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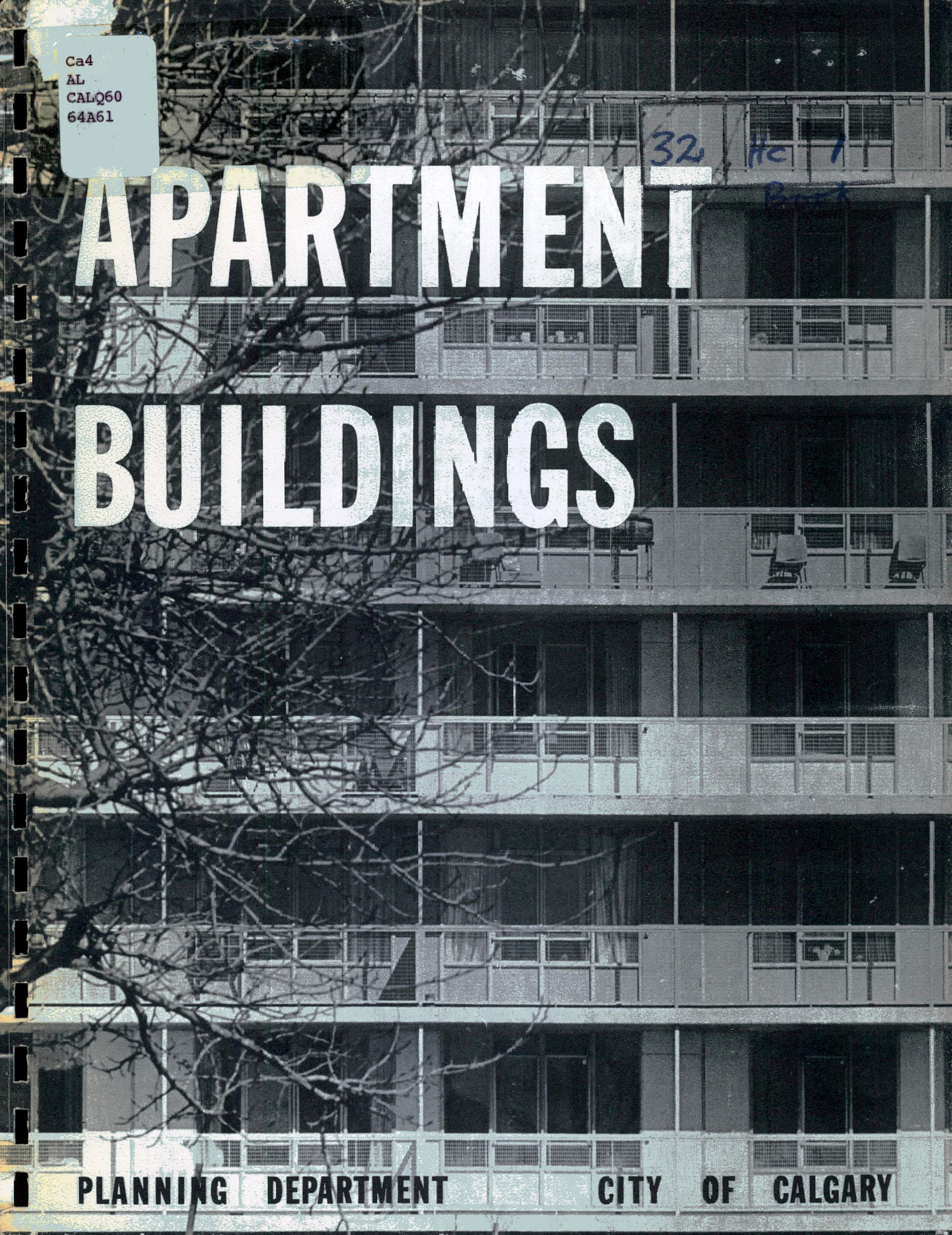
APARTMENT BUILDINGS



PLANNING DEPARTMENT CITY OF CALGARY

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REPORT TO THE CALGARY PLANNING COMMISSION

APARTMENT BUILDINGS

AND

THE REGULATION OF THEIR DEVELOPMENT

PLANNING DEPARTMENT, CALGARY. APRIL, 1964.

C O N T E N T S

SYNOPSIS

This apartment report is based on studies of apartment zoning and development in Calgary and in some other cities and makes recommendations for a new approach to the regulation of apartment development. Apartments in the central area of the City and those built in commercial zones are not dealt with in the report.

The present system of apartment zones was originally based on a policy of having higher densities at the centre of the City and progressively lower densities towards the outskirts. The study found that actual zoning and development has varied extensively from this pattern and that the policy is no longer an adequate basis on which to deal with the numerous applications that are made concerning apartment zoning.

The study also found that the present density and height controls are inadequate for securing proper housing standards and that regulations concerned with building performance are more important that those dealing only with height and the number of suites to be built on a site.

Accordingly the report sets out recommendations for:

1. The replacement of the present three apartment zones with a single RG - General Residential Zone wherein the height of buildings would not be regulated except for sites in close proximity to R-1 and R-2 Zones.

2. The provision for every apartment building of an area of landscaping and recreation space in proportion to the totel floor area of the building, the proportion varying according to the number of storeys.

3. The establishment of regulations setting standards for landscaping and other amenity features.

4. The establishment of an advisory architectural panel and the encouragement of larger apartment sites in new subdivisions.

5. The maintaining of a proper balance between apartments on the one hand and school and park facilities on the other hand.

6. The recognition of certain criteria, based on considerations of the public interest, for the evaluation of proposals affecting the extent of the RG Zone.

The report also recommends the establishment of regulations affecting the appearance of commercial developments in new areas.

I N T R O D U C T I O N

AUTHORITY FOR AND PURPOSE OF REPORT

On November 20th, 1963, the Calgary Planning Commission tabled a rezoning application "to enable the Planning Department to study and prepare a report on apartment zoning and development in the city".

This course of action had been recommended to the Commission by the Planning Department where such a study and report were expected to lead to an up-to-date statement of policy concerning apartment zoning. The statement of policy was required as a basis for:

(a) establishing a framework of criteria within which the merits of current rezoning applications affecting apartment zones might be judged, and

(b) the provisions to be contained in the new Zoning Bylaw for the establishment of apartment zones and for the regulation of apartment development.

APARTMENT GROWTH IN CALGARY

The General Plan, which was prepared in 1960, refers to "the determined and public policies, which incline heavily towards the low densities inseparable from the preponderance of single family dwellings". A sudden increase in the popularity of apartment living in Calgary, however, has created a new trend in residential development. During 1962 and 1963, 37.8% of all dwelling units constructed in Calgary were apartment suites. (See Table 1). This fact is reflected not only in an increase in the number of apartment buildings being constructed but in an increase in their size. Whereas only a few years ago, the typical apartment building was a two storey walk-up with 6 or 8 suites, the average apartment building now contains 13 to 16 suites and the high rise apartment block is becoming common.

TABLE 1

BREAKDOWN OF RESIDENTIAL CONSTRUCTION 1945 - 1963.

Year	Single Family dwellings	Duplexes	Apartment buildings	Suites
1945	1192	0	3	Number of Suites not available for years 1945 - 1961.
1946	1517	1	1	
1947	1129	16	9	
1948	1358	22	15	
1949	1895	22	8	
1950	2074	44	16	
1951	1304	50	18	
1952	2131	123	89	
1953	2015	193	67	
1954	1541	79	56	
1955	2821	136	68	
1956	2426	87	41	
1957	2320	129	62	
1958	3705	345	72	
1959	3736	264	46	
1960	1933	131	38	
1961	2895	128	71	
1962	2472	171	123	1925)
1963	2076	119	86	1188)*

* Taken together these suites amount to 37.8% of all dwelling units constructed in 1962 and 1963.

SCOPE OF STUDY

The study was carried out by Planning Department staff who directed their attention generally to the evolution of apartment zoning and development in the City. They did not, however, examine apartment development in the downtown area because

(1) downtown apartments are the subject of recently revised regulations of a special nature and there has not been enough time or development to determine their effectiveness; and

(2) downtown apartments will in any case be under review during the preparation of the Downtown Master Plan.

The study group as well as analysing trends within the City, examined published experiences in apartment development of some other cities * and carried out field inspections of a representative sample of local apartment development.

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* Particularly useful was Apartment Growth in Denver. Denver Planning Office, October, 1961, and Planning for Apartments. American Society of Planning Officials Information Report No. 139, Oct. 1960.

OUTLINE OF REPORT

This report of the study group's findings and recommendations is arranged in three parts, namely:

PART 1 - Apartments in the context of the street.
dealing with:
Regulations which determine the relationship between apartment buildings and their immediate surroundings and which affect the quality of the living environment provided for an apartment's inhabitants.

PART 2 - Apartments in the context of the neighbourhood
dealing with:
Increased demands made by apartment developments upon park and school facilities.

PART 3 - Apartments in the context of the City
dealing with:
The role of the apartment in the land use pattern of the City and includes recommendations concerning the criteria which should determine alterations in apartment zones.

Following these three parts, there is a Conclusion and four Appendices.

In the Conclusion an overall view is taken of the various recommendations set out in the main body of the report, while the Appendices contain, for reference purposes, some of the more detailed information which is relevant to the arguments and recommendations appearing in one of the three parts.

PART 1

APARTMENTS IN THE CONTEXT OF THE STREET

This part reviews and makes recommendations concerning the regulations which determine the relationship between apartment buildings and their immediate surroundings and which affect the quality of the living environment provided for an apartment's inhabitants.

Accordingly, the topics discussed in this part are:

1. Height of apartment buildings
2. Density, open space, landscaping and living environment
3. Apartment building design.

SECTION 1. Height of Apartment Buildings.

The present zoning bylaw specifies height limits of 28 ft. in R3 zones, 40 ft. in R4 zones and 150 ft. in R5 zones.

There is in North America a trend to taller apartment buildings; many apartment blocks in other cities rise much higher than the maximum of 150 ft. allowed in Calgary. In recognition of this trend, a recent amendment to The Zoning Bylaw allows Council to designate "X" sites on which buildings may be built to any height specified in the designating bylaw.

It is to be noted that the original reason for height limitation is stated in a report accompanying Bylaw 2835 (the original zoning bylaw enacted in 1935) to be the avoidance of sewer over-loading. This objection to tall buildings is no longer valid as the City is now prepared to service any size of buildings that may be built.

Apart from the need to prevent interference with airport landing flight paths and micro-wave sight lines, the height of buildings is now limited in order to prevent one and two storey homes from being overshadowed and overlooked by taller buildings.

It was confirmed from the field studies that tall development can have a depressing effect on nearby bungalows. Photo 1, for example, shows a new apartment development in Fairview, located immediately across a 56 ft. street from single family houses. These 4 storey blocks, 40 ft. high, overpower the houses and cannot be considered desirable from the home-owners' point of view.

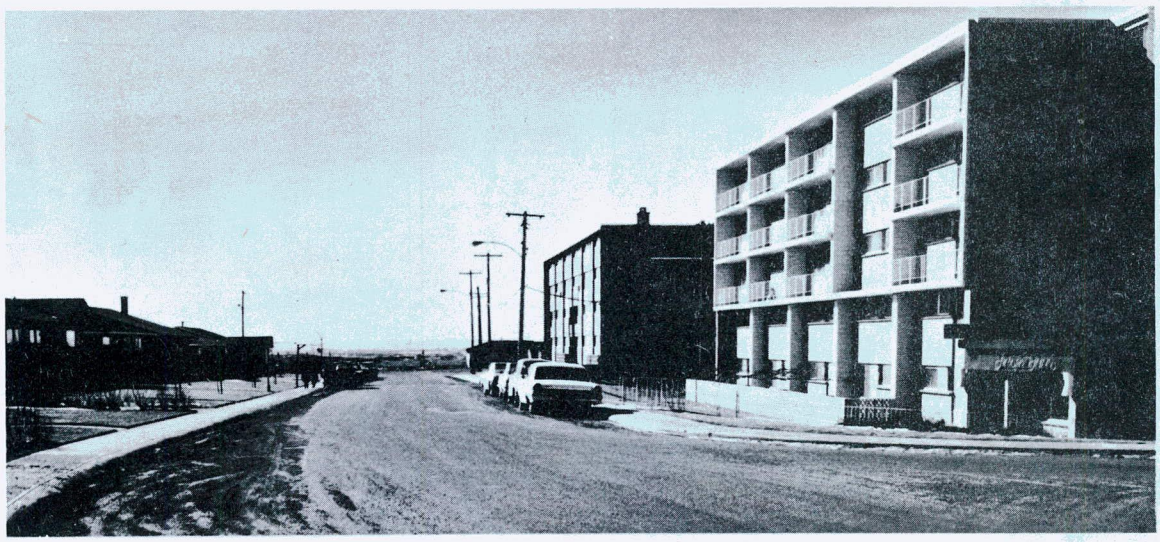

PHOTO 1

The 28 ft. 3 storey blocks facing family houses across 56 ft. wide Hamlet Road (Photo 2) are much less objectionable.

