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MINIMUM PHYSICAL STANDARDS AND CRITERIA

FOR THE PLANNING AND DESIGN OF
FPHA-AIDED URBAN LOW-RENT HOUSING

NOVEMBER 1945



NATIONAL HOUSING AGENCY
U.S. FEDERAL PUBLIC HOUSING AUTHORITY
Philip M. Klutznick, Commissioner

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FOREWORD

These are the minimum standards to be followed by Local Housing Authorities in the design and physical development of urban low-rent housing pursuant to the United States Housing Act of 1937 as amended and Part II of the FPHA Requirements for Urban Low-Rent Housing and Slum Clearance, dated May 1, 1945. They represent a floor, and the maximum cost approved for each development represents a ceiling; every development shall be designed and constructed within these limits.

Local Authorities should exercise judgment, technical skill, and imagination to produce housing developments of moderate initial cost which can be operated and maintained during their planned useful life with such economy that low rents may be charged without requiring excessive Federal or local subsidies. FPHA will encourage and foster all efforts to improve livability and architectural quality.

While the minimum standards set forth herein are intended to include all of the mandatory requirements governing design and development essential to the health, safety, and well being of the tenants, it should be realized that a number of objectives do not lend themselves to specific minimum standards. For example, while justifiable minimum areas may readily be set for rooms, it is not possible to state in precise terms any rules for the selection of site. Thus certain statements herein are "criteria", and are included with the more definite standards because the designer must consider and weigh these criteria to reach correct decisions.

The FPHA realizes that no set of rules or formulae could be made to substitute for sound judgment, technical skill and creative ability. To achieve outstanding results, there is imposed upon the Local Authorities, their architects and their engineers, the necessity for much research, study and display of resourcefulness with regard to innumerable details. As one means of assistance to this effort the FPHA has prepared and is making available a review of Public Housing Design containing experience data on design and construction, and suggestions or recommendations derived from these experiences.

Philip W. Metzger
COMMISSIONER.

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MINIMUM PHYSICAL STANDARDS
AND CRITERIA
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NOVEMBER, 1945.

I. CODES AND REGULATIONS

1. Throughout these Standards where reference is made to "codes", "regulations", or "local requirements", such references shall be construed to mean the legal and governing laws, regulations, codes and other requirements applicable to the housing development.

2. Where local zoning or building codes and similar regulations are less restrictive in their requirements than the requirements of these Minimum Physical Standards, the latter shall govern.

3. Where local zoning or building codes and similar regulations are more restrictive than the requirements of these Minimum Physical Standards, then such codes and regulations must either be followed, as required for privately developed housing, or waivers must be secured. Where the higher requirements are considered by the Local Authority to be unduly restrictive or costly, every reasonable effort must be made to secure such waivers.

4. In cases where neither these Minimum Standards nor local codes and regulations are specific as to the matters included within the broad scope of the Standards, then the applicable recommended minimum requirements of the following codes and standards shall be construed to form a part of the Minimum Physical Standards:

(A) Current "Building Regulations for Reinforced Concrete" of the American Concrete Institute, or

(B) "Recommended Practice for Design of the Joint Committee on Standards Specifications for Concrete" 1940.

(C) Current "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings" of the American Institute of Steel Construction.

(D) Current "Code for Arc and Gas Welding in Buildings", American Welding Society.

(E) Current "Code" issued by Steel Joist Institute.

(F) "American Standard Building Code Requirements for Masonry", National Bureau of Standards, A-411 - 1944.

(G) Current issues of "The National Electric Code" and "The National Safety Code".

(H) Current "Building Exits Code" - by the National Fire Protective Association - ASA standard.

5. If the Local Authority wishes to propose the use of materials and methods not covered either by local or national codes, such materials and methods should be submitted with all available supporting evidence to FPHA for its review and approval. This Authority will give sympathetic recognition to modern trends and developments.

II. THE SITE

1. The site or sites should be so located as to meet the needs of the various elements represented in the housing market and with due regard to local plans for long-range development which would control or influence such locations.

2. The site must be located where existing zoning laws protect the residential character of the neighborhood, or agreements for the securing of such protection through amendment of existing requirements must be made in advance.

3. System of water, sewerage, electricity, and gas (where gas is used) must be available or potentially available to the site. The use of electric generation, water supply or sewage disposal systems provided and operated by the development shall not be permitted except under unusual and justifiable conditions.

