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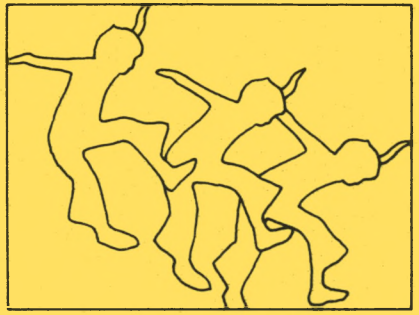
CHILDRE 'S ENVIRON E TS ADVISORY SERVICE



RESEARCH AND DEVELOPMENT PROGRAM

International Year of the Child 1979

L'Annee internationale de l'enfant 1979

CMHC's participation in the International Year of the Child.

PROJET PARAPLUIE

A user generated shelter design for the recreation of school-age children in a Montreal housing project.

Research Project 12

Canada Mortgage and Housing Corporation
Société canadienne d'hypothèques et de logement

PROJET PARAPLUIE

A USER GENERATED SHELTER DESIGN FOR THE RECREATION OF SCHOOL-AGE CHILDREN IN A MONTREAL HOUSING PROJECT.

Pierre Teasdale, Architect

This project was carried out at l'Ecole d'architecture of the Université de Montréal and was financed by Canada Mortgage and Housing Corporation as part of a research programme initiated by the Children's Environments Advisory Service during International Year of the Child.
January 1980.

Aussi disponible en français.

FORWARD

The Children's Environments Advisory Service's Research and Development Program for the International Year of the Child has as its objective the advancement of good environmental planning and appropriate family housing design that supports the needs of children and youth (0-18).

An in-house CMHC IYC Committee, consisting of representatives of various CMHC divisions that impact on family housing and regional representatives, identified the gaps in the field. The committee selected projects of directed research to close these gaps and identify problem areas, to find solutions where possible, and to provide input to corporate policy and programs in the field of family housing. Five categories of investigation were selected to respond to these needs:

- Assembly/Production of Data

  To assemble a data bank on the condition of children in relation to their residential environment and to relate this data to data being collected by other departments and agencies.

- Evaluation

  To examine existing housing situations catering to the needs of families with children at home.

- Design and Awareness Material

  To develop proposals for improving housing and the surrounding environment through design.

- Demonstration

  To construct demonstration facilities for children, or to introduce improved facilities for children in on-going projects.

- Development of Policy Proposals

  To review the condition of children in Canada, and present proposals to meet or correct emerging problems in relation to housing.

The CMHC IYC Committee will develop for CMHC Management a policy paper based on the facts, figures and findings of the Research and Development Program for IYC, with implications for future policy, programs and research affecting family housing.

The Children's Environments Advisory Service plans to use the focus on children made possible by the Year of the Child to plan new directions for our service. We intend to conduct further research, provide additional resources and sustain the momentum of our advocacy role within CMHC.

This project is one of 21 projects (titles on last page) in the Research and Development Program for the International Year of the Child. These reports are distributed by the Children's Environments Advisory Service and are available from the Canadian Housing Information Centre.

Satya Brink

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ABSTRACT : "PROJET PARAPLUIE"

A USER GENERATED SHELTER DESIGN FOR THE RECREATION OF SCHOOL-AGE CHILDREN IN A MONTREAL HOUSING PROJECT.

In Canadian residential environments there is usually a lack of sheltered recreational spaces, other than the dwelling unit, where children can play in inclement weather and engage into kinds of activities which cannot take place in the home because these activities are usually too noisy, too messy, too large to handle, or simply too irritating for parents.

The purpose of this project was to develop such a sheltered space in a typical Montreal four storey walk-up residential development. A four steps procedure was developed to involve the school-age children in the design process of the shelter.

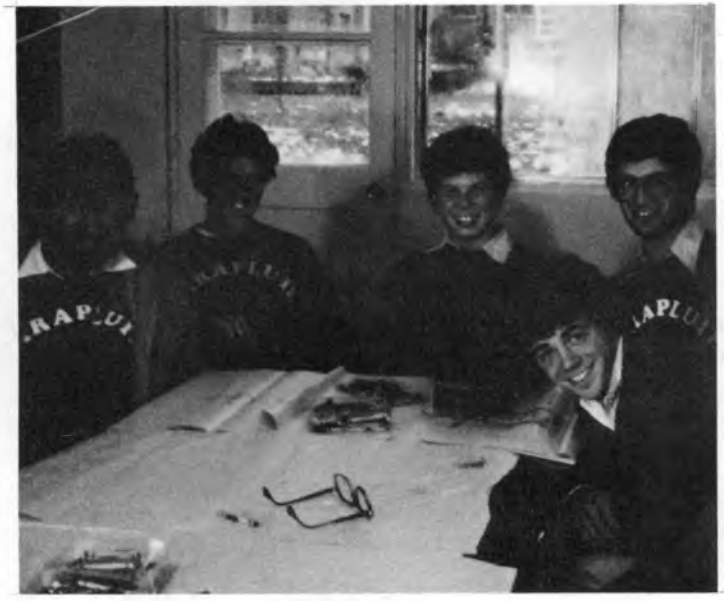
STEP 1 : Children were asked to express their needs and to comment about the shelter project in a trailer which was parked in their housing complex. At the same time other children were given the opportunity to make drawings and build models of ideal shelters; this took place in a vacant apartment also located in their housing complex.

STEP 2 : Based on a review of the literature and most particularly on the comments made by the children, a group of architectural students from the Université de Montréal developed design alternatives.

STEP 3 : The design alternatives were submitted to the children and they were asked to comment and vote on the proposed alternatives.

STEP 4 : On the basis of the comments that were made by the children and by various specialists, the consultant developed a final solution.

This approach generated a lot of enthusiasm among the children who played their role very seriously. At the same time they provided the consultant with a lot of useful information. Our conclusion is that this experience has been very valuable and would be worthwhile repeating.



A few members of the team at the end of the first day's work on site

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I would like to express my gratitude to the following people who kindly participated in carrying out this study.

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Marie-France Moysan, student, École d'architecture, Université de Montréal

A few of the participants at the start of the first day of work on site

Serge Robidoux, student, École d'architecture, Université de Montréal

Jacques Derome, Professor, École d'architecture, Université de Montréal

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Lastly, I would like to thank, in a very special way, the youngsters living in les Résidences Neuville for their participation in this project. They contributed, in fact, in a very important way in conceiving the solutions which are proposed in this report.

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CHAPTER 1 - INTRODUCTION

1.1 POLICIES GIVING RISE TO THE PROJECT

During the International Year of the Child, Canada Mortgage and Housing Corporation (CMHC) provided grants to 21 educators, researchers and designers across the country to make it possible for them to study certain aspects which seemed to be priorities to CMHC as to children's needs in residential environments.

The Corporation's main objective in announcing this programme was to make headway with the design of children's recreational equipment while hoping that research and development work which the Corporation would support could be used in the elaboration of future policies and programmes in the field of family housing.

The project which is the subject of our report in the following chapters is one of those which was chosen by the Corporation under this programme.

1.2 PROJECT'S CONTEXT AND OBJECTIVES

In most Canadian multi-family residential projects there is a lack of sheltered recreational spaces other than the dwelling unit, where school-age children can play in inclement weather (i.e. rainy, windy, cold weather) or when the sun's rays are too strong. In addition, inside the unit the children do not have permission to participate in a good number of activities since these are too noisy, too large to handle, too messy or simply too irritating for parents.

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1 In this document, when we mention school age children we are referring to children from 6 to 14 years of age.

Les Résidences Neuville; a photo taken looking towards the space which is planned for the shelter. This space, at present, is paved and appears in the middle of the photo.

The main objective of this project therefore was to develop one or more partially closed (or partially open) shelters where school age children could participate in their recreational activities while remaining partially sheltered during bad weather or when it is too hot. This need is particularly felt in countries such as ours where temperatures can vary drastically from very cold to very hot and where the number of windy or rainy days is quite high.

In order to situate this project in a real setting, a model residential project owned by the corporation, "les Résidences Neuville",located in Ville d'Anjou, on the north-east side of the Island of Montreal, was chosen for demonstration purposes.

This residential project was chosen over several others since this project was the one which best complied with the selection criteria:

- The project was to contain vacant spaces where one or more shelters could be built;
- the project was to contain a high proportion of school-age children since this was the target population for the study;
- the project was to contain walk-up (or equivalent) units since, in this type of building, children do not have much recreational space within the unit;
- the attitude of the project's administration was to be positive concerning the shelter project;
- the residential project was to be mid-size, that is, it was to contain 300 to 500 units considering the resources available to carry out the study.

"Les Résidences Neuville"; space provided for the construction of the shelter.

Another important objective of the project was to develop a method through which the users, that is, school age children living in the residential project for which the shelter was intended, could participate in the design process of this shelter.

1.3 METHOD

To achieve the above-described, objectives the following procedure was developed including several stages, the main ones being:

1.3.1 Analysis of literature on the subject

1.3.2 Finding a site to carry out the project

1.3.3 Development of a strategy to contact the users and the first meeting with the latter

1.3.4 Analysis of comments made by the users and elaboration of the programme

1.3.5 Development of various design alternatives

1.3.6 Development of a strategy to contact the users once more and second meeting with the latter

1.3.7 Analysis of comments made by users, revision of the programme and of design alternatives

1.3.8 Development of a final solution

In the following chapter (Chapter 2) we shall provide a detailed description of each of these stages. Chapter 3 includes the revised programme. Chapter 4 presents the design alternatives and lastly, Chapter 5 presents the final solution.

CHAPTER 2 - RESEARCH AND METHODS

2.1 ANALYSIS OF THE LITERATURE

Some fifty books and articles were consulted in preparing this study (see bibliography). None of this material, however, dealt specifically with any of our main topics, that is: first of all, how to motivate children to participate in designing their recreational equipment and secondly, the construction of shelters for school-age children's recreational games.

An analysis of this literature was useful nevertheless in making it possible for us to identify certain parameters concerning which we would have to document ourselves during our meetings with the children.

This analysis of the literature also made it possible for us to draw up a preliminary list of the main areas to be dealt with by the programme

2.2 FINDING A SITE TO CARRY OUT THE PROJECT

It was not easy to find a site which complied with all the selection criteria which we had established (see Chapter 1, section 1.2).

Some ten sites were considered on the Island of Montreal and in the vicinity. Most of these sites did not have enough space, however, to make it possible to build the proposed shelter. After having visited a certain number of sites, "les Résidences Neuville" was chosen; this project complied perfectly with the criteria which we had established.

2.3 DEVELOPMENT OF A STRATEGY TO CONTACT THE USERS AND FIRST MEETING WITH THE LATTER

A certain number of strategies were considered to involve the children and the parents living in the residential project for whom the shelter was intended, in the design process. One of these involved organizing a meeting of the users in a room, presenting them with the project's objectives and lastly, inviting them to fill out a questionnaire indicating the type of activities which, according to them, should take place in the proposed shelter. Also they would have been presented with various designs for the shelter and would have been asked to indicate their preferences.

