A MULTIPURPOSE FACILITY FOR NOVAGGIO, SWITZERLAND

by

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ACKNOWLEDGMENTS

Special thanks to my wife, , for her extraordinary support throughout my architectural education, and also to , who in the midst of the struggle, taught me that architecture is really, after all, common sense.

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INTRODUCTION

The building that is presented here is viewed as one specific project in a series of design experiences leading toward an understanding of, and a competence in the design of the built environment. It is not intended to be an all- encompassing project that incorporates most of the design skills that have been acquired during years of study, but rather an example of one solution to one design problem.

PROGRAM

The building program calls for a multi-purpose facility for the town of Novaggio, Switzerland. Novaggio is a small village of approximately 600 inhabitants located nine miles from Lugano, which is on the Swiss-Italian border. The characteristic terrain of the town consists of wooded hills at the foot of a mountain range. The site for the building is located approximately one half mile southeast of the town center on a large level tract of land that has been zoned for public use.

The program for the building consists of three main areas of use:

- A primary school area which also includes some community facilities.
- An area for storage of equipment belonging to the regional fire department.
- An area for storage of varied equipment belonging to the municipality.

Primary School Facilities/Community Facilities

The primary school facilities provide space for teaching grades up to and including the fifth year. The ages of the pupils are generally between six and eleven.

Functional Requirement	Space Requirement
• Two classrooms for normal classes with a maximum of 20 pupils per room (this space must be enlargable by 1 to 3 additional class-rooms)	60 square meters
• Workroom for instruction in manual skills; arts and crafts	50-60 square meters
• Coat room for students	15-20 square meters
• Room for teachers which also allows space for ad-ministration, conferences, and a small library	20-30 square meters
• Doctors room for check-ups, controls, etc. (must connect with teachers room)	15-20 square meters

• Gymnasium (10m X 18m, 5.5m high)	180 square meters
• Room for storage of gymnasium equipment	20-25 square meters
• Two dressing or locker rooms for 10 to 12 persons each	20-25 square meters
• Shower room (in connection with locker rooms)	15-20 square meters

The community space requirements are designed to fill a need within the area for gathering places for social functions of all sorts including associations, clubs, conferences, and movies.

Functional Requirement	Space Requirement
• Multi-purpose room (this room should be connected with the entrance hall or lobby and possibly the gym. It should not be designed as a separate unit, but should constitute the center of the design	100 square meters
• Entrance lobby	15-20 square meters
• Coat room (in connection with student coat room)	15-20 square meters
• Men's and Women's toilets	15-20 square meters
• Store room for chairs, cleaning tools, etc.	15-20 square meters
• Mechanical spaces	as necessary
• Covered porch in front of main entrance	20-30 square meters

Storage Facilities for the Regional Fire Department

These facilities are for the storage of equipment belonging to the regional fire department.

Functional Requirement	Space Requirement
• Three garages for department vehicles (one jeep, one land-rover, one volkswagon bus, and two motor pumps. Ceiling height 3.5m minimum)	3.5m X 7m each
• Room for lectures	20-30 square meters
• One dressing room with showers	30-40 square meters
• Room for apparatus	20-30 square meters

• Entrance and exit court for vehicles with room for exercise and car wash	200-300 square meters

These facilities must be able to be expanded to accomodate an additional two to three vehicles at some future time.

Storage Facilities for the Municipality

Functional Requirements	Space Requirements
• Garage for one vehicle	3.5m X 7m
• Room for tool and material storage (for road maintenance and snow removal. Must connect with garage)	20-25 square meters
• Workshop for the water supply	15-20 square meters

• General storage room	20-30 square meters
• Court for entrance and exit in combination with fire department	same as fire department

These facilities must be expandable by at least one vehicle space in the future.

APPROACH

Any design process must proceed from the general to the specific. To begin this process, certain basic decisions must be made so that a base is developed upon which to build. In view of the diverse nature of this building program and the requirement that certain areas of the building be expandable, an initial decision to design a building along a linear path was made. This linear approach was taken for three basic reasons:

- Function
- Economy and ease of structure
- Expandability

An examination of these three basic reasons follows.

The functional requirements of the program demand a division of spaces along somewhat strict lines. That is, in most cases it is necessary to create separate physical spaces for each programmatic element, and in some cases to provide a saparation between them. It would be poor planning, for example, to locate the regional fire department adjacent to the classrooms. Thus, as the following diagram indicates, a linear organization allows these various programmatic elements to be located along a spine which provides the necessary separation.