4. The site must be well related to public transportation, public schools, shopping, and recreation areas, and all other facilities necessary to the health, safety, and general welfare of the tenants.

5. A development shall not be located where it will be subjected to chronic and objectionable nuisances such as smoke, noise, fumes and odors, or to flooding or other local physical hazards which may reasonably be foreseen.

6. The topographical and sub-surface conditions must not be of a nature which would adversely affect the economical development and management.

III. DWELLING TYPES

1. Dwelling types differ in their effect upon site density and therefore must be selected with due regard to land cost. Contemplated types and land cost must be weighed jointly so that (1) excessive land cost per unit does not result from arbitrary selection of low density types, and, conversely, (2) sites do not become overcrowded in order to justify high site costs. The objective shall be to secure the lowest density and coverage consistent with all related factors.

2. The types shall be consistent with the patterns expected to evolve because of anticipated neighborhood development or rehabilitation.

3. The types shall be suited to the general economic level and to the needs of the tenants for whom the development is being planned.

4. The types shall lend themselves naturally and economically to the form, topography, and surface and sub-surface features of the site.

IV. THE SITE PLAN

Spacing of Buildings

The minimum distance between buildings (that is, front to front, rear to rear, or front to rear, as the case may be) shall be 50 feet for buildings one story in height, and this shall be increased by not less than 5 feet for every story added: where the slope of a site between buildings is equal to the height of one or more stories, these increases of 5 feet may be reduced.

The minimum distance between buildings may be decreased by as much as 10 feet toward one end if it is increased by a similar distance at the other; and consistent modifications are permitted to accommodate plans which are not conventional in their outline or in their relation to other buildings.

The spaces between the ends of buildings shall be determined with regard to fire protection and to privacy where windows occur in facing ends, but in no case shall these spaces be less than 20 feet at any point for one- or two-story houses and this shall be increased by not less than 5 feet for every story added above two stories. Distances between building wings shall be not less than the projection of such wings. No closed courts, regardless of distance between walls, shall be permitted. However, open arcades or garden walls, not over 8 feet in height, shall not be deemed enclosing features.

Play and Recreation Areas

A play area especially planned for the use of small children (pre-school children and school children under eight years of age) shall be provided in all developments. This shall consist of a minimum of 25 square feet per dwelling and is to be located at the community building. (In developments which lack a community building this play area shall be located where it can easily be reached from all parts of the development.)

Where dwellings lack private yards adapted to the play of small children local play areas must be provided for their use at the rate of not less than 50 square feet per dwelling. Each such area shall consist of at least 2000 square feet and one shall be located near each group of such dwelling buildings.

Recreation areas for school age children and adults must be available conveniently near the development or within the development. Space for such areas shall be provided on the site where the following conditions exist:

1. Where no recreation area is located or planned to be provided in the immediate future close to the development.
2. Where existing or planned nearby recreation areas are reported by recreation officials to be inadequate.
3. Where existing or planned recreation areas close to the site are separated from it by a railroad at grade or other recognized hazard.

In the above cases allocate an area of not less than 50,000 square feet as the principal recreation area for each development consisting of 100 dwellings. For larger developments increase this minimum area by 120 square feet per additional dwelling. For developments of less than 100 dwellings, since it is expected that group activities will be less extensive than in larger developments, the area required for this purpose may be reduced to a minimum of 300 square feet per dwelling. (These minimum areas include the area required for the special play use of small children at the community building.) ^{1/}

General Details of the Site Plan

In order to assure safety, economy in maintenance, and a proper degree of livability, the following general details must be incorporated in the design of the site:

1. The site plan must be so designed that the use of outdoor space, lawns, gardens, paved sitting-areas, drying yards, etc. is convenient for the tenants and allows for the maximum amount of tenant maintenance consistent with the type or types of dwelling units selected.
2. All buildings must be so placed on the site as to secure the maximum possible benefit of direct sunlight and prevailing breeze.
3. Safety shall be a major consideration in the layout of streets and driveways. Sidewalks and paths as necessary for safety and convenience must be provided.
4. Parking space for tenant cars, consistent with local regulations and anticipated development needs, shall be provided.
5. Suitable access for fire-fighting equipment, delivery of fuel, removal of waste, and for other necessary services, must be included.