This strategy was abandoned, however, in favour of a more open approach regarding the procedure used to collect information and a method of intervention which was less meticulous as to the manner in which information was collected.

The strategy adopted involved open interviews since we wanted the interviews to be spontaneous rather than scientifically exacting. It was thus decided to make several successive visits to the site to reach the greatest number of users possible. In fact, there were three successive visits lasting approximately four hours each. These visits took place around the end of the afternoon, that is, when the children were home from school.

We present below the main components and stages of the procedure adopted for this first data collection venture.

2.3.1 PUBLICITY PAMPHLET

A few days prior to our visit, a publicity pamphlet containing the information which appears herein was put in the mailbox of each of the families living in "les Résidences Neuville":

PROJET PARAPLUIE

Calling all children 6 to 14 years of age!

We are inviting you, as well as your parents, to come to meet us.

WHERE ?
in our trailer which will be parked
between the swimming pool and the playground
in your housing project
"Les Résidences Neuville"

WHEN ?
next week between 4 o'clock and 6 o'clock in the afternoon and all day Saturday,
from October 9 to October 13, 1979

WHY ?
we are a group of students and professors at the École d'architecture of the Université de Montréal and with you, we would like to invent a form of shelter in which you could continue to play in rainy, or windy weather or when the sun's rays are too strong. This shelter for example, could be built between the swimming pool and the playground.

WE WOULD LIKE TO KNOW :
What you think of this idea. The games and activities which could be organized in it.

The shape of this shelter.

Pierre Teasdale (Project Director) and the team

This project is financed by the owner, Canada Mortgage and Housing Corporation, under a research programme initiated by the Children's Environments Advisory Service during the International Year of the Child.

Our trailer was parked on the very spot where the shelter was to be built on site.

In addition to this publicity pamphlet, posters containing practically the same information were put up in the lobbies of all the buildings in the project.

2.3.2 DEVELOPMENT OF THE INTERVIEW SCHEDULE

A series of themes such as those appearing in the above publicity pamphlet were elaborated. These themes were touched on during rather loosely structured interviews with the children. In addition to these themes, we had also prepared a poster showing a few examples of shelters. In addition to providing the themes, this poster was also used as a work instrument by the research worker in the trailer (see section 2.3.4 below).

2.3.3 PREMISES USED FOR THE INTERVIEWS

The interviews, in fact, were carried out in several different places. The reason for this diversity was that we wanted to experiment with different contexts and to compare the potential of each one of them as to data collection.

The interviews, in the main, were held in the following two locations: 1) in a trailer parked on the very spot where the shelter was to be built on site; 2) in a vacant two- bedroom unit located near the area where the trailer was parked. During our visits on site, it was therefore easy for the children to go from the trailer to the unit.

2.3.4 INTERVIEWS IN THE TRAILER

The interviews which took place in the trailer were very useful in terms of data collection. Due to the small size of the trailer, this meant that the number

A group of adolescents inside the trailer

Children waiting their turn outside the trailer

At the bottom of this photo, one youngster is trying to influence another.

of children per interview was limited to five approximately.This relatively private setting made it possible on one hand for the research worker to easily control the interview and, on the other hand, it made it possible for each of the children to express his/her ideas without any of the hangups which are usually evident with larger groups of children.

It therefore was possible, during the three afternoons which we spent on site to meet with approximately twelve groups of five children, that is, a total of sixty children.

The main difficulties experienced in the trailer during these interviews were:

. Controlling the children waiting in line at the trailer door

Many children were interested in our presence and wanted to talk about the subject "on the agenda". This problem ,however, was rapidly solved by officially naming one fourteen year-old responsible for controlling entry to the trailer. This young man took his work very seriously but despite the fact that he took up position at the door to the trailer, he was unable, however, to control the mischievous behaviour of a few older children who lost patience and who decided to rock our trailer on its springs. Consequently, a certain number of interviews, were conducted as our trailer pitched and rolled.

. The influence exercised by a certain number of children on the opinion expressed by others

A certain number of children, behaving like adults in similar situations, clearly were successful in influencing others which means that we cannot guarantee the representativeness of the replies from the users.

The trailer signalled our arrival on site.

After visiting the trailer they moved on to the unit.

In relation with this representativeness, the reservations that we made in section 2.3 are to be noted.

It is nevertheless true, according to us, that this participation has been good since it made it possible for us, at this exploratory stage, to formulate certain design hypotheses which may be verified in a more vigorous manner once the shelter is built and used for a certain period of time.

Let us point out, in conclusion, that the trailer had the advantage of signalling our presence on site very effectively. Most of the children went directly to the trailer, moreover, before going into the unit where we had also set up shop (see section 2.3.5).

2.3.5 INTERVIEWS IN THE HOUSING UNIT

The reason for the presence of the research team in a unit near the location where the trailer was parked was to create a different interview context.

In each of the three rooms in the unit which had been loaned to us by Canada Mortgage and Housing Corporation, we had set up tables and chairs and provided certain materials to make it possible for the children who would come to visit us to make sketches of shelters or to build model shelters for us. In promoting these ideas, we were not hoping to obtain original shelter designs from the children which we could use to carry out this project.

Inside the unit, one room was set aside for building models.

These activities,in fact, had been planned to provoke spontaneous comments from children concerning the problem posed in designing a shelter.

The main difficulty experienced using this method was that the children did not talk as much as we would have liked because they were too taken up with the sketches or models.

This activity, however, was very popular during the time we spent on site. There were moments, for example, when at least fifty children were gathered together at the same time in the unit which we occupied.

An interesting fact to point out, from a data collection viewpoint, the children became much more talkative once they had completed their sketches or models. Consequently, it was possible for us to collect interesting information from the children near the end of these sessions. It is necessary, however, to mention that the most informative interviews took place in the trailer.

It must be stressed that the event which we created was an indirect contribution, but nevertheless an important one

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1 NB: Incidently, and as we had predicted, it was noticed that most of the models and sketches made by the children were strongly influenced by the buildings which they knew or pictures they had seen (e.g., Man and his World pavillons, pictures which we had used on our publicity posters).

The room in which the children built models became a sort of "mini" adventure playground.

In another room, children busied themselves making sketches.

The activities which took place in this unit helped to keep the children occupied and motivated during long periods.

in the success of the interviews in the trailer. In fact, the activities which had been organized in the unit helped to keep the children occupied and motivated during long periods, which would not have been possible had the trailer been the only meeting place on site. Indeed, the trailer could only accommodate very small groups (4-5) of children at once.

2.4 ANALYSIS OF COMMENTS MADE BY THE USERS, ELABORATION OF A FRAME OF REFERENCE AND MAKE-UP OF THE PROGRAMME

Most of the comments made by the users were tape-recorded. One portion was even videotaped; lastly the researchers took personal notes which further added to the file.
On analysing the information collected, we were in a position to develop a certain reference framework which identifies the main variables which could have an influence on the quality and on the success of the planned shelter.

The variables making up this frame of reference correspond to the types of observations that we have made and to the various elements which the users stressed in their comments and suggestions to us. These comments and suggestions were usually formulated in terms of one of the four following elements:

1. The requirements of certain groups of USERS:
2. The BEHAVIOUR AND ACTIVITIES desired by the latter;

In addition to the tape-recorder, a video-camera was also used as a research instrument.

3. the COMPONENTS OF THE ENVIRONMENT which are sought to be able to engage in the desired activities;
4. the QUALITIES which the environment in question should have.

These aspects or variables form the basis of our frame of reference and also the basis of our programme. This frame of reference assumes that all BEHAVIOUR involves one or more USERS; that it is supported by one or more ELEMENTS OF THE ENVIRONMENT that this environment is to have one or more QUALITIES.

Each of these four variables can be further subdivided into subvariables which we present on the table which appears on the next page.

It goes without saying that this table is not an exhaustive model of all the elements which could influence the success of the shelter. It represents the variables and the subvariables which, subsequent to our personal observations and to exchanges we have had with the children, seem to us to be the most important ones to be included in the programme. Incidently this table corresponds almost exactly to the programme's table of contents which is presented in the next chapter. This programme is a synthesis of the information collected subsequent to our initial surveys and observations.

FRAME OF REFERENCE / "PROJET PARAPLUIE"

Table representing the main * variables which we have considered in the program

1.0 USERS CHARACTERISTICS	2.0 USERS' BEHAVIOUR	3.0 COMPONENTS OF THE ENVIRONMENT	4.0 QUALITIES OF THE ENVIRONMENT
1.1 Anthropometry of the users	2.1 Social behaviour	3.1 General components	4.1 Ease of maintenance
1.2 Types of users	2.2 Emotional behaviour	3.2 Particular components	4.2 Resistance/ vandalism
Children (6 to 8 years of age)	2.3 Motor behaviour	3.3 Climatic elements	4.3 Ease of supervision
Children (9 to 11 years of age)	2.4 Creative behaviour		4.4 Storage facilities
Children (12 to 14 years of age)	2.5 Intellectuel behaviour		4.5 Flexibility
			4.6 Universality
			4.7 Exterior appearance

* NB: This involves variables which, subsequent to our readings, to our personal observations and to exchanges which we had with the children living in "les Résidences Neuville", seemed to be the most important. We do not claim, considering the limits of this study and considering the fact that we were not able to evaluate environments similar to the one which is to be built, to have formulated an exhaustive theoretical study.

2.5 DEVELOPMENT OF THE VARIOUS DESIGN ALTERNATIVES

When the programme was completed, the first design stage began. At this stage this meant developing various design alternatives which would be submitted to the users during a second visit on site.

This stage of the project was developed by four students at the École d'architecture of the Université de Montréal within the context of the Man/Environment Unit directed by the consultant.

Each student was free to choose the design option which, according to him, best corresponded to the programme's requirements. Thus two students opted for a design in which the areas provided for the very young children and for the older children formed two different structures. Whereas the two other students chose a design grouping these two areas in the same structure.

A total of four design alternatives were developed by the students. These alternatives are described and illustrated in Chapter 4.

2.6 DEVELOPMENT OF A STRATEGY TO CONTACT THE USERS AND SECOND MEETING WITH THE LATTER

Once more various strategies were considered during the planning process for the second meeting with the users: we wondered whether, for example, the second meeting should take place in the trailer or in the same unit which had been loaned to us; we wondered also which day we should choose and how long this second on-site intervention should be.

We finally decided to use the unit since the trailer would have been too small to accommodate the four models which we wanted to present to the children. In the following paragraphs we describe the main components and stages in the procedure which we adopted for this second data-collection.

2.6.1. PUBLICITY PAMPHLET

A publicity pamphlet containing the information which appears below, was put in the mailboxes of each of the families living in "les Résidences Neuville", a few days before our visit.

"PROJET PARAPLUIE"

Calling all children from 6 to 14 years of age and their parents!

We invite you, once more, to meet with us.

WHERE ?

Just follow the signs. We will be in the unit where we were the last time, near the playground.

WHEN ?

Saturday, November 24, 1979, between noon and four o'clock in the afternoon .

