The three plan studies which follow are taken from Methods of Reducing the Cost of Public Housing.

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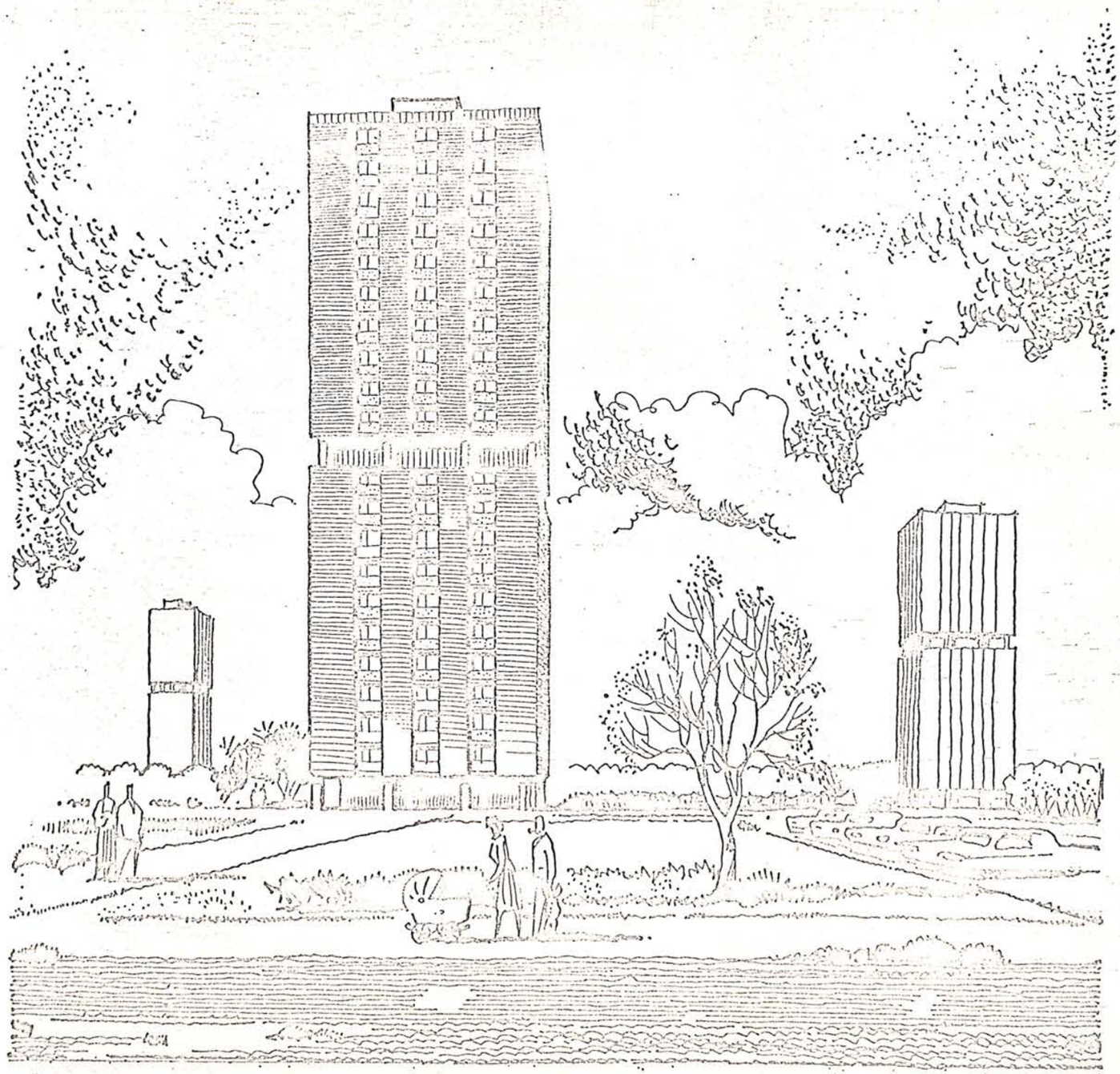
1 TOWER SCHEME

This is the name given to a plan type which is approximately square, with the rooms disposed around all four sides of a central service core. It has been used successfully for middle-income housing in New York and Chicago since the late 1940's. As far as could be ascertained, the tower scheme has not yet been used for low-income housing, probably for the reason discussed below.

The tower scheme has a number of advantages and one serious disadvantage. It is readily apparent that the compact plan results in a minimum of perimeter construction and the shortest possible utility runs, with attendant economies. Even more significant is the reduction in the amount of expensive public corridor space; in the tower scheme the area of public corridor per construction room is about half that in the interior-corridor scheme, and public corridor space is relatively expensive as will be shown in Chapter Four.

