



# Adrian Streich Architekten AG

## WERDWIES RESIDENTIAL COMPLEX

ZÜRICH - Switzerland

### ADRIAN STREICH

info@adrianstreich.ch

ARCHITECTS: Adrian Streich, Gerhard Stettler, Bruno Kurz  
Roger Frei, Roman Brantschen, Cristina Gutbrod  
Christoph Allematt, Hans Gritsch, Nicole Gerber

BUILDING MANAGEMENT: Bosshard+Partner AG

LANDSCAPE ARCHITECT: Schmid Landschaftsarchitekten GmbH

CONSTRUCTION ENGINEER: APT Ingenieure GmbH

ART: Ugo Rondinone, Frédéric Post

PROMOTER: City of Zurich

PHOTOGRAPHY: Adrian Streich, Roger Frei, Georg Aerni  
Andrea Helbling, Mara Truog

### PARTICIPATING FIRMS

Electro engineer: IBG B. Graf AG Engineering  
Heating and ventilation: Waldhäuser Haustechnik AG  
Building physics: Bakus Bauphysik & Akustik GmbH  
Geology: Gysi Leoni Mader AG

### DATES

EXECUTION PROJECT: June 2002  
STAR OF WORKS: April 2004  
END OF WORKS: June 2007

## DESCRIPTIVE BRIEF

The Grünau district is situated to the west of the city of Zurich and is delimited by topographic boundaries and the roads. The area where Grünau is located extends from the vast rural area of Limmat, to the north, and runs through the green belt outside the Grünau circle and the built-up zone along Bändliststrasse street, to the abrupt border formed by the A1 motorway, to the south.

Seven prism-like structures make up the new Werdwies complex. The compact structure of the buildings which have eight storeys and are distributed along the Grünau circle and Bänlistrasse street, give one the impression of an assembled and yet open space. The large green areas to the north intertwine with the structure of the district plots in the south. This way, in Grünau an integrating spatial cohesion is achieved. The broken lay-out of the complex comprised by structures of different sizes that become less voluminous as they approach the city, underlines the organic cohesion of the urban design. The regular distribution of the structures, laid out in rows, which breaks up the empty spaces, creates a sort of fabric containing a succession of open public spaces. One passes from large, transversal areas to exterior areas in the form of rooms facing each other, which, inside the building, are assembled together in a large internal space.

The different sizes of the blocks permitted the possibility of creating different apartment designs. On the ground floors there are premises for rent and public areas, such as shops, studios, a double kindergarden, nursery and a communal hall. These activities are complemented by large entrance halls and adjacent parts for use by the apartments, such as laundry rooms, lumber rooms for bikes and children's buggies. The different functions of the outer space are organised through the large windows. The wholesale store and restaurant, located on the outermost corner of the side opposite the city, form the beginning of the complex. The garages were located off-centre, at the edges of the complex. At the western end is an underground car park underneath the wholesale store and at the eastern end is an underground and ground-level car park covered by a lightweight construction. This prevents excessive sealing of the outer spaces by underground car parks.

### Dwellings

Similarly to the assembling of the urban design with the neighbouring parts of the district, a series of large linear galleries create a close relationship between the external and internal space. In turn, the galleries form the starting point of a principle based on ordering by layers that produced a large variety of modulations: Each dwelling includes a series of rooms that receive the light from different points with lounges, dining rooms and bedrooms overlooking the front or side of the general gallery. Depending on the preferences of the residents, there is no need to subdivide the space of up to 15 m with lightweight walls. These loft-like spaces are complemented by separate rooms with bathrooms. The spaces are formed by combining load-bearing multipurpose walls and lightweight non-load bearing walls that enable different floor designs to be created. It was possible to react to the different needs, types of dwellings during and after the planning and construction phase. This structural principle varies and can be applied to the constructive bodies, with differing thicknesses. All the apartments have entrances for the disabled and a bathroom for use with wheelchairs.

The lay-out of the different types of entrances depends on whether there are two, four or eight dwellings per floor: in the A-type block, the spatial layers are grouped around a landing on the stairs with two dwellings.

In the B-type block, with four dwellings per floor, the central entrance is formed by an individual hall from the stairway. The halls of the dwellings receive light through glass walls reaching up to the ceiling and are connected with the stairway hall. The entrance halls have different uses, for example, they can be used as a work area, games area or dining area.