WHY ?

To show you the models which we have made and to ask you to indicate your preferences to us.

This project is financed by the owner, CMHC, as part of a project carried out during the International Year of the Child.

A student listening closely to the comments of a small group of children concerning his model (Project A). The tape-recorder which we can see in tne photo stores all this information.

2.6.2 ELABORATION OF THE TYPE OF INTERVIEW

Once again this meeting gave rise to open question interviews. The children's reactions to the project models which were proposed to them by the students were used as starting points in the interviews, rather than use themes and sketches as was the case for the first interview.

In the unit which was made available to us, project (A, B, C and D) were placed on four different tables. Behind each of these tables the student who had designed the project was stationed to exchange ideas with the children. These tables were placed in the various rooms in the unit to make it possible to have discussions in small groups concerning each of the projects.

The children in "les Résidences Neuville" thus could go around to each of the tables and cluster in small groups of three to five people. During their pauses, the children made remarks, asked questions and replied to questions from the students. The information thus collected was either noted or tape-recorded by the students behind the tables.

When the children had completed their inspection of the projects, they were requested to indicate, by voting, the solution which they preferred.

2.6.3 THE ACTUAL INTERVIEW

This consultation with the children went off well except for the fact that a smaller number of children were in attendance than during the first meeting.

A child indicating his preference for Project B.

To explain this phenomenon, the children told us that since we had come on a Saturday, a certain number of families regularly chose this day to go to the country. Some thirty children, however, representing all age groups from 6 to 14 visited us on that day.

Most of the children went around to all the models exposed in the unit examining them very carefully. The fact that we asked the children to indicate, by voting, their preferences at the end of the visit, provided them with the empetus to give very serious consideration to their choice, that is, to make many remarks and to ask many questions before making their decision.

This consequence of the vote, in our opinion, was more important than the actual result of the vote considering the fact that our sample was so small and also considering the pressures which were brought to bear once more, by certain children to influence others.

Considering our above-mentioned reservations, it is true, nevertheless, that the vote indicated interesting trends; we will provide you with the results in Chapter 4 where we present the alternatives developed by the students. The reader will also find, in this Chapter, each student's personal account of this experiment.

Unfortunately, the parents which we had invited to each of our visits never showed up.

2.6.4. DEVELOPMENT OF A SYNTHESIS PROJECT

The project which is presented in Chapter 5 was developed by the consultant and is an attempt to integrate in one solution the qualities which were identified by the children in the projects developed by the students. This solution also takes into consideration remarks and suggestions made by advisers working with Canada Mortgage and Housing Corporation as well as by professors at the École d'architecture of the Université de Montréal when presented with these projects during the course of the study.

CHAPTER 3 - THE PROGRAMME

Based on the analysis which we made of the literature, based on all our on-site observations and in particular, based on the information which we collected from the users, we have elaborated the following programme.

The main headings of this programme are the results of the frame of reference which we described in the preceding chapter.

3.1 THE USERS AND THEIR CHARACTERISTICS

3.1.1 ANTHROPOMETRIC CHARACTERISTICS OF CHILDREN FROM 6 TO 14 YEARS OF AGE.

Children from 6 to 14 years of age vary in height from 1100 mm to normal adult height. Their weight also varies from 22 k to normal adult weight.

If there were to be, within the shelter, an area intended for a specific age group of children and consequently for children of a specific height, this should be reflected in the scale use in said area.

N.B. - Girls 7 years of age and boys 9 years of age usually have reached 75% of their adult height.

3.1.2 DIFFERENT TYPES OF USERS

During the work on site, it became very evident that among the target group of children, that is, those from 6 to 14 years of age, there were 3 sub-groups which seemed to have rather homogeneous requirements:

- the group including those 6, 7 and 8 years of age;
- the group including those 9, 10 and 11 years of age;
- the group including those 12, 13 and 14 years of age;

The needs of children 9, 10 and 11 years of age did not show up as clearly, and this, in our opinion, seemed due to the fact that it is during this period of their lives when young people go from childhood to adolescence. We were able to ascertain that this group alternatively identified with the other two groups.

In designing the shelter we will then have to take into consideration the particular requirements for each of these 3 groups.

3.1.3 REQUIREMENTS OF CHILDREN 6, 7 AND 8 YEARS OF AGE

This group has a rather clear identity and seems to search out relatively calm activities such as playing house, as well as motor and exploratory activities such as climbing. This desire for vertical exploration or this fascination for perpendicularity is expressed in their sketches; they also talked about calm winter activities such as sliding. This group is afraid of the older groups an especially the children 9, 10 and 11 years of age who have a tendency to impose their will on them. Girls and boys still play together on occasion, but less and less, however, at this age.

The spaces provided for the children in this group should be grouped together vertically. In addition, we could protect this group of children from the older ones by providing spaces with a clearance not exceeding 1500 mm for them.

3.1.4 REQUIREMENTS OF CHILDREN OF 9, 10 AND 11 YEARS OF AGE.

At this age, the child becomes more attracted by sports such as ring hockey, basketball, badminton, soccer, tag ball,etc. than the younger group. At the same time, this group tries to identify with the older group, particularly on the social behaviour level. This group is also interested in physical activities such as ping-pong and volleyball.

This group identifies less and less with the younger children but is not yet completely at ease with the older group. Boys and girls have separate activities and do not play together at this age.

The shelter should then be designed so as to allow for the children in this group to play alternatively with the older children and with the younger ones.

3.1.5 REQUIREMENTS OF CHILDREN 12, 13 AND 14 YEARS OF AGE.

This group has a very separate identity and does not want to associate with the younger groups. This group sulks and even goes so far as to ridicule to a certain extent the activities of interest to the younger children. This group above all looks for an environment to facilitate social behaviour such as: chattering with friends, lounging about, listening to music, smoking, dancing, and flirting. Boys and girls start to find each other again at this age.

There would have to be a clear barrier between the area reserved for children 12 years of age and over and the area reserved for children 8 years of age and under. Without this barrier, conflicts will ensue.

3.1.6 REQUIREMENTS OF PARENTS

We were not able to register the opinion of parents concerning the project. The 12 , 13 and 14 year-old group, however, expressed the wish that their shelter not be combined with that of the 6, 7 and 8 year olds since the parents of the latter would often come to the shelter to supervise their children, which would disturb the older group.

With the exception of the 6 year-olds, the other children for whom the shelter is intended are autonomous. However that may be, certain young children and parents will want to participate together in activities in the shelter such as, for example, playing ping-pong.

We also think that the shelter could be used by parents, for example for structured physical education activities, while the children are at school.

3.2 USERS' BEHAVIOUR AND ACTIVITIES

3.2.1 SOCIAL BEHAVIOUR

Young children 6, 7 and 8 years of age often seem to play alone; children 9, 10 and 11 years of age seem to play alternatively alone or in groups; young children 12, 13 and 14 years of age often seem to be in groups.

The shelter should be designed to accommodate each of these 3 types of behaviour.

3.2.2. MOTOR BEHAVIOUR

Children from 6 to 14 years of age, as they grow up, have the tendency to make more and more noise, to talk louder, to discuss, to argue, to use bad language and to laugh very loudly.

For these reasons, the area reserved for children in this age group, within the shelter, should be located as far as possible away from existing dwellings.

3.2.3 GENERAL ACTIVITIES

This programme is an attempt, first of all, to identify the activities which could take place in the shelter; it is nevertheless important and desirable to identify activities which could take place both outside and inside the shelter or around the sheltered area; we are thinking for example, of a puppet stage incorporated in the shelter but facing outside; on one of the walls in the shelter we could also install, on the outside, a basketball hoop; we could also install a slide from the roof or from the top floor of the shelter.

It is not likely that the shelter(s) will contribute equally to the physical, social, creative, intellectual and emotional development of the young children. We will have to consider each one of these dimensions, however,in our attempt to come up with a solution.

3.2.4 ACTIVITIES REQUIRING A CERTAIN AMOUNT OF DEPLOYMENT

Activities/Age	6,7,8	9,10,11	12,13,14
Sliding	x		
Tobogganing	x	x	
Skiing	x	x	
Roller skating or Ice skating	x	x	x
Skate boarding	x	x	x
Playing with trucks or cars	x		
Swinging	x		
Playing tag	x		
Playing Cowboy	x	x	

In this regard, a change in the topography of the site could make it possible to accomodate these activities.

3.2.5 ACTIVITIES INVOLVING BALL GAMES ON THE GROUND

Among the physical activities involving ball games on the ground, we believe that the following activities might be particularly suitable for the 9, 10 and 11 age group but also for the 12, 13 and 14 year old group;

- floor hockey
- "le ballon chinois"
- tag ball
- kick ball
- basketball
- soccer
- volley ball
- badminton

We will have to be sure, however, in planning for spaces for these games that the ball does not disturb by-passers, for example, or people seated on patios outside their dwellings.

Lastly we should install a few benches around these activity areas for spectators and for players waiting their turn.

3.2.6 PHYSICAL ACTIVITIES WITHOUT DEPLOYMENT

Among the physical activities involving very little deployment, we believe that the following activities might be suitable for children 9 years of age and over.

- ping pong
- petanque (game of bowls)
- horse shoes
- rings, ropes, trapeze, bars

We would like, in addition, to point out that young girls from 6 to 11 years of age would greatly appreciate activities such as:

- skipping rope
- hopscotch

Among these activities, those which seem to us most likely to take place in the shelter are ping-pong, skipping and hopscotch.

3.2.7 SOCIAL ACTIVITIES

We anticipate the following activities, thinking in particular, but not exclusively, of the following groups.

ACTIVITIES/AGE	6,7,8	9,10,11	12,13,14
Playing house, with dolls, playing cowboy	x	x	
Theater	x	x	
Shows	x	x	
Telling stories	x	x	x
Dancing		x	x
Eating and having picnics	x		
Lounging about	x	x	x
Listening to music			x

Social activities, since they are varied, should be accomodated by relatively flexible areas.

Children 6, 7 and 8 years of age require relatively private and protected areas for their social activities.

Children 12, 13 and 14 years of age will need electrical outlets and soft lighting to listen to music on the radio, to play records and to use the shelter in the evenings.

3.2.8 CREATIVE ACTIVITIES

We anticipate the following activities, thinking in particular but not exclusively, of the following groups.

ACTIVITIES/AGE	6,7,8	9,10,11	12,13,14
Theater	x	x	
Shows	x	x	
Puppets	x		
Playing a musical instrument			x
Making objects		x	

3.2.9 INTELLECTUAL ACTIVITIES

Among the intellectual activities we think that children of almost all ages and even certain adults might wish to participate in some table games such as chess, checkers, parcheesi and monopoly, card games, etc.

In one, or most, of the shelters, tables should be provided (a certain number of which would have table tops with chess board pattern) to make it possible for small groups of 4 to 5 people to play these games.

