

**ROOM USAGE AND FLOOR PLAN DESIGN IN
POST WORLD WAR II SUBURBAN HOMES**

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At the end of World War II, the United States was facing a severe housing shortage caused by a decline in house construction during the Depression and continuing through the war when building materials were redirected towards the war effort. During this same period, many members of the population were coming of age for homeownership and soldiers returning from the war, most of whom were in their mid- to late-twenties, faced the prospect of living with family members or friends, neither of which was desirable nor acceptable for an extended period of time. As a result, in 1944 the Veterans Association created the Veterans' Mortgage Guarantee Program, allowing veterans to borrow the appraised value of a house without a down payment and providing builders with the funding to build thousands of new houses. The program was under the management of the Federal Housing Administration ("FHA") who required the price of the houses to fall within \$6,000 to \$8,000 and their total size to be between 800 and 1,000 square feet. In order to ensure that these smaller sized houses offered at least the basic amenities, the FHA further required builders to meet their standards with respect to the number of rooms, room function, and size. Developing these standards, however, was no small feat. The research and development leading to the adoption of the FHA standards tells a significant story in the history of American house design and interior layout. The story is one of rejection and challenge as researchers in government and construction alike re-think traditional interior layouts in order to meet the minimum needs of the modern family, while simultaneously challenging the construction industry to conform to modern production techniques in order to produce standardized and affordable houses for returning veterans.

The typical house type prior to World War II offered two-stories and a basement with a living room, dining room, kitchen, pantry, one to two bathrooms, and two or more bedrooms. In some houses, other specialized rooms such as a library, office, and parlor may also have been featured. Houses prior to World War II were typically constructed by an architect for a specific family, with both parties deciding what rooms to include and where they should be placed. In order to produce affordable houses quickly, however, a standardized house type was needed; one that would provide for basic human and family needs within the house, but that could be developed without the input of the specific homebuyer prior to its design. In addition, in order to increase its affordability and speed of construction, the new house type would have to be reduced, including the possible elimination of some rooms and the reduction in size of others.

Developing a New House Type

Standards for smaller-sized houses were beginning to develop between the two World Wars with the recognition that technological advances and manufacturing standardizations resulting from the Industrial Revolution should be applicable to house production and layout. Henry Ford, for example, standardized production techniques using the assembly-line method, enabling him to mass produce and lower the cost of the automobile, thereby making it available and affordable for the average American. How, some wondered, could similar streamlining techniques be used to solve the housing crisis?

Those beginning to re-evaluate house interior design, including corporations and governmental entities, assessed that current room layouts and room sizes were based simply on tradition and therefore, they argued, could be modified to plans that were more efficient and economical. For this reason, a new rational standard for residential design, based on the incorporation of new technologies and studies of how people actually used the space in their houses, was viewed as a requirement for meeting the demands of the modern family and providing a standardized house for them.

The information gathering process for this new rational standard began in the 1920s when researchers began studying families in their houses with the goal of measuring the amount of space needed to complete specific day-to-day tasks. In the late 1920s, one of the most well-known programs of this type was underway. Known as the Pierce Foundation, the American Radiator Company founded a research program to conduct research in heating, ventilation, and sanitation in order to promote the general health and happiness of its customers. The foundation soon found itself, however, conducting an important housing investigation in conjunction with the American Public Health Association that involved 131 New York families, where each family was asked to complete a survey and keep a journal of their activities. For their part, researchers noted the number of rooms and measured room size, storage space, and documented family possessions.¹ By measuring the activities of the family members, researchers hoped to use the data to develop smarter residential design based on how space within the house was actually used.

Researchers would later decide, however, that activity logs and interviews were not sufficient on their own to determine the space needed for these activities. What they proposed next was a radical concept in thinking about residential design: to examine the typical activities that occur in the house, such as sleeping, eating, and bathing while simultaneously discarding the assumption that the rooms traditionally devoted to these activities were ideal. After an in-depth analysis that included observation of people in model rooms, the researchers concluded that some rooms had only one purpose and could be eliminated with the tasks normally performed in them transferred to another appropriate space. Single-purpose rooms, they decided, were the dining room, used at most three times per day, the basement and the attic.