Above the wholesale store in the C-type block the eight dwellings per floor are grouped around an indoor courtyard with a pergola. All the small dwellings are designed based on this type. Due to the location of the wholesale store on the entrance floor and the garage on the ground floor, the laundry rooms and parts of the lower ground floor used by the residents are located directly on the same floors as the dwellings.

### Music studios

In the A-type block, 28 individual rooms for rent have been conditioned as music studios. Entrance to these rooms, which are delimited by the stairwell, is obtained from the stairs or from the dwellings. In the event that the music studios are rented out to people not living in the complex, it is planned to include a sanitary area on the entrance floor.

### Construction

The specific properties of the heated and non-heated areas are adapted to meet economical constructive criteria. The heated and non-heated areas are arranged vertically and clearly distinguishable from each other from the constructive standpoint. The gallery layers were created by means of a mixed construction technique of concrete in situ and prefabricated concrete elements and joined to the ceilings of the floors with thermal insulation. The entrance floor, with the halls, laundry rooms and different utilities is also coated with concrete elements. On the apartment floors, a solid type of construction is planned and external thermal insulation with mineral plastering. This hybrid joint is then painted with homogeneous enamel. The diaphanous colour connects the constructive elements together and also conserves the characteristics of the different materials.

### Open space

The urban lay-out of the new Werdwies complex, with relevant solitary buildings in the construction line and spaces that open up in between, and the design of the cheerful entrance floors not used for living purposes are justified by the structure of the area surrounding the complex. Hard paving perforated by large construction blocks extending from the edge of the pavement to the area surrounding the buildings forms the basis of the external space, which is defined as open space in movement, because although the Grünau district has many open green areas, it has few public urban spaces that can be used and inhabited. The whole complex is joined by a wood with older trees that adds an expressive and unifying air. The lay-out of the trees increases the park-like appearance of the wood and creates a play of light and shade.

## CONSTRUCTIVE BRIEF

### General load-bearing structures

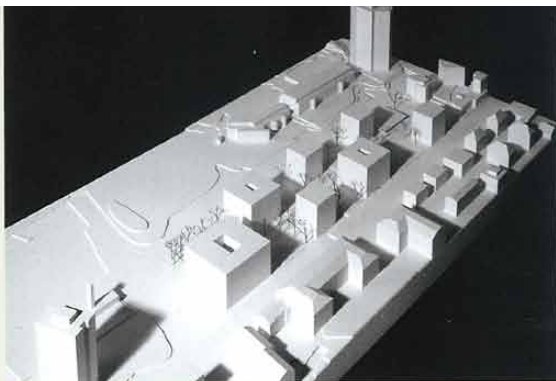
The construction of the apartments is in reinforced concrete. Mostly recycled concrete was used throughout the complex. In general the aim is to achieve an economical load-bearing structure with load-bearing axes crossing all the floors.

### Load-bearing construction of dwellings

The lower floors were built entirely of reinforced concrete. Given the fact that the underground water level could rise to about 1.3 m below the ground, the paving slabs and exterior walls under the ground were made of waterproof concrete. On the entrance floor, a dual-layer façade was laid out, with an exterior roof on non-load bearing concrete elements. All the walls and supporting structures on the ground floor were made of reinforced concrete. The load-bearing walls on the apartment floors are made of bricks. Reinforcement to protect from earthquakes and strong winds is guaranteed through individual load-bearing concrete walls and load-bearing beams with a concrete core. The lift shafts will have double leave walls. The stairwells will have a double leave wall. All the roofs are of reinforced concrete with a thickness of 22 cm. The galleries are connected with the buildings through mandrels applying transversal force. The open courtyard gallery in the C-type block is connected to the apartment roofs through projecting panels.

### Music studio load-bearing structure

The music studios in the A-type block are designed as homes within a home. They are completely independent and fully soundproofed.



#### Garage load-bearing structure

The garage consists of a concrete floor and ceiling with a steel load-bearing structure. The roof construction is designed as an extended grille of steel load-bearing girders with a light-weight cover that is semi-transparent.

#### Ditches and drainage

For making the ditches, it was necessary to lower the phreatic stratum. The ditches are insulated with sheet piles. The water is captured with filtering wells and pumping tanks.

