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COLD REGIONS RESEARCH AND ENGINEERING LAB HANOVER N H F/G 13/13
SERIES OF LARGE-PANEL CELLULAR CONCRETE APARTMENT BUILDINGS FOR--ETC(U)
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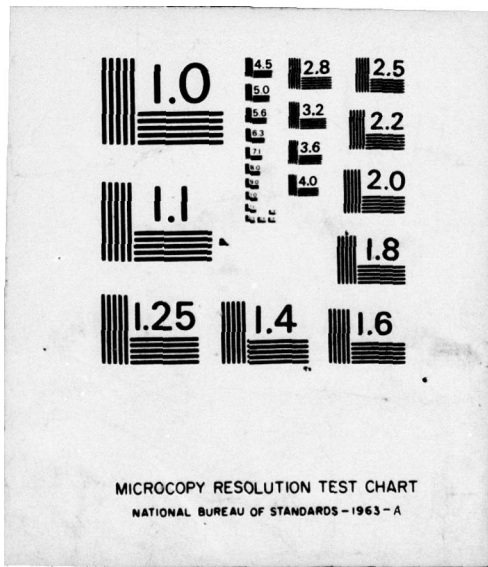
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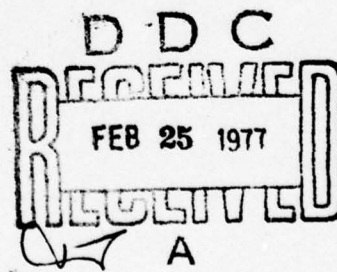


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December 1976

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SERIES OF
LARGE-PANEL CELLULAR CONCRETE
APARTMENT BUILDINGS FOR NADYM

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CORPS OF ENGINEERS, U.S. ARMY
COLD REGIONS RESEARCH AND ENGINEERING LABORATORY
HANOVER, NEW HAMPSHIRE

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structures for apartment, public and industrial buildings manufactured at same plant by the same technology.



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DRAFT TRANSLATION 574

②
ENGLISH TITLE: SERIES OF LARGE-PANEL CELLULAR CONCRETE APARTMENT BUILDINGS FOR NADYM

FOREIGN TITLE: (SERIYA ZHILYKH DOMOV IZ IACHEISTOGO BETONA G. NADYMA).

AUTHOR: None

⑪ Dec 76

⑫ 17p.

⑫ Trans. of

SOURCE: Leningrad, Series 123 of dwellings for climatic region (USSR) no. 1, ~~Stroitel'stvo~~, 1971, 11p, 1972.

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SERIES OF LARGE-PANEL CELLULAR CONCRETE APARTMENT
BUILDINGS FOR NADYM