This linear core also simplifies the building's structural system somewhat by providing one main load bearing wall through the center of the building which is broken at appropriate places

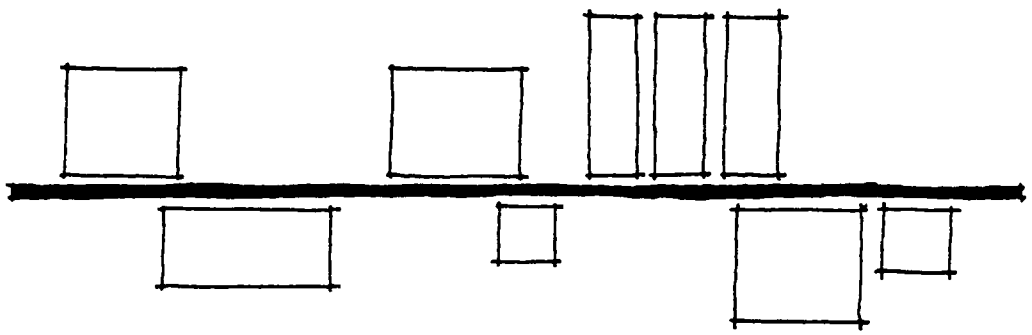


Figure 1 Linear Organization

to provide access to both sides. Thus, with the exception of the gymnasium, this wall takes one half of the load bearing capacity of the roof; the other half is transmitted to a parallel series of columns and smaller walls designed primarily with concern for the function of the interior spaces.

The third advantage of a linear design is its adaptability to expansion. The regional fire department, the municipality, and the school all have requirements for future expansion, and as indicated in the diagram, (figure 2), this is a more simple matter in a linear building than might have been the case in a different type of design.

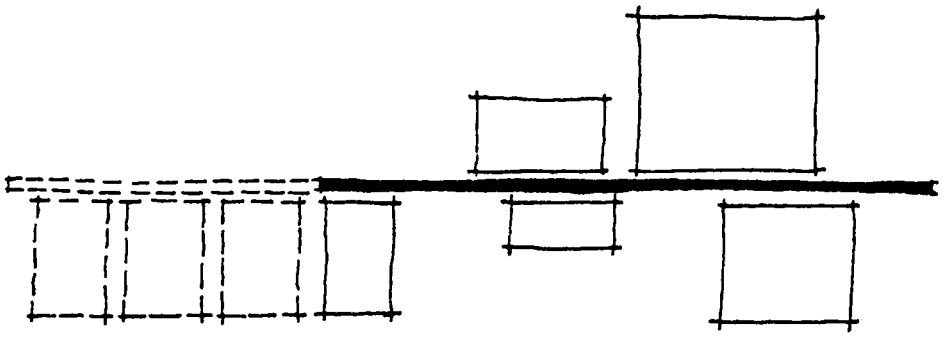


Figure 2 Expandability of a Linear Organization

A prime consideration in the development of the architectonic form and vocabulary was the existing character of the town of Novaggio. The introduction of a building of this size into the town presented a problem in terms of scale. A glance at the site plan will reveal the relative size of the new structure in relation to existing town structures. For this reason careful attention had to be given to the design in such a manner as to not impose an out of scale building on the existing environment since the extant character of the town might suffer. The decision for a one story building was facilitated by the programmatic divisions which indirectly called for this type of building. The problem of scale was therefore more one of

horizontal scale than vertical. The design of the building's structure was the single most important factor in allowing the total building design to evolve in a horizontal manner without creating a building out of scale. This was primarily due to the use of two elements. First, in areas where large openings or windows were desired, a series of closely spaced, small columns was employed. Second, in areas where spaces were to be enclosed with solid walls, the walls employed a series of closely spaced vertically divided windows located high in the wall. These two uses of closely spaced vertical elements providing a breaking up of the long horizontal planes that might otherwise have tended to be incompatible with the existing elements

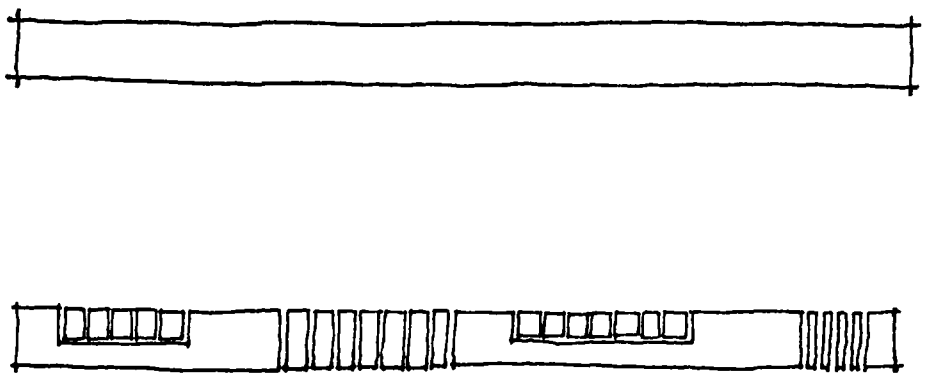


Figure 3 Change in Horizontal Scale

of the town. In doing so this provided an ornamental scale vocabulary in keeping with so many existing buildings.