#### Energy save and MINERGIE

The basis for the power design is regulated by the energy act of the canton of Zurich. Maximum thermal energy consumption permitted in a building (heating and hot water) must be in keeping with the limit defined by the new SIA 380/1 and be covered by 20% of renewable energies as the building roof does not reduce the permitted U values by more than 30% due to the respective thermal insulation. These requirements mean that the building roof and household techniques must be considered jointly.

#### Roof

The building roof complies with both the legal requirements and the MINERGIE requirements (20% more thickness than the value proposed in SIA 380/1). The windows are made of U 0.9W/sqmK insulated double glazing.

#### Heat generation and distribution

Heat is obtained from the central heating station in Grünau. For the purpose of ensuring the Werdwies complex fulfils the MINERGIE standard, efficiency increases must be reached with a heat output of at least 425 MWh/a. A connection with the local heating station will be installed on the boundary of the plot. Heat for heating and hot water will be distributed to the substations of each building through a long-distance pipe.

#### Heat emission

Heat is emitted through a floor heating system that is automatically regulated. As long as the heating temperatures are < 30° C, it is not necessary for individual regulation of the areas and settlements for heating expenses. However, in individual areas, such as bedrooms, heating can be considerably reduced or turned off from the floor heating regulator.

#### Controlled ventilation

The controlled ventilation necessary for complying with the MINERGIE standard is achieved with mechanical ventilation and heat recovery. The preparation of an air current with heat recovery is in the ceilings. The air flow entering the dwellings is distributed from the ascending zones in the different areas through pipes embedded in the concrete and aspired in the damp rooms. The return current openings in the rooms/corridors will be built with soundproofing.

#### Soundproofing

The external noise reaching the complex is largely produced by the traffic on the A1 and Bänlistrasse street.

The lay-out of the apartments on the plot takes into consideration exterior noise emissions. All the lounges have multiple orientations and can be ventilated through the east and west sides, far from the noise. The rooms exposed to noise have special double windows. Through the side openings ventilation leaves can be made to prevent noise. The surface area of the adjacent opening is structured in such a way that it can absorb the noise.

Protection from noise in commercial use, protection from noise pollution is defined by directly soundproofing the façade construction elements.

## SPECIFICATION SHEET

### BLOCK A

#### GROUND FLOOR

Business premise	500.63 m <sup>2</sup>
Attic adjoined to shop	224.78 m <sup>2</sup>
Tabern / Restaurant	143.90 m <sup>2</sup>
Vestibule	10.66 m <sup>2</sup>
Loading and unloading area	70.94 m <sup>2</sup>
Elevating platform	46.76 m <sup>2</sup>
Freezer	48.67 m <sup>2</sup>
Kitchen	25.2 m <sup>2</sup>
Office	13.8 m <sup>2</sup>
Safety room	7.86 m <sup>2</sup>
Janitor	2.43 m <sup>2</sup>
Technical central room	48.7 m <sup>2</sup>

#### TYPE A (24 units)

Entrance	10.4 m <sup>2</sup>
Bathroom	4.4 m <sup>2</sup>
Toilet	3.5 m <sup>2</sup>
Loggia	20.9 m <sup>2</sup>
Bedroom 1	14.4 m <sup>2</sup>
Bedroom 2	14.8 m <sup>2</sup>
Bedroom 3	14.6 m <sup>2</sup>
Distributor	6.9 m <sup>2</sup>
Estar, comedor, cocina	39.4 m <sup>2</sup>

#### TYPE B (24 units)

Entrance	8.7 m <sup>2</sup>
Bathroom	4.2 m <sup>2</sup>
Loggia	12.5 m <sup>2</sup>
Bedroom 1	14.8 m <sup>2</sup>
Living, lounge, kitchen	38.7 m <sup>2</sup>

### BLOCK B

#### GROUND FLOOR

Hall ground floor	66.40 m <sup>2</sup>
Studio	18.25 + 40.15 m <sup>2</sup>
Byke shed	47.33 m <sup>2</sup>
Laundry ground floor	37.65 m <sup>2</sup>
Kindergarden	143.95 m <sup>2</sup>
Kitchen	15.95 m <sup>2</sup>
Janitor	4.3 m <sup>2</sup>
Nursery	37.97 m <sup>2</sup>
Baby tram	9.21 m <sup>2</sup>
Storage	2.65 m <sup>2</sup>

