production are evident in the Ford Homes subdivision, it is useful to step back and look at the social and historical context to which it was a response, and at some of its architect’s ideas about housing development.

The Ford Homes: Background and Overview

Detroit is the fourth link in a chain of cities that grew in size in response to the expansion of manufacturing beginning in the last quarter of the nineteenth century. From Pittsburgh to the lakeshore cities of Buffalo, Cleveland, Detroit, and Milwaukee, the westward spread of industry resulted in the successive transformation of these settlements into metropolitan areas. Still a compact “walking city” at the turn of the century, even its boundaries accessible on foot, Detroit grew at an accelerating rate over the next three decades. By the middle of the 1920s, it was the fastest growing metropolitan area in the United States, and it had become the fourth largest.

A range of industries, from stove manufacturing to pharmaceuticals, contributed to Detroit’s early growth, but the 1903 founding of the Ford Motor Company initiated the development of what would become the “Motor City.” Detroit would probably in any case have
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shared proportionately in the trend of population flow to urban, industrial areas in these decades, but the growth of the new automobile industry ensured that the city would become a magnet for thousands of people. Of the 528,000 that more than doubled Detroit’s population to 994,000 between 1910 and 1920, roughly four-fifths were newcomers to the area from elsewhere in the United States and abroad. They were drawn to Detroit by the evident need of this young industry for workers, expressed in news stories about ever-increasing production, or in ads and flyers distributed by the Ford company in poorer, less-industrialized states to entice migration northward. Ford’s notorious creation of the five-dollars-a-day wage in 1914, in the middle of the winter of a year of economic depression, lured tens of thousands of people to the city before it became clear that this largesse was not intended for all. The industrial boom created by World War I added to the incentives for moving to Detroit.

In 1918, Dearborn, just west of Detroit, still had the appearance of a country village with scattered clusters of houses dotting acres of farmland. The only industrial intrusions into its rural landscape were the tracks of the Michigan Central Railroad, heading westward toward Chicago from the center of Detroit, and the Henry Ford & Son tractor plant. Ford had built this plant in 1915, south of the tracks, and by 1918 it employed about four thousand men. Because little housing was available nearby, many of these workers had to undertake long commutes to their jobs from expensive rented quarters in Detroit that cost as much as $75 per week. In 1919, Henry Ford supported the idea of building housing in Dearborn itself to ameliorate this problem and to promote cost-effective construction in this period of building inactivity following World War I. The Dearborn Realty & Construction Company, established for the creation of Ford’s housing development, bought a tract of land west of the tractor plant and built 250 houses between 1919 and 1921, before itself succumbing to the vagaries of the general economy (fig. 2). By September 1920, the tractor plant had foundered, as agriculture entered a decade-long depression. The plant was dismantled, its machinery and workforce moved to the River Rouge works under construction farther to the east in Dearborn. Home sales in the Ford subdivision slowed, and
new building ceased. A second project that Ford considered in the years 1918–1920 for a more elaborate scheme called Fordson Village, to the east of the Ford Homes, was abandoned, probably owing to the downturn in the economy. By the time Ford's Rouge plant was completed, the construction industry had revived and Dearborn shared in the house-building boom of the mid 1920s. Ford's involvement with housing provision was no longer necessary.

Although Ford supported the Dearborn housing project, it is not clear that he initiated it. He had certainly been interested in the mass production of dwellings from at least 1913, when he considered building houses according to the system patented by his friend Thomas Edison in 1908. Edison's scheme, which involved pouring concrete into reusable cast-iron molds, produced a house in six hours, though four more days were needed to allow the concrete to harden. Interest in his idea was great, and the national press tracked its evolution beginning in 1906. Though Edison conceived this as a solution to urban housing ills, one early skeptic connected it with another industrial product when he reported that "Mr. Edison says that he is going to make it possible to build a $25,000 house for $500 by simply forcing concrete into molds. Many people hope, however, that he will give us that $500 automobile first." In 1914, another newspaper account announced that "Henry Ford, the automobile builder, wants 3,000 [houses]" to be built using a variation of Edison's technique, substituting steel for cast-iron molds. Although Ford had abandoned this technology by the time he embarked on the Dearborn project, it is certainly possible that this venture was inspired by what one scholar has described as Edison's "ability to apply industrial concepts to housing; he understood that the efficiencies and economies

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Figure 2. Map of Detroit showing locations of the Ford Homes and Brightmoor, both within the metropolitan area. The map also shows the relative distance of each subdivision from the Highland Park and Hamtramck industrial hubs. The Henry Ford and Son Tractor plant was to the east of the Ford Homes, as are the River Rouge works.

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inherent in mass production could benefit working-class families.”

The Ford Homes demonstrated a similar lesson.

Ford’s interest in community development antedated his attraction to Edison’s scheme. In August 1891 he joined the Citizens’ Committee of Fifty to promote the development of Oakwood, south of the area that would become the site of the Rouge plant. Almost thirty years later, the need for affordable housing in this region was much more pressing.

In his reminiscences, E. G. Liebold, Ford’s personal secretary and the president of the Dearborn Realty & Construction Company, claims to have proposed the Ford Homes venture. It is also highly possible that the architect Albert Wood, who worked for Ford on an earlier Detroit project, the Henry Ford Hospital, before becoming the Ford Homes designer, introduced the idea to Ford. Wood’s contribution to the project, as built, is not emphasized in contemporary published accounts, and perhaps any role he might have played in initially fostering it may have been glossed over as well. His interest in housing, however, is evident from a booklet entitled “Community Homes” that he wrote and had privately printed in 1918. In this work, Wood sketches the great immediate need for decent housing and proposes models for single-family residential developments. Because there are no documents that establish whether Ford or the members of the Dearborn Realty & Construction Company were aware either of Wood’s booklet or of Wood’s strong interest in the housing issue, it is impossible to credit him with the inspirational role in the development of the housing scheme that was actually built. But this remains a provocative possibility, given the booklet. What program for housing did Wood set out in “Community Homes,” and how close to realizing it did the Ford Homes come?