Based on space studies conducted by the Pierce Foundation and others, the FHA developed the four-room-plus-bath minimum house, which set the standard for small house design and influenced small house builders such as Levitt & Sons (“Levitt”) in the design and production of their widely popular Levittown houses. The FHA prototype was a 624-square-foot house embodying the principles of efficiency in residential design, featuring a small kitchen with modern appliances, a bath, two bedrooms, a utility room, and a living room. Eating functions in the minimum house were to be conducted in the kitchen or living room while the utility room served as storage space in lieu of a basement and attic. The bathroom in the minimum house was adjacent to the kitchen in order to stack the plumbing and reduce material costs. Hallways were nearly eliminated with the exception of a small one separating the bedrooms and bath from the living room and kitchen. In the minimum house, all basic universal family activities were provided for with sleeping areas (two

bedrooms), bathing (one bathroom), cooking and eating (kitchen), and a space for the family to come together (living room). Every square foot within the house was also accounted for with the elimination of all unnecessary corners, hallways, and rooms. The minimum house was touted as efficient and affordable (figure 1).

Building the Postwar Houses

The conditions following World War II were such that land was cheap, but building materials were expensive. In order to construct a house within the \$6,000 to \$8,000 price range that the FHA determined was feasible, builders looking to capitalize on the veteran housing program turned to the FHA guidelines for acceptable techniques to simplify design and reduce costs. In addition to eliminating single-purpose rooms, builders such as Levitt also reduced the number of exterior wall breaks (giving post-World War II houses their “boxy” character), standardizing building materials including window and door sizes, and by offering only a small number of models. Within the house, builders often followed the FHA prototype by eliminating the pre-war second story, dining room, extra bathroom, cellar, and any stylistic elements such as trimmings and millwork.² In the original Cape Cods built by Levitt in Levittown, New Jersey, for example, the house was reduced to what was essentially a four-square layout with a kitchen, living room, bath, and two bedrooms. The houses were nearly identical to the FHA prototype in terms of their layout (figure 2). Levitt kept the size ratio of the rooms similar to their pre-war counterparts, devoting the larger spaces to the living room and master bedroom.³

The reduced number of rooms and smaller sizes of postwar houses encouraged a new way of thinking in terms of interior layout. Pre-World War II houses traditionally featured their kitchens in the back of the house. Placing kitchens away from the front door and out-of-view from visitors in the public spaces in the front of the house is a two-hundred-year-old American tradition. The tradition dates from a time when household servants were common in upper-class houses and it was desirable to conceal their activities in the kitchen. In addition, before refrigeration, kitchens were often a malodorous space and keeping these offending smells away from visitors was considered in good taste. In many postwar house designs, however, the kitchens were located in the front of the house and in some cases, served as the main point of entry. In later designs, the living room was moved to the back of the house, leaving the kitchen as the public space in the front. Allowing the kitchen to serve as the only public space in the front of the house was considered a radical move with some arguing that this placement recognized the transition of housework from private space to public space and the growing importance of the role of the housewife in keeping her own house.

In some postwar houses the kitchen was connected to the living room in what were some of the first open floor plans in the United States.⁴ The open floor plan, where the traditional partition wall separating the kitchen from the living room was not installed, was a vital tool in helping to visually create a larger sense of space and alleviate a sense of crowding in these small houses. By opening the wall between these two rooms, the builders argued, mothers working in the kitchen also had the advantage of being able to supervise their children playing in the living room. The assumption that women would stay at home

and tend to housework and childcare was reflective of the social pressures on young women at the time. With the horrors of World War II behind, the sentiment across the country was a need to return to family, domesticity, and the home with women serving as the primary caregivers.⁵