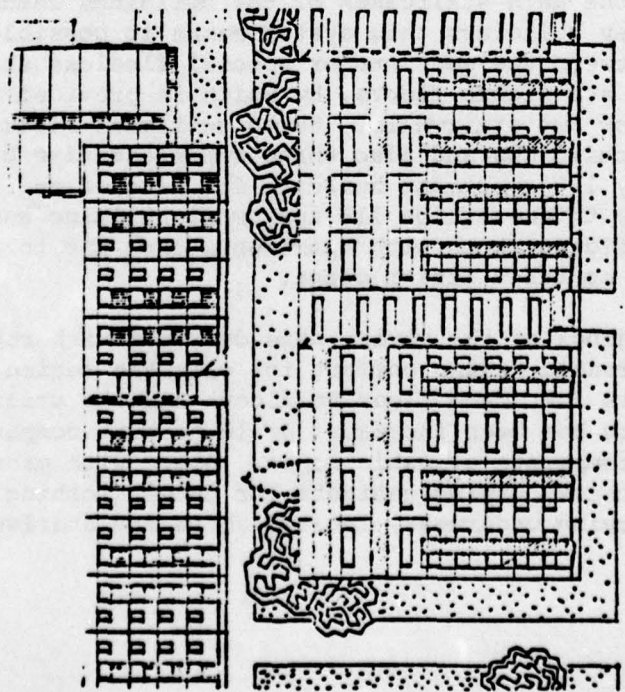
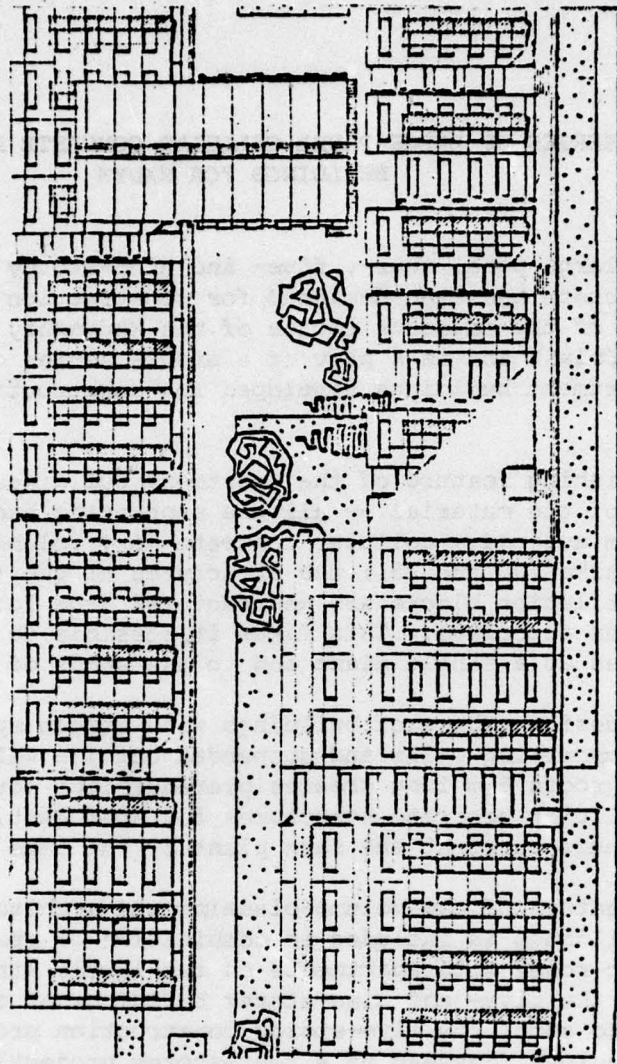
A series of large-panel four-, five- and nine-storey apartment buildings of cellular concrete has been designed for construction in Nadya and in populated points of the adjacent region of the Medvezhiy gas deposit in northern Tyumenskaya Oblast and is a part of a single series of large-panel cellular concrete apartment buildings developed for construction in climatic region No. 1.

The distinguishing feature of the apartment buildings in the series is the homogeneity of the material -- all the supporting and enclosing structures are made from autoclave cellular concrete (dry volume weight of 1,000 and 600 kg/m³, marks 100 and 25); the structures of the foundations, staircases and flue-ventilation blocks are manufactured from loam or sand concrete hardened in an autoclave. This makes it possible to organize production of all structures at a single plant and to use sands of local deposits.

The adopted design scheme of buildings with single spacing of 6 m of the transverse supporting walls and suspended outside wall panels and also flooring and roofs 6 m long creates prerequisites for interspecific unification of cellular concrete structures for apartment, public and industrial buildings manufactured at the same plant by the same technology.

The unique feature of the volume-planning and architectural solution of the apartment buildings is included in combination of apartments on one level (one- and two-room) with apartments on two levels (three-, four- and five-room) in all the five- and nine-storey buildings of the series. This makes it possible to adopt the five-storey construction project as the main one for Arctic regions (instead of a four-storey project) without violating SNiP, since the main staircases of the buildings reach to the fourth floor. In nine-storey buildings this system makes it possible to avoid passageways-balconies between the sections or special flueless stairwells with corridors on the sixth and eighth floors, by which is provided fire evacuation of the apartments for two stairwells. Seven sectional blocks of four-, five- and nine-storey buildings and also three representative buildings of the series: a four-storey 128-apartment building for singles and families of two persons, a five-storey three-section 116-apartment building and a nine-storey 206-apartment building (both with apartments from one to five rooms) were developed at the contract design stage.