Writing before the 1918 Armistice and in the context of the demand for housing created by the war industries’ sudden need for thousands of additional workers, Wood favored placing the responsibility for housing development with independent agencies. He argued against the formation of a central authority, either governmental or corporate, to control the provision of housing. The existence of such authorities, which he considered “autocratic” and “paternalistic,”
undermined, he felt, the “true spirit of democracy.”\textsuperscript{16} Wood also stressed the importance of providing hygienic housing. He had found, while working on the Henry Ford Hospital, under construction at the time of his writing, that “thousands of families live among disease-breeding surroundings while fortunes are spent in the erection of hospitals which are mostly monuments to our inefficient methods of combating disease.”\textsuperscript{17} He also emphasized the formative moral role that decent housing can play, referring both to the recent success of the Prohibition movement and to the achievements of Hull House. The latter served as a model for instilling democratic, spiritual, and moral virtues within the home and the neighborhood. Indeed, Wood was not alone in his appreciation of the Chicago settlement house; B. E. Taylor, the developer of the Brightmoor subdivision in Detroit, established a settlement house there. Such a presence, and such a model for development, may be unexpected in residential suburban tracts. The larger context that made this plausible will be clarified in chapter 4.

Along with centralized authority, Wood also rejected the wasteful system of speculative subdividing and building and the inefficiency that results from jousting among prospective home owners, contractors, and architects. Instead, he proposed development, or stock, companies that would allow people who otherwise could not afford to buy homes to do so. By joining together, they would especially enjoy the advantage of scale that would increase efficiency and bring down the costs of house building.\textsuperscript{18} Short of the establishment of development companies, he wrote, “the few farsighted real estate operators who are making it their business to plan and develop a property in its entirety, from the subdivision of the acreage to the completion of all the improvements, including the houses, should be encouraged.”\textsuperscript{19}

The scheme that Wood offered in his booklet “Community Homes” to demonstrate his ideas built upon the already widespread, grid-derived rectangular block as the design unit as well as the social and, ultimately, political unit (fig. 3). He was not concerned in this text with the design of individual houses but with the organization of a neighborhood and its services in an extendable, modular form. Within a block in which ten to thirteen single-family houses, depending on
Figure 3. Albert Wood, architect for the Ford Homes, published these diagrams for clustered housing in his 1918 pamphlet “Community Homes.” The layouts show ways to reorganize the typical block to create a sense of community among neighbors. Shared amenities include landscaped islands, the services of a caretaker, and a bank of garages. In their abstraction from local topography and house design, Wood’s diagrams reflect the period’s tendency to create models capable of being adapted to diverse local conditions.
costs, marked the perimeter, a common landscaped court was set aside for general use and as a protected children’s play area. Garages were clustered, eliminating the need for individual driveways. A service building was included that would house a caretaker who would run the centralized heating plant and garbage incinerator and who would serve as a sort of concierge for the block, taking deliveries and providing other services for the housing group. Wood thought that the block might even develop beyond a functional unit into a civic unit: “If the scheme included a large number of adjacent blocks, the owners could, by appointing a representative from each block, secure a committee who would thoroughly understand the requirements and be competent to provide for the advantageous development of schools, playgrounds, civic centers, and other necessary improvements. And why could we not develop a better, more efficient, community political system as a result of this co-operation?”20

Wood’s ideas were not unique in this period. His scheme reflects many of the same ideals that shaped, for example, Clarence A. Perry’s neighborhood unit plan, which had not yet been published. Rather, what is significant about Wood’s proposals is the fact that they do share a number of the assumptions that characterized contemporary housing discussions.

The Ford Homes project certainly did not fulfill the ideal sketched in “Community Homes.” But it is possible that Wood’s convictions regarding the centrality of decent housing to the physical and moral well-being of American citizens may have appealed to Ford as yet another challenge to his ability to get things done, and contributed to the decision to support the undertaking.

Wood’s ideas may have affected the Ford Homes project in other ways. He may have influenced the institution of the policy whereby Ford employees received preference as house buyers, but nonemployees were also encouraged to buy homes there. Writing to a business correspondent in 1919, Wood explained that this policy was intended to avoid creating the feeling of a company town.21 Albert Wood himself moved into one of the first houses to be completed in 1919, and he lived there until 1925. The head of mechanical work for the project, Harry C. Vicary, also bought one of the houses and lived
George Ebling, Ford’s industrial and family photographer, bought one of the houses, and his descendants lived there as recently as 1990. Prices were too high for unskilled workers to afford, ranging from $6,750 to $7,750 in 1919, a figure that by the middle of 1920, when costs increased, had risen to $8,750 to $9,550. Selling prices of the houses included 10 percent of the materials, labor, and overhead costs as profit; they were sold directly to purchasers, without the involvement of banks, at the customary rate of 6 percent interest. By the end of 1921, the houses were not selling as quickly and prices may have fallen, but full financial records for the development have not survived.

These prices are considerably higher than the average contemporary cost of a new single-family house in the United States, which was $4,320 in 1920 and $3,972 in 1921, according to housing reformer Leifur Magnusson. They are also somewhat higher than prices in a comparable development for auto workers in Flint, Michigan, built in the same years by General Motors. There, prices ranged from $3,500 to $8,500, with the majority selling for $5,000–5,500.

Wood’s claim for the efficiency of large-scale projects undertaken by a single developer also would have complemented Ford’s general outlook and approach to his endeavors. The Dearborn Realty & Construction Company was organized according to the pattern of “the few far-sighted real estate operators” that Wood commended. Although the final profits over its twenty-four years of existence seem to have amounted to more than $600,000, an early statement by the developers asserted that “this is strictly a non-profit plan. We are interested solely in enabling our workmen to live in Dearborn without paying the excess tax which all real-estate speculation imposes on home buyers.” The sole restriction that applied to the buyer, stipulating that the house could not be resold for at least seven years, was also intended to eliminate the possibility of speculative activity.