The decision to utilize a somewhat traditional roof form also grew out of a concern for the preservation of the existing character of the town. It was felt that a building this large would have a considerable visual impact in a village the size of Novaggio no matter what form it took. Thus an effort was made to reduce its visual impact to a minimum in a number of ways. The selection of familiar forms was one of these. The hip roof utilized was designed to do two things in addition to its normal function. First, it was designed as an elongated version of the traditional roof in a effort to reflect and

reinforce the linearity of the building. Second, it was pierced by skylights or modified in such a manner as to allow light to enter in some other way, such as in the clerestory windows in the community room. Because the roof was designed as such, there are no rooms that do not receive natural light.

The materials selected for the building were primarily brick and wood. Brick is utilized in the bearing walls, the exterior enclosure walls, and all the landscape planters. Wood is used for the roof trusses, the exposed planked ceilings, and the small structural columns. A minimal visual impact by the building materials was sought in a further effort to make a large building

more responsive to its environment.

CONCLUSION

It's a nice building.

a municipality
b fire department
c showers
d lecture
e mechanical
f gymnasium
g community
h teachers
i classrooms
j apparatus
k workroom

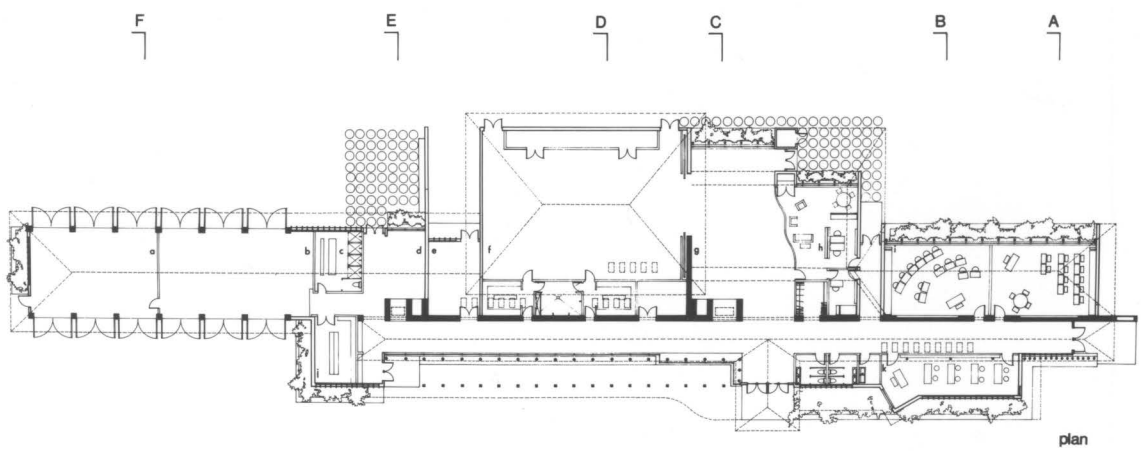


FIGURE 4 PLAN

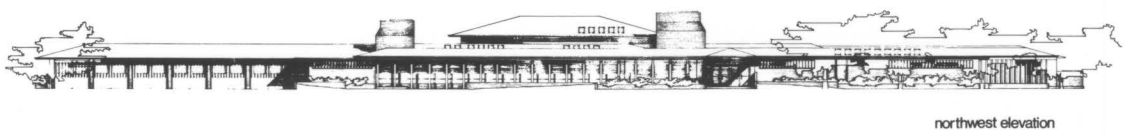
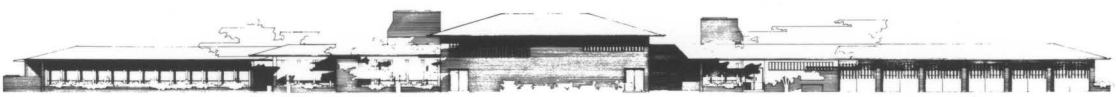