In most cases, the tower plan provides cross-ventilation and two exposures for each apartment, a very desirable arrangement as far as livability is concerned. The tower scheme also offers advantages in site-planning. The square plan is easy to dispose, even on an irregular site, and when used in large projects, it results in a greater feeling of openness on the site than occurs when long narrow buildings are used.

A serious economic handicap to the tower scheme is the high cost of elevators. Providing only four to six apartments per floor, as compared to ten to twelve apartments per floor in the interior-corridor scheme, the cost of elevators per dwelling unit is thus two to two and one-half times higher in the tower scheme. For this higher cost, greatly improved livability is provided. This scheme is presented here in the belief that the economies noted in the paragraphs above will offset the higher cost of the service core, thus affording improved livability at no increase in cost.



. . . Perspective of Tower Buildings . . . .

2 OPEN-CORRIDOR SCHEME

In this type of building all of the apartments are reached by means of outdoor corridors or "elevated sidewalks," as they are sometimes called. The characteristic shape of such a building is long and thin. The open corridor scheme has been used for low and middle-income housing in many places, both in this country and abroad.

Improved livability is the outstanding advantage of this scheme. Every apartment has through-ventilation and two exposures, and every apartment can have the most favorable orientation. All rooms, including bathrooms, have outside light and ventilation. The interior corridor, which in practice is often an unpleasant space — narrow, dark, and smelly — is eliminated entirely. These gains are partially offset by some loss of privacy for the rooms that open on the corridor.

The open-corridor scheme eliminates the cost of mechanical ventilation for the bathrooms and the cost of the interior corridor with its expensive finishes. But the open-corridor, being "single-loaded," must be at least 1½ times as long as the interior corridor. Since codes limit the maximum distance from an apartment to a stair, the open-corridor building must either be content with few apartments per floor or, as in the example shown here, it must separate the two required stairs. The open-corridor, of course, need not be heated but some provision must be made for snow removal; in New York the Building Department requires the installation of electric heating cable in the floors of all open corridors. Since all apartment doors open to the outside, these doors must be of the exterior type and must be weatherstripped. The long, thin building shape, with its high proportion of perimeter to enclosed area, is not basically economical, nor, in a high-rise building, is it basically stable; extra cost for wind-bracing must be assumed.

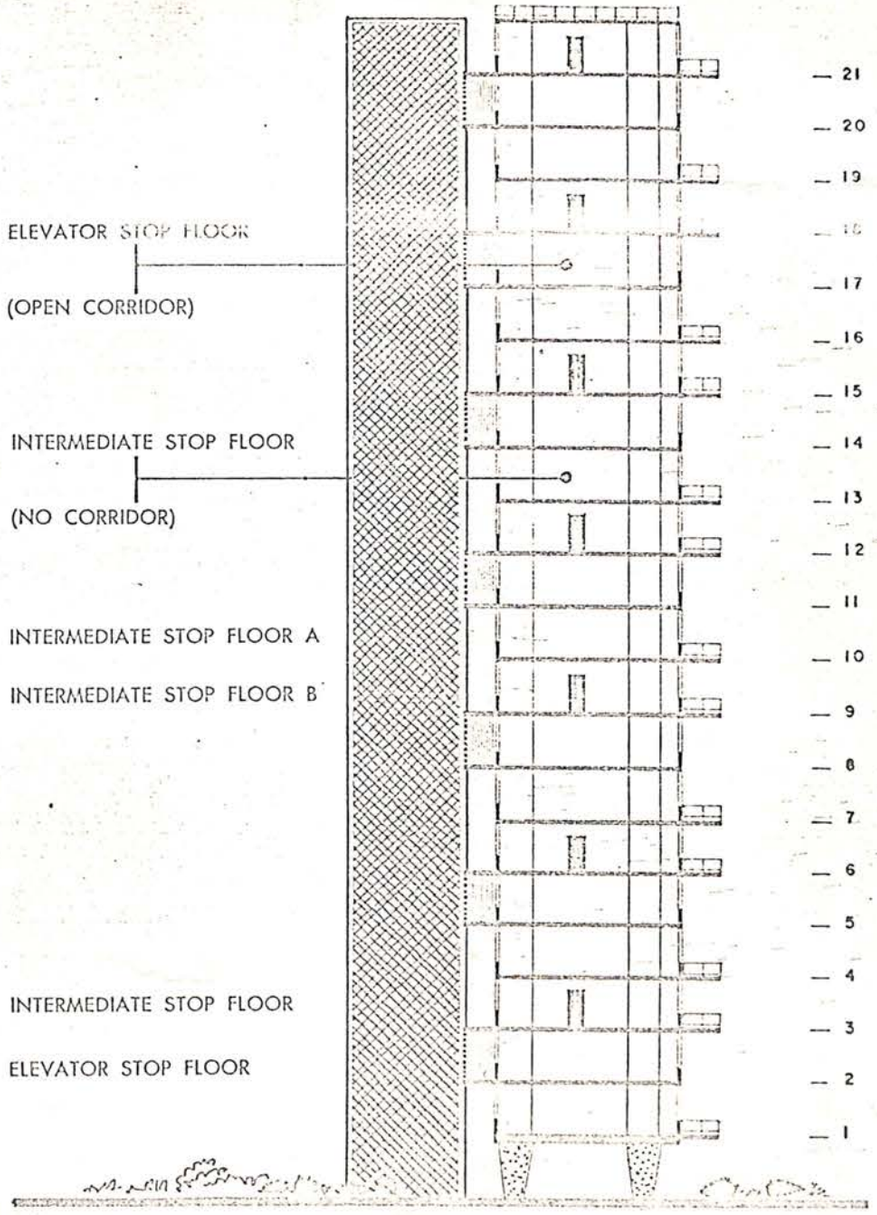
In view of all the items noted in the previous paragraph, it might be concluded that the economic position of the open-corridor scheme is unfavorable. But this is not the case. Recent cost studies for a newly designed public housing project in New York indicate very substantial cost savings resulting from the use of the open-corridor scheme.