The company’s reservation of the right to buy back a house within the first seven years of occupancy if the buyer was considered to be “undesirable” reflected the tradition of surveillance in Ford’s enterprises more than it advanced Wood’s vision of civic development.
And the two social improvements that the company committed itself to—provisions that would have reflected Wood's conception of the needs that a neighborhood committee might undertake to redress—were only partially carried out. One was a park and playground area, originally allocated to the strip of land at the northern boundary of the tract, bordering the Michigan Central Railroad tracks. This aspect of the project was never completed, and the area remained undeveloped, without special equipment or landscaping. However, this did not prevent it from functioning, at least minimally, as an open and informal green space.

The Dearborn Realty & Construction Company did contract with the school district to build an elementary school: Southwestern (now DuVall) School, at Beech and Military, opened in September 1921. It had ten classrooms to serve the subdivision and to relieve overcrowding elsewhere in the school district. By 1928, 320 children were attending grades kindergarten through six. Contemporary ideas about the importance of such facilities to neighborhood design will be explored later, but it is worth noting here the limited community role conceived for this school. While it met the minimal needs of the schoolchildren, it was not originally equipped with a gymnasium, a library, or a kitchen to prepare hot food.

The establishment of community amenities was not a priority for the Ford Homes developers; they placed greater emphasis on providing modern services. Electricity and telephone connections reached each home from utility poles located in alleys behind the houses. Streetlight wiring ran underground, following the progressive "boulevard" lighting system. As one might anticipate, the design of curbs was carefully considered; they were curved so that auto tires would not rub against them. And house purchasers were given the option of requesting construction of a garage.

The promise of the Dearborn Realty & Construction Company as the sort of agency Wood had had in mind when he wrote "Community Homes" was not met, then, by many aspects of the Ford Homes project. But what of the design of the subdivision as a whole, and of the design of the houses? Although documentary accounts of the
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project often refer to design ideas inspired by Henry Ford or by Liebold, who authored many of these accounts, Wood’s contribution is never emphasized.

The Ford Homes: Design and Construction

Although he was still a young architect, Wood was well prepared by 1918 for the Ford Homes commission. Albert Gardner Wood Jr. was born in New York City in 1886.31 His father was a builder and cabinetmaker, his mother a teacher and pianist. Wood attended Bunker Hill Grammar School in Boston, then apprenticed as a carpenter with his father. At seventeen, he traveled to the Pacific Coast and worked in a variety of locations, eventually joining the architectural office of A. Warren Gould in Seattle.

Gould’s background, like Wood’s, reflected an alternate route into the profession, one that contrasted with the educational program set out by the architectural elite. Gould (no relation to Seattle architect Carl Gould) had had no academic architectural training; his background was in building and contracting.32 He worked in Boston in the late 1890s and arrived in Seattle in 1903, around the same time as Wood. It is not known whether the two had had any contact before Wood entered the firm. Gould’s practice specialized in the design of office blocks, through which he introduced new steel-frame and ferroconcrete building techniques to Seattle. This would have prepared Wood for the institutional commissions he took on in Detroit. Gould also had an interest in civic planning.

While he worked for Gould, Wood studied architecture at night school and through correspondence courses; when he left Seattle, he had progressed from draftsman to designer and then to associate of the firm. He moved to Detroit sometime after 1912 and worked in an architectural office where one of the clients was Henry Ford. When Ford began plans for the Henry Ford Hospital, he hired Wood for the job. Often referred to in Ford records as chief of construction for this project, Wood also was its architect.33 He became a member of the American Institute of Architects in 1919.34 After his work on the Ford Homes, Wood left Ford to establish his own firm in Detroit; his
commissions included houses, schools, and hospitals in the region. He moved to New York in 1932, where he continued to work as an architect and, in 1934, founded an interior design and crafts firm, Albert Wood and Five Sons, that continued until 1988 to specialize in the design of church and synagogue interiors. Wood died in 1970.

Given this background, and his developed interest in housing, Wood was ready to design the 250 Ford Homes, a commission he carried out between late 1918 and the beginning of construction in May 1919. Between May and November 1919, 94 houses were built; the remaining 156 were constructed in 1920, with some of the work possibly carrying over to 1921. As in the consideration of the genesis of the scheme to build housing, so too in the attempt to assign responsibility for design concepts: the records permit only speculation that some of the ideas for which Ford and Liebold took credit were influenced by Wood’s suggestions. At the very least, however, he was responsible for the integration of his colleagues’ desires into workable and competent designs.

The land bought by the Dearborn Realty & Construction Company for their housing project had already been subdivided. Wood was presented with a preexisting grid of nine blocks interrupted by alleys and divided into lots that measured typically 50 by 125 feet. The only device used by the developers to shape the organization of houses so as to avoid uniformity and create smaller clusters of neighbors was to set houses at staggered intervals from the street. Groups of three or four houses were placed alternately twenty-four and thirty-two feet from the street, but all aligned parallel to it. Liebold claimed that this had been his idea, although it is clear from “Community Homes” that Wood had been interested in ways to cluster houses.35

From the beginning, Liebold stated, the developers intended to avoid “the error of other towns where rows of houses, all looking alike, give a monotonous tone to the neighborhood.”36 To achieve this end, three strategies were used: (1) Wood designed six different models of houses; (2) the models were allocated to lots in a varied order; and (3) several exterior claddings and colors of roofing shingles were used. The second strategy meant that the purchaser could select the house model, but not necessarily the lot. The exteriors were wood
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clapboard siding in two widths, brick veneer, or cedar shingles, and combinations of these.