FIGURE 5 NORTHWEST ELEVATION



southeast elevation

FIGURE 6 SOUTHEAST ELEVATION

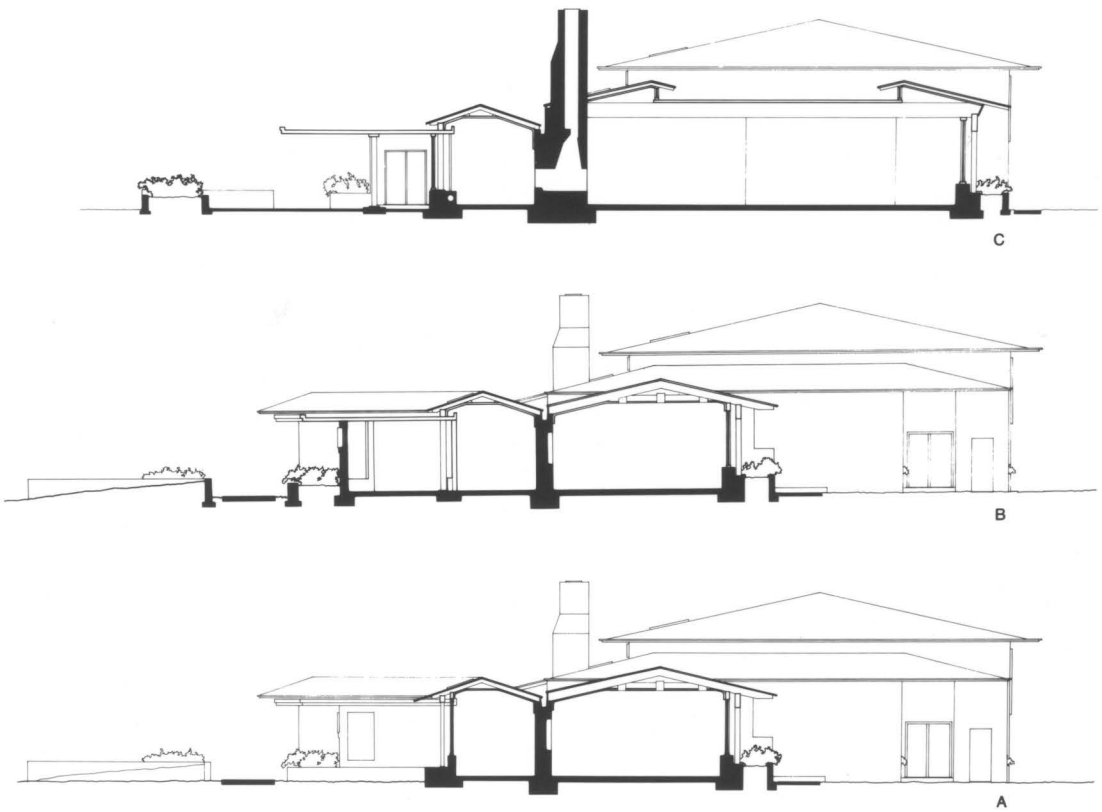


FIGURE 7 SECTIONS

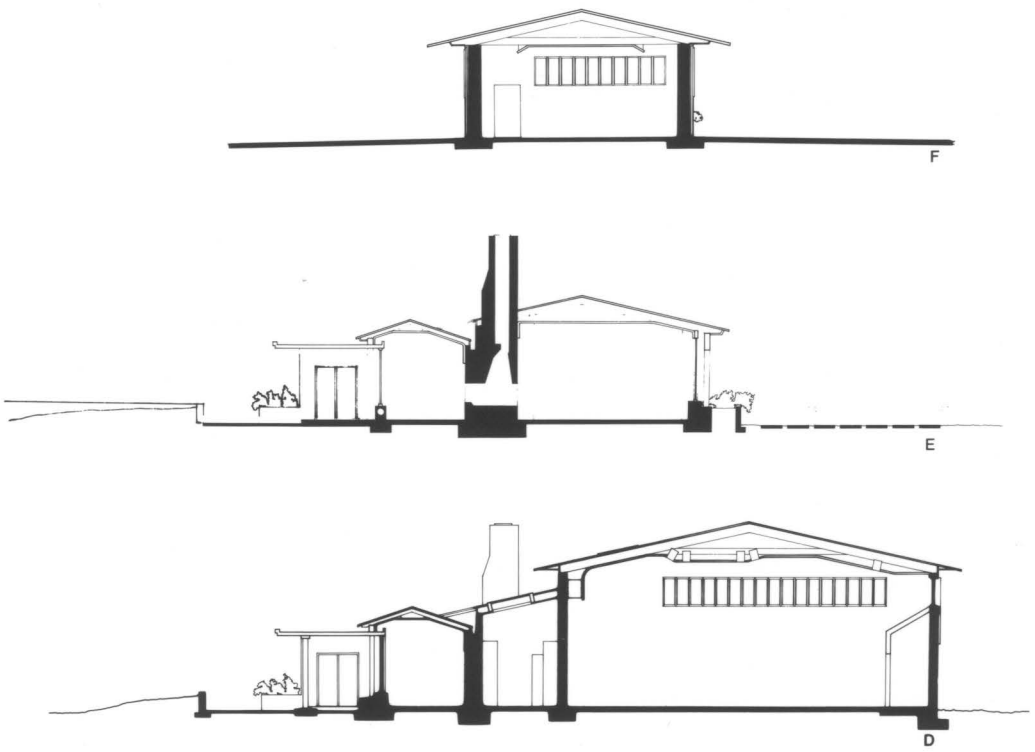


FIGURE 8 SECTIONS

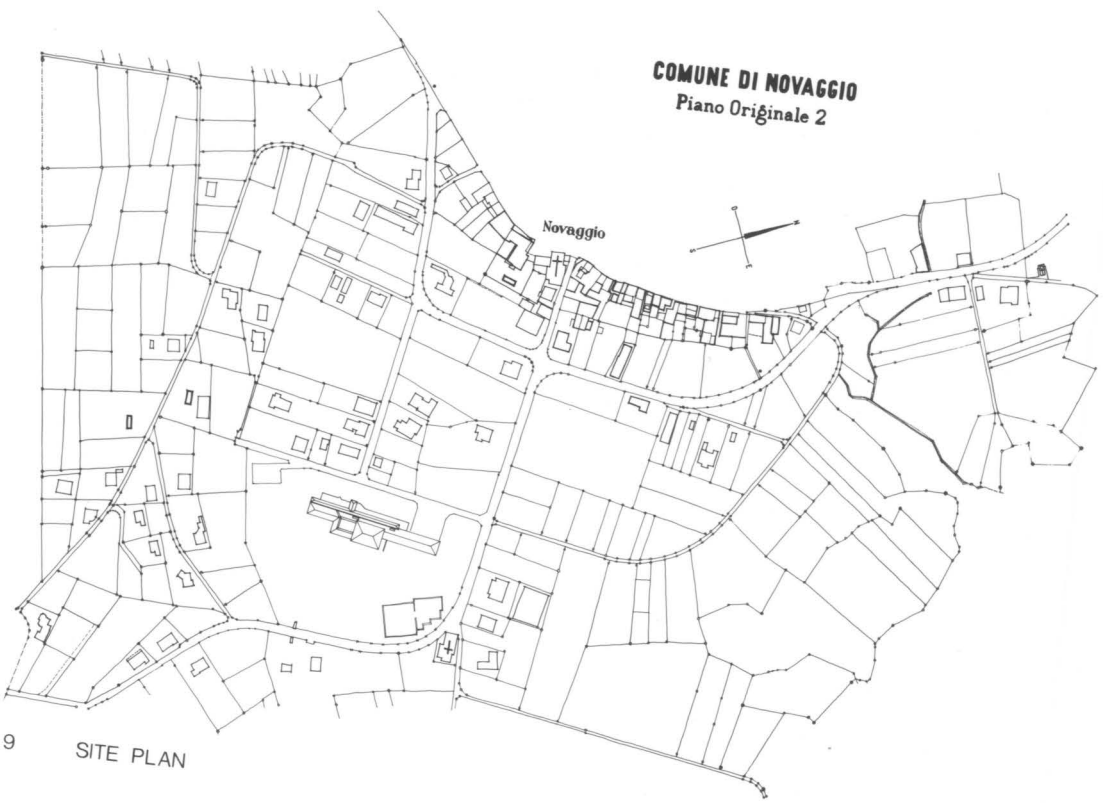


FIGURE 9 SITE PLAN

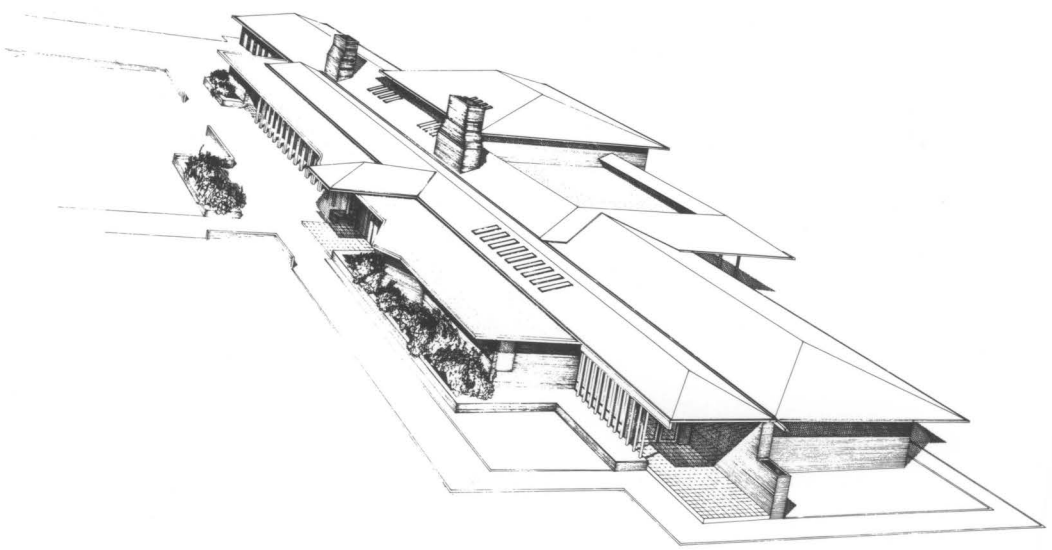