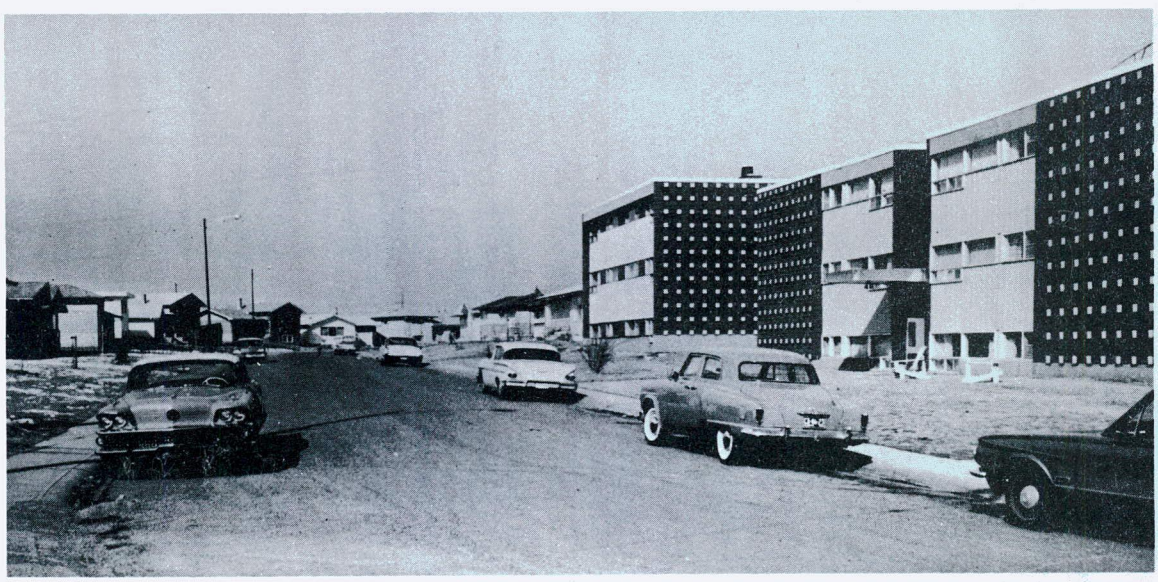

PHOTO 2

Also, no home-owner could reasonably object to a 2 storey apartment such as that in photo 3 being built across the street.

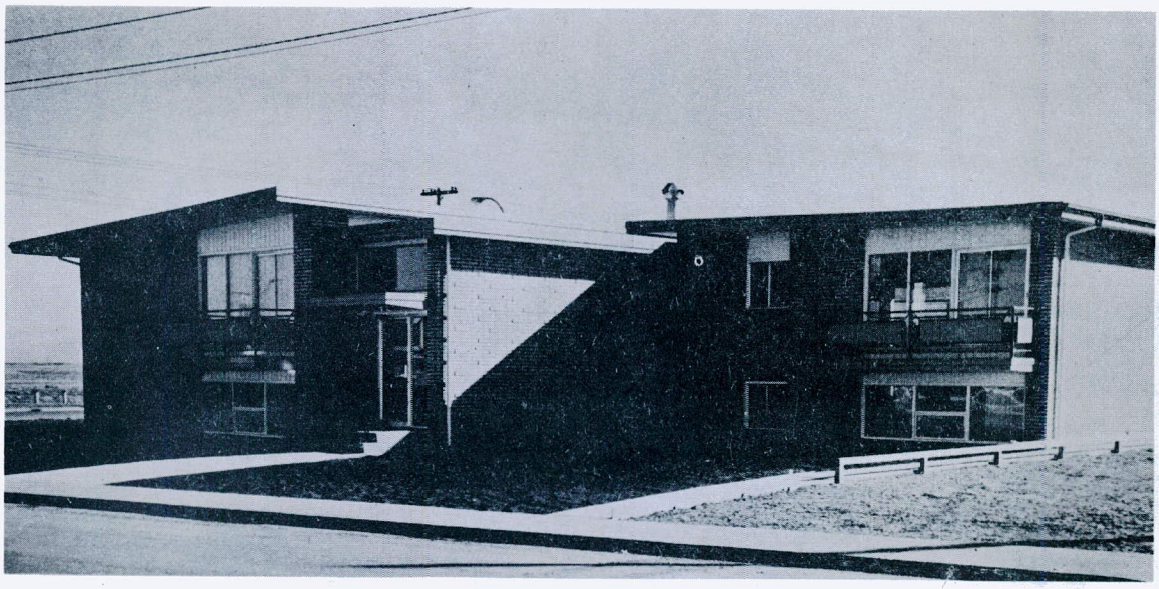

PHOTO 3

When a tall building is separated by distance from a low one, its height is much less objectionable. Photo 4 shows the appearance of a 5 storey block from the front property line of an R1 site one lot depth distant. It can be seen that a 5 storey block at that distance appears no higher than a one storey bungalow immediately across the street, and is in fact less obtrusive than the bungalow since its windows are further away.

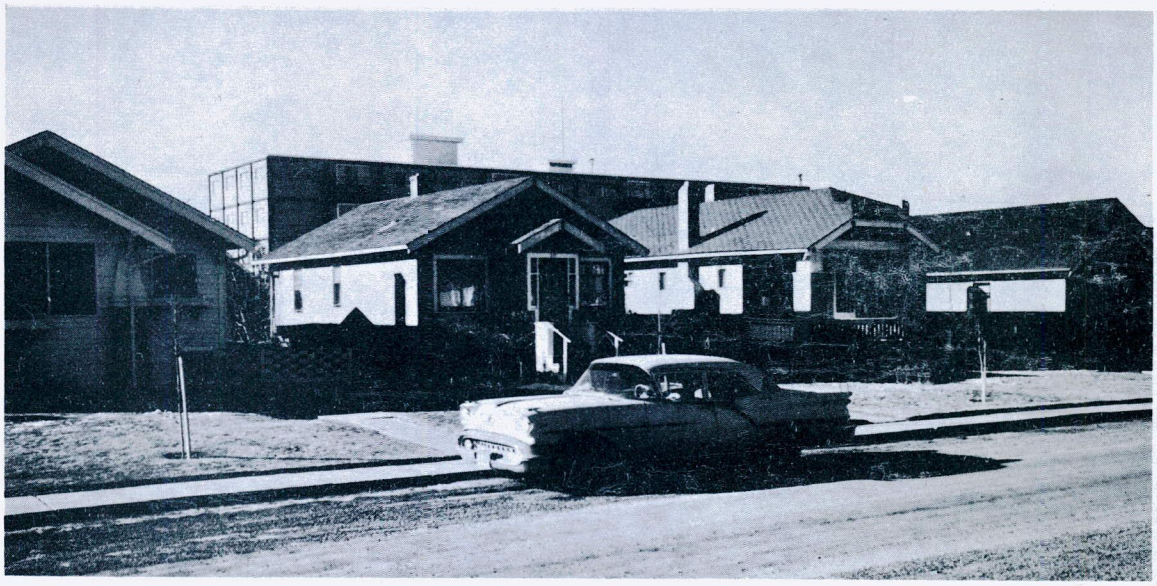

PHOTO 4.

From the field inspections carried out in connection with this report, it was found that on some sites, the rigid height limits imposed by The Zoning Bylaw, while justified by the protection they gave to nearby one and two storey homes, have resulted in poorer development than might have been the case had the buildings been higher.

An example of such a situation is shown in photos 5 and 6.

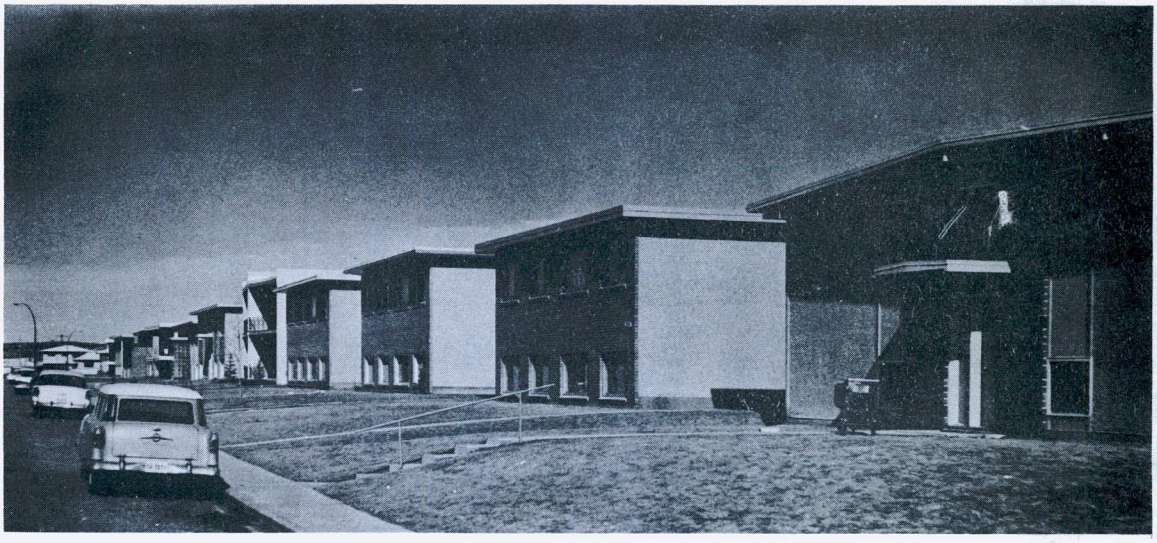

PHOTO 5

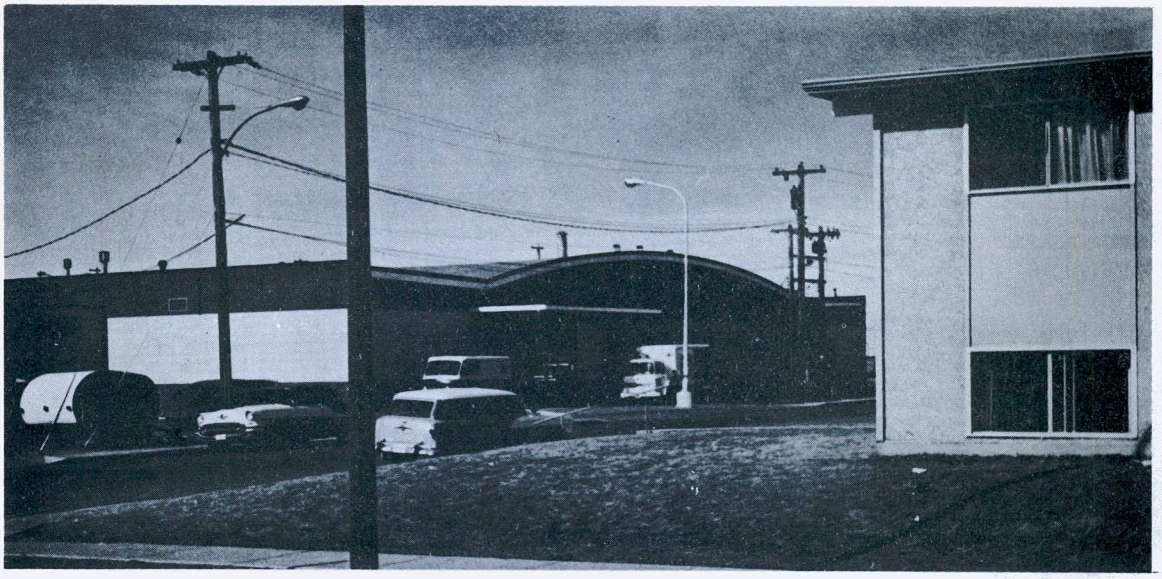

PHOTO 6.

These apartments conform to the 28 ft. height limit of the R3 zone. It can be seen that the result is monotonous and depressing. These apartments face onto the rear of the Brentwood shopping plaza shown in photo 6. Everyone in these blocks suffers the same depressing view of concrete walls, delivery trucks, power transformers and parked cars. At the same time the amount of outdoor sitting out space available to the occupants is limited to the bare front yard which is exposed to the dust, noise and public gaze of the street. Most of the blocks have no balconies; the rears of the lots (photos. 7 and 8) are devoted to car parking and the side yards are little more than wind funnels (Photo 9). The living environment offered by these apartments is so poor that even the developers of the subdivision have been disappointed.

The same number of suites could have been placed in a few tall blocks from which the tenants would have enjoyed an exceptional view across the top of the shopping centre to the mountains beyond. Sufficient space would have been left at ground level for a fine recreation area.