The diversity achieved in these ways was balanced by the scheme’s overall design unity and by the use of modular elements to organize the design of the facades. Wood used simplified colonial forms to articulate the surfaces and the massing of the houses (figs. 4–9). Their rectangular boxiness was relieved by bold, asymmetrical rooflines, accented by large, unified dormer windows, gables, and a centrally placed chimney. The few decorative features chosen conveyed economically the aura of colonial style: shutters flank second-floor windows facing the street; small fanlights mark the attic; columns or pilastered posts frame the porch; a carved hood in either an arched or pedimented form marks the front entrance; and wood trim—around doors and windows and, especially, in a broad band above the first-floor windows—unified each composition. Colonial elements such as these were in wide use by this period.

The six models that Wood developed were referred to simply by letter designations, reminiscent of the familiar tags for early Ford automobiles. Wood created these models by juggling the shapes and orientation of the roof and by manipulating the basic modular elements of the first-story elevation. He pivoted the roof, setting the gable either parallel with or perpendicular to the street, and used cross-gables, dormers, and modified hipped roofs to vary the massing of the houses. These features complicate the roof-line silhouettes, adding visual interest to the otherwise broad and planar surfaces.

The basic modular elements of the first-story elevation consist of the entrance, porch, and windows. Wood varied their placement and relationships, and the number of windows, to produce six different combinations of these elements.

The plans of all models correspond to the notion of the small, efficient house that had evolved from the turn of the century. Thirteen houses were built with four bedrooms, using a variant of model D. All the others had three bedrooms. The dimensions of the master bedroom averaged fifteen by ten feet, and the smaller bedrooms were about ten by ten feet. The single bathroom, which like the bedrooms was on the second floor, measured about eight by four feet; it was tiled
and fitted with porcelain-enameled, cast-iron fixtures (fig. 10). This equipment, its arrangement, and the tiling of bathroom surfaces had become typical by World War I, although built-in bathtubs began to replace footed tubs in the 1920s. On the first floor, the living room, with fireplace, averaged twelve by eighteen feet, the dining room about ten by fifteen feet (fig. 11). The kitchen was about ten by twelve feet, a size typical for the period (fig. 12). A small entrance vestibule and the porch completed the array of rooms, which conformed to the complement of rooms recommended for a laborer’s cottage by contemporary experts in household economics. All houses had full basements. Every model contained these elements, although the arrangement of spaces varied. As Liebold recalled, “they were all based on one central plan and just altered in details.”

The flexible plan for interiors and the modular system that Wood used to generate the range of house models constitute his major contributions to this subdivision scheme. The other housing issues and ideas that animated him in “Community Homes” did not figure in the Ford Homes project. Clearly, the Dearborn Realty & Construction Company valued Wood’s ability to design housing that could be produced efficiently. This criterion is evident as well in the construction process and personnel marshaled for the project. Looking more closely at these aspects of the development, it becomes clear just how central a concern efficiency was and why so few of Wood’s ideas came to fruition in the project.

The Dearborn Realty & Construction Company was incorporated on January 10, 1919. Henry Ford was not officially involved in the firm, possibly so that the project “could succeed on its own merit” rather than through the influence of Ford’s presence, but his connections to it were never in doubt. E. G. Liebold, Ford’s personal secretary, was the president of the company, and Edsel Ford, his son, was vice president.

By April 1919, the Dearborn Realty & Construction Company purchased 312 lots in a subdivision west of the Ford tractor plant. The entire tract had been bought in 1890 by J. B. Molony, who immediately subdivided it into 502 lots, measuring for the most part, as noted above, 50 by 125 feet, on nine blocks divided by eight sixty-
Figure 4. Model A (above) of the Ford Homes presents in their purest form the elements that architect Albert Wood manipulated to create the subdivision's panoply of houses. The gable that faces the street embraces the second-story windows. On one side, the smooth slope of the pitched roof is uninterrupted; on the other side, a cross-gable rises from the first floor and intersects the main mass. The modular elements of the first-story elevation are present in their simplest form: entrance, windows, and porch.

Figure 5. Model B (top right) compresses the modular pattern used in Model A. At the first-story level, two of the three modules are superimposed; thus, this model reads visually as two modules wide. The porch is located within the perimeter of the house, as a kind of loggia, with the entrance set at its rear. The gable faces the street but is treated asymmetrically, emphasizing the reduction of the width of the house by one module.

Figure 6. Model C (bottom right) also compresses the three modules of Model A into a two-module-wide facade. Windowed doors are set at the back of the broad porch. The roofline is rotated so that the slope of the roof with its centralized dormer presents a symmetrical image to the street side.
Figure 7. Model D (above) contains aspects of both the compressed variation (models B and C) and the expanded version (models E and F). It includes two sets of window modules, but its entrance is placed within a loggia-like corner porch. The truncated hipped roof is broken by a projecting flattened gable on one side of the street facade, underscoring its asymmetry.

Figure 8. Model E (top right) expands the modular pattern found in Model A. Two sets of first-story windows flank the entrance, one large and one small. This asymmetry is reinforced by the modified hipped roof, which extends over the porch to embrace it within the silhouette of the main mass of the house.

Figure 9. Model F (bottom right) stretches the configuration used in Model A by setting large windows on both sides of the entrance. A pitched roof is superimposed on the hipped roof; the truncated gable end visually joins the porch to the body of the house.
Figure 10. A typical bathroom (above) from the Ford Homes. Bathrooms, located on the second floor, used standardized fittings.

Figure 11. The typical Ford Homes living room (top right) included a fireplace, oak floors, and wood trim. All materials were standardized and assembled in shops located at the building site.