^{1/} See Non-Dwelling Facilities, Page 13

6. Water and sanitary sewer systems shall be in accordance with standard engineering practice and shall meet the approval of the authorities having jurisdiction. Fire hydrants shall be of the type employed locally and in sufficient number to provide fire protection to all development buildings. Storm sewers shall be provided in accordance with local practice to the extent necessary to prevent damage to the development.

7. Streets and other outside lighting consistent with local regulations and practices, shall be provided.

8. Street signs shall be provided in accordance with local regulations.

V. DWELLING UNITS

A dwelling unit must contain the following:

1. Living room)
2. Kitchen) with dining space in either
3. Separate bedroom or bedrooms
4. Bathroom
5. Clothes closet for each bedroom
6. Coat closet
7. Linen closet
8. One general storage space

The minimum facilities provided for each dwelling unit shall be as follows:

1. Toilet and bathing (within the unit)
2. Cooking (within the unit) ^{1/}
3. Refrigeration ^{1/}
4. Domestic hot and cold water
5. Laundering
6. Electric lighting
7. Heating, except in those localities where the normal January temperature (U. S. Weather Bureau Statistics) is 60° F. above.

^{1/}See Section VI "General Requirements", Page 12, paragraph 19.

Room and Other Area Sizes

Schedule of Minimum Room Sizes^{1/}

Bed Rooms	2/ Occu- pancy	Rm. Count	3/ 4/ L. R.	Din. Sp.	Kit.	5/ 1st BR	2nd BR	3rd BR	4th BR	5th BR
1.	2.	3	150	40	50	125				
2.	3.	4	150	40	50	125	90			
2.	4.	4½ ^{6/}	160	50	55	125	110			
3.	4.	5½	160	50	55	125	90	90		
3.	5.	5½	170	55	60	125	110	90		
3.	6.	5½	180	60	65	125	110	110		
4.	7.	6½	190	70	70	125	110	110	90	
4.	8.	6½	195	90	75	125	110	110	110	
5.	9.	7½	200	95	80	125	110	110	110	90

^{1/} Areas given are net areas inside room wall exclusive of closets or offset entrances.

^{2/} Exclusive of infants 2 years of age or under. This occupancy column is for use only in determining space requirements for furniture and size of closets; see following page.

^{3/} Where space heaters are used in the living room, 16 square feet shall be added.

^{4/} Minimum width of living room - 10'-6".

^{5/} Minimum width of all bedrooms - 9'-6".

^{6/} When the combined area of the living room, kitchen and dining space equals or exceeds 260 square feet count as 2½ rooms.

The foregoing areas must be increased as may be required to accommodate not less than the following furniture items, spaced so as to permit free and proper movement between them.

Principal bedroom - twin beds, 3-6 x 6-9 each; crib, 2-4 x 4-5; dresser, 1-10 x 3-6; and chair 1-6 x 1-6.

Secondary bedroom for two persons - twin beds, dresser and chair, sizes as above.

Secondary bedroom for one person - single bed, dresser and chair, sizes as above.

Living room - couch or davenport 3-0 x 6-9; 2 chairs 2-6 x 3-0 each; desk or table, 2-0 x 3-4; radio 1-4 x 2-8; incidental furniture.

Dining tables:	2-person occupancy	2-6	x	2-6
	3- "	"		2-6 x 3-2
	4- "	"		2-6 x 3-2
	5- "	"		3-0 x 4-0
	6- "	"		3-4 x 4-4
	7- "	"		3-6 x 4-8

In locating this furniture, allowance must be made for freestanding radiators and pipes, door swings, electric outlets and other items which would affect furniture placement. Beds must not be placed so as to block free passage to windows.

Schedule of Minimum Closet
and Storage Space Sizes:

	<u>Minimum length</u>	<u>Width for</u>
	<u>clothes pole</u>	<u>hangers</u>
Closet for 1 person BR.	2' - 6"	22"
Closet for 2 person BR.	5' - 0"	22"
Coat Closet for 2 to 3 persons	2' - 6"	22"
Coat Closet for 4 to 5 persons	3' - 0"	22"
Coat Closet for 6 to 7 persons	4' - 0"	22"
Coat Closet for 8 to 9 persons	5' - 0"	22"

Linen Closet for 2 to 3
 persons -- 18" minimum depth - 4 sq. ft. floor area
 Linen Closet for 4 to 5
 persons -- 18" minimum depth - 5 sq. ft. floor area
 Linen Closet for 6 to 7
 persons -- 18" minimum depth - 6 sq. ft. floor area
 Linen Closet for 8 to 9
 persons -- 18" minimum depth - 7 sq. ft. floor area

 General Storage Space -- 1/30 sq. ft. floor area
 for 2 person occupancy
 plus 5 sq. ft. for each
 additional occupant.