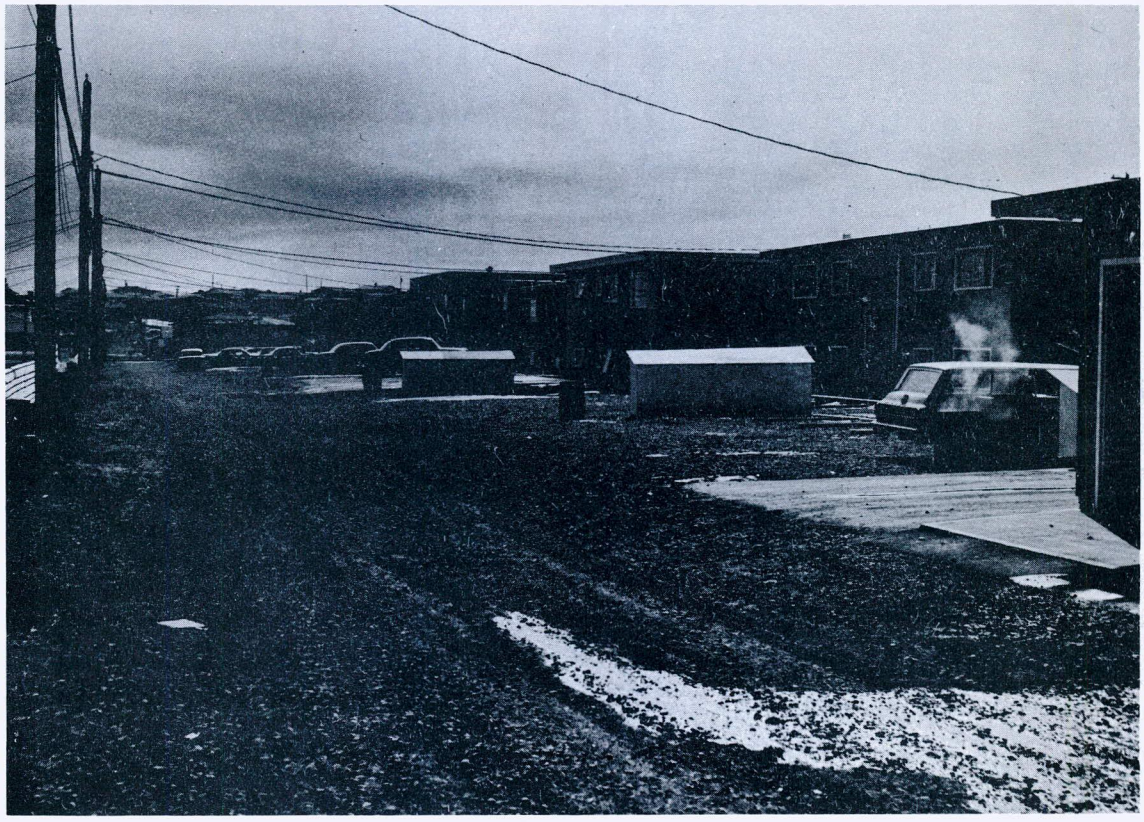

PHOTO 7.

PHOTO 8

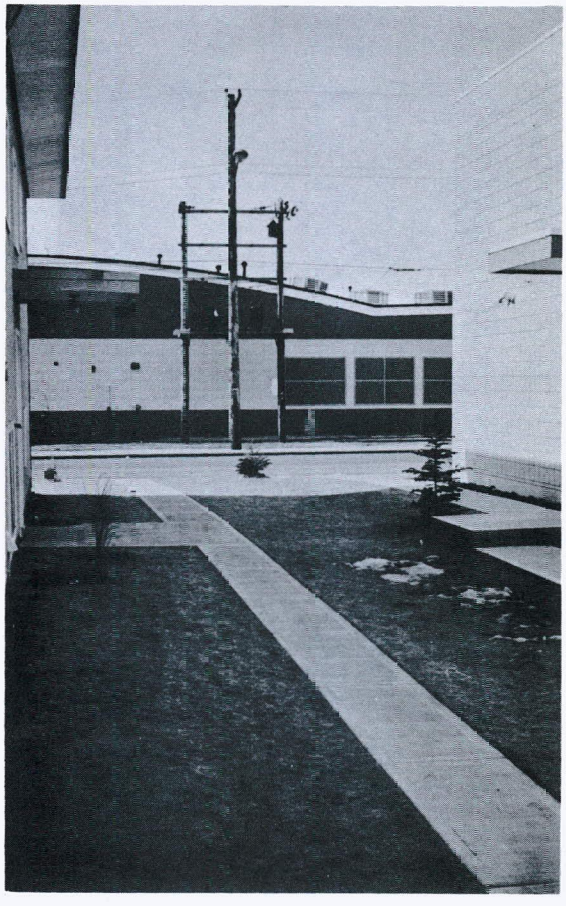

PHOTO 9

Also, it may be noted, higher buildings are required by the Building Bylaw to be of a higher standard of construction, for example, while a one storey apartment building, depending on size and other factors may be of frame construction, and apartment buildings of up to three storeys may be of heavy lumber construction, all apartment buildings having more than three storeys must be of fire-resistive construction.

Conclusion

1. There are good reasons for continuing to limit the height of apartment and other buildings when located close to one and two storey homes.

2. There is less justification for limiting the height of apartment buildings not located close to one and two storey homes; on the contrary, there are good reasons for not regulating the heights of such apartment buildings.

RECOMMENDATION

THE HEIGHT REGULATIONS FOR APARTMENT ZONES BE ABOLISHED EXCEPT ON SITES IN THE VICINITY OF R1 AND R2 ZONES WHERE APARTMENT BUILDINGS BE LIMITED TO A HEIGHT THAT FALLS WITHIN A PLANE RISING AT AN ANGLE OF 14° ABOVE THE HORIZONTAL FROM THE ASSUMED SILL HEIGHT (4 ft.) AT THE BUILDING LINE OF THE NEAREST R1 OR R2 SITE.

It is proposed that in the application of this recommendation, "SITES IN THE VICINITY OF R1 AND R2 ZONES" be interpreted as being those apartment sites, or equivalent portions of unsubdivided apartment lands, which lie across a road from, or which back upon or flank, with or without a street or lane intervening, a site in a R1 or R2 zone.

The angle 14° is the elevation of the top of a 28 ft. building at a distance of 96 ft. (the distance between building lines on opposite sides of a 56 ft. road) calculated from an assumed sill height of 4 ft. on a level site. This height would be calculated for all apartment sites in the vicinity of R1 and R2 zones and would be indicated as a height index number on the zoning map. Benefits of topographical variation between the R1/R2 zone and the apartment zone would be allowed to the apartment developer, and in no case would the height limit be interpreted as being less than 28 ft.

PART 1

SECTION 2. DENSITY, OPEN SPACE, LANDSCAPING AND LIVING ENVIRONMENT

The differences in the height of building presently allowed in each of the three apartment zones have already been mentioned. Another difference is the number of suites of different types that may be erected on sites of the same size. An example of the difference is as follows:

Zone	Type of Suite	Site area required per suite
R3	2 Bedroom	1500 sq. ft.
R4	2 Bedroom	750 sq. ft.
R5 (where building is over 50' high)	2 Bedroom	400 sq. ft.

These regulations determine the number of suites that may be erected on a site, fewer being allowed on R3 than on R4 which in turn is allowed fewer than R5. Thus, in effect, the regulations determine the maximum allowable density.

Numerous applications are made each year for the rezoning of sites from a lower to a higher density residential zone, for example, from R2 to R3, and from R3 to R4.

While apartment density is discussed later in the context of the neighbourhood and of the City, there are certain aspects of it which may appropriately be discussed in the context of the street.

From this point of view it is reasonable to suppose that the density prescribed for R3 sites is intended to secure compatibility with neighbouring R1 and R2 zones while the densities prescribed for R4 and R5 zones are justified in that they establish common ground rules for all developers in each of the two zones and thus ensure compatibility between the buildings erected in them.

So far as apartment buildings in the context of the street are concerned, density is then to be judged on the basis of compatibility. There are, however, certain objections to the word "compatibility"; for example, to say that an apartment building is compatible with a one family home says nothing about the quality of the apartment building unless the

quality of the one family home is known. Good apartments are compatible with other good apartments while poor apartments are compatible with other poor apartments. Compatibility is then no standard of excellence.

Therefore, instead of attempting to examine the compatibility or lack of compatibility between apartments and their surroundings it was decided that the study should be concerned directly with the general quality of apartment buildings. This section discusses quality in so far as it is to be judged on the basis of landscaping, open space and living environment. The section commencing on page 23 deals with quality so far as apartment building design is concerned.

Open space around a building has value on two scores, namely:

1. According to area
2. According to use.

So far as area is concerned, open space is not presently required on an apartment site except in so far as it occurs through the application of the minimum yard requirements which in general are:

Front yards :	20 ft.	
Rear yards:	25 ft.	(measured from centre of lane; if no lane, from rear property line)
Side yards:	5 ft.	plus 1 ft. for every 3 ft. of building height above 28 ft.

With these requirements on an R3 site 50 ft. wide and 120 ft. deep (with no lane at the rear), a 75 ft. by 40 ft. building, 28 ft. high, could be erected, covering exactly 50% of the site. On an R5 site a six storey building could be reasonably expected to cover 48% while a 13 storey might easily cover 39% of the site area.

These figures may be compared with the standards recommended by the American Public Health Association as shown in Table 2.

TABLE 2

COMPARISON OF SITE COVERAGE OF APARTMENT BUILDINGS

No. of Storeys	Expected site coverage under Calgary Zoning Bylaw. % of Site area.	Maximum Site Coverage recommended by American Public Health Association % of Site area. *
2	50	30
3	50	30
6	48	25
9	42	20
13	39	17

Thus for any height of apartment building Calgary's site coverage standards, in so far as they are achieved by yard regulations, are inferior to those recommended by the American Public Health Association.

It is known from the department's experience in processing development applications that generally no more than the minimum front and side yards are ever provided on an R4 or R5 apartment site, while rear yards are extended only so far as is necessary in order to provide sufficient off-street parking spaces. This experience is confirmed by inspection of apartment buildings in the City; it is noticeable too that in several recent cases, where additional ground level rear yard space is provided for parking, the additional space is recovered at levels above the ground by projecting the rear of the building over the extra parking space.

There are of course notable exceptions to this practice. Rideau Towers, for example.

So far as the value of open space around an apartment building, judged on the basis of the use to which it is put, is concerned, it is to be noted that while the zoning bylaw does not require any landscaping, it does prohibit the use of front yards for car parking.

* From Planning the Neighbourhood American Public Health Association, Committee on the Hygiene of Housing, 1960.

There is though no regulation of the use of rear yards which are found generally - again with some exceptions - to be given over entirely to car parking. Photos 10, 11, 12, 13 and 14 show samples of the resulting appearance.

It is not unfair to point out that the fine lawns and trees, for example, which give much of the character and value to such apartment areas as Lower Mount Royal and the Mission are rapidly being destroyed. The new apartment buildings use their rear yards entirely for parking; they rely on the lawns of neighbours to provide visual amenity for their tenants. When the neighbouring properties are, in turn, developed with apartment blocks and their back lawns concreted over for parking pads, the prospect left for the tenants whose rooms face the lane is one of parked cars, garbage cans and power poles.

The Lower Mount Royal district has been specially studied to see the amount of landscaping which is being lost. (See Appendix "A".)