FIGURE 10 PERSPECTIVE

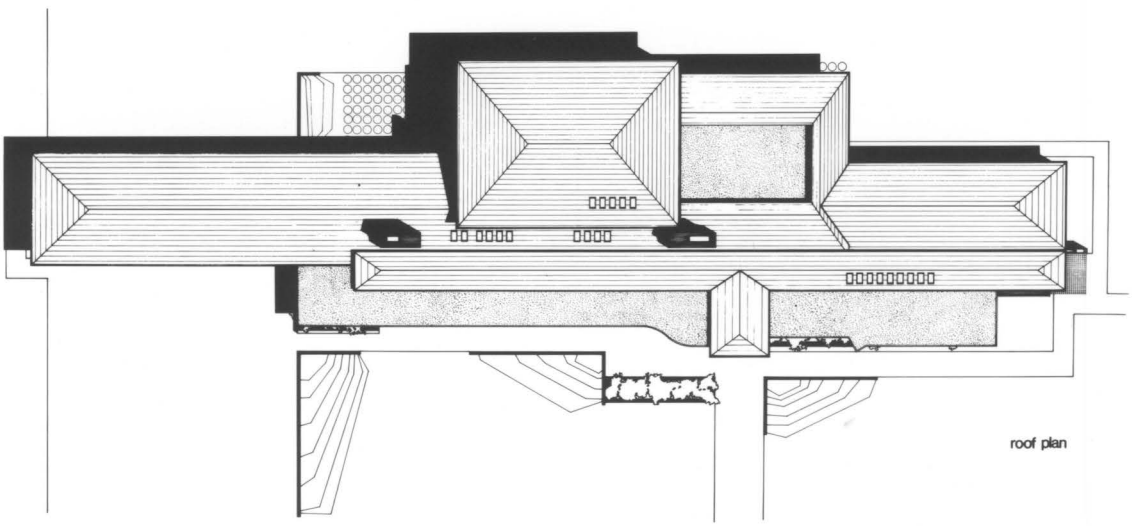


FIGURE 11 ROOF PLAN

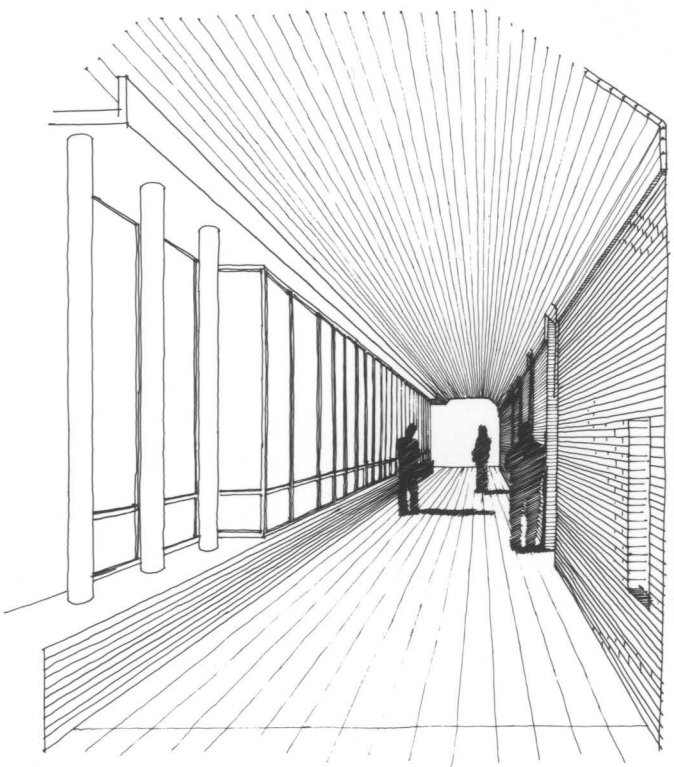


FIGURE 12 INTERIOR VIEW

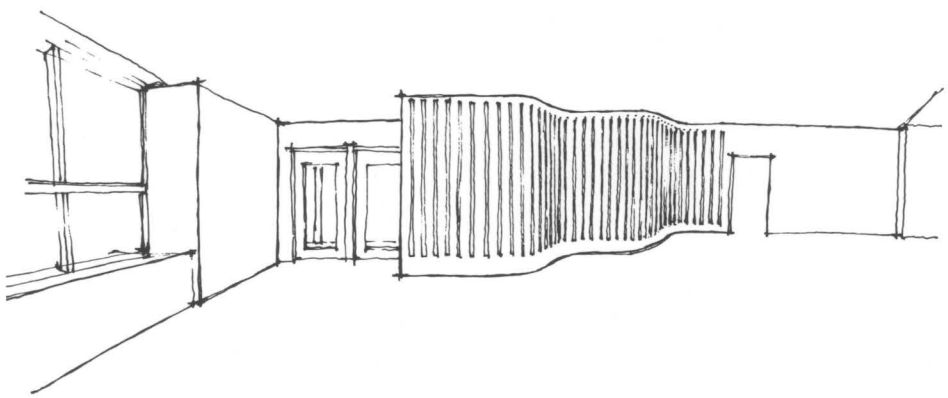


FIGURE 13 INTERIOR VIEW

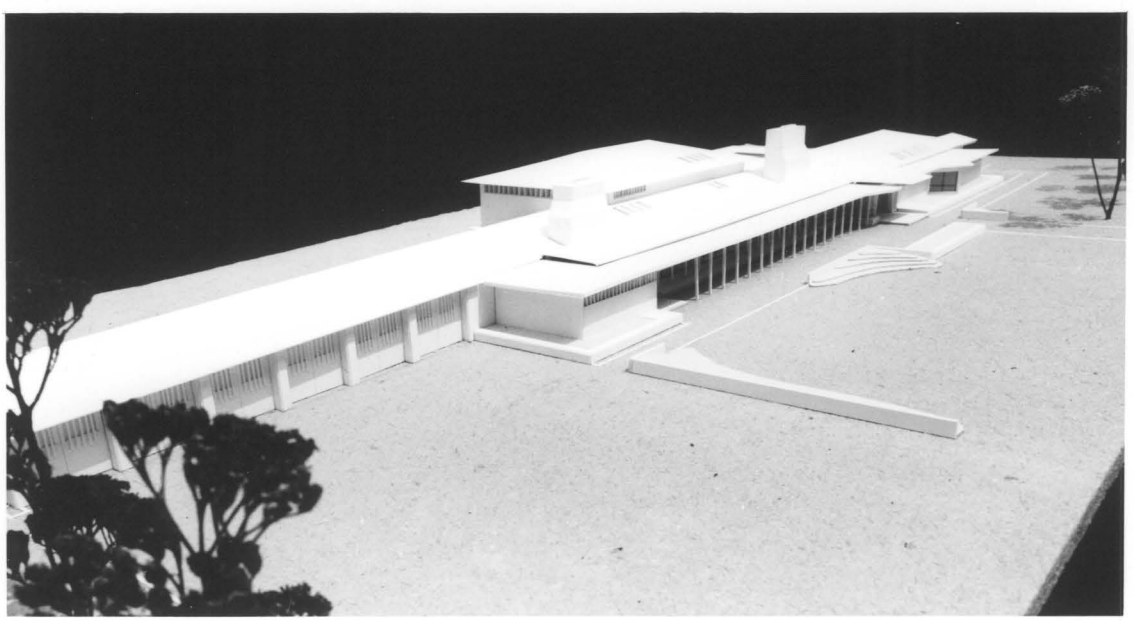


FIGURE 14 PHOTOGRAPH OF MODEL