#### TYPE C (6 units)

Bathroom	4.3 m <sup>2</sup>
Toilet	3 m <sup>2</sup>
Loggia	27.7 m <sup>2</sup>
Bedroom 1	15 m <sup>2</sup>
Bedroom 2	13.9 m <sup>2</sup>
Bedroom 3	15.2 m <sup>2</sup>
Landing	2.4 + 2.7 m <sup>2</sup>
Living, lounge, kitchen	35.3 m <sup>2</sup>
Vestibule	17.4 m <sup>2</sup>
Bedroom 4	14.2 m <sup>2</sup>

#### TYPE D (6 units)

Bathroom	4.3 m <sup>2</sup>
Toilet	3 m <sup>2</sup>
Loggia	20 m <sup>2</sup>
Bedroom 1	15 m <sup>2</sup>
Bedroom 2	13.9 m <sup>2</sup>
Bedroom 3	15 m <sup>2</sup>
Landing	2.4 m <sup>2</sup>
Living, lounge, kitchen	35.5 m <sup>2</sup>
Vestibule	17.4 m <sup>2</sup>

#### TYPE E (6 units)

Bathroom	5.5 m <sup>2</sup>
Toilet	3 m <sup>2</sup>
Loggia	12.8 m <sup>2</sup>
Bedroom 1	15 m <sup>2</sup>
Bedroom 2	13.9 m <sup>2</sup>
Landing	1.7 m <sup>2</sup>
Living, lounge, kitchen	35.1 m <sup>2</sup>
Vestibule	17.4 m <sup>2</sup>

#### TYPE F (6 units)

Bathroom	5.5 m <sup>2</sup>
Toilet	3 m <sup>2</sup>
Loggia	20.4 m <sup>2</sup>
Bedroom 1	15 m <sup>2</sup>
Bedroom 2	13.9 m <sup>2</sup>
Bedroom 3	14.8 m <sup>2</sup>
Landing	1.7 m <sup>2</sup>
Living, lounge, kitchen	35.3 m <sup>2</sup>
Vestibule	19.6 m <sup>2</sup>

### BLOCK C

#### PLANTA BAJA

Vestibule	48.06 m <sup>2</sup>
Byke shed	31.6 m <sup>2</sup>
Laundry	47.78 m <sup>2</sup>
Business premise	105.10 m <sup>2</sup>
Office	20.93 m <sup>2</sup>

#### TYPE G (6 units)

Entrance	6.9 m <sup>2</sup>
Bathroom	4.3 m <sup>2</sup>
Toilet	3 m <sup>2</sup>
Landing	4.6 m <sup>2</sup>
Living, lounge, kitchen	39.9 m <sup>2</sup>
Loggia	15.7 m <sup>2</sup>
Bedroom 1	15.5 m <sup>2</sup>
Bedroom 2	17.6 m <sup>2</sup>
Bedroom 3	14.5 m <sup>2</sup>

#### TYPE H (6 units)

Entrance	7.6 m <sup>2</sup>
Bathroom	4.3 m <sup>2</sup>
Toilet	3.1 m <sup>2</sup>
Landing	8.2 m <sup>2</sup>
Living, lounge, kitchen	39.9 m <sup>2</sup>
Loggia	20.4 m <sup>2</sup>
Bedroom 1	14.2 m <sup>2</sup>
Bedroom 2	15.5 m <sup>2</sup>
Bedroom 3	16.3 m <sup>2</sup>