In furthering the concept of a return to family and the home, the open floor plan with the mother theoretically in the kitchen and the family in the living room, was viewed as a nostalgic nod to the colonial family hearth. When early colonial houses consisted of one-room with an open hearth used for cooking and interior heating, the family gathered around it for the heat and light it provided. The transition from open hearth to cast-iron and then gas stoves in the 1800s, however, was met with controversy with some arguing that the disappearance of the hearth would undermine family unity.⁶ The compromise was to separate the cooking tasks from interior heating by moving the stove to the kitchen and placing a fireplace in parlors and sitting rooms. As a matter of tradition, fireplaces are still frequently found in later houses even after the availability and increased use of central heat. Levitt is credited with being the first to reintroduce the colonial hearth/open floor plan concept into the basic four-room house, which would influence other postwar builders looking to the Levitt houses as a model for success.⁷

The kitchen in the postwar house is also significant in terms of the technological advances occurring in the nineteenth and early twentieth centuries. Electric stoves, for example, were first available in the late nineteenth century, but did not become a satisfactory means of cooking until the 1930s. In terms of refrigeration, the electric refrigerator was

manufactured in 1917 and was in general use by 1920. With the increased availability of electricity in the late 1800s, electric cooking appliances such as blenders and toasters were transforming the cooking process, arguably making it quicker and more efficient.⁸ Some builders of the postwar era offered these modern appliances in their new houses. The Levitts, for example, offered a refrigerator, stove, stainless steel kitchen sink and counters, and a Bendix washing machine as standard features in even their earliest Levittown Cape Cod kitchens.⁹ According to the Levitts, these items were some of the most important features of the house, providing the modern conveniences that made these houses livable.¹⁰ Postwar houses such as the Levitt's, therefore, looked much different than many of the houses the veterans purchasing them grew up in and veterans were likely proud to show them off.

Problems with the Design

While postwar houses that followed the FHA interior guidelines were built and purchased in the thousands, their success in sales did not universally translate to success in interior layout and room size for the owners who occupied them. Their failure in some instances was especially apparent in 1956 when the first Women's Congress on Housing was assembled by the Housing and Home Finance Agency for the purpose of learning what homemakers felt their families needed in a house. Of the housing types examined during the Congress, the focus was heavily upon the postwar FHA-inspired minimum house. Among the many complaints, for example, were that the kitchens were too small and when members of the Congress redesigned them, they reduced the amount of living room space in order to increase the kitchen size. While this change would have meant keeping the overall size of

the house the same, such a shift would have had larger political implications. By reducing the size of the living room in favor of increasing a work zone, the perception of these houses would have shifted from middle-class to lower-class with the assumption that the occupants of this house type would not have much need for a space purely devoted to the relaxation activities of the family.¹¹ In addition, reducing the size of the living room would have appeared to undercut one of the principle reasons for funding postwar houses: to increase the middle-class and therefore the spending potential of the veterans who would want to furnish their houses with the latest in home appliances and décor.

Another complaint of the Congress was the placement of the washing machine in the kitchen/dining area. In the minimum house, there was no separate room built for laundry activities, perhaps because it would have been perceived as a single-purpose room. Instead, laundry activities were transferred to the kitchen, likely with the intention that such a placement would increase the efficiency of the kitchen as a work zone. Nevertheless, this placement was viewed as less than ideal by the Congress who said they would have preferred doing without the appliances provided by the builder (and purchasing their own) in exchange for additional square feet for these types of activities.

Creating Additional Space in the Minimum House

In looking at many of the postwar minimum houses, one thing becomes clear: the houses have grown in both number of rooms and overall size since their construction. Many original postwar minimum houses built in the Cape Cod and ranch styles, for example,

featured unfinished attics that the builder provided under the assumption that the space could be converted into additional storage and bedrooms as the owners saw fit. Finishing the attic was a relatively easy and inexpensive addition since the framework was pre-existing. As families expanded in size, the extra potential bedroom space in the attic was often utilized.