All the buildings of the series were designed with regard to the requirements of increased living comfort for climatic region No. 1. The height of the stories is 3 m (from floor to floor) and the utility and living area of the apartments has been increased by 10 percent compared to that standardized by SNiP for temperate climatic zones. Along with pantries, built-in cabinets and attic stories, drying cabinets for outer clothing and footwear and also spaces for drying underwear, located above the stairwells, are provided in



Nomenclature of Main Types of Buildings

№ по порядку	(1) Марка	(3) Схемы планов домов	(4) Количество в состав квартир													(6) Основные показатели				K ₁	K ₂		
			(5) всего													площадь застройки м ²	строительный объем м ³	полезная площадь м ²	жилая площадь м ²				
				1а	1б	2а	2б	3а	3б	4а	4б	5а	5б	(7)	(8)							(9)	(10)
1	Я4-1																						
2	Я4-2		28	58	64	8									1514.00	18395.40	4497.20	2208.9	0,49	2,33			
3	Я4-3		12	98		22																	
4	Я5-1		116		52		32		27		4		1		1568.87	24109.75	5739.29	3301.42	0,58	7,30			
5	Я5-2		148		73		35	34		4		2											
6	Я5-3		122		40		74	42		2		4											
7	Я5-4		92	12	10		14	36	12		6		2										
8	Я9-1		206		73		89		52		4	8			1693.59	46035.96	10573.58	8100.86	0,58	7,54			
9	Я9-2		148		40		60	40				8											
10	Я9-3		142		11		39		60		32												
11	Я9-4																						

KEY:

- | | |
|---|--|
| <ul style="list-style-type: none"> 1. Number in order 2. Mark 3. Building layouts 4. Number and composition of apartments 5. total | <ul style="list-style-type: none"> 6. Main indicators 7. area of construction site, m² 8. construction volume, m³ 9. utility area, m² 10. living area, m² |
|---|--|

Nomenclature of Sectional Blocks

№ по порядку	(2) Этажность	(3) Ориентация	(4) Марка	(5) Схемы планов блок-секции	(6) Количество и состав квартир										(8) Основные показатели						
					(7) всего	1а	1б	2а	2б	3а	3б	4а	4б	5а	5б	площадь застройки, м ² (9)	строительный объем, м ³ (10)	полезная площадь, м ² (11)	жилая площадь, м ² (12)	K ₁	K ₂
						1	2	3	4	5	6	7	8								
			(13)																		
1	6	меридианная	5БР ₁		32	21	3	7			1	40189	618400	146503	82727	0,58	7,48				
2			5БТ ₁		42	15	15	10			2	58349	896287	214404	124310	0,58	7,21				
3			5БР ₂		32	21	3	7				1									
4			5БТ ₂		42	15	15	10			2										
5			5БР ₃		28	3	15	6	2												
6			5БТ ₃		39	6	21	11				1									
7			5БУ																		
8			5БП																		
9			14	универсальная	5БР ₄		18	2	3	3	6	2	2								
10					5БТ ₄		19	3	3	9	3			1							
11	6	меридианная	9БР ₁		58	32	10	12			4	443.33	12091.4	2739.6	1537.9	0,56	7,26				
12			9БТ ₁		74	20	30	20			4	625.13	18972.25	3924.94	2287.42	0,58	7,42				
13			9БР ₂		58	32	10	12			4										
14			9БТ ₂		74	20	30	20			4										
15			9БР ₃		40		30	12				4									
16			9БТ ₃		71	5	40	28													
17			9БР ₄		32		10	14			8										
18			9БТ ₄		39	5	10	16			8										
19																					