3.3 COMPONENTS OF THE ENVIRONMENT

3.3.1 GENERAL CHARACTERISTICS OF THE SHELTER

Certain types of shelters exist which are used by young people and which we could perhaps use as examples in the designing of this shelter:

- the dance hall with its juke box which is found at the back of small village restaurants;
- the band stand which we find in certain parks;
- carports which we find over the driveway of homes in the suburbs;
- the underside of balconies in homes.

After having analysed the information collected concerning the users (section 3.1), their behaviour and activities (section 3.2), we came to the following conclusion as to the shelter's contents. Basicaly, it should contain two areas, the first of which would be intended mainly for children

6 to 11 years of age and the second mainly for those from 9 to 14. These two areas shall be clearly separated or set up in different areas on the site.

3.3.2 ELEMENTS SUGGESTED IN THE AREA OF THE SHELTER INTENDED FOR CHILDREN 6 to 11 YEARS OF AGE

a. This area will be set up for boys and girls but certain areas will be set aside where boys and girls will be able to play separately.

b. Children wishing to play alone or in small groups shall be able to find areas in the shelter where they will be at ease.

c. Bypassers shall be able to see these areas.

d. This space will be built on a scale which is appropriate for childrens 7 to 9 years of age, that is, children who have reached 75 % of their adult size.

e. Certain areas shall be provided for where parents wishing to accompany their children will be able to sit down.

f. There will be corners or recesses to play with dolls, to play house, with cars, trucks, etc.

g. The possibility of playing on a swing or climbing in the shelter will exist; there could also be rings, trapezes and bars.

h. Areas will be available to play cowboy, to have snowball fights, etc.

i. There will be a few benches and tables to have picnics, to play games, to make things, to draw, to chat, to lounge around, etc.

j. There will be an area where children will be able to skip rope, play hopscotch and participate in other games which are usually played on side-walks.

k. There will be one or more areas provided for to play store, to organize mini theater shows and perhaps also to organize puppet shows.

l. The shelter will contain large wood blocks with which the children will be able to make things.

m. If possible, the shelter will contain one or two recesses resembling tree houses built by children.

n. Guard rails will be installed so that children will not risk falling from the upper level of the shelter and hurting themselves.

o. Soft surfaces, at ground level, will be installed in areas where children could fall.

p. Considering the fact that children of this age run a great deal and have difficulty anticipating danger, sharp protusions inside the shelter will be avoided and as far as possible, on the outside, the number of columns in areas where physical activities requiring a certain amount of space are practiced, will be limited to a minimum.

3.3.3 ELEMENTS SUGGESTED IN THE AREA IN THE SHELTER INTENDED FOR CHILDREN 9 TO 14 YEARS OF AGE

a. This shelter will be intended mainly for adolescents.

b. It will be set up in a zone which is partially separate from the rest.

c. It shall accomodate both calm and noisy activities but will not disturb the peace of people living in the project.

d. The shelter is planned for boys and girls and will have to promote meetings of small groups of 3 to 5 youngsters.

e. As opposed to the shelter for children from 6 to 11 years of age, which will be built on a child's scale (75 %), this will be built on an adult scale.

f. Basically it will contain two zones similar to those which we find in certain adult sports clubs, such as squash or tennis clubs with court areas for sports, on one hand, and on the other hand, a social area, ressembling a café terrasse. The sports' area could, for example, roughly ressemble a mini-gymnasium where ping-pong tables could be set up in the summer to be replaced by an interior hockey rink during the winter.

g. The mini-gymnasium could also accomodate games such as basketball, volleyball and badminton.

h. On the outside, but near the shelter, there could be a track to be used for a game of bowls or horse shoes, as well as a basketball hoop.

i. Near the café terrasse, there should also be an area where young people could dance.

j. The café terrasse shall contain tables and benches resembling the compartments which are found in certain restaurants. These tables will be placed together to welcome spectators to sports activities and may also be used for games such as checkers, cards, etc.

k. As for the safety aspects, we will have to ensure that the shelter is sufficiently open or transparent so that automatic supervision can be exercised at all times by people walking through the site or living near the shelter.

3.3.4 USE OF THE SHELTER YEAR-ROUND

So that the shelter does not become a deserted area during the winter, it would be desirable to use the shelter to install one or more slopes (by using the roofs or a mound on the ground) on which the children could go sleigh riding, skiing or tobaggoning. During the summer, this slope could be used for roller skating, skate boarding, and for riding "soap box" cars.

The shelter will also be designed so that certain areas may possibly be completely closed in, insulated and heated during the cold season.

Certain areas within the shelter shall also be equipped with moveable panels to extend, or to prevent the use of certain areas during the winter.

3.4 QUALITIES OF THE ENVIRONMENT

3.4.1 EASE OF MAINTENANCE

Concerning maintenance of the spaces, it is important to realize that children from 6 to 14 years of age do not have an innate sense of cleanliness. It will be necessary, therefore to install garbage pails and to provide for horizontal and vertical surfaces which are easy to maintain.

3.4.2 RESISTANCE TO VANDALISM

We noticed that a certain number of acts of vandalism had been committed on site (in particular, the existence of several broken panes in vacant units, etc.). However, no act of vandalism was committed against us during our three-day presence on site. There is perhaps hope then the structures which would be set up for children from 6 to 14 years of age in this residential project would be spared such acts.

However, in order to protect the shelter from badly intentioned individuals, not representative of the whole group of users, and maybe not even living in "les Residence Neuville", each of the materials used in the construction of the shelter shall be particularly resistant and strong.

3.4.3 EASE OF SUPERVISION

Children from 6 to 14 years of age generally have not attained a sufficient level of maturity to permit them to use interior spaces without supervision. At this stage in their development

they do not have the qualities required to act with precaution or to be responsible for the safety and maintenance of such spaces. They are not in a position, therefore, to exercise mutual control over each other and this makes supervision by adults mandatory.

Given that no supervisory fees may be assumed by CMHC as part of this project, the shelter(s) which will be built will have to be sufficiently open and transparent to ensure automatic supervision of all the spaces, at all times, by people walking on site or living near the shelters. All in all, one will have to be able to qualify the shelters as semi-open or semi-closed and it will have to be easy for people on the outside to supervise activities therein.

It is important to point out, in this regard, that cases of rape have been reported in shelters which were too closed; it has also been reported that if these spaces were too closed, this would encourage young people to consume drugs and alcohol. Lastly, in shelters which are too closed, children could be injured without the people living in the project being aware of this.

3.4.4 STORAGE FACILITIES

Provision should be made to deal with the possibility of the need being felt sometime in the future to store equipment such as balls, balloons, hockey sticks, etc. It would be necessary, therefore, to provide for a cupboard for this purpose even if it is not very likely, for the time being, that there will be a supervisor to control access to this cupboard. Monitors might be hired ,however, during certain periods of the year, during the summer for example.

The shelter shall also contain an area where sports equipment could be stored (ping-pong tables, hockey goals, etc.) as well as moveable architectural elements (panels, boards around the outside of the hockey rink etc.) which would not be appropriate during certain seasons of the year.

Where it is possible to store certain pieces of equipment, spaces can usually be used in a more versatile way. Storing objects or equipment, however, implies supervision by the older children.

In this case, it is the administration of "les Residences Neuville" Project which shall store the equipment during certain periods of the year.

3.4.5 FLEXIBILITY OF THE SHELTER

The various areas which will be set up inside the shelter shall be designed to be used in various ways so as not to limit the use made of the shelter.

3.4.6 UNIVERSALITY OF THE SHELTER

Given that we are looking for a prototype which could be set up in various parts of the country, its design shall be simple so that a certain number of its elements can be easily modified or removed depending on local constraints and requirements.

3.4.7 EXTERIOR APPEARANCE OF THE SHELTER

The shelter shall have a relatively neutral exterior appearance to blend in with various architectural styles.

It will also be necessary to ensure that the shelter, when seen from above, is pleasing to the eye, given that a large number of units may be looking over the shelter.

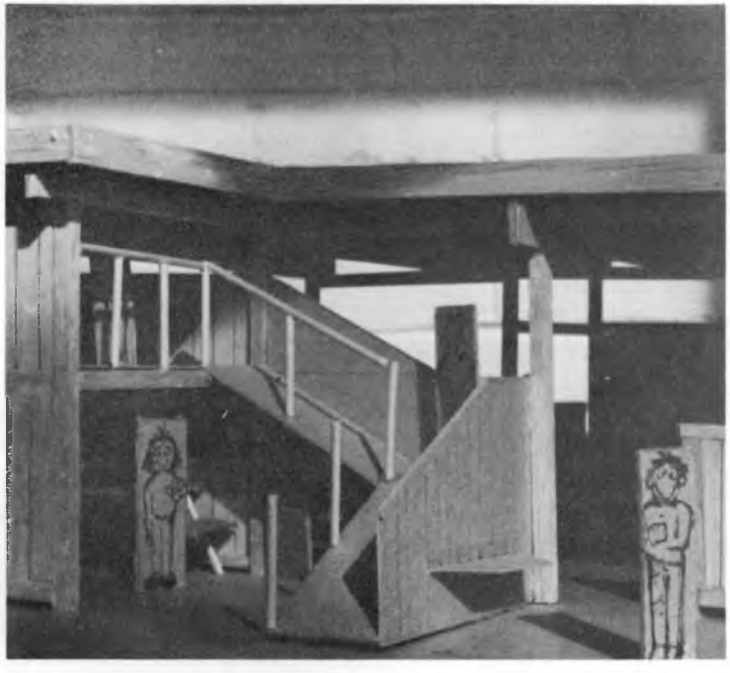
CHAPTER 4 - DESIGN ALTERNATIVES

In this chapter, we present four draft designs of shelters which are the result of the work of four students at the École d'architecture of the Université de Montréal, based on the programme presented in the preceding chapter.

We shall comment on each of the projects in relation to the following headings:

. General reaction of the children
. Consultant's comments
. Student's comments

At the end of this chapter, we shall present the results of the children's vote on their preference among these four projects and we shall formulate a few conclusions.



Model of Project A

4.1 PROJECT A / BENOIT BELAND*

4.1.1 GENERAL REACTION OF THE CHILDREN

This project is the one which was preferred by a majority of the children. The older ones told us that they liked it because it seemed to be bigger than the others and because one could play hockey and a good number of other sports in it. The younger children were particularly impressed by the sales stand and the little corner on the mezzanine where they could play cards. One child confided to us, "If we had a shelter like that here, I would spend all my time in it".