Figure 12. The typical Ford Homes kitchen (bottom right), with built-in cabinets, measured ten by twelve feet and was standard for the period.
FOOT-WIDE STREETS AND INCLUDING TWENTY-FOOT ALLEYS IN THE CENTER OF EACH BLOCK. 42 Only a few of these lots had been sold when, in 1898, the previous owner of the land foreclosed on Molony’s unpaid deed. In 1910, the land was bought by Henry Ford, from whom the Dearborn Realty & Construction Company subsequently purchased it.

The workforce for the construction of the subdivision was drawn from the ranks of Ford employees. At any one time, from 250 to 500 men were at the work site. Some of them had worked on earlier Ford construction projects, such as the recently completed Henry Ford Hospital in Detroit. 43 As Liebold wrote, “This is in accord with Mr. Ford’s belief that men ought to spend part of the year outside factory walls.” 44

Once the project was under way, the first structure to be built was the office, located on Nowlin between the railroad tracks and Park Street. 45 In the next block of Nowlin, between Park and Nona, a planing mill, lumber warehouse, and plumbing and tin shop were erected. Brick, lumber, piping, and ducts for the heating system were bought in bulk and transported to the site on the Michigan Central tracks. In the shops, these materials were cut to standardized sizes and then taken to the building sites in narrow-gauge railway cars pulled by horses. The windows, casings, moldings, frames, doors, and fixtures were completely standardized and were assembled in the shops.

The purchase of materials in bulk and the standardization of parts reduced costs. According to one account, “$300 is being saved on the heating systems alone in each home, while the economy in lumber construction will be even greater.” 46 Such savings helped offset the cost of the relatively high-quality materials that were used, such as oak flooring, which was installed until it was judged too costly, and a steel beam that was employed in each basement to support the superstructure.

Construction was organized according to the principles of assembly-line production. “Each crew has its own specialized work to do on a house,” Liebold wrote in a 1919 Detroit Journal article. “In this way, experts in their particular line are kept entirely on their own work, making both for efficient construction and speed.” 47 An excavation crew first dug the basements, using Ford tractors. A second crew laid
the foundations. This crew was followed by one responsible for erecting the framework (fig. 13). Next, the interior finishing crew saw to the installation of plumbing and heating fixtures, electrical wiring, glazing, trim, and painting. The last crew finished the exterior, including landscaping. Liebold summed it up: “That was mass production applied to building.”

Far from contributing to the overall design of the subdivision or its individual houses, the workers employed to construct the Ford Homes were only peripherally connected to building trades at all. Borrowed from their regular jobs in Ford’s factories, assigned to specialized tasks on the construction site, they contributed their manual labor in quantifiable units of time on the site and units of materials processed. Did the Dearborn Realty & Construction Company transform housing construction with this project, as Ford had transformed the nature of work in general with the introduction of the assembly line to automobile production?

The developers of the Ford Homes were in fact taking advantage of changes that had occurred in the building process over a number of decades. Moreover, they were not alone in observing these changes. Their recognition that the role now open to the traditional building-craftsman was circumscribed is echoed, for example, from a very different perspective, in a contemporary observation by the writer of a *House and Garden* article entitled “Local Materials and Local Labor.” In this piece, the prospective home owner is urged to express her individuality not by imposing favorite historicist styles on inappropriate environments—“building a Spanish Mission villa in a New England village”—but through sensitivity to the characteristics of local building types and materials. Yet, while the virtues of searching out and respecting a prevailing local heritage are extolled, the writer assures the reader that this will not mean dependency on potentially idiosyncratic local builders. “Today, from the nature of the newer order of specialization in the building trades, local labor is generally no more than incidental.” The ironies of this fact were lost on the writer, but they accurately reflect the process of rationalization that integrated builders within a nationally controlled supply network developed over the preceding hundred years.
Figure 13. This view of the early stage of Ford Homes construction indicates the orderly succession of specialized crews, who were assigned to excavate, lay foundations, frame, and finish rows of houses. Horse-drawn, narrow-gauge railway cars brought materials, precut and assembled, from on-site shops to the building site.

In the course of the nineteenth century, the process of building changed, the identity of builders was transformed, and the relationship between builders and other figures involved in construction became more complex. Many of the changes that occurred in building and in the role of builders first took place and had their strongest impact in the field of commercial construction, especially in connection with the rise of skyscrapers, where the effects of new technologies and new materials were most visibly dramatic. Nevertheless, the trends that intensified with the introduction of skyscraper construction had been in evidence for several decades; as large-scale residential development became a more general practice, the impact of rationalized building procedures also became more widespread. The com-
bined effects of industrialization—mechanization, standardization, and specialization of construction practices—changed builders’ work.

The Development of Industrialized Building

The route toward industrialized building begins with the balloon frame, created in the Midwest in the 1830s. This new framing system relied on the ability of the steam-powered circular saw to produce thin lengths of wood rapidly and in quantity, combined with the availability of machine-cut nails manufactured from rolled iron plates. In contrast to traditional timber framing, with its heavier members and hand-cut joinery, balloon framing not only reduced building loads and the total amount of wood needed for a frame but also required less labor to erect. Over the succeeding decades, refinements were made to the details of balloon-frame construction, culminating in the 1920s when the western, or platform, frame began to supplant it. An offspring of balloon framing, the western frame had been developed around the period of the Gold Rush in California. Instead of using studs that ran the full height of the structure, western framing treated each floor as a self-sufficient, stackable unit. This system established an eight-foot vertical module and made construction even faster (fig. 14).

Although significant, in itself the balloon frame was not responsible for the industrialization of building, despite its reliance upon standardization and mechanization. As vernacular architecture scholar Dell Upton notes, balloon framing can be seen as “another in the lengthy list of popular adaptations of traditional practices.” Craft traditions were not static; they embraced improved techniques that increased flexibility and labor efficiency. Some of the elements of balloon framing had been used since the seventeenth century, so it was possible for nineteenth-century craftsmen to see “the new forms . . . as modifications of the old.”