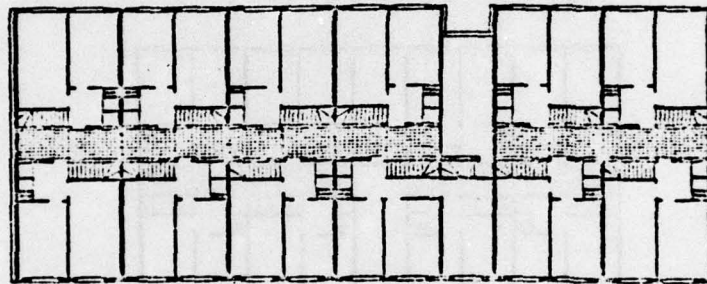
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|---|--|
| 1. Number in order | 8. Main indicators |
| 2. Number of stories | 9. area of construction site, m ² |
| 3. Orientation | 10. construction volume, m ³ |
| 4. Mark | 11. utility area, m ² |
| 5. Layouts of sectional blocks | 12. living area, m ² |
| 6. Number and composition of apartments | 13. meridional |
| 7. total | 14. universal |

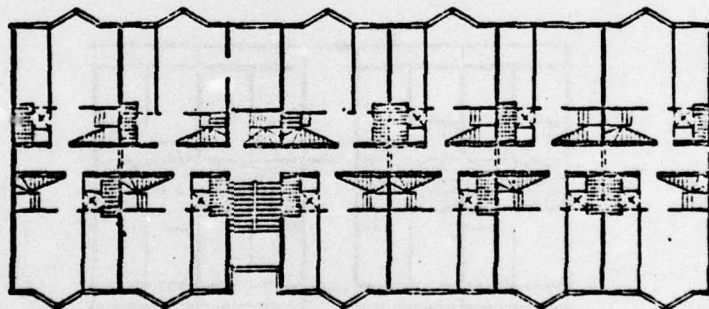
the apartments. There are also storage areas for seasonal articles for each apartment in the basement of the building.

All apartments, including two-room on the same level and especially apartments on three levels, are clearly zoned. The adjacent arrangement of the living room and kitchen of identical dimensions permits subsequent joining of them into a single common room with an area of 26 m² (with improvement of the kitchen-service equipment).

Besides complete traditional engineering services and amenities, the apartment buildings have forced ventilation with central air conditioning in the living spaces provided from separate engineering equipment units.

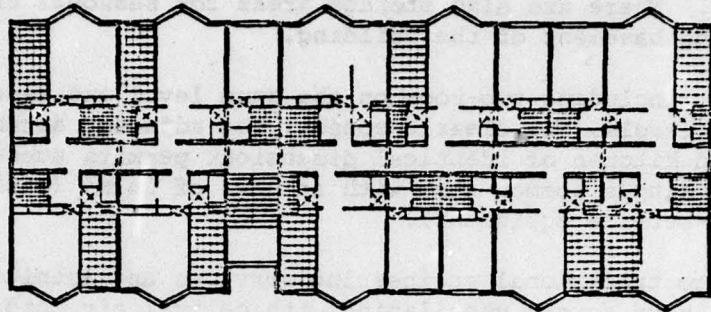


Layout of Fifth Floor

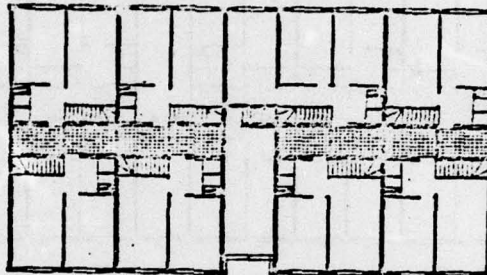


Layout of Fourth Floor

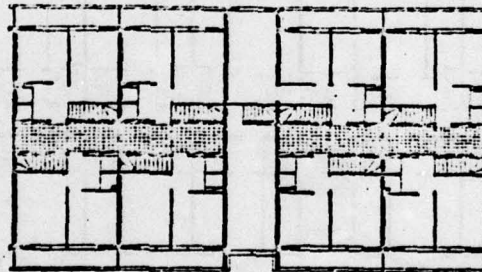
Development of the architectural solutions for the buildings showed sufficient variety and variability in configuration of the facades, in which balconies and glassed-in sunporches were used. The entrances were solved differently and color and texture of latex-cement coatings of the outside cellular concrete wall panels were actively introduced. The color and texture are applied by machinery under plant conditions.