4.1.2 CONSULTANT'S COMMENTS

Among the projects designed by the students, this undoubtedly would be the simplest and the most economic to set up. The children, moreover, were impressed by this

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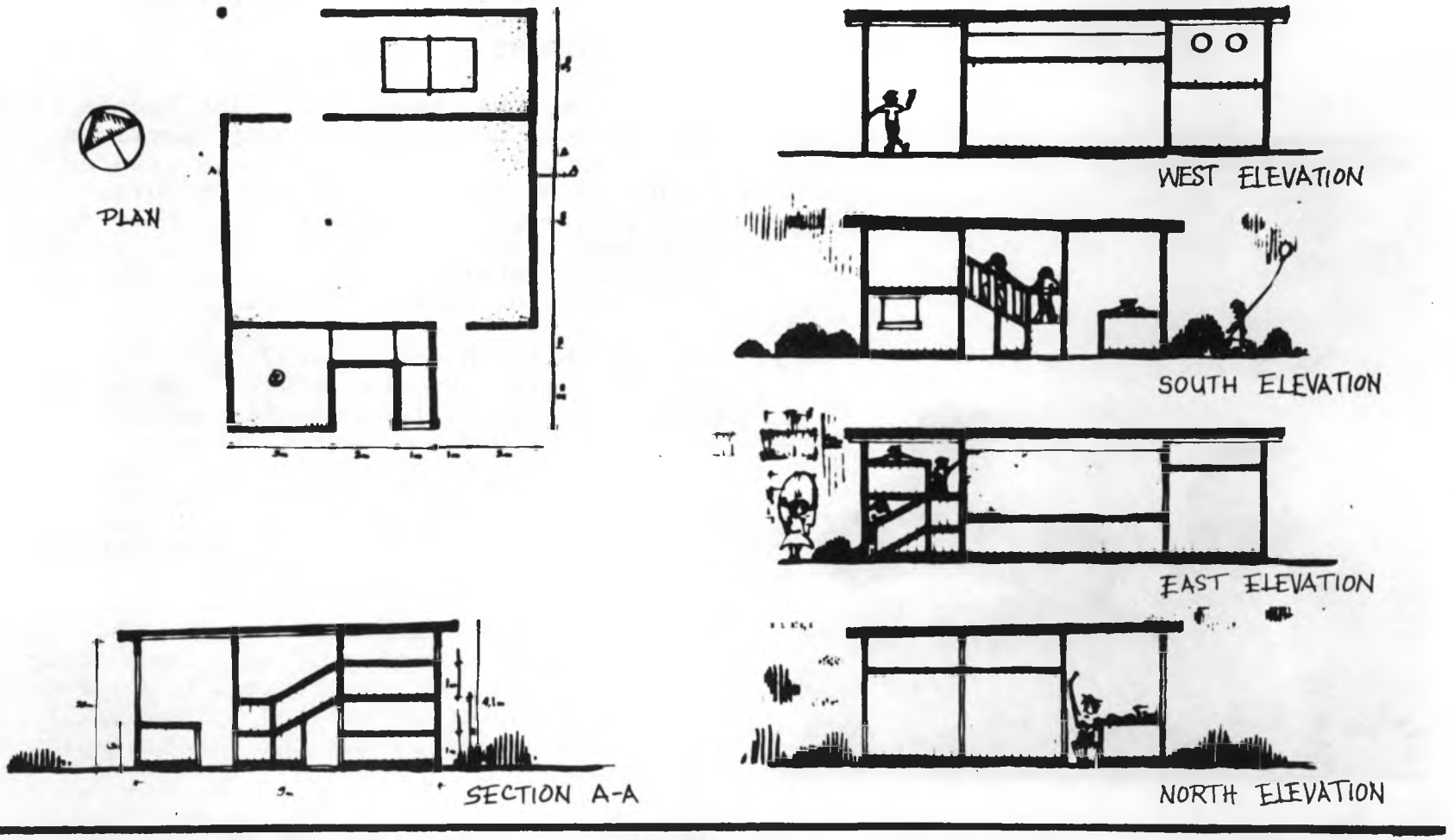
* Name of the student who designed this project



Preliminary sketch of Project A

N.B: This is the second sketch prepared by the student subsequent to comments from the users.

simplicity. One of the characteristics of this solution is its roof covered with palettes which serve to protect it, on one hand, from children who could climb up on it (to look for a ball) and also to give it a pleasant appearance for neighbours living on the upper floors.

4.1.3 STUDENT'S COMMENTS

The approach was excellent. The models stimulated the children and produced many reactions. In addition to imagining the spaces created by the cardboard models, most of the children actually imagined themselves in these spaces. Thus they were able to render a critical judgment considering their favorite activities and, to my great suprise, safety elements.

"In addition to imagining the spaces created by the cardboard models, most of the children actually imagined themselves in these spaces."

Certain children, especially boys approximately 13 years of age, like challenges. Taking over the roof is important to them. "If we hurt ourselves, well, that's our business", declared a 13 year old boy supported in this by his friends.
One little girl was very concerned with sports. She was enthusiastic over my model due to the large spaces making a certain number of sports possible.

One boy did not like the fact that the large wall areas would undoubtedly be scribbled on by other children. We should note, on the other hand, that he was intrigued and excited by the writing motifs that I had suggested for the interior partitions in the model.

The children were concerned about acts of vandalism which could be committed by others. For example, a child suggested that we not use glass panes since these would be broken:

"even in Westmount they would be broken", he said. Another child suggested that we use resistant materials and protect the lighting system if same existed.

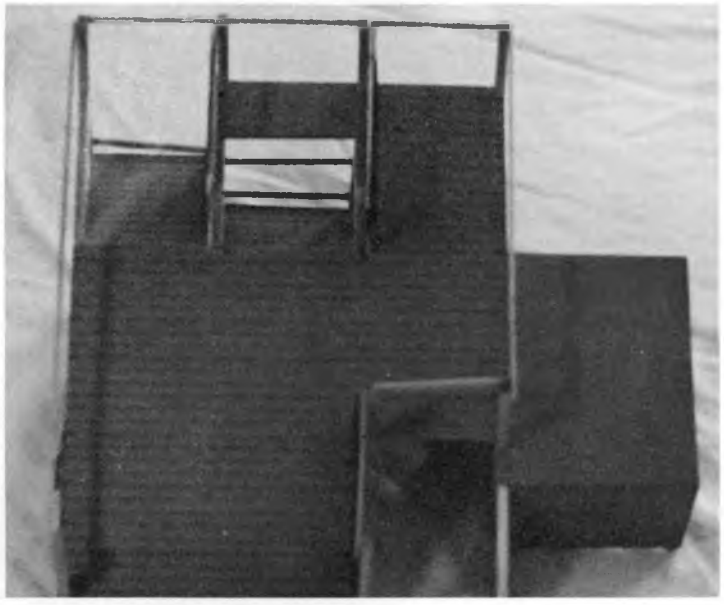
Several children suggested a storage area which could be locked and controled by the janitor. It is necessary to keep the pedestrian traffic areas far from the areas designed for sports use. The older children do not want to injure the smaller ones. "One should not hurt a small child who is crossing the playing field and who happens to get in the way of a slap shot."

They like to feel that they are protected from the wind and rain. They fear spaces which are too open. "The model is too open", explained to me one of the children "Rain is going to enter and we will freeze". They also like to feel that the total structure is solid. On the model there was a visitor who was looking in through the protective mesh. "That is an adult because he is wearing a hat." One girl referred to him as a spy. Others accepted this presence easily and liked the idea of providing an area for visitors - spectators to sit down.

Young people are greatly influenced by the details of a model. A protective mesh, a miniature hockey stick, nets, scale models of people, etc., help them to imagine reality and they feel more familiar with the spaces.

It was easy to detect the pride that they showed; they appreciated the fact that we were consulting them and a certain number showed great interest. The mere fact of talking with them gave them a certain feeling of responsibility.

"The mere fact of talking gives them a certain feeling of responsibility."



Models of project B

Given the small number of children present, it is impossible to generalize concerning ages and sex. The parents were conspicuous by their absence.

4.2 PROJECT B / DINU BUMBARU

4.2.1 GENERAL REACTION OF THE CHILDREN

This project came in fourth according to the result of the children's vote. However, a large number of children spent time examining this model and seemed to appreciate it.

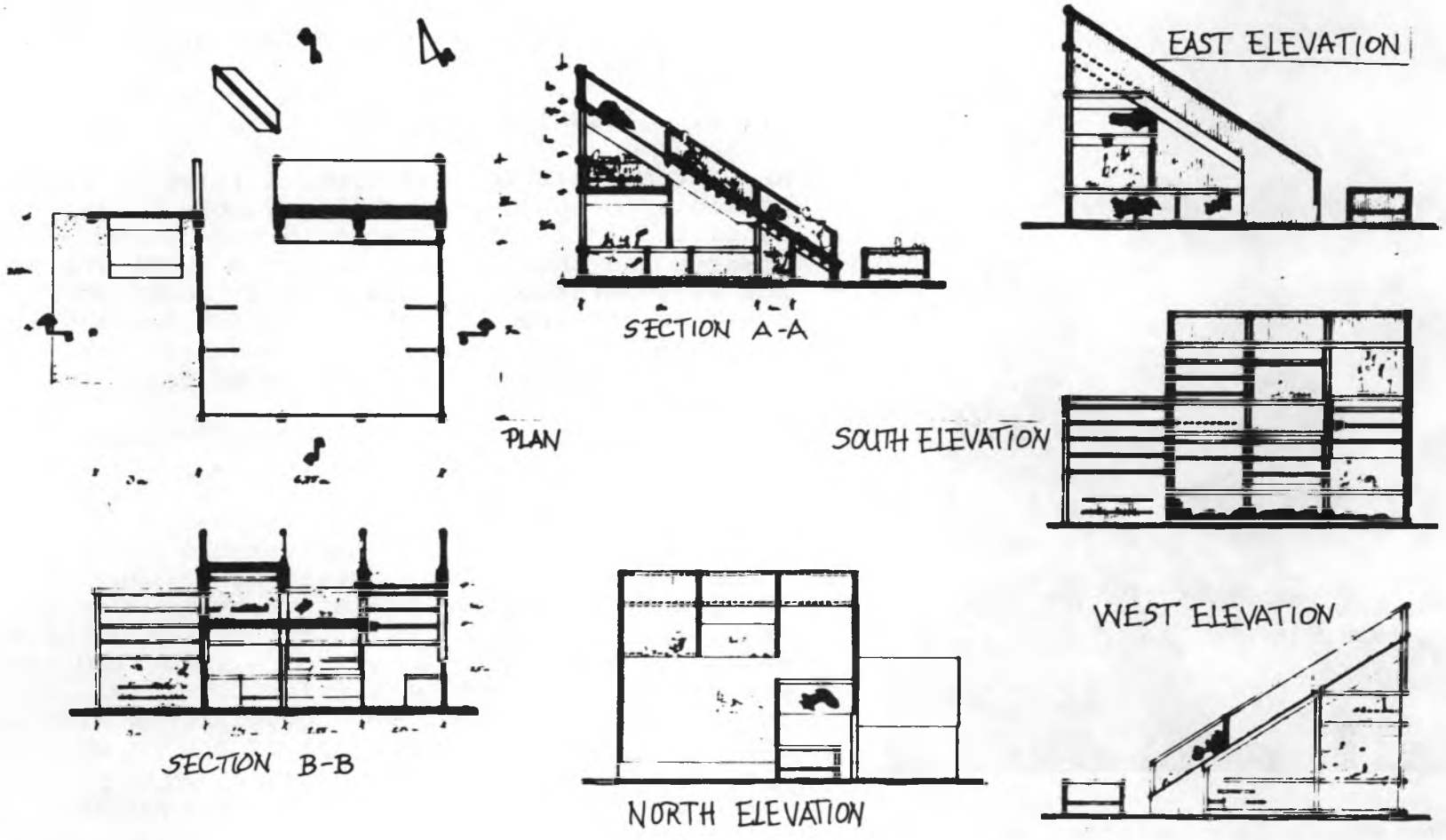
This model is the only one designed to allow the children to climb up on the roof. This characteristic was of particular interest to a certain number of children but led several children to bring up the question of safety in relation to the use of the roof.