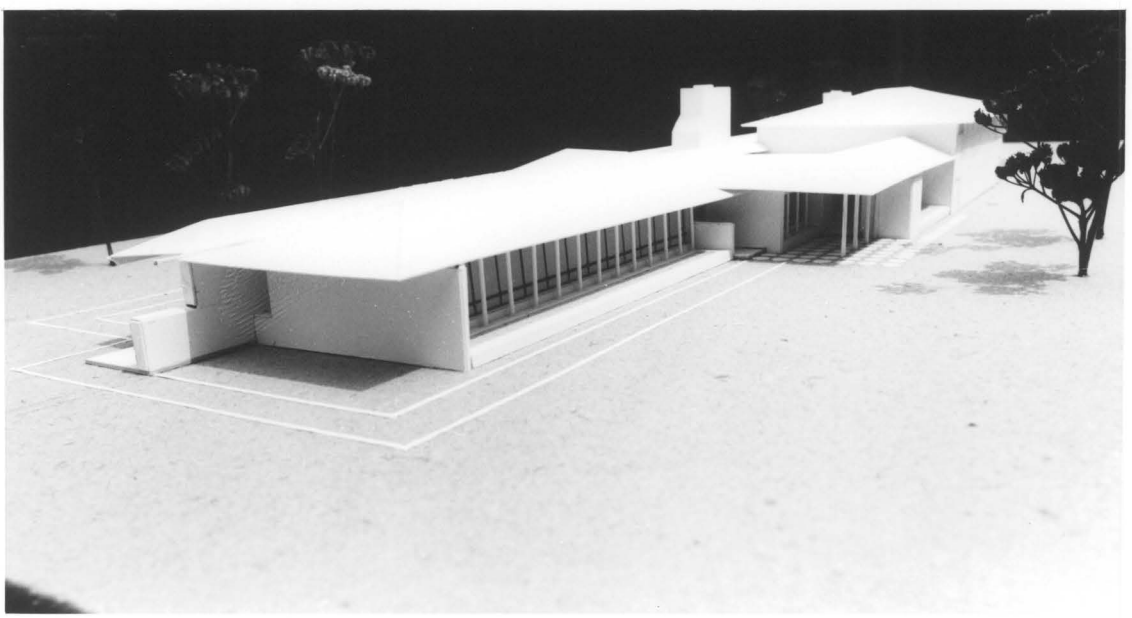


FIGURE 15 PHOTOGRAPH OF MODEL

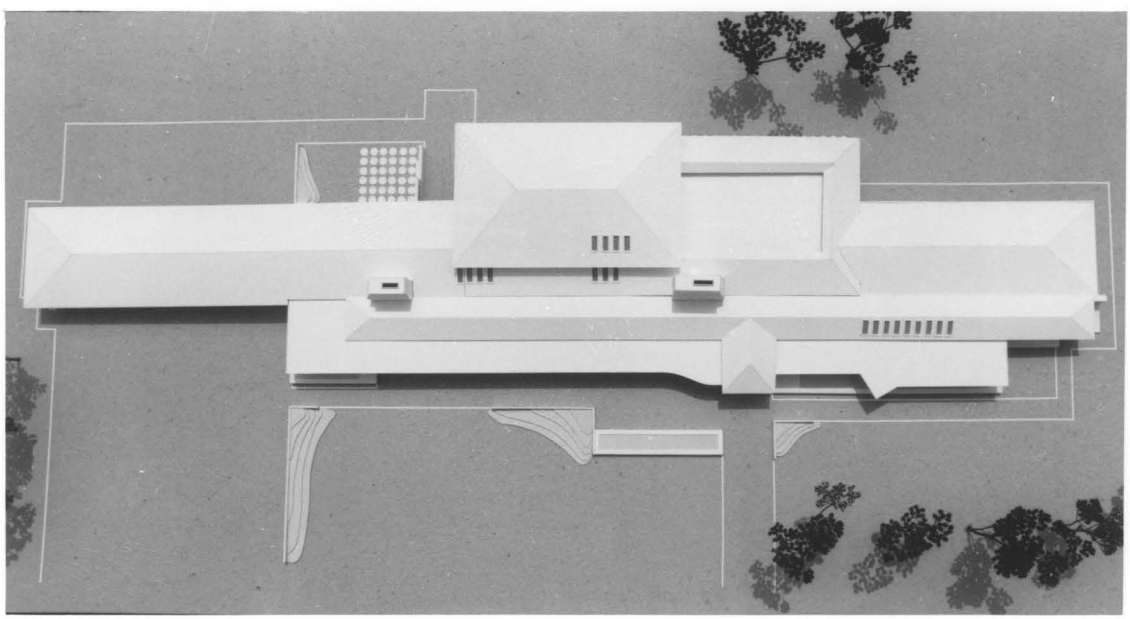


FIGURE 16 PHOTOGRAPH OF MODEL

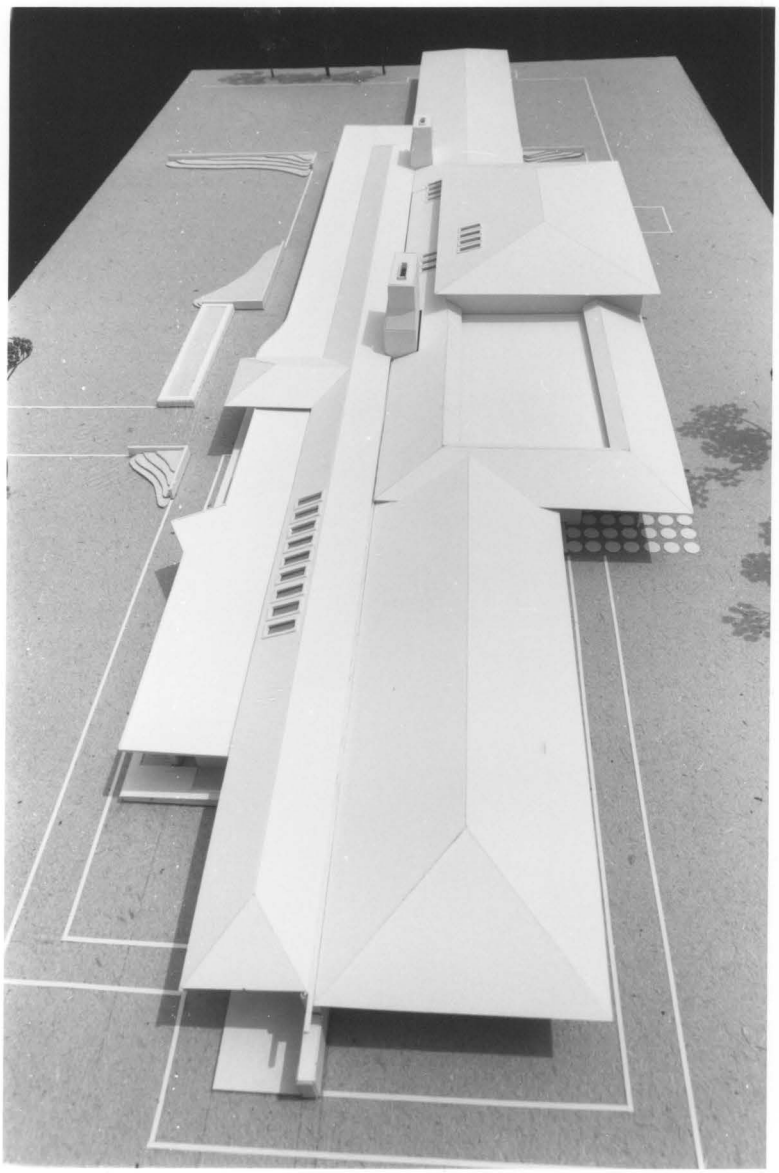


FIGURE 17 PHOTOGRAPH OF MODEL

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(ABSTRACT)

A multipurpose facility for the village of Novaggio, Switzerland was designed to provide the following:

- space for a primary school for grades one through five
- a multi-use community space
- a storage area for the regional fire department
- a storage area for the municipality

A linear organization was chosen to create an easily organized and economically constructed building which might be easily expanded in the future. A low profile was desired and was acheived by limiting construction to one story. Indigenous materials and forms were utilized to create a minimal impact on the extant character of the town.