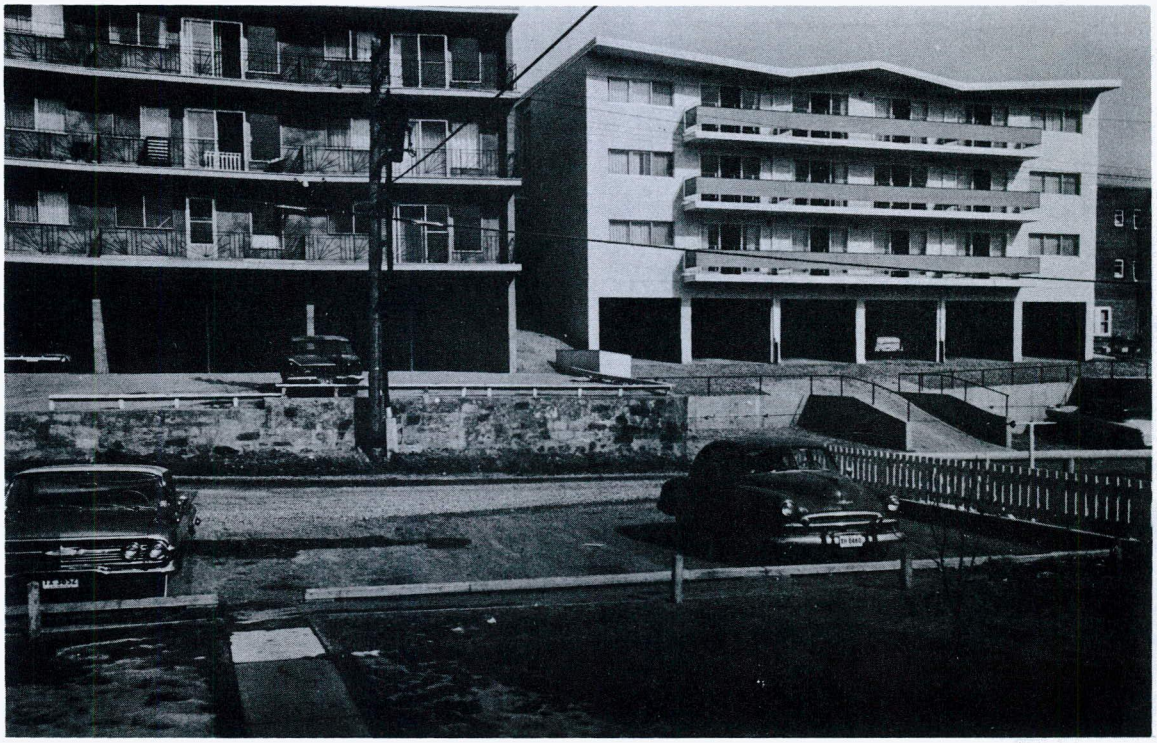

PHOTO 10

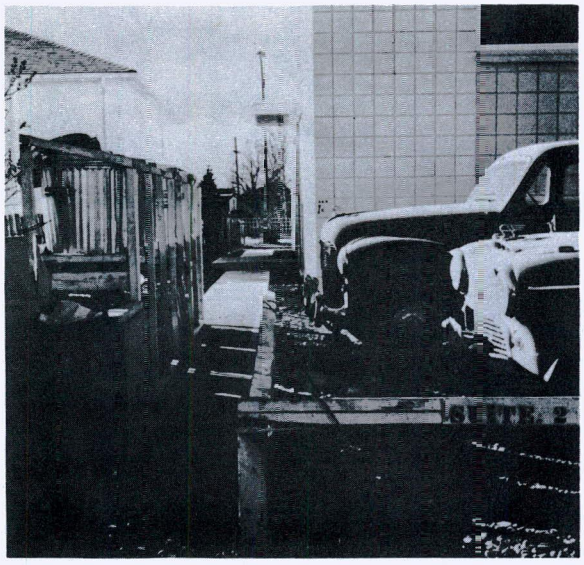

PHOTO 11

PHOTO 12

PHOTO 13

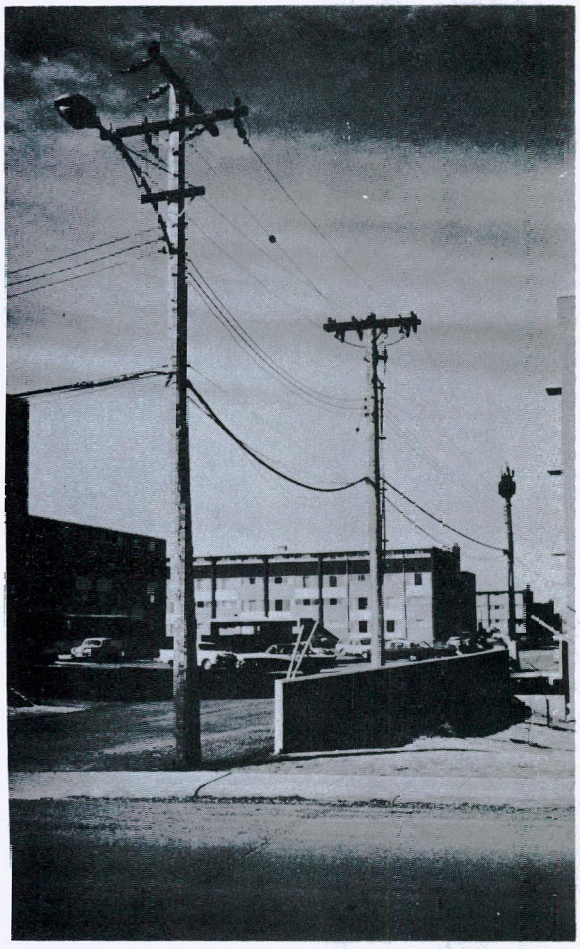

PHOTO 14

In the 56 acre area west of College Lane and north of Royal Avenue, the redevelopment of 62 sites for apartments has resulted in the loss of 6.5 acres of landscaping; on this basis as much as a further 13 acres of landscaping will be lost when 80% of the total number of sites in this 56 acre area are redeveloped.

6.5 acres is roughly twice the size of Memorial Park. Lower Mount Royal has thus lost the equivalent of two Memorial Parks and stands to lose four more.

While particular attention has been given to Lower Mount Royal, the same end results are happening and are to be expected in other areas where apartment development is taking place.

Conclusion:

1. It is essential if Calgary is to remain a pleasant city in which to live, that apartment developers contribute their share of open space and landscaping to ensure a healthy and aesthetically pleasing urban environment.

   By the standards of the American Public Health Association apartment developers generally are not contributing their share of open space.

   By the standards of the landscaping loss to Lower Mount Royal apartment developers generally are not providing their share of landscaping.

2. A pleasing urban environment is not necessarily one of low density. The celebrated urban planner, Le Corbusier, in fact, advocated extremely high densities for his ideal city, but in tall buildings, with a very large amount of open space at ground level.

3. Calgary should adopt a new approach to apartment regulation, based not on density control but on a standard of performance of so much landscaping and recreation space for buildings of varying heights and floor areas. (as in Table 3).

TABLE 3

REQUIRED LANDSCAPING AND RECREATION SPACE

No. of storeys in building.	Minimum required landscaping area expressed as a percentage of total floor area of building.	Additional required recreation space (balconies, roof gardens, etc) expressed as a % of total floor area.
(1)	(2)	(3)
2	62.3	-
3	41.66	-
4	37.5	4.16
5	35.6	6.06
6	33.3	8.36
7	32.3	9.36
8	32.1	9.56
9	30.6	11.06
10	29.5	12.16
11	28.8	13.86
12	27.4	14.26
13	26.2	15.0
14	25.3	15.0
15	24.6	15.0
16	24.0	15.0
17	23.5	15.0
18	23.2	15.0
19	22.9	15.0

(continued)

TABLE 3 (cont'd)

No. of storeys in building.	Minimum required landscaping area expressed as a percentage of total floor area of building.	Additional required recreation space (balconies, roof gardens, etc) expressed as a % of total floor area
(1)	(2)	(3)
20	22.8	15.0
21	22.7	15.0
22	21.8	15.0
23	21.8	15.0
24	21.0	15.0
25	21.0	15.0
30	19.4	15.0
50	14.7	15.0

NOTE: The figures set out in this Table have been developed from the site coverage standards recommended by the American Public Health Association, in the manner explained in Appendix B.

An example of the application of the Table 3 landscaping standards to a particular building is also set out in Appendix B, while an example of the way in which the standards would affect a particular area, viz. Lower Mount Royal, is set out in Appendix A.

Recreation space may be in the form of balconies, roof gardens, indoor recreation rooms, swimming pools or additional ground level landscaping; the percentages specified in column (3) are the differences between:

(a) the percentages of landscaping required for buildings of different heights, and

(b) 41.66% (being the amount of landscaping required for a 3 storey building)

up to a maximum of 15% of the total floor area.

4. An apartment tenant, should have sufficient recreation space in order to have a satisfactory living environment. The tenant of a suite in a 13 storey building has need of the same recreation space as the tenant of a 3 storey building.

The size of the landscaped area required by Table 3 does not increase at the same rate as the total floor area. As the buildings get higher, the individual tenant's share of the required ground level landscaped space becomes less.

Therefore, to provide a satisfactory living environment for apartment dwellers, there is need for the required ground level landscaped space to be supplemented as buildings become higher with additional recreation space in the form of balconies, roof gardens, indoor recreation rooms, swimming pools, or even additional ground level space.

5. In order to protect adjacent development, it was recognized that in addition to landscaping and recreation space requirements, minimum yard specifications would also be necessary. The present yard requirements have been reviewed in the light of the latest Central Mortgage & Housing Corporation regulations and recommendations for revised regulations are set out below.

RECOMMENDATIONS

1. THE THREE APARTMENT ZONES R3, R4 and R5 BE REPLACED WITH A SINGLE APARTMENT ZONE TO BE DESIGNATED THE "RG - GENERAL RESIDENTIAL ZONE."

2. IN THE RG ZONE, IT BE REQUIRED THAT WHEN A NEW BUILDING IS ERECTED THERE SHALL BE PROVIDED AMOUNTS OF LANDSCAPING AND RECREATION SPACE WHICH ARE NO LESS IN AREA THAN THE PERCENTAGES OF THE TOTAL FLOOR AREA SPECIFIED IN COLUMNS 2 AND 3 OF TABLE 3, ACCORDING TO THE NUMBER OF STOREYS IN THE BUILDING.

3. A FRONT YARD OF NO LESS THAN 20 FT. BE REQUIRED ON EVERY SITE IN AN APARTMENT ZONE; WHERE THE YARDS PROVIDED ON ADJOINING SITES ARE GREATER IN DEPTH THAN 20 FEET, THE FRONT YARD DEPTH MAY BE REQUIRED TO BE THE AVERAGE.

4. (a) SIDE YARDS FOR WALLS WITH WINDOWS TO HABITABLE ROOMS, (i. e., A ROOM DESIGNED FOR LIVING, SLEEPING, EATING OR FOOD PREPARATION AND INCLUDING A DEN, LIBRARY, SEWING ROOM, ENCLOSED SUN ROOM OR RECREATION ROOM) TO BE 12 FT. OR ONE-HALF OF THE AVERAGE HEIGHT OF THE WALL, WHICHEVER IS THE GREATER.

no qualification not too bad an idea

MAXIMUM SIDE YARD REQUIRED:

(i) ON THE STREET SIDE OF A CORNER SITE: 12 FT.

(ii) FOR A WALL NOT ON THE STREET SIDE OF A CORNER SITE:

(A) WITH A MAIN WINDOW TO A LIVING OR DINING ROOM: 25 FT.

(B) WITH NO MAIN WINDOW TO A LIVING OR DINING ROOM: 20 FT.

(b) SIDE YARDS FOR OTHER WALLS TO BE 5 FT. OR ONE-QUARTER OF THE AVERAGE HEIGHT OF THE WALL, WHICHEVER IS THE GREATER: MAXIMUM REQUIRED: 12 FT.

5. (a) REAR YARDS FOR WALLS WITH WINDOWS TO HABITABLE ROOMS (as defined above) TO BE NO LESS THAN 25 FT. MEASURED FROM CENTRE LINE OF LANE, IF THERE IS A LANE, OTHERWISE FROM THE REAR PROPERTY LINE.

(b) REAR YARDS FOR OTHER WALLS TO BE NO LESS THAN 18 FT. ON A CORNER SITE AND 25 FT. ON ANY OTHER SITE (measured as in (a) above).

6. DWELLING GROUPS: (a) SIDE AND REAR YARDS ON PERIMETER OF SITE AS REQUIRED FOR A SINGLE APARTMENT BUILDING ON A SINGLE SITE.

6. (b) SPACING BETWEEN BUILDINGS ON THE SITE TO BE APPROVED BY THE PLANNING COMMISSION BUT IN NO CASE LESS THAN 10 FEET.

7. ONE OFF-STREET PARKING SPACE TO BE PROVIDED PER DWELLING UNIT (as at present).

8. REGULATIONS BE MADE

   (a) SETTING STANDARDS FOR LANDSCAPING APARTMENT SITES ?

   (b) REQUIRING PARKING AREAS TO BE FENCED OR OTHERWISE ENCLOSED BY SCREEN WALLS

   (c) REQUIRING PARKING AREAS FOR MORE THAN FOUR CARS TO BE PAVED

   (d) PROHIBITING CAR PARKING CLOSE TO HABITABLE ROOM WINDOWS. how close?

   (e) REQUIRING UNDERGROUND WIRING FOR ALL NEW APARTMENT DEVELOPMENTS.

PART 1

SECTION 3 - APARTMENT DESIGN

On page 13 in section 2 of this Part, it was explained that it was decided that the study should be concerned directly with the general quality of apartment buildings. Section 2 dealt with quality in terms of landscaping, open space and living environment. This section deals with the aspects of design.

Design may be considered under two headings, viz:

1. Building design

2. Site and subdivision design.

First, so far as building design is concerned it may be observed that one of the prime functions of The Zoning Bylaw is to protect established property owners from the possibility of having the value of their investment depreciated by subsequent development in their neighbourhood. It may be argued that such depreciation may be caused not only by the wrong type of use locating nearby, but by an ugly or shoddy building housing a "right" type of use. For example, one hears from time to time criticism of the "box type" of apartment building. Photo 15 shows two apartment buildings of this type. Here the uses are satisfactory but the buildings, if the criticism is taken seriously, could be expected to have a depreciating effect upon nearby property values.

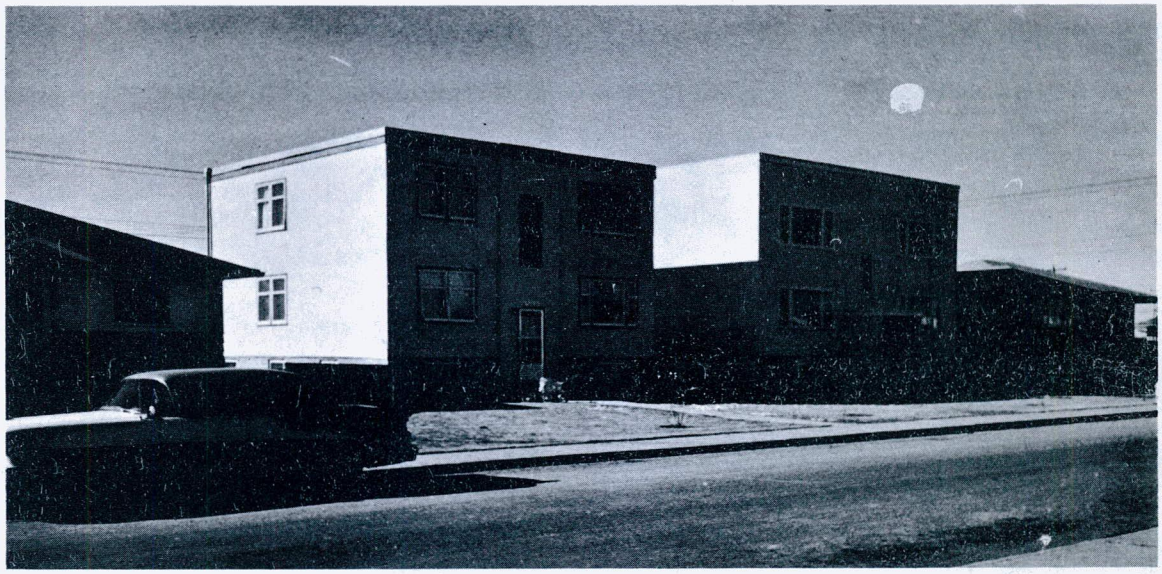

PHOTO 15

Secondly, in the matter of site and subdivision design, it has been noticed that sometimes ugliness, dullness and monotony in an apartment development is the result of the strait jacket imposed upon the development by the minimum dimensions and shape of the building sites and the design of the subdivision.