4.2.2 CONSULTANT'S COMMENTS

One of the main characteristics of this solution is that it proposes two separate shelters: one for the older children and another for the younger ones.

It might be possible, in our opinion, that the children were greatly influenced by the volume of the models and the fact that this shelter was divided in two parts could have lessened its impact on them.

We think, in spite of everything, that the design proposed by this student was very valid because it attempted to make optimum use of both the inside and the outside of the shelter. This solution would also have the advantage of introducing an interesting relief in the otherwise flat landscape on "Les Residences Neuville" site.



Preliminary sketch of Project B

N.B.: This is the second sketch prepared by the student subsequent to comments from the users.

The student who designed Project B explains his model

On a technical level nonetheless, the exterior siding used for this shelter presented a problem in the choice of materials. The student was not able to completely resolve this problem, however in the time available to him. Among the various materials considered, were marine plywood and asbestos board.

4.2.3. STUDENT'S COMMENTS

As part of this consultation, I tried as much as possible to follow a certain method. This consisted in letting the child examine and observe and then talking with him about the model, how he understood it, how he felt about it. As often as possible, I let the person I was talking to (child or group) start the conversation, otherwise I took the initiative of doing so.

Situations where the children were grouped together in small numbers (2, 3, 4) generally were the most productive in terms of the length of the conversation and in terms of the value of the ideas expressed and the observations made since a conversation actually developed within the group in which the children explained my project to themselves and came up with certain unforeseeable uses. On the other hand, the children who came to see me alone (in one particular case, this was very clear) introduced more comparisons with the other projects, to the extent of coming up with a combination involving the use of my pitched roof on Benoît's model (project A).

A problem which I came up against frequently was the children's confusion concerning my presentation (two models on two separate bases). They often started by comparing the two models rather than by commenting on one of the two shelters in particular and did not clearly express their conception of this presentation either as one project containing two shelters or two projects with one shelter each.

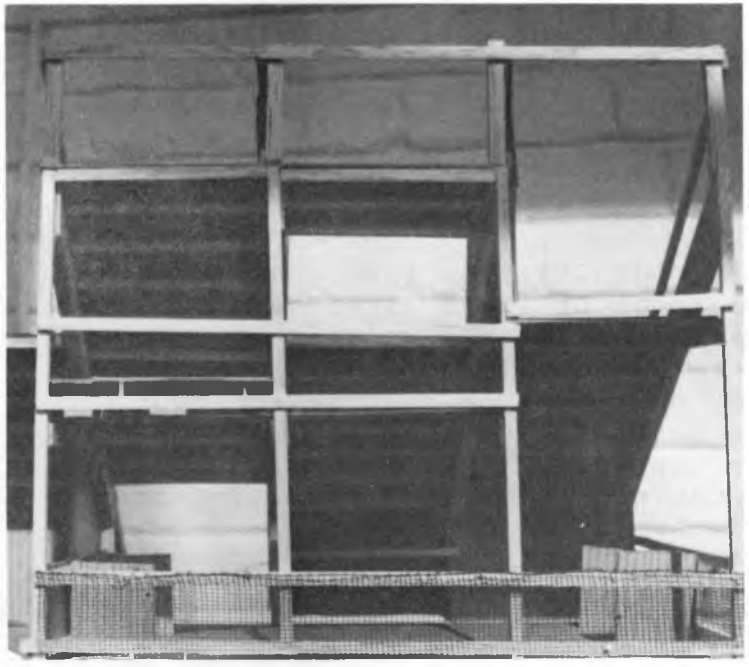
A certain number of children suggested forming one shelter by combining two of the proposed structures.

The person who designed project B takes note of suggestions made by a user

Rephrasing this question quite often led to the question of my option of having two separate shelters. Their replies were not conclusive here in that two or three different orientations were identified: putting the two shelters side by side vertically, thus creating one monolithic element; placing them so that they were facing in the same direction but with a covered space between the two and with walkways between the two shelters forming an artificial mound with a flat top which could be used as a starting point for sliding down both sides; creating a large "interior" space for dances or shows or putting one shelter parallel to the other with a court area between the two for exterior baseketball or for a skating rink in the winter (which others would prefer to see in the hockey rink for this use.)

When I pointed out that problems could arise in relations between the younger and older children, to those who wanted the shelters joined, these children saw the possibility of problems especially in cases of hockey matches where one of the younger children could suddenly turn up on the rink and thus run the risk of being injured by the players or by the puck. To solve this, they proposed the temporary installation (during winter) of a protective mesh around the hockey area or the presence of monitors or signs informing certain users that this space was out of bounds to them. All these remarks were made by boys from 9 to 12 years of age.

The principle of a pitched roof was received with lots of enthusiasm and ideas were suggested by the children to improve its design by increasing the use (eliminating cross ropes in the middle of the roof; this was dangerous, install the ropes vertically to facilitate climbing, and horizontally along the top of the roof to faciliate horizontal movement). Oddly enough, a



Inside view (second model prepared by the student subsequent to comments from the users)...

few children (9 to 11 years of age) proposed two sliding zones separated by a low wall so that there would be one zone for the older children and one for the younger ones.

The inside of the shelter for the smaller children was not of much interest and the children did not spend much time, if any, studying it, although they seemed rather pleased with the idea of the ropes which, for some of them, were too vertical. In the space in the upper level between the ropes and the ladder, they wanted some furniture (table, chairs or benches) to make real use of it.

The inside of the other shelter, on the contrary was of great interest to the children (9 to 12 years of age) especially concerning the hockey rink which some of the children would have preferred to be more realistic with team benches and penalty boxes, real hockey boards along the outside of the rink with doors, a protective mesh around it, etc. The children considered seasonal uses for this area: hockey in the winter with a skating rink, protective mesh, and in the summer the mesh could be removed, the hockey goals could be used as ping-pong tables and the dance hall could be set up with stands at the back.

In this respect, I asked them if they thought electric lighting would be useful. They said yes but they thought that the lights would very quickly be broken. According to them, it would be futile to install them although they probably were thinking only of lighting which was only partially or not at all, protected.

The upper space in this shelter was not dealt with very much except for the corner with the table and the benches which was rather well received. The rest was not rejected but they did not see how to use it other than the manner in which I had placed my scale model characters. The children had the

same reaction concerning the balcony although a certain number of them wanted to convert it into a ski jump in the winter.

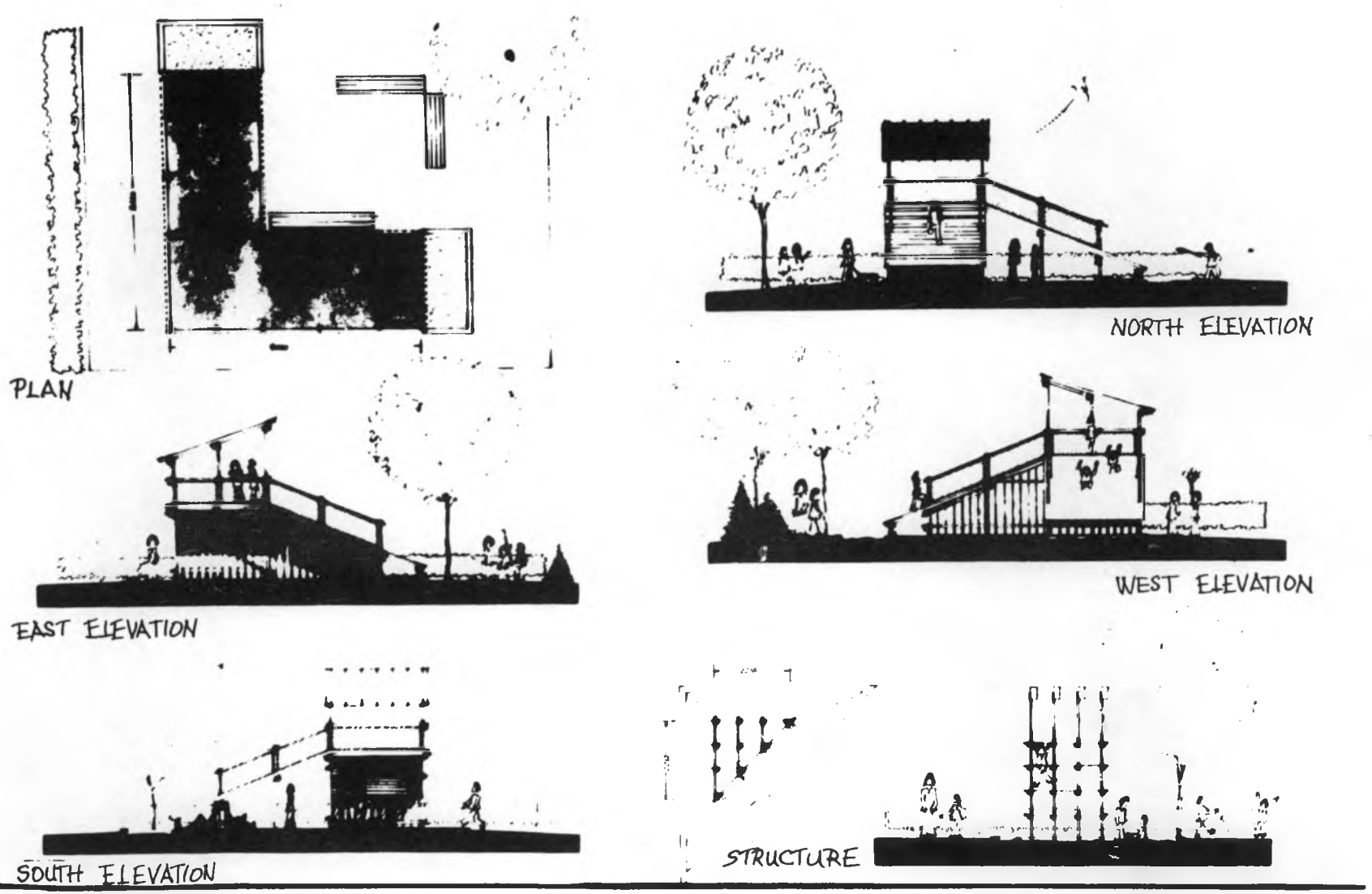
Lastly, they proposed to use the roofs as a skateboard track (go down, climb up, with the roof leading onto an area covered with asphalte at ground level), and some went as far as to devise a basement under the hockey area, for other activities.