Layout of First and Third Floors



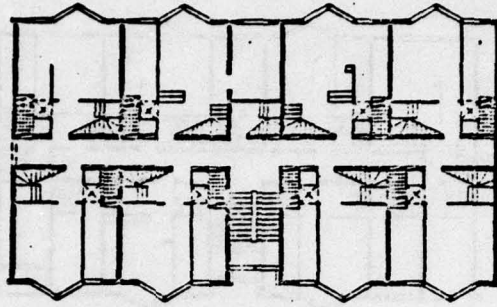
Layout of Fifth Floor



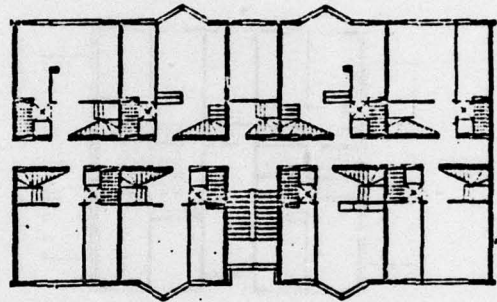
Layout of Fifth Floor

The contract designs of the sectional blocks and representative buildings of the series were coordinated with Gosgrazhdanstroy on 16 October 1970 and were ratified by the Ministry of the Gas Industry of the USSR on 13 November 1970.

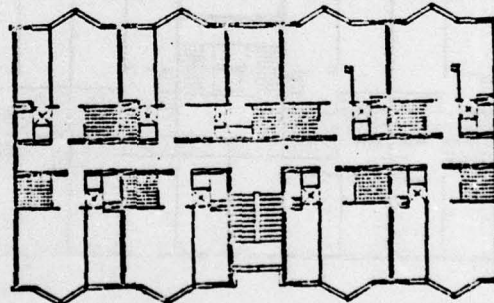
In ratifying the designs, the achieved reduction in the estimated cost of 1 m² of living area in five-storey buildings by 6.3 percent (compared to similar buildings for the northern Ob' area and Surgut) and by 16 percent in nine-storey buildings (compared to similar buildings of typical series



Layout of Fourth Floor



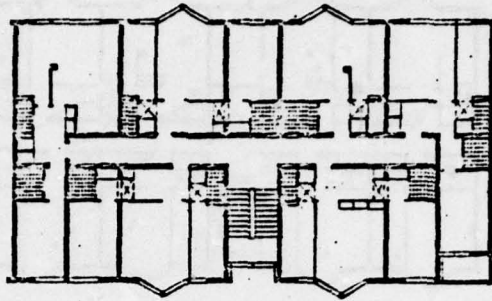
Layout of Fourth Floor



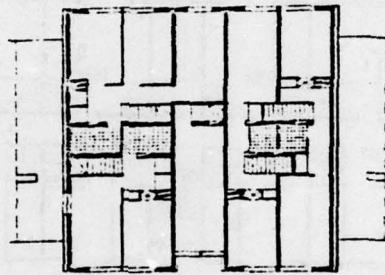
Layout of First and Third Floors

112 for Vorkuta) was noted. The high quality of the design was also noted.

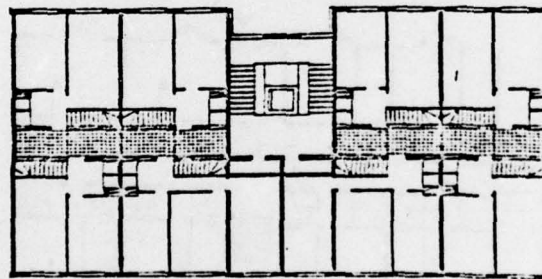
Significant economy of the designs is provided due to maximum introduction of lightweight cellular concrete structures (floors, roofs, supporting and outside suspended walls and precast partitions), which reduces the weight of the buildings by 25 percent compared to those of reinforced concrete structures. Moreover, rational planning of solution of a section with a