Furthermore, recent scholars of regional building practices have found that where local markets were large enough to support mass production of building parts, carpenters established steam-powered
Figure 14. The balloon frame was developed in the 1830s to take advantage of new industrial processes that produced lighter, thinner lengths of wood and cheaper nails. It supplanted traditional timber framing, becoming the most widespread method of housing construction and continuing to be refined into the 1920s. This illustration from the April 1923 issue of Building Age indicates its basic principles. The standardization and mechanization that balloon-frame construction promoted laid the basis for the evolution of industrialized building practices following the Civil War.
factories for the manufacture of window sash and blinds as early as the 1840s. These evolved from the earlier practice on the part of some carpenters of laying in a stock of “shop work,” consisting of window sash, venetian blinds, panel doors, and other items, for their own use as well as for sale to others. From the 1820s on, such work was produced with the aid of a steady accumulation of specialized woodworking machines, created by both mechanics and carpenters. The introduction and continuous refinement of planing machines, molding machines, lathes, and numerous other mechanical devices attest to carpenters’ interest in reducing repetitive labor.

Balloon framing and woodworking machinery provided the necessary technological basis for the evolution from craft to industrialized building practices. But the pace and quality of the changes that these early developments toward mechanization and standardization introduced were initially controlled by craftsmen and the needs of the relatively small markets they served. Tendencies toward standardization and mechanization in the mid nineteenth century were fully exploited only in the years following the Civil War. At that point, with the general increase in industrial and overall economic development in the last third of the century, rationalized practices penetrated the building process more profoundly than they had through either the invention of the balloon frame or the introduction of woodworking machinery into local shops.

Thus, the 1888 Report of the 10th Census on Power and Machinery Used in Manufacturing found that, after 1871, woodworking machinery had displaced thousands of carpenters. The transformation of labor-saving devices that had evolved through craft processes into labor-eliminating ones that were themselves mass-produced took place once an efficient transportation network ensured access to widened markets. This occurred with the establishment of the rail system, which allowed not only lumber but, even more importantly, finished wood—trim, sashes, and other building parts—to be sent great distances cheaply and safely. Rail transport supplanted the former method of transporting lumber along waterways, which damaged finished wood. Also, with the spread of rail transport in the 1880s and 1890s, species other than the ubiquitous white pine became market-
able; unlike white pine, woods such as ash, oak, hickory, and maple
do not readily float. Taking advantage of this revolution in wood
transportation, lumber companies increasingly installed woodwork-
ing machinery and expanded their production to include finish work
in a wider selection of woods. Diversification to create more products
also stimulated further invention; of the twenty-five hundred patents
for saw and mill improvements on record in 1895, more than seven
hundred were filed in the decade of the 1870s, and more than eight
hundred in the ten years from 1885 to 1895.

Economic expansion through diversification, however, also led to
the concentration of the industry, for the increased costs of such
machinery put smaller mills out of business. The value of the goods
produced at the 31,560 sawmills recorded in the 1840 census was only
$400 per mill. Diversification allowed lumber companies to increase
the value of their raw materials, first in the Great Lakes states and
then, as timber resources were consumed, along the Pacific Coast. In
1884 in the West, “rough lumber hardly paid its cost, but the applica-
tion of skilled labor and machinery in the process of planing increased
the value of this same lumber by 100 percent, in the manufacture of
doors by 200 percent, in the manufacture of sash 300 percent, and in
the production of mouldings 500 percent.”

The impact of machine-made woodwork on builders was obvious
to many, but one 1895 writer expressed the situation succinctly: “In-
deed, the very houses that shelter us no longer represent the skill of
the joiner, for the mill has usurped his place, and the carpenter only
assembles its work.”

The large, diversified mill both supplanted the builder and trans-
formed the nature of his work. By manufacturing standardized doors,
windows, trim, moldings, and other woodwork, the lumber com-
panies deprived the craftsman of work he had performed in the win-
ter, when on-site construction was not possible. Furthermore, wood-
working machinery took little skill to operate and was often run, in
the early years, by “greenhands”—women, children, and other un-
skilled laborers. And, as machine-made materials became available,
employers introduced piecework, paying builders not by the day but
according to a quantity of work completed. Accompanying the move
to piecework was the trend toward specialization, making routine for individual workmen the assembly or installation of machine-made windows, doors, floors, and trim.

The savings in labor and cost were great. One compound carver, or lathe, for instance, could replace sixty carpenters, and a planing machine could do in eighty-three minutes the amount of work that it took 110 hours to execute with a hand plane. The output of each worker continued to increase as improvements were made to machinery—both at the mill and, with the introduction of power tools, on the site—and as there was further standardization of materials and specialization of work. The impact of these changes can be seen even as late as the 1920s when, between 1921 and 1928, productivity in contract construction increased 25 percent.

For the craftsman, however, this process meant that his skills had become obsolete. Both the knowledge of complex calculations needed, for example, to build a staircase, and the subtle awareness of a wood’s grain needed for hand drilling were unnecessary, once standardized elements were available from the mill and power tools were introduced. Also, the craftsman’s role became attenuated, since he primarily assembled or installed materials from the mill that formerly he had produced himself. Accordingly, with specialization, the builder’s contribution to the conception and integration of the structure as a whole decreased.

Thus, although the invention of the balloon frame established the formal basis for standardization and mechanization, the particular course of development that these took was shaped by larger, more complex processes. And as the building-craftsman’s work was transformed by industrialized construction practices, the definition of the builder was also changing, as were his relationships with others involved in building.

Relations of Production

The builder’s identity was increasingly in flux. In the late-nineteenth century, ambiguity arises regarding whose activities are being referred to when the term *builder* occurs in the literature. The process of
THREE SUBDIVISIONS AND THEIR BUILDERS

subdividing building practices into discrete, specialized tasks—one of the features of industrialization—also resulted in the differentiation of roles and the establishment of a new hierarchy. As the craftsman's responsibility for overall construction diminished, other people assumed control over the management and organization of building endeavors. The term builder, thereby, came to refer to the person who performed these latter tasks rather than the manual labor of construction.