Uniformly sized and shaped sites of minimum dimensions give little scope for interesting developments and can be expected to lead to uniformly sized and shaped buildings.

Also it is noted that in new areas, apartments are sometimes assigned to the less desirable sites which face onto commercial development.

Conclusion

1. If apartment buildings of displeasing appearance are to be avoided, some form of architectural control is necessary.

2. The type of apartment building is greatly influenced by the size and proportions of the site on which it is erected.

3. Instead of using apartments as buffers to separate unpleasing commercial development from one-family homes, commercial development should be regulated so that it is pleasing, and equally so on all sides.

RECOMMENDATIONS:

1. PLANS FOR NEW APARTMENT BUILDINGS BE SUBJECT TO ARCHITECTURAL CONTROL AND FOR THIS PURPOSE AN ARCHITECTURAL PANEL* BE ESTABLISHED IN THE MANNER DESCRIBED IN APPENDIX "C"

2. EXTENSIVE ROWS OF UNIFORMLY SIZED AND SHAPED APARTMENT SITES OF MINIMUM DIMENSIONS BE DISCOURAGED IN NEW SUBDIVISIONS. INSTEAD LARGER SITES CAPABLE OF BEING DEVELOPED IN A

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* NOTE: It may be found desirable for the Architectural Panel to deal with other types of buildings as well as apartment buildings.

VARIETY OF WAYS AND THEREFORE OFFERING THE APARTMENT ARCHITECT MORE OPPORTUNITY TO DESIGN A SATISFACTORY DEVELOPMENT BE ENCOURAGED.

3. REGULATIONS BE DEVISED TO REQUIRE COMMERCIAL DEVELOPMENT IN NEW NEIGHBOURHOODS TO BE SATISFACTORY IN APPEARANCE FROM ALL SIDES.

a bit out of context.

PART 2

APARTMENTS IN THE CONTEXT OF THE NEIGHBOURHOOD

This part examines the impact of apartment development in terms of the sufficiency of

(a) parks, and

(b) school sites.

The demand for parks is in proportion to population.

The demand for school sites is in proportion to school age population.

Apartments result in more population living on a piece of land than if it were occupied by one family dwellings. They therefore create a greater demand for parks, for example:

R4 and R5 Apartments increase population and therefore the demand for parks by 6 to 10 times.

Family type apartments (i.e., apartments other than bachelor and 1 bedroom types) accommodate more children per net acre than do one family homes. They therefore create a greater demand for school space, for example:

R4 and R5 family type apartments increase the school age population and therefore the demand for public elementary school places by 3 to 34 times.

(An explanation of these figures is in Appendix D).

yet no differentiation in family and non-family accommodation drawn or extracted for each project in previous part 1.

On the basis of standards referred to in the General Plan for the provision of open space (10 acres per 1,000 population) and for its distribution between local parks and city parks (according to the ratio of 1/3 to 2/3) there should be provided locally 3 1/3 acres of park for every 1,000 population.

Unless this ratio is observed in designing new neighbourhoods and in settling the various types of development there may and probably will be insufficient parks to serve the population.

Similarly, unless proper ratios between the various kinds of schools (and their sites) and the population are observed in designing new neighbourhoods and in settling their development, the school sites and the schools may - and again probably will - be inadequate.

In other areas, the park and school ratios may be used as a criterion for dealing with applications for rezoning from one residential density to a higher residential density, e. g., from R-2 to R-3 or RG - (as recommended on page 20). Such rezoning should not be effected where the local park facilities are deficient in area or where existing school facilities are not sufficient to accommodate the estimated resulting school age population.

In areas already zoned for apartments and where the park deficiency already exists, it is felt that it would be unrealistic to attempt to curtail apartment development because of it. So far as schools are concerned, the apartments which affect the situation are the family units having two or more bedrooms. Therefore, this type of unit should be made conditional on there being sufficient space in the schools serving the area for the estimated resulting school age population.

RECOMMENDATIONS

1. IN DESIGNING NEW NEIGHBOURHOODS AND IN DECIDING THE VARIOUS KINDS OF DEVELOPMENT FOR THEM, THE PROPER RATIOS OF PARKS AND SCHOOLS TO POPULATION BE OBSERVED.

2. REZONINGS FOR APARTMENT DEVELOPMENT BE NOT UNDERTAKEN IN AREAS WHERE LOCAL PARKS ARE DEFICIENT IN AREA OR WHERE EXISTING SCHOOL FACILITIES ARE NOT SUFFICIENT FOR THE RESULTING SCHOOL AGE POPULATION.

3. FAMILY TYPE APARTMENTS (i. e., those with two or more bedrooms) IN THOSE AREAS WHICH ARE APPROPRIATELY ZONED BE CONDITIONAL ON SCHOOL FACILITIES BEING SUFFICIENT FOR THE RESULTING SCHOOL AGE POPULATION.

PART 3

APARTMENTS IN THE CONTEXT OF THE CITY

In Parts 1 and 2, apartments have been considered in the context of the street, that is the effect they have on neighbouring development, and in the context of the neighbourhood, which examined their impact on community facilities. This part deals with the role that apartments play in the economics of the City, how they fit into the City's land use pattern and the amount of land which should be zoned for them.

Apartments are decidedly a favourable quantity in the tax structure of the City according to Mr. P. H. Cormack, Calgary's City Assessor. They are economical to service, in comparison with single family homes, in terms of sewers, water mains, street maintenance and lighting, transit, police and fire protection, etc., and have much higher assessments per front foot than houses.* At the same time apartments should be confined to their correct location in the land use pattern of the City. The proper planning of apartment locations results in a more economic use of municipal facilities, a city which functions more smoothly in terms of traffic flow and the convenience of its citizens, a city in which a more satisfactory sociological grouping of its inhabitants might be achieved and one where the home buyer might be assured that unexpected apartment development will not be allowed through random rezoning.

The principles which determine the best locations for apartment zoning are the same in all cities but the extent of apartment zoning should be the result of a conscious zoning policy which might vary from city to city. A "tight" zoning policy deliberately restricts

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* "High-rise, high-rental apartments provide more than twice as much tax revenue per acre as any other suburban use surveyed. Services can be provided more efficiently and economically than for single family homes".
(Melamed, Anshel. "High-Rent Apartments in the Suburbs," Urban Land Institute News. October, 1961)

the amount of land zoned for apartments with the intention of forcing redevelopment into areas so zoned. The economic law of supply and demand forces up the price of apartment land where this policy is adopted. An excessively "loose" zoning policy, on the other hand, usually means that the planning responsibility for directing the "orderly and economical development of the municipality" is being neglected.

In Calgary, although the zoning is not "loose", there is an abundance of land zoned for apartments. As in other cities, apartment development in Calgary has taken place in those areas where investment moneys have been readily available, such as Lower Mount Royal and Mission; other apartment areas have not attracted the same investment and they have consequently seen no redevelopment. * In the last two years, however, interest has been shown in areas such as Rotary Park where previously little apartment development had taken place.

Although there is ample land zoned R-4 and R-5 in Calgary's older districts, the Municipal Planning Commission receives many applications for rezoning lands for apartment purposes and for rezoning lands from a low density apartment zone to a higher density apartment zone.

According to a recommendation in Part 1 of this report the present three categories of apartment zone, viz. R3, R4 and R5, would be replaced by a single apartment zone designated 'RG'. In this zone, while buildings close to R-1 and R-2 areas would be limited in height and therefore in density, in other parts density would depend on the extent of landscaping provided on the site. If this recommendation is adopted there will be no need for rezonings from a low density apartment zone to a higher density.

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* It appears that municipal initiative such as urban renewal studies and land assembly may be necessary to secure the redevelopment of these areas.

However, this change will not avoid applications for rezoning from a zone which does not allow apartments to one that does.

Applicants in such cases often plead that rezoning is necessary for them to sell their land at the "fair" or "economic price" they are asking for it. It must be pointed out that the value of land is the price a buyer is willing to pay for it, not the price an owner asks. Also, increased land value (for example, where an owner claims he could get his price if the zoning were changed, say from R-2 to R-3) is not a valid reason for rezoning. If it were, applications on this basis could be entertained from the owners of property in all parts of the city and in all zones and the purpose of zoning would be defeated.

In order to determine the correct location of apartments in the City's land use pattern the following factors are considered:

(1) Transit
(2) Thoroughfares
(3) Relationship to employment nodes
(4) Relationship to commercial centres
(5) Utilities
(6) Relationship to large open spaces
(7) Compatibility with neighbouring uses

(1) Transit

Frequent and economical transit service can only be achieved in areas of high population density. Conversely the maximum number of people should be allowed to live where the transit service is good. The Calgary Transit System would like to see apartment development encouraged in the proximity of the main direct downtown routes since apartment developments elsewhere in the City, invariably lead to requests for transit service which it is impossible to provide economically.

Looking to the future, rapid transit may be provided for Calgary, if not on rails, then by buses running on an exclusive

right-of-way. When a plan for such a rapid transit system is drawn it will be very useful to guide high-density residential zoning. Where neighbourhood development plans show a natural collector point for transit routes, any high-density residential use should be in proximity to this point.

(2) Thoroughfares

The amount of automobile traffic generated by an apartment development will be far higher than by single family homes on a similar acreage. This heavy traffic should not have to traverse quiet residential streets to gain access to an arterial thoroughfare.

(3) Relationship to employment nodes

The location of apartments in the land use pattern should preferably be close to the major generators of employment such as the Central Business District, the South-East Industrial Area, the University, the major hospitals and the major shopping centres. By relating apartments, with their high population density, and job locations, the length of the journey to work can be minimized for the greatest number of people. Accordingly, the total length of expensive expressway that the City will need to cope with automobile commuters may be decreased.

either within walking distance or it doesn't matter

(4) Relationship to commercial centres

On page 24 it was noted that apartments are sometimes assigned to the less desirable sites which face onto commercial developments. While the practice of allowing the location of less desirable sites to determine the location of apartment buildings is open to criticism, it is agreed that proximity to commercial centres is a positive favourable factor for apartments; their concentration of population provides a large immediate market for the stores while the maximum number of persons benefit from the convenience of nearby shopping facilities.

It may also be noted that apartment buildings and

commercial buildings, being generally of a larger size than other buildings in a neighbourhood can lead to better architectural groupings when located close together than when developed at a distance from each other.

(5) Utilities

Adequacy of existing utilities is no longer a factor influencing apartment location or density. Current City policy is to provide services for any density of development that may occur.

sounds hardly like common sense long range planning

(6) Relationship to large open spaces

Apart from the considerations of the adequacy of parks and school sites discussed in Part 2, in certain cases, sites adjacent to and overlooking permanent open space, such as a large park, have advantages for apartment dwellers because the park facilities are at their doorstep and because there is opportunity for them to have good view windows.

(7) Compatibility with neighbouring uses.

An apartment must be compatible with its surroundings, compatibility being judged for this purpose on the basis of a harmonious and proper relationship to neighbouring development.

RECOMMENDATION

THE FOREGOING FACTORS BE USED AS A GUIDE TO DETERMINE ANY ALTERATION IN THE EXTENT OF THE LANDS PRESENTLY ZONED FOR APARTMENT DEVELOPMENT.

C O N C L U S I O N

The City of Calgary is following a national trend to an increased popularity of multi-unit dwellings. Several sections of the population seem suited to apartment living. They include newly married couples, single and highly mobile individuals, the elderly, the financially insecure and the house-hater. (the sophisticated)?

Consequently more and more apartment buildings are being built and the average number of suites which each building contains is increasing.

The present zoning bylaw (Bylaw No.4916) has established three apartment zones, viz. R-3, R-4 and R-5 (outside of the Central Business District) for which there are three densities and three height limits.

These regulations and the apartments resulting from them have been examined in this study, first in the context of the street, then in the context of the neighbourhood and thirdly, in the context of the city.

In this conclusion, the recommendations made in Parts 1, 2 and 3 concerning apartment buildings and the regulation of their development are reviewed under the headings:

(1) Where apartments should be built

(2) How apartments should be built.

(1) Where apartments should be built

The criteria for the determination of alterations in the extent of the apartment zones are set out in Part 3. They are concerned with

Transit
Throughfares
Relationship to employment nodes
Relationship to commercial centres
Utilities
Relationship to large open spaces.
Compatibility with neighbouring uses.