In the example presented here and on the following pages, the open-corridor scheme has been combined with skip-stop elevators. In this arrangement the elevators stop only at every third floor; tenants on the intermediate floors have to walk up or down one floor. The open corridor occurs only at elevator-stop floors. All apartments open off the corridor; stairs are within the apartments and are maintained by the tenant. This scheme has been used in a noted upper-income project in Cambridge, Massachusetts, and in a proposed low-income project in New York.

The skip-stop scheme saves the cost of two out of three corridors and elevator doors and controls. Against this saving must be balanced the cost of the private stairs and the fire escape balconies in two out of three of the apartments. A significant advantage of this scheme is the elimination of most of the privacy problem. By placing the larger apartments on the intermediate floors, it was possible to arrange the plan so that no bedroom opens on a corridor.

The structural system employs regularly spaced reinforced concrete columns, two per bay, with the floor slabs cantilevered 4 feet beyond the columns on each side. This framing system is discussed in detail in Chapter Two. Stair and elevator towers have been placed outside the building proper, and designed to supply windbracing for the tall, narrow building.

Required distribution of apartment types is provided in one building. The two basic floor plans are detailed on the following pages along with alternate floor plans required for complete distribution. This distribution is explained in chart form on the following page.



Cross-section through Open-Corridor

SEE PLAN NEXT PAGE

SECTION B–B

0 5 10 15 20 25
SCALE FT.