The skills of the “practical builder” of preindustrial times, whether he was called a carpenter, housewright, mason, or mechanic, had been honed within the traditional, guild-based system that led from apprenticeship to the position of journeyman and then to master builder. At its best, this system maintained an adequate supply of builders whose skills encompassed the entire range needed for construction, including the assessment of materials, the design of structures, and the organization of the work schedule, as well as knowledge of the techniques of building.

Strains within this system appeared in urban centers in the early years of the Republic, when increased land values led to higher building costs. As master carpenters were unable to afford the entire cost of building projects, speculators arose as financial middlemen. Master carpenters then became labor contractors and, in the 1790s, the earliest journeymen's trade unions were founded. In labor disputes, however, it was not always clear who the employer was: was it the master carpenter-contractor or the middleman? Some master carpenters allied themselves with the speculators, others with the journeymen. Something of this ambiguity can be seen, for example, in an 1825 statement regarding a labor dispute addressed by some Boston middlemen to the journeymen on behalf of the contractors, and signed “Gentlemen Engaged in Building.” By the end of the century, the stratification of roles that was still variable in 1825 became more deeply entrenched, but the developer, or “builder,” and the general contractor of the later period have their origins, it seems, in the financial middleman and master carpenter-contractor of the earlier one.

During the nineteenth century, many organizations formed to redress problems of pay, working hours, or itinerancy that affected
building-workers. They tended to be both local in scope and short-lived. In 1881, however, the United Brotherhood of Carpenters and Joiners was created, a national union whose founder recognized that “only real national power . . . could cope with real national economic forces.” The union arose in response to the inroads industrialization had made in the transformation of building practices. The use of greenhands to run woodworking machinery and the imposition of piecework wages that resulted from the availability of standardized, machine-produced elements were among the primary issues that the union addressed. Its supporters well knew that “an Ohio machine threatened the Chicago carpenter and the Philadelphia carpenter equally.”

In the face of the loss of building-craftsmen’s livelihoods caused by mechanization and standardization, the union attempted to preserve wages and jobs. Its founder, Peter J. McGuire, a Lassallian socialist, forged the union to spearhead the struggle for the eight-hour day in 1886; success in achieving reduced hours won new members and led to a lasting role for the union in the leadership of the American Federation of Labor, which McGuire helped establish. The importance attributed to this strategy can be seen in an incident in 1884 in which the union leadership denied a request from the Amalgamated Iron and Steel Workers that urged the union to discourage the increasing use of mass-produced steel nails since this new technology reduced steelworker employment. The General Executive Board replied that “while our Brotherhood sympathized with them, they did not deem it advisable to fight labor saving machinery, and recommended the Iron and Steel Workers to struggle for a reduction of the hours of labor to offset the evil.” If hours were reduced, more men would have to be hired to do the original amount of work, thus returning to the workforce those who had been laid off through mechanization.

In addition to saving carpenters’ jobs through the eight-hour struggle, the union sought to preserve work that was threatened by the hiring of greenhands. In 1882, the craft qualifications for membership in the union referred only to carpenters and joiners; by 1886, “stair builders, millwrights, planing mill bench hands or cabinet
makers engaged at carpenter work, or any carpenter running wood­working machinery were admitted.” By 1890, the union included twenty-one locals of planing mill hands, five locals of stair builders, and three locals of sash, blind, and door makers. By embracing industrialized work, the union ensured that the workers so employed would receive carpenters’ wages and work carpenters’ hours; carpenters, thus, would be hired for the jobs instead of unskilled laborers. This goal continued to be pursued through the union’s fight against dual unionism and through its struggle for union labeling of construction materials that guaranteed that union labor had been used in the mills.

These actions were successful, and through them the United Brotherhood of Carpenters and Joiners became the largest of the building trades unions. In a number of cities, including San Francisco, the Building Trades Council, under the leadership of the carpenters’ union, became the voice for all labor around the turn of the century. And yet it is, at the least, a measure of the magnitude of the forces facing building-workers that the issue of jurisdiction became the preoccupation of the union in the early decades of the twentieth century. Although the union determined that, “once wood, it is always the right of the carpenter to install it, no matter what the new material is,” it became impossible to predict what innovations might pose a challenge to the carpenters’ jurisdiction. As the union’s general executive board acknowledged in 1915, “owing to the rapid change in the building industry in the last few years, the substitution of one material for another in construction work, as well as the methods of construction, a detailed statement of our claims today may need changing tomorrow or the next day.”

While the union protected the livelihoods of many of the workmen engaged in diverse aspects of the construction industry, it could do nothing to affect the splintering of builders’ work that mechanization, standardization, and specialization created. Rather, it seems that by organizing the building-trades workers, the unions, of which the United Brotherhood of Carpenters and Joiners was the largest and most powerful, reflected the new division of labor that industrialized practices gave rise to. They implicitly ratified the separation of man-
ual work from the managerial, financial, and design aspects of the building process.

As specialization increased and as new trades, such as plumbing and electrical work, arose, the need for overall coordination of the building process at the planning stage increased, too.\textsuperscript{76} Depending upon the complexity and cost of the job, this managerial role was undertaken by contractors or developers. Both of these groups evolved in the course of the nineteenth century from their origins as master carpenters—contractors and speculators, respectively.