These criteria are in addition to the recommendations in Part 2 which deal with

(a) the maintenance in new neighbourhoods of proper ratios of parks and schools to population;

(b) rezoning in areas where there are park or school deficiencies; and

(c) the development of family type apartments where school facilities are insufficient for the resulting school age population.

The Part 3 criteria would furnish Council with a better basis for dealing with rezoning applications than is provided by the "better selling price" argument often advanced by applicants.

The Part 2 recommendations would give a practical interpretation to known relationships between parks and schools on the one hand and population needs on the other.

(2) How apartments should be built

A number of far reaching and somewhat radical recommendations have been made concerning the manner in which the building of apartments should be regulated.

The recommendations in effect would abandon the present R-3, R-4 and R-5 zones each with its own height and density regulations, and replace them with a single RG - General Residential Zone.

In this RG Zone the basic regulation would be a requirement that on every apartment building site there be provided an amount of landscaping equal in area to a stated percentage of the total floor area of the building; the percentage would vary according to the number of storeys in the building, being smaller for higher buildings and larger for lower buildings.

In addition it is recommended that for higher apartment buildings the ground level landscaping be supplemented with recreation

space in the form of balconies, roof gardens, indoor recreation rooms, swimming pools or additional ground level landscaping.

Another innovation would be the introduction of architectural control by means of an architectural panel.

There would be no height limits except on those sites which adjoin R-1 and R-2 Zones or where a height limit was otherwise necessary.

The manner in which these recommendations and the actual percentages used were arrived at are set out on other pages of this report. The purpose here is to take a more detached view of them. This is done by discussing:

(a) Essentials to good housing

(b) Current trends in Zoning for Apartments

(c) Types of apartment buildings likely to result from the proposed new regulations.

(a) Essentials to good housing

The American Public Health Association Committee on the Hygiene of Housing has formulated certain essentials to good housing; they are: *

(A) Fundamental Physiological Needs:

Proper temperature, pure air, adequate natural and artificial light, quiet, adequate space for play and outdoor living.

(B) Fundamental Psychological Needs:

Adequate privacy, opportunities for normal family and community life, ease of household operation, maintenance of cleanliness, aesthetic satisfaction.

(C) Protection against Contagion:

Pure water supply, toilet facilities, interior sanitation, exclusion of vermin, food storage facilities, sufficient sleeping space.

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* From summary by Dr. Albert Rose, appearing on page 13 of A Better Place to Live, Final Report, Ontario Department of Municipal Affairs, June 1962.

(D) Protection against accidents:

Sound construction, fire protection, protection against electrical defects and gas poisonings, injuries in the home, traffic hazards.

The lack of all or some of these essentials results in sub-standard houses and slum conditions.

The recommended landscaping and recreation space regulations would help to ensure that Calgary's future apartments were not deficient in "adequate space for play and outdoor living" or in "aesthetic satisfaction".

(b) Current trends in Zoning for Apartments

At the 1963 Conference of the Town Planning Institute of Canada, there was discussed a proposal to regulate the amount of landscaping and recreation space for apartment buildings.

It is understood that Central Mortgage and Housing Corporation is "trying out" a system of controls in Toronto which have a very similar effect to the regulations recommended in this report.

(c) Types of Apartment Buildings likely to result from the regulations

Sites where the height would be limited to 28 feet are in all probability presently zoned R-3. The proposed regulations would make very little difference to the apartments built on these sites so far as height is concerned, but they would ensure the provision of sufficient landscaping.

At the other extreme, there is the Rideau Towers type of development. The regulations would make little difference to them.

In between are the R-4 and R-5 types of development taking place, for example, in Lower Mount Royal and the Belt Line. By reason of the landscaping requirement the developer would have the choice of building a small apartment building (similar to

the 28 ft. height limit area) or a more expensive building with parking on the lower floors and the apartments on the upper floors.

The height of buildings would be greater than the customary 40 ft. but they would each have a satisfactory amount of landscaped ground space as well as built-in recreation space.

The proposed regulations would favour the redevelopment of larger sites in that more intensive development would be allowed on larger than on smaller sites. This would tend to encourage the development of larger sites in the new areas and the assembly of land to produce larger sites for redevelopment in the older areas.

Developers can place many more dwellings on a given lot if it is zoned for apartments than if it is zoned for houses. The value of a site to a developer, other things being equal, is directly proportional to the number of suites he can build on it. A site with a potential high density may therefore be extremely valuable.

It is possible that the value of some sites with a high density potential may be decreased if their development is required to conform with these basic standards, but the apartment can only be an attractive and desirable form of urban dwelling if these basic standards are met.

The proposals set out in this report will help ensure the development of a safe, healthy and pleasing community. In the long run, the preservation of property values in a properly and adequately planned community will far outweigh any cut in profits that may have to be taken to achieve this end.

IT IS RECOMMENDED THAT THE PROPOSALS SET OUT IN THIS REPORT BE ADOPTED SO THAT THEY MAY BE INCORPORATED IN THE ZONING REGULATIONS AND DEVELOPMENT POLICIES OF THE CITY.

A P P E N D I X "A"

EXTRACTS FROM THE REPORT OF A STUDY AND COMPARISON OF EXISTING APARTMENT DEVELOPMENT, UNDER EXISTING AND PROPOSED REGULATIONS, IN AN AREA COMPRISING APPROXIMATELY 56 ACRES AND KNOWN AS LOWER MOUNT ROYAL

The area chosen for study is situated south of 17th Avenue West between 14th Street West and College Lane, and north of Royal Avenue. The development of the area has not been uniform, the original homes and sites in the eastern part being generally smaller than in the western part. Also, the rate of redevelopment in the eastern part has been slower than in the west. Accordingly, for the purposes of study, the area is considered in two sectors, the dividing line being 9th Street S.W.

General Development of Lower Mount Royal

In all, there are 19 whole or half blocks of development undergoing the transitional stage of single family development to general residential or apartment development. In Sector A (the area west of 9th Street comprising 31 acres) there are 117 sites, 40 of which have been developed with the block type of apartment building, while 6 more are under construction. The remainder of development is mostly single family but there are some other types of uses such as nursing homes, a residential hotel and older multi-family dwellings scattered throughout the area.

In Sector B (the area east of 9th Street comprising 25 acres) there are 172 sites but, although 16 sites have been approved for apartments, only 10 have been redeveloped. Uses other than single family dwellings appear but it is this type of use that is prevalent.

The gradual transition of the district has slowed down notably since the introduction of 100% parking requirement. Only 7 of the 62 apartment sites have been developed since the parking requirement was increased from the old 50% figure and three of these sites involved the consolidation of properties so that a more economical development could result with parking either provided within the apartment building or in parking structures.

Nevertheless, although redevelopment of the single family sites is not continuing at the same pace as experienced in the years 1958 - 62, it is anticipated that eventually four out of every five sites will be developed with an apartment building - the remaining sites will support some other use that is usually found in higher density districts, e. g., nursing homes, private clubs, clinics, etc. It is not visualized that any of the single family dwellings will be replaced with new similar dwellings once their life span is finished, for the present high land values make it virtually certain that a more intensive development will occur.

Examination of Redeveloped Sites; their Standards and Effects upon the General Area.

It is evident, from a casual survey of the two sectors (and more so in the more developed Sector A), that overdevelopment in terms of site coverage is occurring. Each apartment site appears to be developed solely with a block-type building occupying as much of the land as is allowed without encroaching on required minimum yard spaces, with the remainder of the land divided unequally between landscaping and parking areas. Since the lane is the predominant means of traffic access to each site, the landscaping usually occupies the front and sides of the site and the parking area is spread over a far larger area at the back of the site. The exceptions to this are found on larger, developed lots but, in general, the pattern remains the same.

To determine the fall in general standards for the district - where loss of landscaped or open area is concerned, each apartment site was examined to discover the relationship of landscaping, building and parking area.

A base map was prepared showing the actual location and size of each and every apartment building, the actual site area devoted to landscaping and parking, and the density of development, i. e., number of suites and total floor area. By showing the three functions or uses of the site with different colours (brown for building, green for landscaping and grey for parking) an unwelcome pattern made itself

evident. Grey and brown were the predominant colours and green was relegated to a poor third. Concentrations of three or four redeveloped sites compounded and emphasized the loss of open space for landscaping since the interior sites could not "borrow" from adjacent development in the manner that a single apartment site might take advantage of the open space provided by single family development on either side.

The next objective was to evaluate the total loss of landscaping for each redeveloped site and to this end an overlay was prepared showing the size and location of the original development and the area taken up by the new building and parking area.

The amount of landscaping lost in each sector calculated in this manner, amounts to:

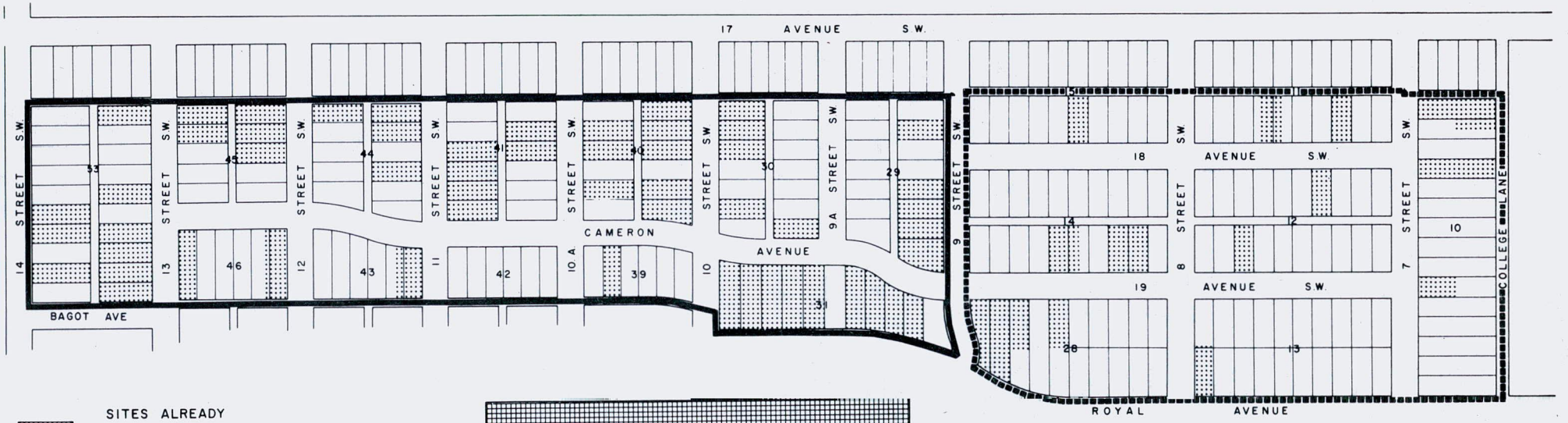
Sector A.	218,917	square feet
Sector B.	65,500	square feet
Total loss	284,417	square feet (6.5 acres).

This amount of 284,417 sq. ft. (6.5 acres) of landscaped land (equivalent of two areas, each approximately the size of Central Park) is lost through the redevelopment of only 62 sites. On this basis, and continuing the present trend, as much as a further 13 acres will be lost if 80% of the total number of sites are redeveloped with apartments. Even assuming that each site previously had a single garage or other accessory building thereon, this would reduce the total area by no more than 181 (total number of sites) x 20' x 12' (size of single garage or car space), i. e., a fraction less than one acre. (Map on page 42 shows these findings and illustrates the amount of landscaping that has already been lost in Mount Royal and the amount that will be lost when 80% of the sites are developed under present regulations).

Recommended new standards.

The recommended percentages of required landscaping to floor area of building, and which are governed by building height and dealt with in detail in the main substance of the Apartment Study Report,

MAP TO SHOW DESTRUCTION OF LANDSCAPING IN LOWER MOUNT ROYAL



SITES ALREADY REDEVELOPED FOR APARTMENTS

SECTOR "A"

SECTOR "B"

AREA OF LANDSCAPING ALREADY LOST

270,000 SQ. FT.

804,600 SQ. FT.

AREA OF LANDSCAPING THAT WILL BE LOST IF 80% OF SITES ARE REDEVELOPED

DRAWN TO SAME SCALE AS MAP

were then applied to each apartment site. The objective was to determine the number of sites that would be considered overdeveloped in the sense that insufficient landscaped areas were provided.

It was assumed that the height and floor area of each building remained constant and that off-street parking would either be accommodated in the building or on the balance of land not required for the building or landscaping.

Of the 62 sites examined, 45 showed that the combination of the required landscaping area and the ground coverage of the building exceeded the actual site area. (Note: The required landscaping area refers to land landscaped with lawns, shrubs, trees, etc. and not, as so many apartment developments show today, the inclusion of parking areas and driveways). Another 10 sites showed some provision for parking area but of insufficient extent to accommodate the required parking.

For the existing development to have complied with the proposed regulations it would have been necessary either to reduce the floor area and consequently the density of each of the overdeveloped buildings or increase the number of storeys and keep the same total floor area, but make use of a lower factor for the landscaping requirements, e. g., a 3 storey building uses a factor of 41.66% of total floor area for landscaping whereas a 4 storey building uses only 37.5%.

The average landscaping requirement for the 62 sites was in the region of 60% whereas landscaping actually provided is 25% or less. Table 4. pinpoints the deficiency of area for landscaping or the balance of area available for parking.