Note: The requirements above are predicated upon the normal division of space into individual rooms, each for a specified purpose. FPHA recognizes, however, the trend toward a more free and informal use of space without its hard and fast segregation into separate cubicles and does not desire to discourage this trend through rigid standards as to rooms and room sizes. Therefore, the requirements as to rooms may be interpreted to mean spaces or areas for the purposes stated and the individual sizes given may be increased or decreased, provided that the total net area of the dwelling unit is not less than the sum of the areas for all required purposes given above, and provided further that all other requirements contained in these Minimum Physical Standards, such as those for privacy, access, light and ventilation, space for furniture, etc., are met.

VI. GENERAL REQUIREMENTS

1. No multiple dwelling building shall be constructed more than three stories in height above the entrance level unless provided with elevators.
2. Multiple dwelling building 4 stories or more in height shall be of fireproof construction as defined by the applicable building code.
3. Stair halls in multiple dwelling buildings, 3 stories in height, shall be of fireproof construction as defined by the applicable building code.

1/ In apartment dwelling units all but 4 square feet (in or adjacent to kitchen) of this storage space may be centrally located outside of the units.

4. No space below grade level shall be used for dwelling purposes except where sloping sites make it possible to plan dwelling units having their floor lines above the lower grade level; with either through or cross ventilation; and with the required window areas.

Note: For the purpose of determining the number of stories in a building on sloping sites, the number of stories above the entrance at the highest level shall govern.

5. Where no basement or cellar is provided and where first floor slab is not laid in contact with the ground, at least 3'-0" clearance must be provided below underside of concrete floor or joists of wood floors for ready inspection and repair. The floor of this space must be at least as high as the highest adjacent outside grades; or, if the floor is at a lower level, it must be paved and provided with positive drainage. There shall be a minimum of 400 square inches net ventilating opening for each under-floor area up to 400 square feet; at least 5 square inches of net opening shall be provided for each 10 square feet additional area. Provide access from the outside to underfloor areas: where building is more than 100 feet long provide access at each end.

6. All dwelling units must have at least two exposures. Each room intended for living, sleeping, eating, or cooking shall have direct outside exposure from one or more windows and these windows shall be equipped with insect screens. Bathrooms shall also have such windows, or instead, they may have ventilating skylights where local regulations permit; as an exception to the foregoing, bathrooms may be provided with mechanical ventilation instead of either windows or skylights in communities where local regulations permit such mechanical ventilation.

7. All spaces or rooms intended for public assembly, offices, clinics, nurseries, or similar functions, and all laundry, heater and mechanical equipment rooms and related spaces, shall be provided either with windows, as required for dwelling unit rooms, or with the equivalent in mechanical lighting and ventilating.

8. Stair halls in apartments shall have natural light except in the case of legally required fire towers.

9. Glass area of windows shall not be less than 10 per cent of the floor area in each room in any case. At least half of the minimum required window area in each room shall be openable. At least one window in each room except bathroom shall be large enough to permit egress in case of fire.

10. Ventilation shall be provided to all attic spaces except in localities having high elevation and low humidity. Access shall be provided to the roofs of all flat roofed structures exceeding one story in height.

11. The bathroom shall be accessible from each bedroom and from the living room without passing through another room.

12. Dwelling unit ceiling heights shall be not less than 7'-10", except that for sloping ceilings of top floors of 2-or 3-story dwellings the average height shall be not less than 7'-6" and minimum head room at walls 6'-6". Basement rooms shall not be less than 7'-0" in the clear, and higher as may be required by their purpose.

13. All dwelling units shall be provided with facilities for receiving mail in accordance with U. S. Post Office Department regulations, and shall be provided with street numbers.

14. All apartment buildings shall be provided with at least 15 square feet floor area per dwelling unit of storage space (in addition to general storage space - see page 9) for perambulators and wheel toys, accessible to outside grade directly or by a ramp.