Contractors often allied themselves with building-workers. When the carpenters’ union initiated its campaign against piecework, for example, contractors supported its efforts.\textsuperscript{77} On smaller jobs, including the majority of nineteenth-century residential construction, there continued to be a certain fluidity between roles, carpenters especially having the opportunity to gain contracting experience.\textsuperscript{78} As the scale of both commercial and residential projects grew, however, the line separating the roles of building-worker and contractor became less permeable.\textsuperscript{79}

Developers, on the other hand, were generally consistent in their opposition to the claims of building-workers. In 1890 and 1891, for example, organized as an employers’ group called the National Builders’ Association, they defeated workers’ efforts to win the eight-hour day in several cities.\textsuperscript{80} As the name of this early organization suggests, this group also challenged the worker’s role as a builder. At the same time that building-workers’ jobs were becoming industrialized, developers increasingly took responsibility for the planning and financing of larger-scale developments. The skills needed for these activities had little to do with direct knowledge or experience of any particular building craft, but depended more on organizational and entrepreneurial acumen.

\textbf{Modeling Efficient Development}

Thus, by the end of the nineteenth century, the nature of construction practices had been transformed and a new system of stratification was evolving that reallocated control over the building process from the
building-craftsman to the builder-entrepreneur. The professional rise to prominence of the latter will be considered later; for now, it is possible to see that the ability of the Dearborn Realty & Construction Company to employ the labor power of industrial workers to construct the Ford Homes resulted from the diminished role that traditional builders’ skills and activities played in the construction process.

Nevertheless, given the very different kind of work involved, how well suited to their tasks were those employees who were drafted for Ford’s building project? The borrowed builders remain anonymous, but two contemporary features suggest their competence despite the novelty of their work site. First, it is possible to speculate that some of these workers were familiar with the basics of housing construction as owner-builders. These were often recent arrivals to the city for whom home ownership was a high priority; Detroit’s newcomers included a high percentage of settlers with this goal. Second, it is useful to remember the diversity of job categories required for Ford’s automotive operations. Painters, woodworkers, and electrical workers were employed along with steelworkers, molders, glassmakers, welders, and other more typically industrial craftsmen. Routine maintenance of Ford’s factories included regular painting as well as cleaning; woodworkers were employed to build models; electricians worked on self-starters. Thus, when the Dearborn Realty & Construction Company drew on the Ford automotive workforce, they may have relied upon their workers having at least cognate skills adequate for the job.

Deskilling due to specialization and mechanization did not eliminate craft skills altogether. It curtailed them and reduced the worker’s ability to contribute to conceptual problem solving. This is reflected in the Ford Homes by the decisive role played by the Dearborn Realty & Construction Company. The developer set the parameters within which both building-workers and architect fulfilled their tasks.

Historical changes in the construction process that allowed for the employment of borrowed builders also affected the structures designed for this project. Extending the standardization inherent in balloon-frame construction, all materials, fittings, and trim were standardized and cut or assembled on site. The architect’s use of a
THE FORD HOMES

modular system to generate house designs accommodated this uniformity, while it varied the dwellings' massing, elevations, and surface textures to reduce monotony. The simplicity and legibility of the scheme's colonial revival vocabulary of architectural forms contributed to Wood's ability to balance standardization with the modular arrangement of parts.

The Ford Homes project was not the only development aimed at providing much-needed housing for factory workers and others in a community that was undergoing rapid growth through industrialization. The Modern Housing Corporation, a General Motors' subsidiary, for example, built 950 houses for workers in Flint in 1919 and 1920. In these developments, the companies were taking up the slack for private developers during a period of building inactivity. W. C. Durant, president of General Motors, tried to reassure professional developers when he announced that the company would build houses in Flint: “Our whole purpose in taking up the enterprise is not to enter the real estate field in a competitive way, but rather to stimulate general activity in building to relieve congestion that must constantly grow worse unless the most radical steps are taken to overcome it.”

The Ford enterprise, like others, was intended neither to establish a company town nor as philanthropy. Rather than creating a model community in either the architectural or the social sense, the Ford scheme was intended as a model for realtor-developers. Perhaps influenced by the achievements of the federal government's housing projects built under the pressure of World War I for workers in war-related industries, and eager to ensure that construction revert in peacetime to the private sector, the Ford developers were concerned principally with issues of speed and numbers. The goal was to streamline construction in order to produce more housing faster, enabling developers to reduce costs in time, labor, and materials without sacrificing amenities for the home owners. The process itself would put a brake on excessive speculation, it was felt, because the risks of building would be minimized by controlling the development of an entire neighborhood; profits would be guaranteed by the cost reductions resulting from this large-scale construction. By seizing oppor-
tunities inherent in the transformation of the construction process, the Ford Homes developers intended to demonstrate ways to control speculation. Were realtors to absorb this lesson, they argued, homeowners, workers, industry, and society as a whole would benefit.

This may explain why most of Wood’s proposals, as he formulated them in “Community Homes,” were not realized in the Ford project. The developers were concerned more with highlighting trends in the production process than with experiments in community design. They wanted to create a demonstration project that would extend assembly-line procedures into a new industrial setting. The Ford Homes intended to put to the test the methods of production with which Ford’s name was synonymous, and that many increasingly saw as applicable to the housing field. One architect noted in a 1920 article entitled “Standardized Small Houses,” “The principle which Mr. Henry Ford has so successfully applied to the production of automobiles can be worked out for the homebuilder.”

The processes of auto production had come to set the standard for all production, seizing the imaginations of creators in diverse fields. Where shortages existed, the efficiencies of rationalized production would create abundance. The Ford Homes responded to the clamor to solve the housing problem in just this way.

When Model A is mentioned, however, it calls to mind an ancestor of the Tin Lizzie, not one of the Ford Homes. Despite their sponsor, the Ford Homes claimed only local attention. Among other reasons for this is the fact that, by the 1920s, efforts to apply rationalized procedures to housing production were relatively widespread. The construction industry itself was already being reshaped by new technologies and methods of organizing production that were identified internationally by the 1920s as Fordist. The exceptional use of borrowed builders to construct the Ford Homes provides a window through which to view trends that were becoming typical.