Not only did the owners create additional rooms out of their attics, but many also altered the overall size of their houses by adding additional rooms and garages onto the ground floor. In many Levittown houses, for example, homeowners extended the street-facing exterior wall by one room width and then extended the depth of the addition to meet with the back of the house. The space was then divided into two, with perhaps the front space becoming a garage and the back space converted into a new living room, freeing the old living room to serve as the new dining area.¹²

Still another room that many minimum homeowners would eventually create is the second living room or recreation room. The creation of rooms for social activities is a desirable commodity in American houses, with a history tracing back to the era of the parlor. The parlor was traditionally viewed as a statement of a family's wealth and gentility and was dressed to impress, featuring the best the family could afford in terms of furniture and architectural detailing. In its early period, the parlor served as a room where weddings, funerals, tea ceremonies, and clergymen's visits would occur. As towns and cities began to develop, it was a space for receiving daytime callers and for entertaining guests before and after dinner. When not used for these occasions, the room was typically shut and was off limits for the day-to-day activities of the family.

By the mid-nineteenth century, however, the parlor was losing its appeal as members of the rural community began to protest its pragmatism for farm families who rarely had the occasion to use their parlors. Rather than preserve the room for formal activities, many argued that it should be turned over to the activities of the entire family, fostering a more child-friendly space. Around this time, the phrase “living room” gained in popularity and furnishing guidelines for it included the selection of items according to individual taste and not necessarily according to the fashion of the day, as proscribed for parlors.¹³ Between 1850 and 1900, rural houses began the elimination process of the parlor, with some houses removing it altogether, others reducing it in size, and still others relocating it to other areas of the house. Many of these houses, however, still featured both living rooms and a parlor, as they negotiated the transition. City houses, however, did not begin to follow the trend in earnest until the last quarter of the nineteenth century. In fact, it was not until the 1920s that parlors were almost completely out of favor.

As the minimum house developed during this same time, the living room was perceived as the place for members of the middle-class family to retire for relaxation at the end of the day.¹⁴ The living room, therefore, became standard in postwar Levitt-type homes. With changing social patterns and newly developing concerns about the activities of teenagers in their free time, however, a second living room also came to be viewed as a needed space for teens to socialize safely.¹⁵ As a result, many owners of postwar houses would provide such rooms for their children with houses now featuring both a living room and recreation room for social activities where houses had once featured both a parlor and

living room for socialization. The addition of rooms such as dining and recreation rooms is in essence a return to the size of houses more traditionally associated with middle-class homeowners. These early minimum houses were often perceived simply as starter houses for homeowners in their transition to a more comfortable middle-class lifestyle.

Cape Cod and Ranch Style Houses

Two of the most desirable house types prior to World War II were the Cape Cod and the Ranch. Based on house types that were prominent in the England towns where many colonists were from, the Cape Cod style house was one of the first wood-frame houses constructed in New England. Characterized by its one-and-a-half stories and gable roof, it was particularly prominent in the Cape Cod area of Massachusetts, hence its name the “Cape Cod.” These early houses consisted of one room, in which the family cooked their meals, slept, and completed their day-to-day activities. In order to manage space, the family bed was attached to a wall and could be raised and lowered when needed. During the day, it was sometimes concealed by curtains. The half-story above the ground level was the loft, which served as the family food and supply storage area and as a sleeping place for children. These houses also had a fireplace for the family to cook their meals and to heat the interior. Stored near the fireplace were the family’s cooking supplies.