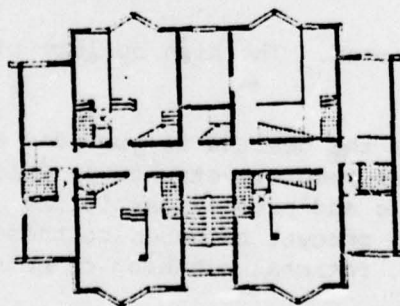
Layout of First and Third Floors



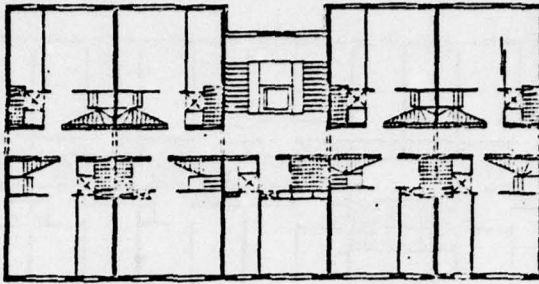
Layout of Fifth Floor



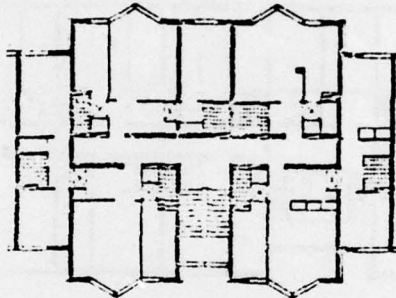
Layout of Seventh and Ninth Floors



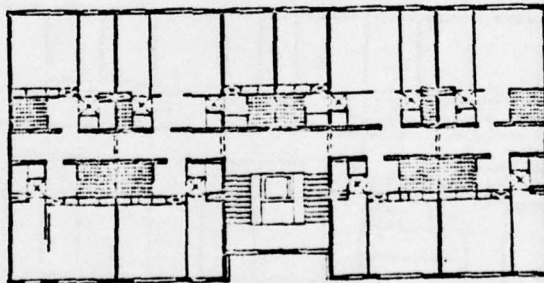
Layout of Fourth Floor



Layout of Sixth and Eighth Floors

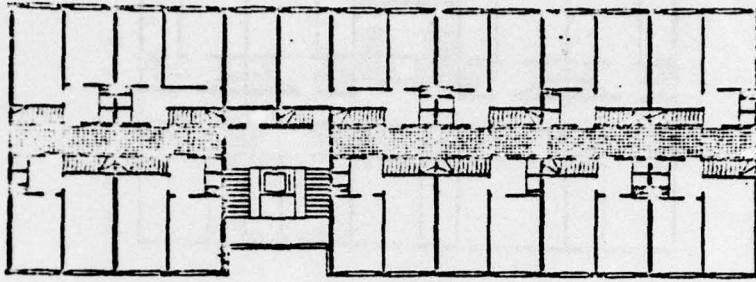


Layout of First and Third Floors

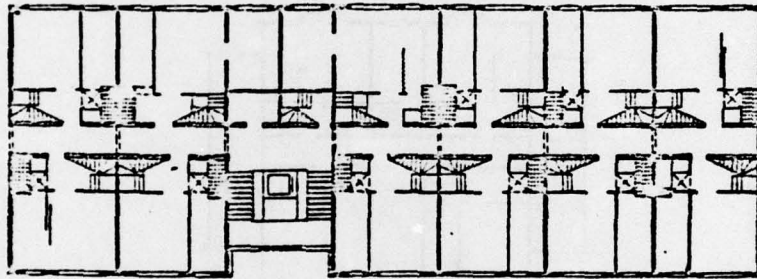


Layout of First and Fifth Floors

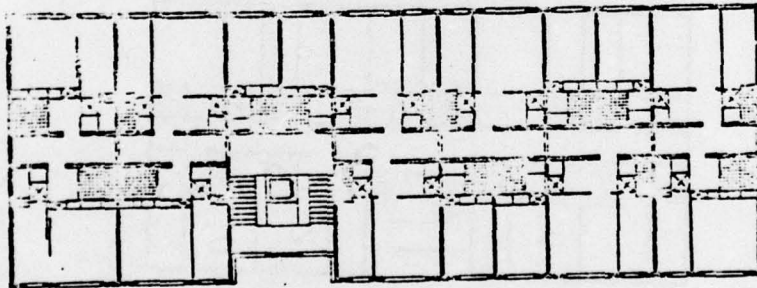
large number of apartments (up to 8 per floor), which includes a single stairwell, and also reduction of the transit area outside the apartment (per unit of cubic area of building) with regard to the presence of apartments on two levels affects the reduction in the cost of the buildings.