TABLE 4.

	Site Area	No. of Storeys	Total Floor Area	Ground Coverage (sq.ft.)	Ground Coverage (% of Site)	Req'd Land-scaping (sq.ft.)	Req'd Land-scaping (% of site)	Parking Area	Deficiency of Landscaped Area	
SECTOR A.										
Block 53										
Lot 21	7,480	3	8,720	2,880	38	3,634	49	966	-	
20	7,480	3	11,280	3,760	50	4,700	63	-	980	
18	7,480	3	9,280	3,520	47	3,867	52	93	-	
16	7,000	3	10,800	3,600	51	4,500	64	-	1,100	
15	7,000	3	10,800	3,600	51	4,500	64	-	1,100	
14	7,000	3	10,800	3,600	51	4,500	64	-	1,100	
13	7,000	3	10,200	3,400	49	4,250	61	-	650	
11	7,000	3	9,360	3,120	45	3,900	56	-	20	
7	7,000	3	10,000	3,760	54	4,166	53	-	926	5,876
Block 45										
Lot 16	6,500	3	10,000	3,760	58	4,166	64	-	1,426	
15	6,500	4	8,880	2,220	34	3,331	51	949	-	
9	6,500	3	9,960	3,320	51	4,150	64	-	970	
8	6,500	4	10,184	2,546	39	3,820	59	134	-	
7	6,500	4	10,944	2,736	42	4,105	63	-	341	8,613
Block 46										
Lot 1	9,000	3	8,100	2,700	30	3,374	37	2,926	-	
6	10,300	4	19,049	4,988	48	7,145	69	-	1,833	10,446
Block 44										
Lot 17	6,500	3	10,320	3,448	53	4,300	66	-	1,248	
10	6,500	4	9,728	2,432	37	3,649	56	419	-	
8	6,500	3	9,520	3,230	50	3,967	61	-	697	
7	6,500	4	10,944	2,736	42	4,105	63	-	341	12,732
Block 43										
Lot E.½ of 5 & all 6	8,996	4	16,359	4,324	48	6,136	68	-	1,464	14,196

	Site Area	No. of Storeys	Total Floor Area	Ground Coverage (sq.ft.)	Ground Coverage (% of Site)	Req'd Land-scaping (sq. ft.)	Req'd Land-scaping (% of site)	Parking Area	Deficiency of Landscaped Area	
SECTOR A continued										
Block 41										
Lot 16	6,500	3	9,132	3,360	52	3,805	59	-	665	
Lot 15	6,500	4	9,728	3,432	37	3,649	56	419	-	
Lot 14	6,500	3	9,340	3,500	54	3,892	60	-	892	
Lot 13	6,500	3	10,098	3,600	55	4,208	65	-	1,308	
Lot 9	6,500	3	9,828	3,276	50	4,095	63	-	871	
Lot 8	6,500	3	6,840	2,736	42	2,850	44	914	-	17,932
Block 39										
Lot 2	-	-	-	(Lodging House)		-	-	-	-	
Block 40										
Lot 17	6,500	4	9,280	3,600	55	3,481	54	-	581	
Lot 16	6,500	4	9,462	3,520	54	3,549	55	-	569	
Lot 14	6,500	3	9,960	3,320	51	4,150	64	-	970	
Lot 12	7,000	3	10,950	3,650	52	4,563	65	-	1,213	
Lot 11	6,500	3	10,320	3,440	53	4,300	66	-	1,140	
Lot 9	6,500	4	9,728	2,432	37	3,649	72	419	-	
Lot 8	6,500	3	10,320	3,440	53	4,300	66	-	1,140	
Lot 7	6,500	3	10,648	3,600	55	4,437	68	-	1,537	25,082
Block 31										
Lots 1-2	17,214	5	30,135	6,027	35	10,731	62	456	-	
3-5	23,853	5	41,595	8,319	35	14,812	62	722	-	
7-8	16,000	5	23,652	8,355	52	8,422	53	-	777	
9-10	11,600	3	13,545	4,515	39	5,644	49	1,149	-	25,859
Block 30										
Lot 20	5,800	4	10,332	2,583	45	3,876	67	-	659	
19	5,800	4	8,440	2,760	48	3,166	55	-	126	
18	5,800	3	12,990	3,484	60	5,413	93	-	3,097	
15	5,800	3	12,990	3,484	60	5,413	93	-	3,097	
13	5,800	3	9,640	3,400	58	4,017	69	-	1,617	34,455

	Site Area	No. of Storeys	Total Floor Area	Ground Coverage (sq.ft.)	Ground Coverage (% of site)	Req'd Land-scaping (sq.ft.)	Req'd Land-scaping (% of site)	Parking Area	Deficiency of Landscaped Area	
SECTOR A continued										
Block 29										
Lots 14, 15 & 16	-	-	-	(Residential Hotel)		-	-	-	-	
11	5,800	3	7,760	3,200	55	3,234	56	-	634	
8	5,800	3	8,016	2,672	46	3,340	58	-	212	35,301
SECTOR B										
Block 15										
Lot 5	6,000	3	7,809	2,765	46	3,254	54	-	19	
Block 14										
Lot W.½ 15 & all										
16	9,000	3	8,694	2,898	32	3,623	40	2,479	-	
13	6,000	3	10,200	3,400	57	4,250	71	-	1,650	36,970
12	6,000	3	7,068	2,356	39	2,945	49	699	-	
Block 28										
Lots 1& 2	17,500	4	27,768	6,942	40	10,415	58	143	-	
3	6,500	2	4,080	2,040	31	2,542	39	1,918	-	
5	6,200	2	4,320	2,160	35	2,692	43	1,348	-	36,970
Block 11										
Lot Pt. 16 & 17	7,200	3	5,680	2,920	41	2,367	33	1,913	-	
13	6,000	3	9,360	3,120	52	3,900	65	-	1,020	37,990
Block 12										
Lot 18	6,000	3	9,000	3,000	50	3,750	63	-	750	
7	6,000	3	9,840	3,440	57	4,100	68	-	1,540	40,280

	Site Area	No. of Storeys	Total Floor Area	Ground Coverage (sq.ft.)	Ground Coverage (% of site)	Req'd Land-scaping (sq.ft.)	Req'd Land-scaping (% of site)	Parking Area	Deficiency of Landscaped Area	
SECTOR B continued										
Block 13										
Lot 20	6,750	3	9,606	4,000	59	4,000	59	-	1,250	41,530
Block 10										
Lot W.½ of 14	5,000	2	4,400	2,200	44	2,742	55	58	-	
8	9,795	4	13,376	3,344	34	5,017	51	1,434	-	
W.½ of 5	5,000	3	6,240	2,080	42	2,600	52	320	-	
E.½ of 5 Pt. 6	7,192	3	7,800	2,600	36	3,250	45	1,342	-	41,530

Theoretically, 41,530 sq. ft. of open space is required to satisfy the landscaping figure but this figure will be swollen many times if the parking problem is taken into account.

From this statement it is seen that the other disturbing factor contributing to overdevelopment is the provision of parking. Clearly, there is too much open ground-level parking for the average apartment site; land required for the essential benefit of the apartment dweller - in the form of natural or artificial landscaped areas - is instead relegated to the automobile. There can be no objection to some ground-level parking but surely not at the expense of greenery.

CONCLUSIONS:

(1) That the continued development of the district under present regulations will see the disappearance of large segments of pleasant landscaped areas and those areas will be supplemented with bulky buildings and great expanses of parking areas.

(2) That these factors will contribute greatly to the general decline of the area regarding its appearance and provision of general amenities. The fact that the district is still pleasant can be attributed to the presence of the contrasting areas formed by the single family sites.

(3) That the new regulations will do much towards correcting the trend of development since greater landscaping requirements and improved control over parking areas will considerably raise the standards of each site to be redeveloped.

A P P E N D I X B.

EXPLANATION OF COMPILATION OF FIGURES IN TABLE 3.

The standards of maximum building coverage for apartment sites recommended by the American Public Health Association are set out in columns 1 and 2 of Table B1. and were used as a starting point for devising the proposed new apartment regulations.

While the American Public Health Association standards would ensure a minimum amount of open space (shown in column 3 of Table B1.) for apartment buildings of different heights, they would not ensure that this open space was not entirely used for car parking or that any part of it would be landscaped.

T A B L E B1.

MAXIMUM SITE COVERAGE AND MINIMUM OPEN SPACE

No. of Storeys	Maximum Site Coverage recommended by American Public Health Association expressed as percentage of site area	Equivalent minimum open space expressed as a percentage of site area.
(1)	(2)	(3)
2 Storeys	30	70
3 Storeys	30	70
6 Storeys	25	75
9 Storeys	20	80
13 Storeys	17	83

The complete use of rear yards for car parking was the main reason for the lack of seemliness found in apartment development. For the purpose of devising the proposed new apartment regulations it was agreed that ideally on an apartment site, no more than 25% of the site should be used for car parking and that the balance of the open space required pursuant to Table B1. should be landscaped.

This variation of the Table B1.figures is shown in Table B2.

TABLE B2

SITE COVERAGE - MINIMUM SITE LANDSCAPING

No. of Storeys	Maximum % of site coverage from Table A1.	"Ideal" max. % of site area to be used for car parking	Minimum % of site area to be landscaped.
2	33 1/3% *	25%	41 2/3%
3	33 1/3% *	25%	41 2/3%
6	25%	25%	50%
9	20%	25%	55%
13	17%	25%	58%

* A. P. H. A. recommended figure of 30% is changed to 33 1/3% which is the existing site coverage figure for R1 and R2 zones under Bylaw No.4916.

Table B2 was then developed by

(a) interpolating the missing storeys between 3 and 13 and by extending the table up to 50 storeys;

(b) calculating maximum floor area ratios for each building height;

(c) calculating the landscaping area (i.e. "minimum % of site area to be landscaped" in Table B2) as a percentage of the maximum floor area for each building height.

The areas, ratios and percentages so calculated are shown in Table B3.

TABLE B3.

COMPLETED TABLE: SITE COVERAGE - MINIMUM SITE LANDSCAPING

No. of Storeys	Max. Site Coverage A.P.H.A. Recommend'n	Max. % of Site Coverage from Tables B1 & B2,	"Ideal" Max. % of site area to be used for parking.	Minimum % of site area to be landscaped.	Therefore: Maximum F. A. R.	Therefore: Minimum landscaping as a % of total floor area.
2		33 1/3%	25% in all cases	41 2/3%	0.66	62.3
3	30%	33 1/3%		41 2/3%	1.00	41.66
4		30 %		45 %	1.10	37.5
5		27 %		48 %	1.35	35.6
6	25%	25 %		50 %	1.50	33.3
7		23 %		52 %	1.61	32.3
8		21 %		54 %	1.68	32.1
9	20%	20 %		55 %	1.80	30.6
10		19 %		56 %	1.90	29.5
11		18 %		57 %	1.98	28.8
12		17½%		57½%	2.10	27.4
13	17%	17 %		58 %	2.21	26.2
14		16½%		58½%	2.31	25.3
15		16 %		59 %	2.40	24.6
16		15½%		59½%	2.48	24.0
17		15 %		60 %	2.55	23.5
18		14½%		60½%	2.61	23.2
19		14 %		61 %	2.66	22.9
20		13½%		61½%	2.70	22.8
21		13 %		62 %	2.73	22.7
22		13 %		62¼%	2.86	21.8
23		12½%		62½%	2.87	21.8
24		12½%		62 3/4%	3.00	21.0
25		12 %		63 %	3.00	21.0
30		11 %		64 %	3.20	19.4
50		9 %		66 %	4.50	14.7

It will be noticed that as a building increases in height the percentage of landscaping in relation to the site area increases but in relation to the total floor area in the buildings it decreases.

At this point the figures in Table B3, were examined to determine which of them were essential to the new regulations.

It was realized that the 25% maximum site area to be used for car parking, except in the case of the smallest apartment house, would not be sufficient to accommodate the parking requirements. In order to satisfy the requirements of the Table, a developer could:

(a) supplement the 25% area with parking spaces in the lower part of the apartment building; or

(b) provide all the required parking spaces in the lower part of the apartment building in which case the 25% would be freed to count as landscaping and thus enable him to build a larger apartment house; or

(c) supplement the 25% area with parking spaces on an adjoining site; or

(d) provide all the required parking spaces on an adjoining site in which case again the 25% of the apartment site would be freed to count as landscaping and thus enable him to build a larger apartment house.

Visually, the most satisfactory arrangement would be (b) where all the parking is enclosed in the building; appropriately then the freeing of the 25% and the counting of it as additional landscaping to balance additional floor area can be regarded as a bonus.

Conversely, if a developer found that it was to his advantage to use more than 25% of his site for parking (as in (d) above, counting the apartment site and the adjoining parking site as one site) it was agreed that he should not be prevented from doing so, so long as he provided the amount of landscaped open space to balance his particular size of building.

It was, therefore, decided that the maximum percentage of site area used for car parking should not be regulated.

It was also decided that the most important figures in Table B3. were those in the last column, viz. landscaping expressed as a percentage of total floor area for apartment buildings of different heights (as set out in the first column) and that no other figures were needed as a basis for the new regulations.

The lanscaping/site area ratio had disadvantages because it would vary according to the disposition of the required parking spaces.