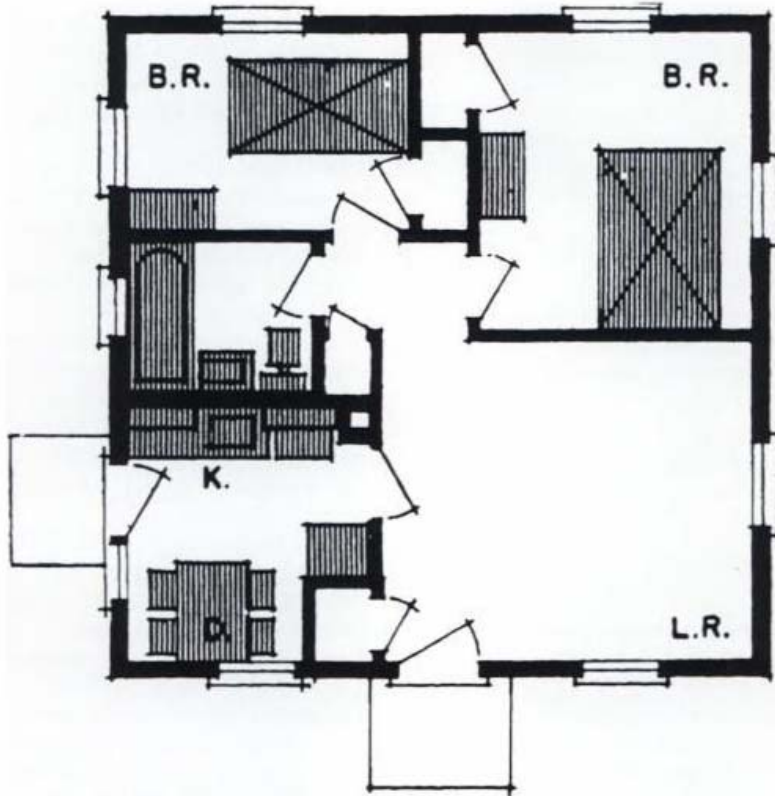
Between the seventeenth and early twentieth centuries, the Cape Cod endured many changes to its interior. While many of these early houses had only the one room, others were built with multiple rooms, often with one room serving as the parlor and the other as the

family's main living quarters. By the 1800s, Cape Cods typically featured multiple rooms, with a parlor, kitchen, two to three bedchambers, and a buttery or pantry.¹⁶ There was often a steep flight of stairs leading to the half story above. Irrespective of its evolution, Cape Cods, whether one room or several, were traditionally smaller-sized houses. It is not uncommon, for example, to find an early Cape Cod house measuring twenty-two by twenty-six feet or even twenty-eight feet square. While the early Cape Cod interior layout is vastly different from those constructed by the postwar builders, with its pre-existing popularity, its appeal to national pride as a colonial relic, and its modest size and price, the Cape Cod seemed to be a sensible option for developers looking for a smaller-scale house that would immediately have eye appeal to consumers.

For its part, the ranch house design is a style derived from early houses on the West Coast. Similar to their Cape Cod counterparts, early ranches were one room structures, but differed with their flat roofs and soil and mud construction.¹⁷ Over time, these simple one-room ranches were often enlarged by building onto the sides of the houses, rather than by building upwards, giving the ranch its characteristic horizontal orientation. Ranch houses also frequently developed U- and L-shaped configurations with the house surrounding a courtyard that encouraged an indoor/outdoor lifestyle suitable to the temperate West-coast climates. As balloon-framing construction became the common house building technique in the U.S. in the late nineteenth century, the ranch style was adapted to the wood frame and gained in popularity throughout the U.S. With its appeal to the population's growing fascination with West-coast architecture, the ranch house also seemed like an ideal choice for postwar developers. Similar to its Cape Cod counterpart, however, the ranch house interior