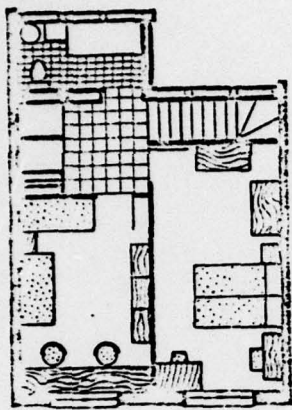
Layout of Seventh and Ninth Floors



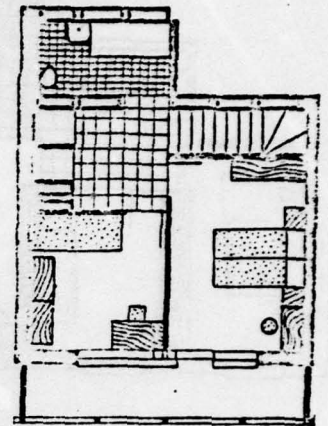
Layout of Sixth and Eighth Floors



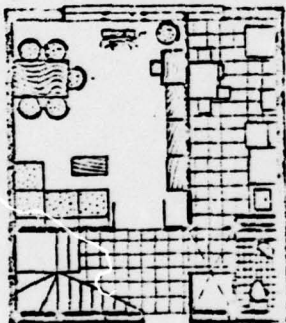
Layout of First and Fifth Floors



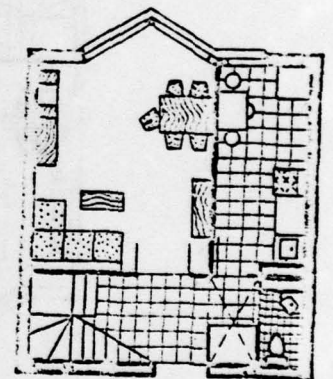
Two levels



Two levels

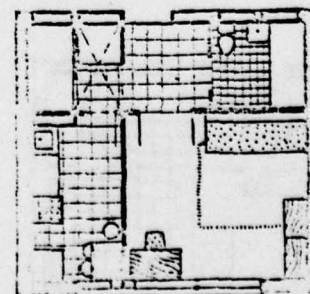
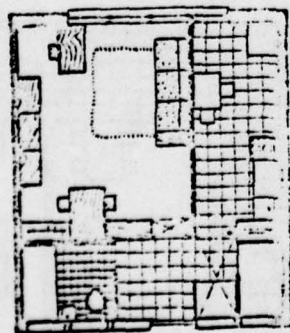