15. Each apartment building shall have common laundry facilities, with drying rooms, allowing one double tray for each 8 to 10 families. Toilet facilities shall be provided, accessible from laundries for the use of tenants.

16. Eliminating or minimizing household hazards shall be a major consideration in the design and details of the development.

17. The output of the heating system shall not be less than the calculated heat loss. Heat losses shall not exceed 55 Btu per square feet per hour, of gross floor area, measured to the inside surfaces of the exterior walls, based on a 70° F. interior temperature and outside design temperature commonly used for the locality. Where the normal January temperatures are 40° F. or colder, (U. S. Weather Bureau Statistics) the heating systems shall include means of distributing the heat to all rooms proportionate to their heat loss.

18. The bathroom facilities shall include water closet, lavatory and tub. The water closet may be in a separate compartment if the lavatory is located in the same compartment.

19. Kitchen equipment shall include a sink with work surfaces - drainboard or work top - on each side. Unless laundry trays are elsewhere provided in the dwelling, this sink shall be combined with a deep tray for laundry use whether or not central laundry facilities are provided. Unless central laundry facilities are provided, plan space for the storing of a washing machine, and locate the laundry tray so as to permit satisfactory use of the washing machine. Equipment for cooking and refrigeration shall be furnished, or utility connections provided therefor.

20. Kitchens in units for 2-person occupancy shall be provided with 30 square feet of wall shelving, including shelving in base cabinet; for each additional occupant 3 additional square feet shall be added.

21. The electric layout and the number of outlets furnished in each room shall be governed by the National Electric Code.

22. Sound reduction of at least 45 decibels (at an average frequency of 256 to 1024 per second) shall be obtained by the use of suitable construction methods or materials for dividing walls and partitions between all dwelling units.

23. The construction methods and materials selected for each development shall be of such a nature as to insure a minimum of repair and maintenance costs during the planned useful life of the buildings. The materials and details employed shall be such as to facilitate cleanliness and to discourage insect pests, rodents, etc.

VII. NON-DWELLING FACILITIES

General Welfare and Recreation

The following facilities, in whole or in part, shall be included to the extent that they are consistent with the facilities normally provided or considered proper to be provided to the public in the municipality or location of the development, on condition that they do not constitute a duplication of such existing facilities conveniently located, available, and adequate to the development as well as to other existing needs:

Community hall for flexible use, including assembly, gymnasium, etc; together with smaller rooms for special uses, kitchen, toilets, and storage.

The space for all such facilities (net usable floor area) listed in the following table is given as a general guide only:

Number of Dwelling Units	<u>Up to 100</u>	<u>200</u>	<u>300</u>	<u>500</u>	<u>750</u>	<u>1000</u>
All facilities (In sq. ft.)	1000	2000	3000	5000	7500	10,000

The recreation areas for school-age children and adults, required in Section IV, The Site Plan, and special play space for small children, shall be located bordering the community building. ^{1/}

Space for Community Building and Possible Future Expansion

Space, varying widely with the size of the development and site conditions, shall be provided for the community building, service court, other paved areas, and surrounding lawns and shall be well correlated with the rest of the site arrangement.

Additional space shall be provided for possible future expansion of the community building. This area shall be at least 40 feet away from any other building site and free of streets, walks, underground utilities, or other obstructions which might interfere with future construction.

None of these spaces shall be included in the calculation of outdoor areas required for recreational use.

^{1/} See Play and Recreation Areas, Pages 4 and 5.

Management and Maintenance:

The facilities noted below shall be provided on the site as part of each development except in those cases where greater economy and efficiency in the management, maintenance, and repair of the development may be achieved by other arrangements such as contract for management and other essential services, list of off-site storage and other required spaces, or otherwise.

Management and rental offices
Maintenance and repair shops with
stock and equipment storage spaces

In determining the extent and character of operations facilities to be provided due recognition must be given to the size of the development, its relationship and proximity to other developments, the kind of construction and nature of equipment and utilities, and special local problems. The sizes of management and maintenance spaces (net usable floor area) listed in the following table are given as a general guide only:

Number of Dwelling Units	<u>50</u>	<u>100</u>	<u>200</u>	<u>300</u>	<u>500</u>	<u>750</u>	<u>1000</u>
Management	325	500	775	1000	1375	1725	1875
Maintenance (In sq. ft.)	400	900	1400	1925	2650	3300	3700

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AND CRITERIA

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