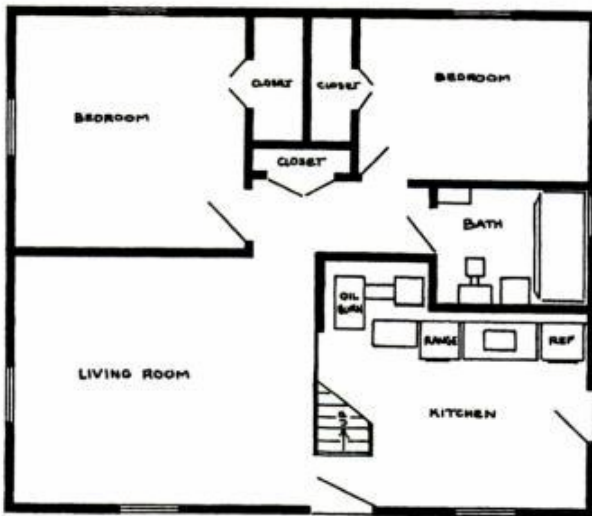
had few resemblances to its earliest forms. In many postwar houses such as the Levitt houses, for example, the ranch house was distinguished from the Cape Cod by its exterior detailing. The ranch interior layout was nearly identical to that of the Cape Cod.

Figure 1



FHA minimum house floor plan (*Magnetic Los Angeles: Planning the Twentieth Century Metropolis*, p. 68)

Figure 2



Typical Levittown Cape Cod floor plan offered in 1947 (*Expanding the American Dream: Building & Rebuilding Levittown*, p. 66)

¹ Hise 1997, 62.

² Friedman 1995, 133.

³ Kelly 1993, 165.

⁴ With the exception of the early colonists' houses which were typically one-room houses.

⁵ Kelly 1993, 70.

⁶ Brewer 1990, 1.

⁷ Kelly 1993, 85.

⁸ Although some would later argue that the improvements in kitchen appliances, while making certain cooking functions easier to perform, did not necessarily lessen the workload of women performing these tasks. Instead, a higher standard of cleanliness, decorating, and childcare filled the void left by the easier cooking tasks.

⁹ From the Levittown Historical Society website.

¹⁰ Kelly 1993, 97.

¹¹ Ibid., 95.

¹² Ibid., 105.

¹³ McMurray 1985, 272.

¹⁴ Suggested earlier, to not include a living room in these houses would have signified a working-class house and in the government's desire to increase the middle-class population, living rooms would have been a must.

¹⁵ Kelly 1993, 107.

¹⁶ Connally 1960, 50.

¹⁷ "Ranch houses," as we call them today, were originally mission-style structures. The term "ranch house" was the popular term for these houses after California architects began calling them such in the 1930s. (Allen 1995, 159)

Bibliography

- Allen, Barbara L. "The Ranch-Style House in America: A Cultural and Environmental Discourse" *Journal of Architectural Education* (1995): 156-165.
- Beyer, Glenn H. *Housing and Society*. New York: The Macmillan Company, 1965.
- Brewer, Priscilla J. "'We Have Got a Very Good Cooking Stove': Advertising, Design, and Consumer Response to the Cookstove, 1815-1880" *Winterthur Portfolio* 25.1 (1990): 35-54.
- Connally, Ernest Allen. "The Cape Cod House: An Introductory Study" *The Journal of the Society of Architectural Historians* 19.2 (1960): 47-56.
- Friedman, Avi. "The Evolution of Design Characteristics During the Post-Second World War Housing Boom: The US Experience" *Journal of Design History* 8.2 (1995):131-146.
- Hise, Greg. *Magnetic Los Angeles: Planning the Twentieth Century Metropolis*. Baltimore: The Johns Hopkins University Press, 1997.
- Kelly, Barbara M. *Expanding the American Dream: Building and Rebuilding Levittown*. Albany, New York: State University of New York Press, 1993.
- Levittown Historical Society. "Levittown History" *Levittown Historical Society*. Retrieved: April 2, 2008 from <http://www.levittownhistoricalsociety.org/index2.htm>.
- Mason, Joseph B. *History of Housing in the U.S. 1930-1980*. Houston: Gulf Publishing Company, 1982.
- McMurry, Sally. "City Parlor, Country Sitting Room: Rural Vernacular Design and the American Parlor, 1840-1900" *Winterthur Portfolio* 20.4 (1985): 261-280.