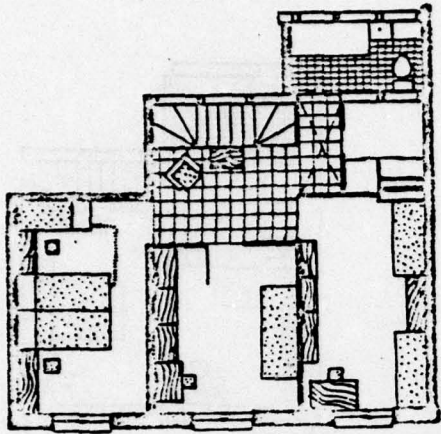
One level



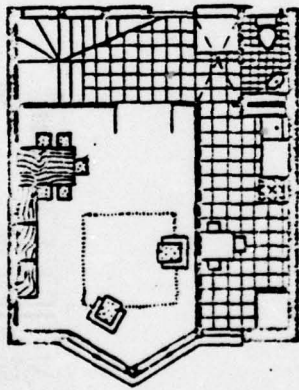
One level

Types of Apartments



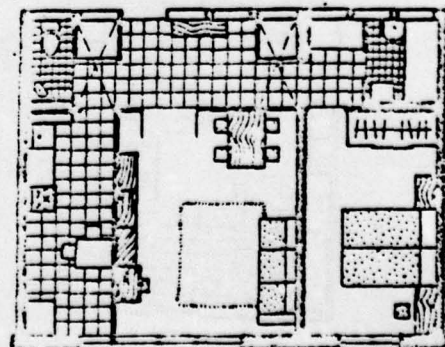
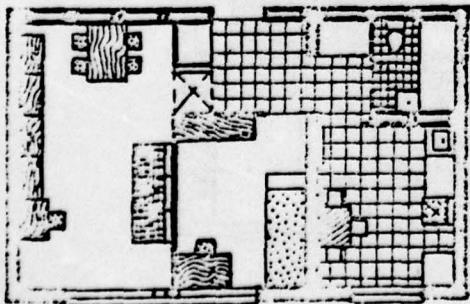


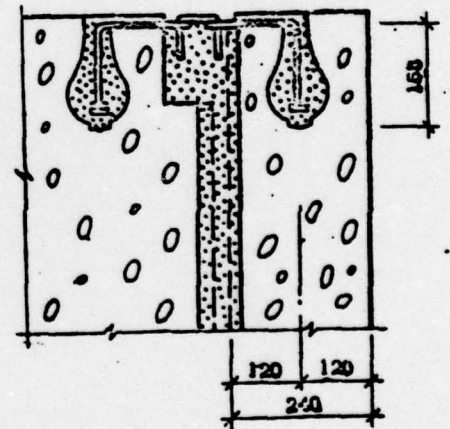
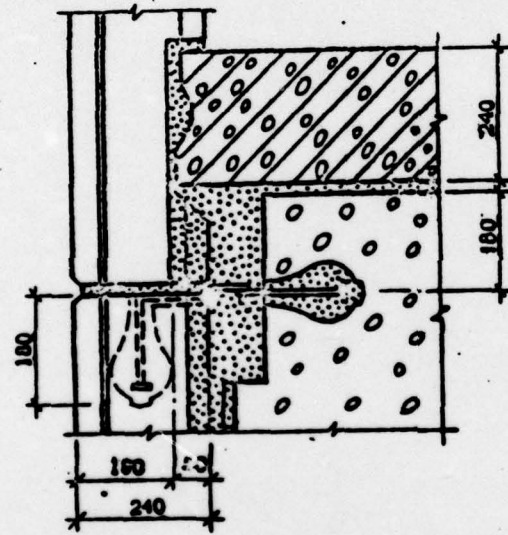
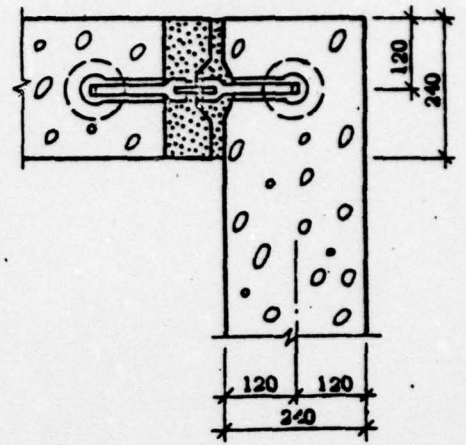
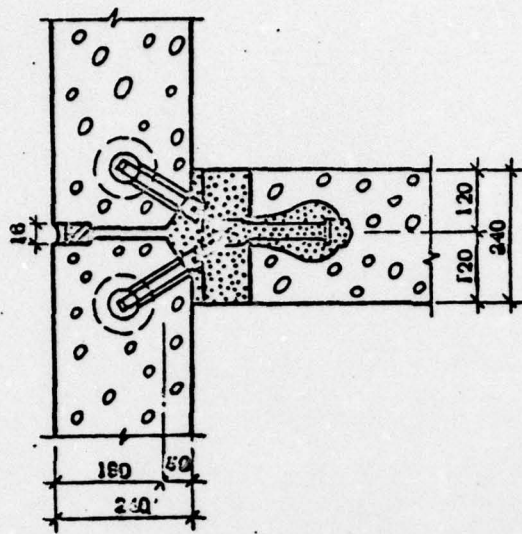
One level



Two levels

Types of Apartments





Wall Panel and Floor Tie Assemblies