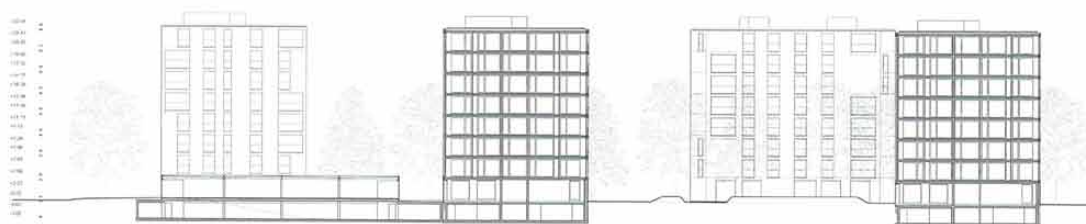
Situation



General floor level



North elevation



Section D

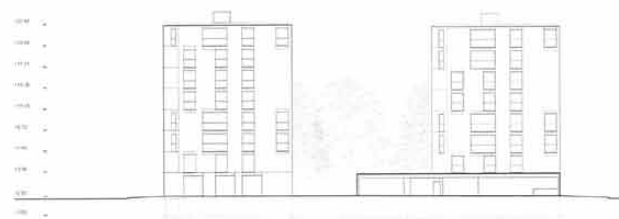




North B elevation



Section B D

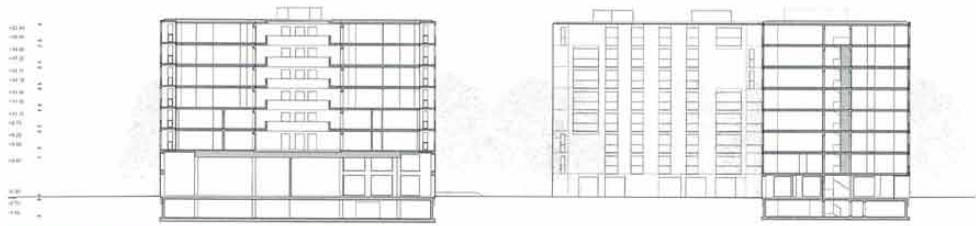


East elevation



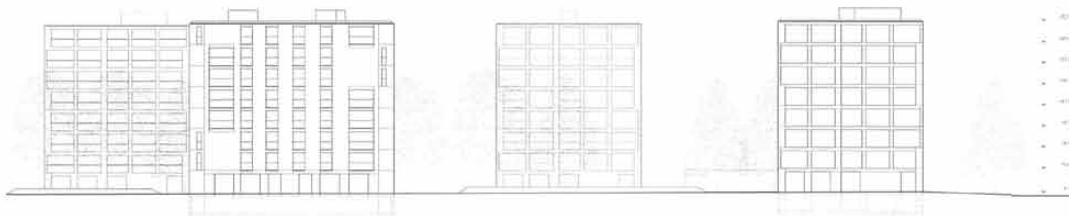


South elevation

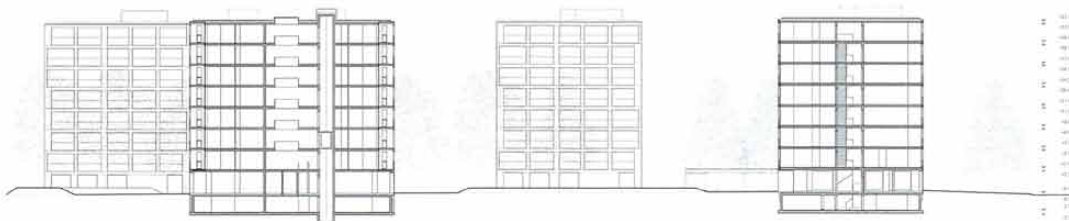


Section E





South B elevation



Section B E



0 5 10m  
1:800



West elevation



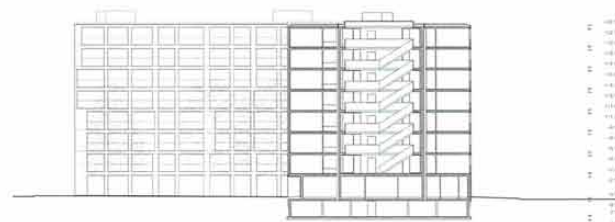
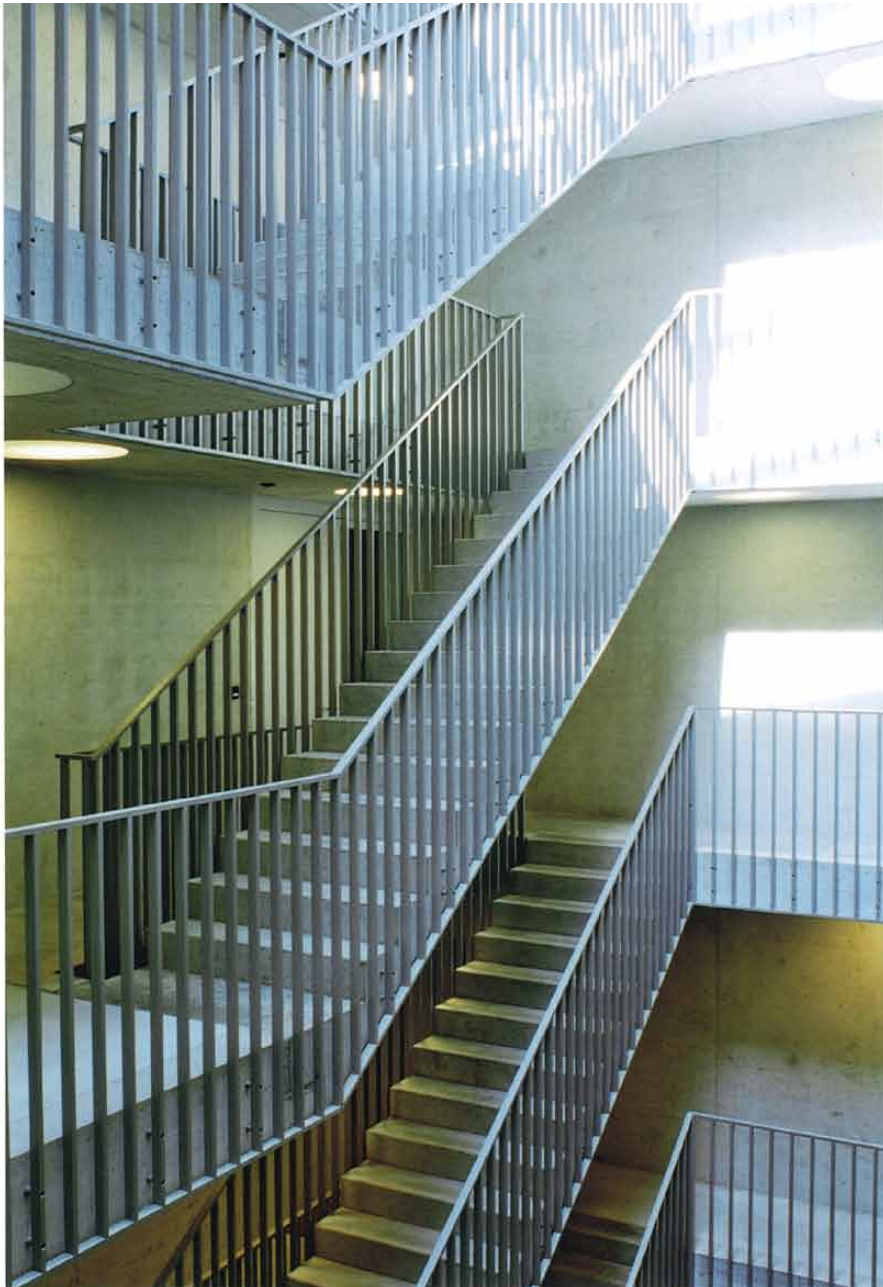
0 5 10m  
1:800



12

8 MULTI-FAMILY HOUSING - EDITORIAL PENCIL  
WERDWIES RESIDENTIAL COMPLEX  
Adrian Streich Architekten AG





Section C

0 5 10m  
1:800

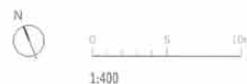


Ground floor level block A



Attic floor level block A

- |                               |                              |
|-------------------------------|------------------------------|
| 1. Premise                    | 11. Lumber room              |
| 2. Restaurant                 | 12. Living                   |
| 3. Vestibule                  | 13. Corridor                 |
| 4. Loading and unloading area | 14. Toilet                   |
| 5. Elevating platform         | 15. Closet                   |
| 6. Freezer                    | 16. Air conditioning room    |
| 7. Kitchen                    | 17. Electric                 |
| 8. Office                     | 18. Central heating room     |
| 9. Security staff room        | 19. Central technical office |
| 10. Janitor room              |                              |





12

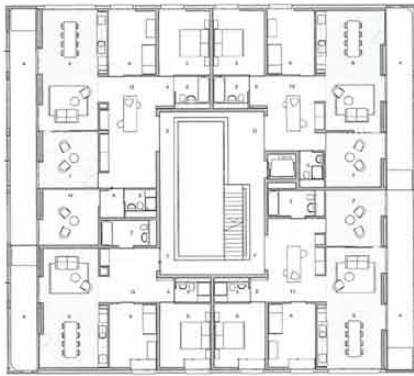
MULTI-FAMILY HOUSING EDITORIAL PENCIL  
**WERDWIES RESIDENTIAL COMPLEX**  
 Adrian Streich Architekten AG