Some wanted to keep the shelter solely for children living in "les Residences Neuville" and thought up a system of passports, passwords or sweaters making it possible to identify the people who had access to the shelter.

I consider this consultation, then, as having produced a good deal of ideas although the number of children participating was relatively low. Subsequent to this, I would consider a certain re-organization of the floor aeas in the two shelters so as not to leave them too unused and I would consider restructuring them. Along with this I would possibly reconsider my option of two separate shelters.

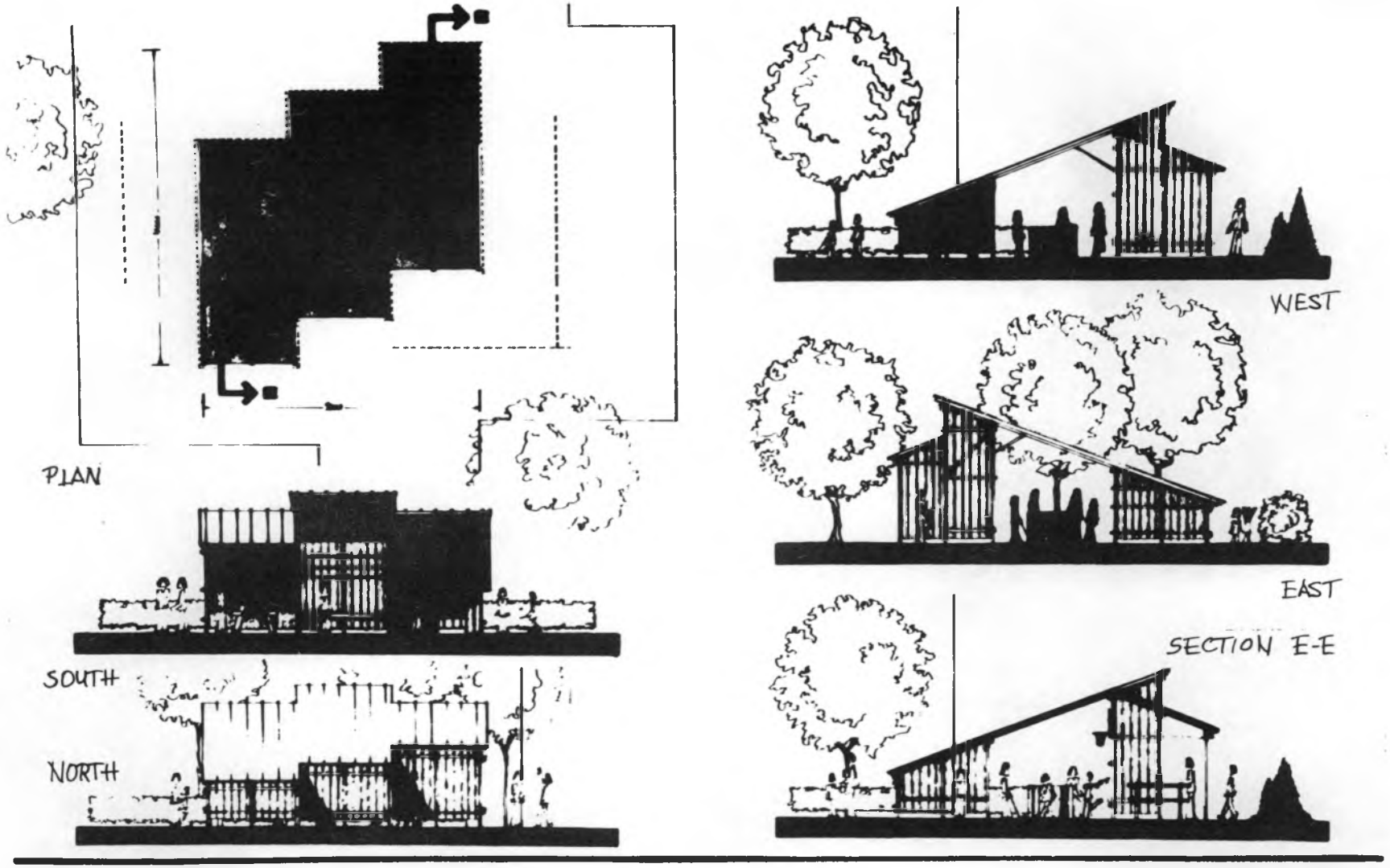
4.3 PROJECT C/SERGE ROBIDOUX
4.3.1 GENERAL REACTION OF THE CHILDREN

This project came in third in the children's vote. It did, however, provoke much interest. The children wondered whether it would be possible to play hockey in the area provided for this purpose because, according to them, it was not as well enclosed as in the other models. The children also wondered about the large number of openings around this structure; they did not consider it sufficiently well protected from the wind.



Preliminary sketch of Project C / Shelter intended for the younger children

N.B.: This is the second sketch prepared by the student subsequent to comments from the users.



Preliminary sketch of Project C / Shelter intended for the younger children

N.B.: This is the second sketch prepared by the student subsequent to comments from the users.

MODELS OF PROJECT C

View of the model illustrating the use of the tubular system.

4.3.2 CONSULTANT'S COMMENTS

Of all the projects designed by the students, this project is undoubtedly the one which showed the greatest motivation on the technical level.

This solution is original in that it was developed by using, as a structural element, a tubular system normally used in the construction of scaffolding. Panels, formed by planks, are attached to this tubular system. On these panels of unfinished wood the children could scribble away to their heart's content without running the risk of detracting from their physical appearance.

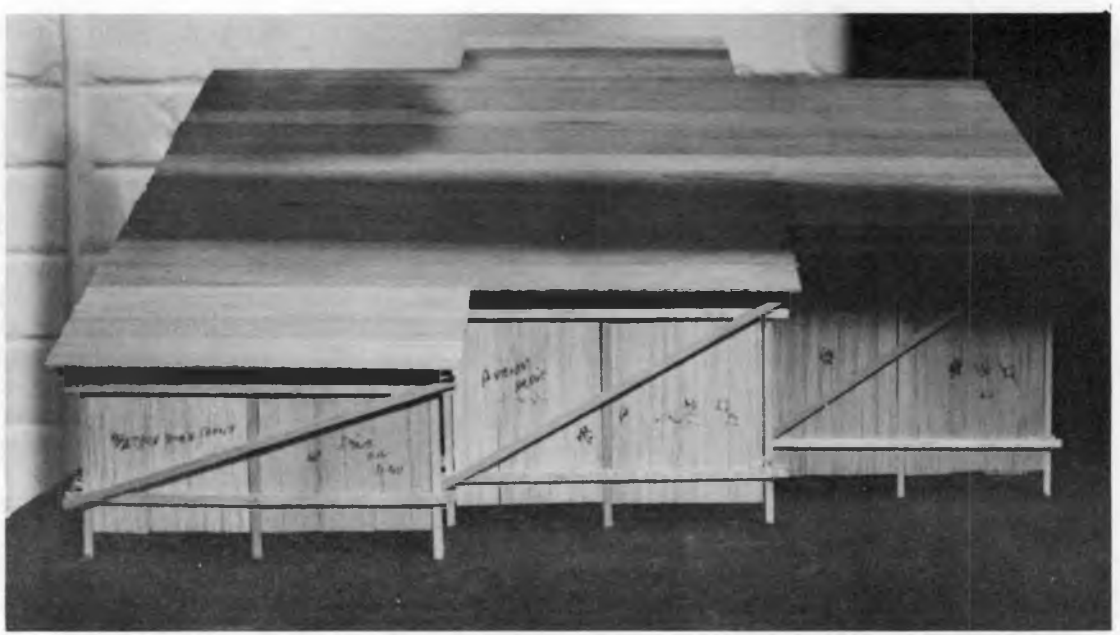
This solution did not pose any particular technical problems; nonetheless, since the tubular system is not designed for long spans, this meant rather large constraints concerning the planning of certain spaces. It was not possible, using the largest possible span, that is, 4 meters, over the interior hockey area, to provide this space with suitable proportions and dimensions.

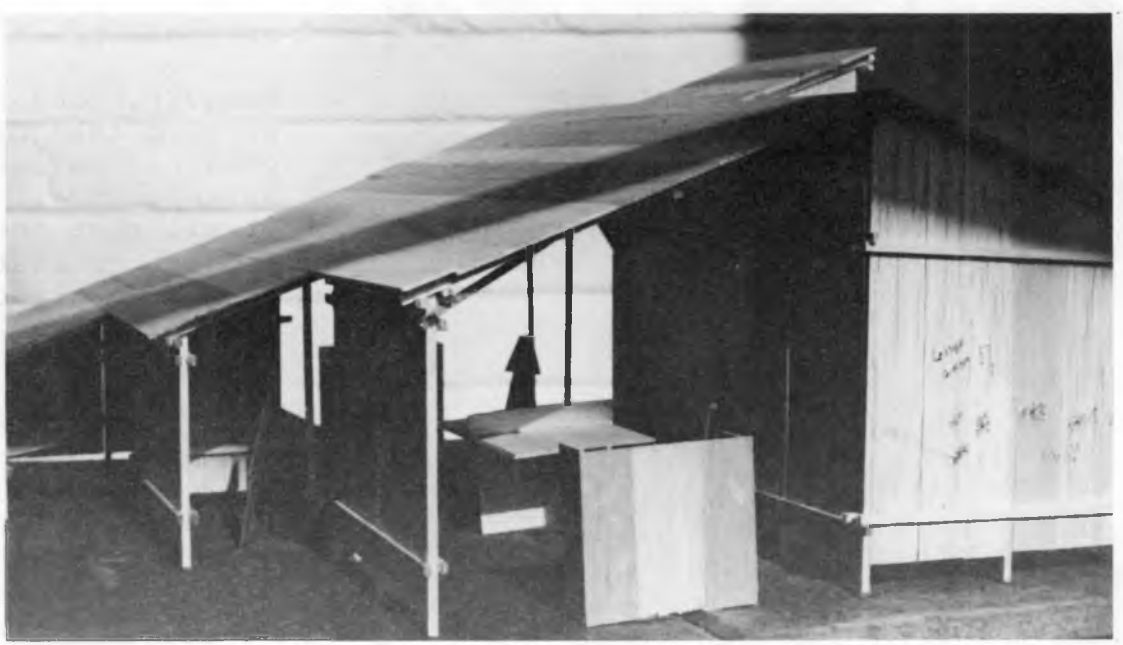
However, concerning the other activities which were to take place inside the shelter the various possible layouts using this system proved satisfactory. It is necessary to point out first of all that the architectural choice made in this project consisted, as was the case for project B, in building two separate shelters, one for the older children and the other one for the younger ones.