The floor area ratio (i. e. total floor area divided by site area) would also vary according to the disposition of the parking spaces.

Accordingly the landscaping/total floor area ratio for different building heights appears to be the most satisfactory standard for apartment buildings - a ratio which will directly ensure an amount of landscaping being provided according to the height and size of the building, and indirectly limit site coverage and outdoor car parking.

Thus in the case of a six storey building, the developer would have the maximum freedom to decide site coverage, the location of car parking and floor area ratio, so long as he provided an area of landscaping equivalent to 33.3% of the total floor area.

NOTE: In applying Table 3, the number of storeys in the building would be

(a) determined by dividing the total floor area of the building by the area of the floor which has the largest area, or

(b) the actual number of storeys, omitting the floors used for car parking, in the building,

whichever is the lesser.

Also, the floor area of a building for this purpose need not include floor area used for parking cars, or the floor areas of balconies, recreation rooms or roof gardens.

EXAMPLE OF APPLICATION OF RECOMMENDED STANDARDS

The example chosen is an apartment building for which a Certificate of Compliance under The Zoning Bylaw has recently been granted.

On page55 Figure 1 shows the landscaping, parking areas and recreation space provided for the building as actually developed while Figure 2 shows the amount of landscaping and recreation space required for the same building by the recommended standards in Table 3.

Particulars are as follows:

Height of building: 13 storeys

Total floor area: 52,320 sq. ft. (excluding recreation space)

Figure 1 - Building as developed:

Landscaping provided: 4.14% of total floor area (2168 sq. ft.)

Open space used for Car parking: 13,768 sq. ft.

Recreation space: 2.00% of total floor area (1031 sq. ft.)

Figure 2 - Building as required by Table 3:

Landscaping to be provided: 26.2% of total floor area (13,708 sq. ft.)

Leaving open space to be used for car parking: 5,583 sq. ft.

Recreation space to be provided in form of balconies, roof gardens, recreation rooms, or as additional ground-level landscaping : 15% of total floor area (7,693 sq.ft.)

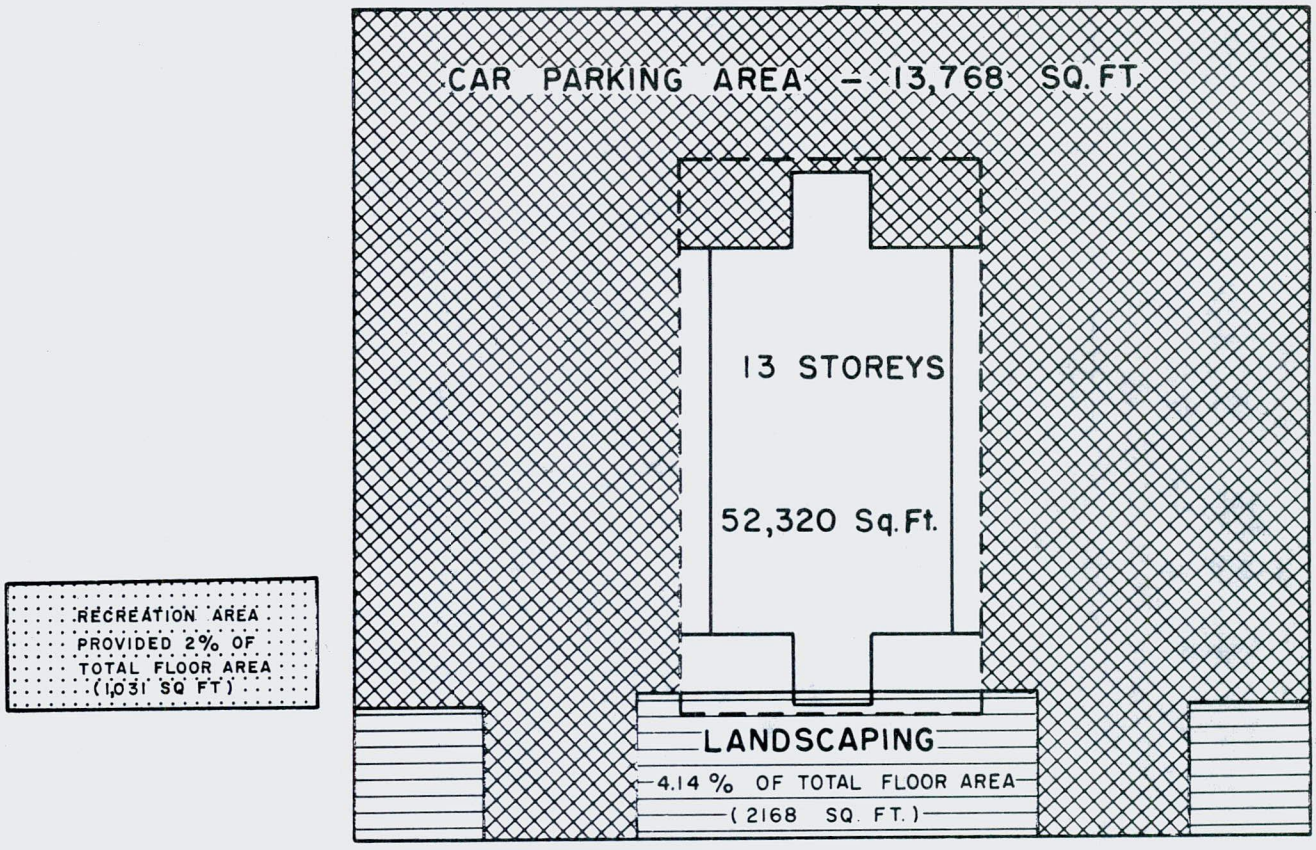


FIGURE 1 BUILDING AS DEVELOPED

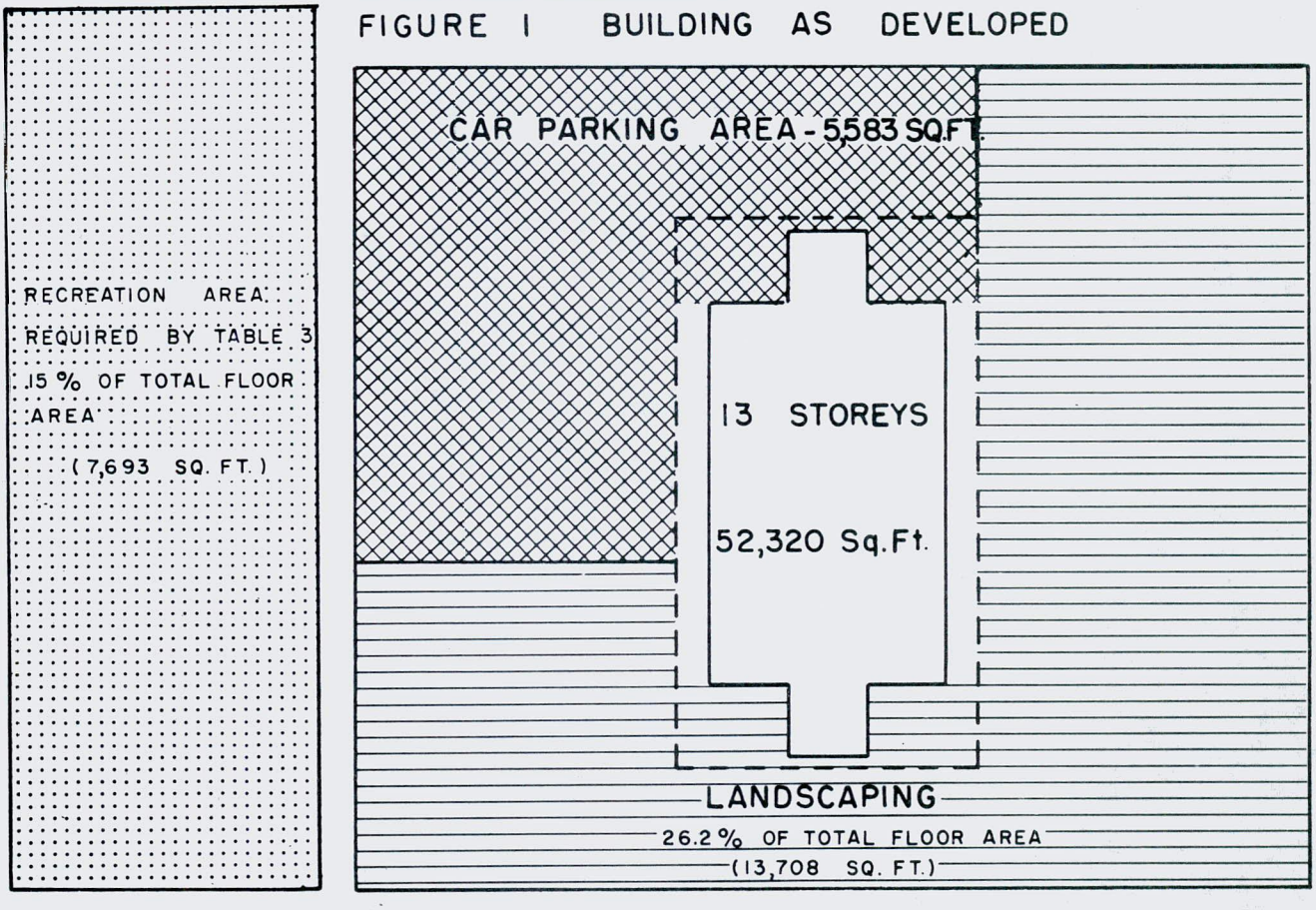


FIGURE 2 BUILDING AS REQUIRED BY TABLE 3

APPENDIX C

ARCHITECTURAL CONTROL

It is recommended that every plan for a new apartment building should be subject to the approval of an Architectural Panel.

Architectural Panels are not referred to in the Planning Act. Section 121 (1) (a) does, however, provide that a zoning bylaw may contain provisions for the purpose of regulating as to any zone -

" (v) the design, character and appearance of buildings."

It is believed that this section together with section 123 (2) gives sufficient authority for a regulation along the following lines:-

> " Every apartment house shall be of such design, character and appearance in so far as the same are affected by exterior wall finishing materials, window sizes, locations and construction, balconies and other projections, roof type and construction, the proportions of height, width and depth and compatibility with present and future neighbouring development as Council * in its discretion decides are satisfactory."
>
> (* By resolution under section 122 of The Planning Act, The Municipal Planning Commission could be authorized to act for Council in this matter.)

An Architectural Panel could be established consisting of three members of the Architects' Association, and an architect employed by the City. The Architectural Panel would be an advisory body and it would review all plans of all apartment houses. Where the recommendations of the panel were not accepted and acted upon by the applicant, the matter would be referred to Council (or Municipal Planning Commission) whose decisions could be appealed to the Development Appeal Board.

Comments by Legal Department

" If The Zoning Bylaw is amended by the inclusion of the provision proposed above to regulate the architectural design of apartment houses as permitted by section 121 of The Planning Act, Council would then have the authority under section 123 of the same act to determine whether a proposed apartment house development conforms with acceptable architectural standards and should be permitted. Under section 122 of The Planning Act, Council may delegate this duty to the Calgary Planning Commission and Council could also establish an Architectural Panel to advise the Planning Commission in these matters. Decisions of the panel would be advisory only and if the Commission acted on any such decision a developer could appeal to the Development Appeal Board."

APPENDIX D

POPULATION DENSITIES ACCORDING TO APARTMENT TYPES

This topic was the subject of a report submitted by the Director of Planning to the former Technical Planning Board on February 1st, 1963. It is from this report that the following facts are extracted.

The typical new residential neighbourhood in Calgary yields an average of 4.5 single family dwelling units per net acre (net acreage is here defined as developed lots plus frontage roads; not included are commercial sites, arterial roads and community reserve). In comparison, under the present Zoning Bylaw, one net acre zoned R4 or R5 can and will yield 87.0 bachelor dwelling units, 58.2 one-bedroom units or 46.4 units of two or more bedrooms.

Thus while R1 or R2 development has a population density of 17 - 21 persons per net acre, R4 or R5 development will have 130 to 170 persons per net acre (based on 3.8 persons per house, 2.5 - 3.5 persons per apartment unit).

R4 and R5 apartment development then accommodates from 6 to 10 times more people per net acre than do one family dwellings and therefore increases the demand for parks by a like amount.

It was determined by actual survey, that in Calgary the number of public elementary school children living in apartment suites varies directly with the number of bedrooms in the suite. Bachelor suites yield no children; 1 bedroom suites - 0.015 per unit; 2 bedroom suites - 0.183 per unit; 3 bedroom suites - 0.510 per unit and 4 bedroom suites yield 2.000 public elementary school children per unit.

These figures compare with an average yield in a suburban R1 subdivision of 0.600 public elementary children per single family house. Bachelor, 1 bedroom, 2 bedroom, 3 bedroom and 4 bedroom apartment developments will therefore generate 0.00, 0.87, 8.50, 23.70 and 92.80 public elementary children per net acre respectively compared with 2.70 per net acre generated in R1 areas.

The school demand created by bachelor and 1 bedroom apartments will be less than that created by R1, development but 2, 3 and 4 bedroom suites will produce 3 times, 9 times and 34 times more elementary children per net acre respectively than R1 development.

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Apartment buildings
and the regulation of
their development