1. Entrance
2. Bathroom
3. Toilet
4. Loggia
5. Bedroom 1
6. Bedroom 2
7. Bedroom 3
8. Distributor
9. Living, lounge, kitchen
10. Laundry
11. Music room
12. Lumber room
13. Vestibule
14. Bedroom 4
15. Ground floor vestibule
16. Studio
17. Bike parking
18. Laundry ground floor
19. Kindergarden
20. Kitchen
21. Janitor's room
22. Nursery
23. Baby prams
24. Storage

Floor type block A





Floor type block B



Ground floor level block B





Floor type block C

1. Ground floor vestibule
2. Byke parking
3. Laundry
4. Premise
5. Office
6. Entrance
7. Toilet
8. Bathroom
9. Landing
10. Living, lounge, kitchen
11. Loggia
12. Bedroom 1
13. Bedroom 2
14. Bedroom 3
15. Music room



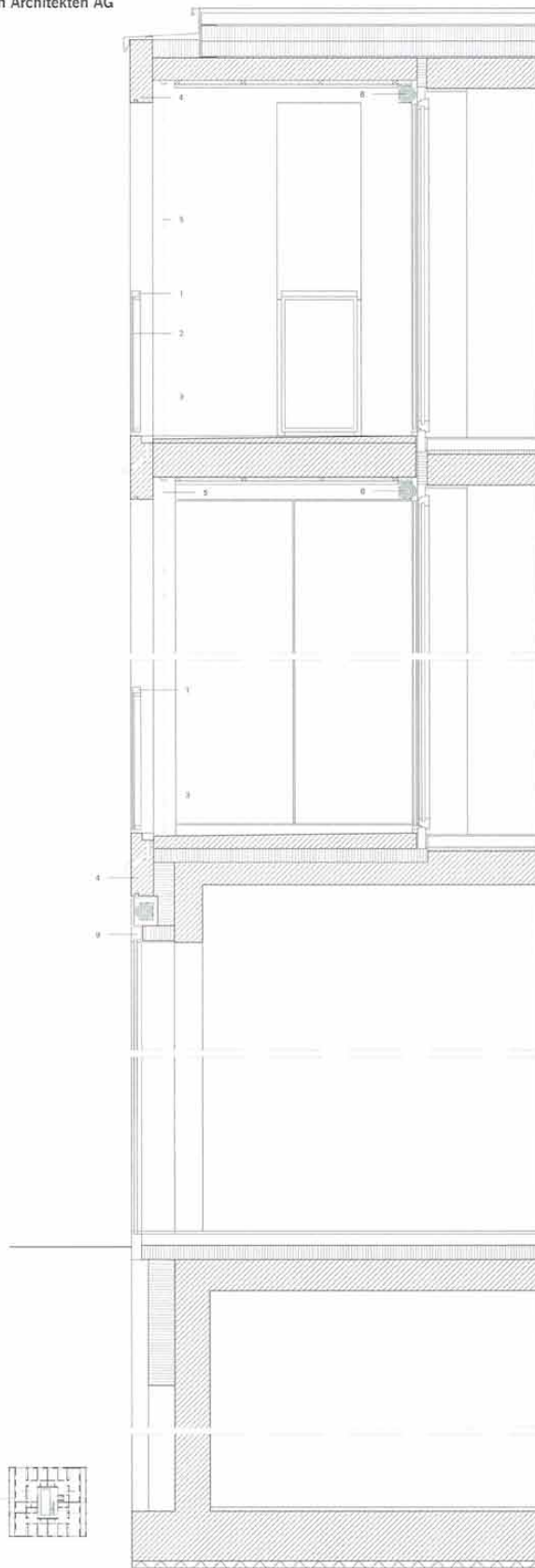
Ground floor type block C



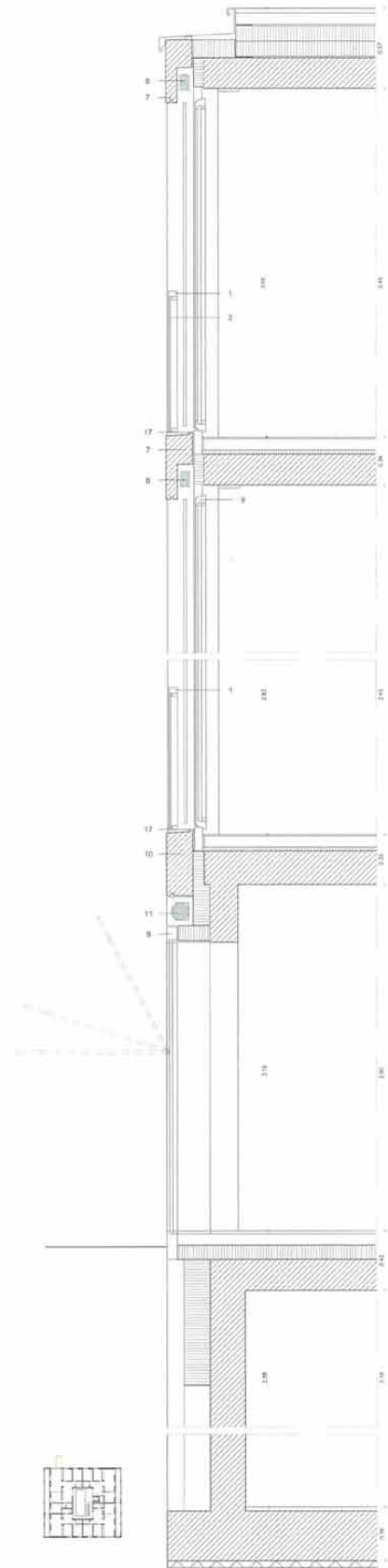


**12**

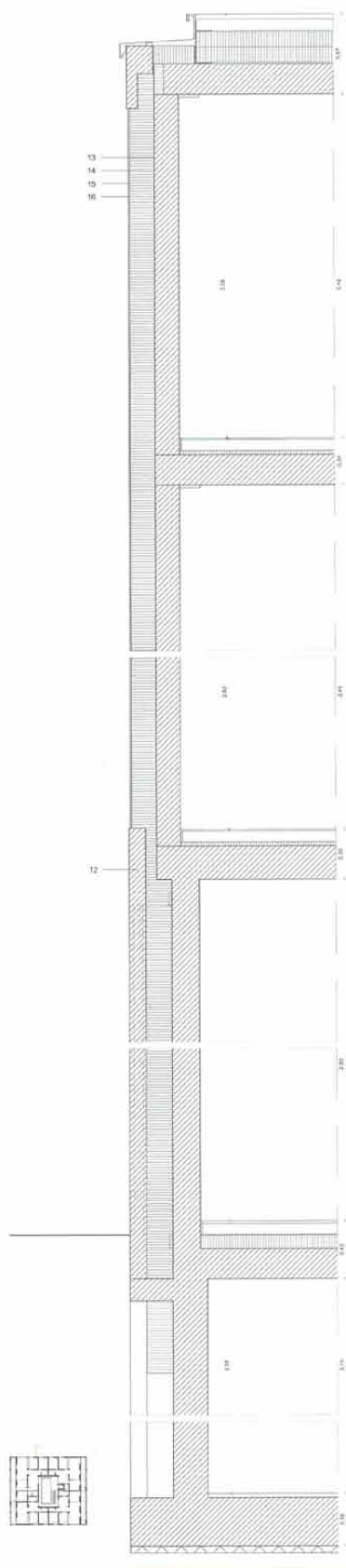
8 MULTI-FAMILY HOUSING - EDITORIAL PENCIL  
**WERDWIES RESIDENTIAL COMPLEX**  
Adrian Streich Architekten AG



Constructive section 1



Constructive section 2



Constructive section 3

1. Handrail: steel profiles frames with dust coating
2. VSG, 2 x 5 mm Glass covered with a green sheet
3. Loggia
4. 16 cm. prefab concrete incrusted in framework with joints sealed with elastic tapes
5. Cloth blind weather resistant
6. Bedroom blind, in cloth rails weather resistant.
7. 20 cm prefab concrete hanging and sealed 20 cm with elastic joints
8. NCS aluminium horizontal slats blind
9. Varnished fir tree or natural pine wood frame
10. Prefab concrete with 20 cm intergated parapet and lintel hanging, sealed with elastic joints
11. Swinging aluminium blind rail and weather resistant cloth
12. 12 cm prefab concrete hanging, with joints sealed with elastic tapes
13. Glue mortar
14. Mineral wool thermal panel
15. Basic whitewash
16. Final silicate whitewash, 1 mm grain with background paint
17. Rain gutter