OPEN CORRIDOR SCHEME

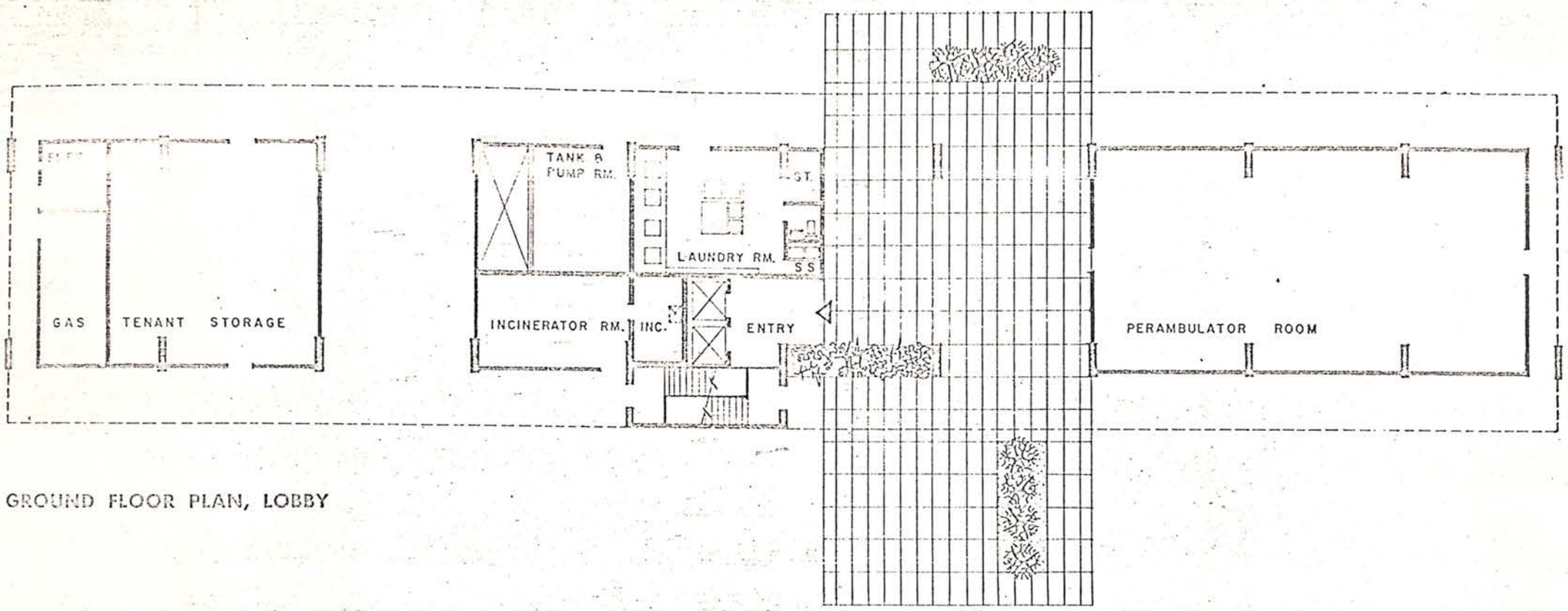
3 INTERIOR-CORRIDOR SCHEME

The interior-corridor scheme is now in common use for low and middle-income housing. It is a simple and economical scheme, permitting ten to twelve apartments per floor. It does not, however, provide cross-ventilation except for the four corner apartments. In New York City public housing, the requirement of cross-ventilation for all apartments having more than one bedroom has produced a variation of this scheme in which the service core forms a "pinched waist" which permits the four adjacent apartments to meet the technical requirements for cross-ventilation. Since in practice the improvement in the ventilation of these four apartments is slight, if any, and the cost of providing it is considerable, this requirement has been ignored in the example presented in the following pages. It is believed that if cross-ventilation is to be considered a primary value, then the open-corridor or the tower scheme should be used rather than the interior-corridor scheme.

Like the other examples in this Chapter the interior-corridor scheme is shown with no basement, with regular column spacing, and with the full distribution of apartment types in a single building. In common with the open-corridor scheme, it employs a two-column bay with cantilevered floor slabs, a structural system which is discussed further in Chapter Two.

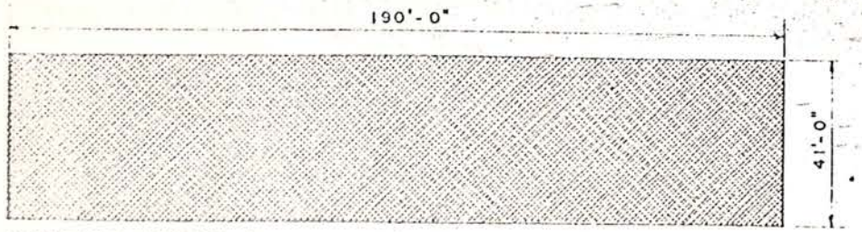
The ground floor plan of the building is shown at the right. Since there is no basement, the facilities usually found there have been located above ground. The remainder of the ground floor has been left open to provide useful covered space and pleasant vistas through the building.

The main purpose of the interior-corridor scheme as presented here is to study the suggestion that the living room might be used also for sleeping. The reasons for considering this idea are discussed in the following pages, along with the suggested planning solutions for putting it into effect. If this idea should be considered feasible from the point of view of livability, the cost savings would be very appreciable, since one bedroom would be eliminated from each apartment. The reduction in area is shown graphically at the right.



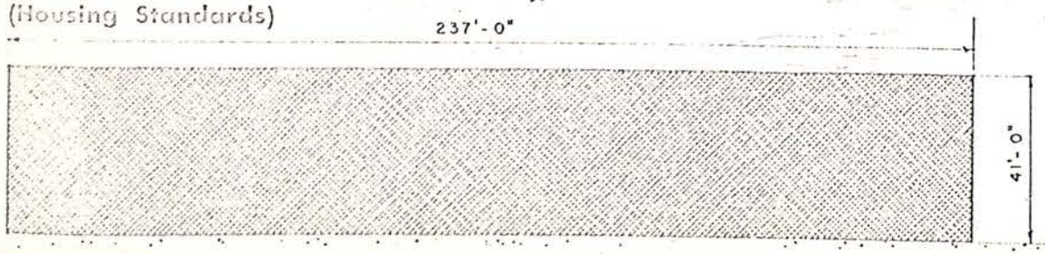
GROUND FLOOR PLAN, LOBBY

BUILDING BLOCK B
(As per this study)



B

BUILDING BLOCK A
(Housing Standards)



A

The lower block shows the size of the building designed according to usual housing standards. The upper block shows, at the same scale, the size of the building designed for this study. The reduction in length is 47 feet and the saving in floor area is 1927 square feet, or approximately 20%. The reduction in cost would be somewhat less than 20% since plumbing, kitchen equipment, and elevators are not affected, but the saving should amount to more than 15% of the cost of the building.