4.3.3 STUDENT'S COMMENTS

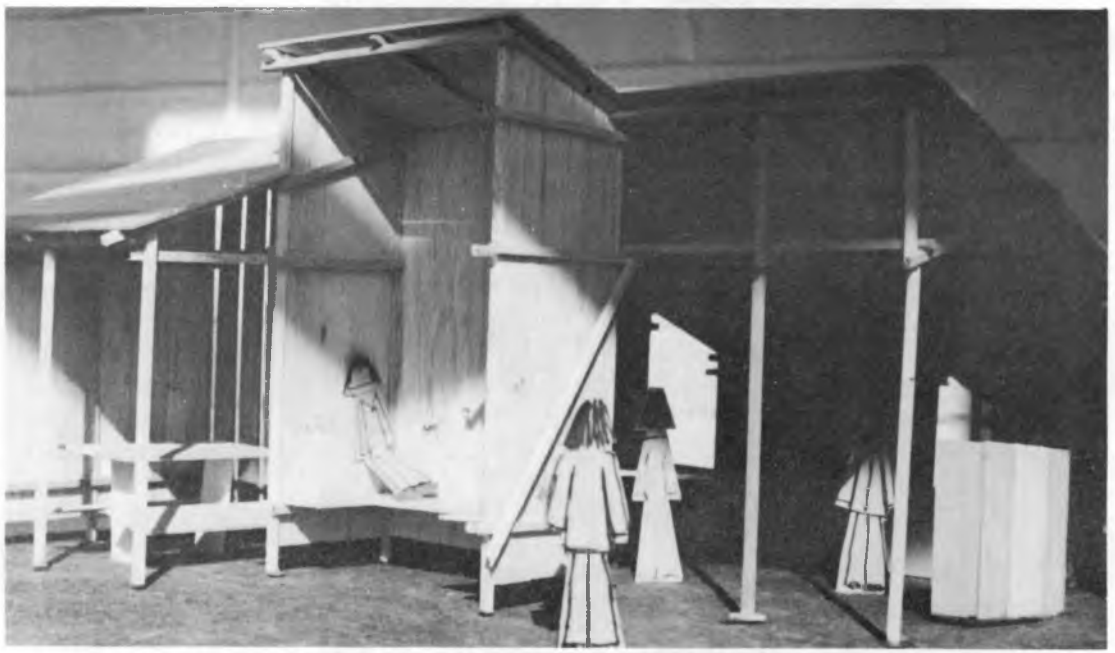
The children seemed very interested in the project in general. Most of them took their role as judges very seriously. A certain number even came back several times to ensure that they would make a good choice.

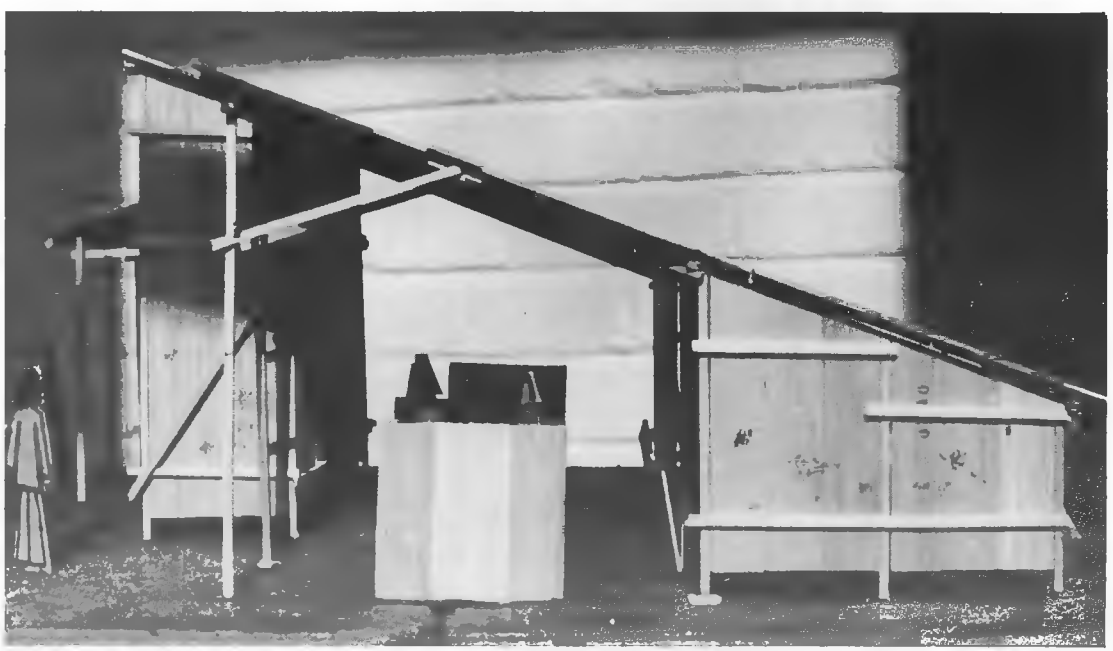
Model of the large shelter intended for the older children: "On these panels of unfinished wood the young children could scribble away to their heart's content without running the risk of detracting from their physical appearance."

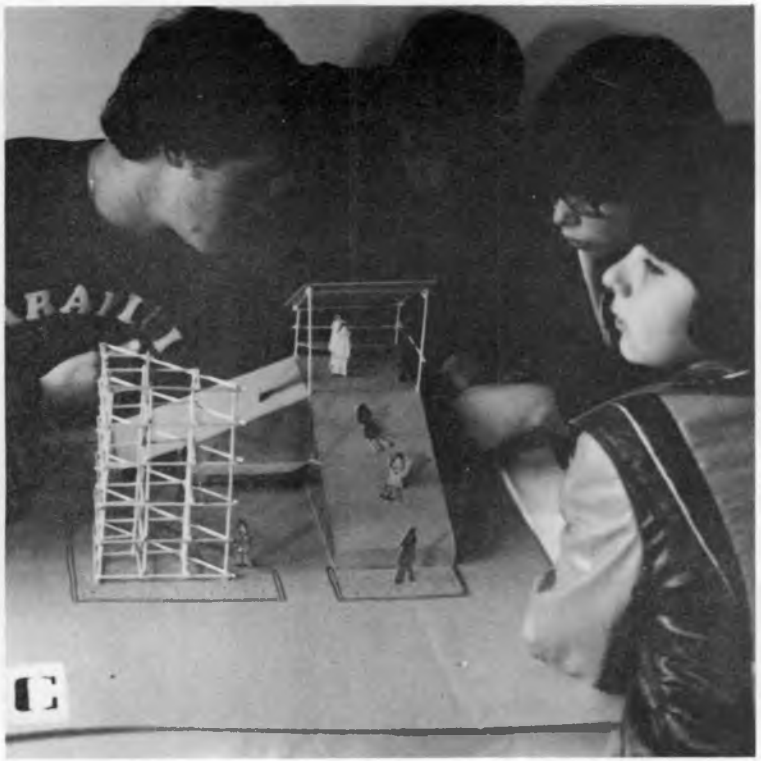




Additional illustrations of the shelter intended for the older children. In the upper photo one can see a small recess for sun bathing. In the lower photo, one notices the narrow area set aside for inside hockey.





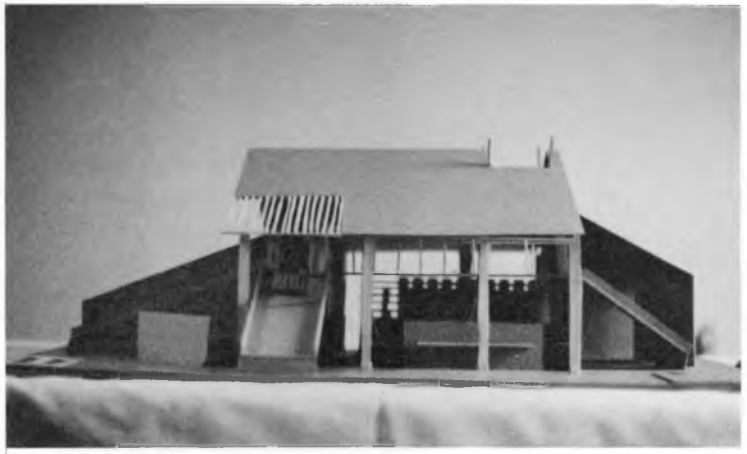


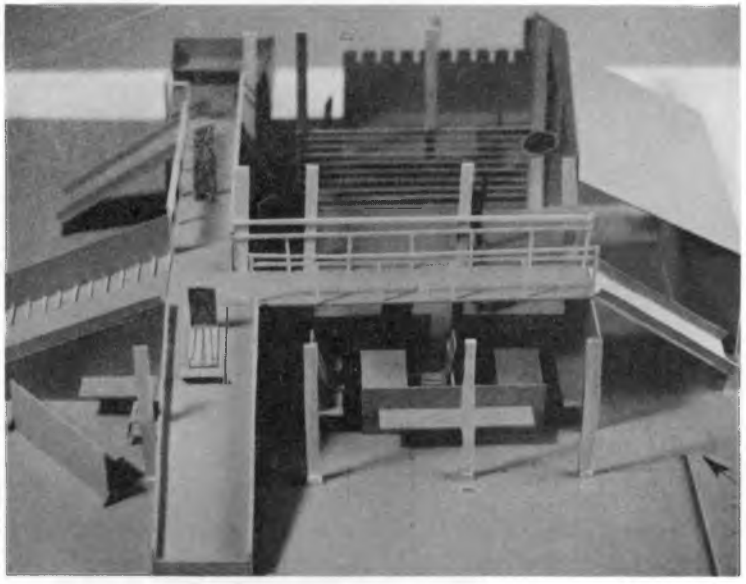
Model of the shelter intended for the younger children:

This experience shows that the younger children (6 to 11 years of age) appreciated the two shelters because of the many possibilities created by the presence of a series of walls. The recesses under the slide and the small corners in the shelter for the younger children were very popular. The height and the slope of the slides seemed insufficient to them. On the other hand, the tridimensional structure pleased them immensely. Certain children even found that it was too high and thought that it could be dangerous. The older children, those 13, 14 and 15 years of age, made plans to go up there to talk and to lounge about and intended to use it as a podium. Other young children remarked that they could injure their heads on the slides when they were playing on them. A certain number were disappointed by project C when compared to the other three because of the lack of equipment and games such as cables, counters, ladders, firemen's sliding polls, etc.

The older children (10 to 15 years of age) seemed to show more interest in the the larger shelter than the younger ones (6 to 11 years of age) did in the small shelter. Moreover, a certain number of children 6 to 11 years of age indicated that they preferred the larger shelter. The older ones greatly appreciated the idea of having two separate shelters (more than the younger ones) the large central space seemed big enough to them but perhaps it was not sufficiently contained, that is, there were too many recesses on its perimeter.

The ping pong table was particular popular. In addition, the youngsters said that if they had to choose between the picnic table and the ping-pong table, they would prefer the ping- pong table. The most popular sport by far most popular is hockey. This sport is preferred especially by the boys, both the younger and older boys, and that is why, in my opinion, the mini-





MODEL OF PROJECT D

gymnasium should be designed mainly for this sport As for badminton, basketball and volley ball, the children did not seem to be aware of these; ping-pong on the other hand, is very popular and is played a lot, especially at school. I heard few comments concerning the discussion corner. The corner reserved for the picnic table, on the other hand, caused much discussion among the children (6 to 11 years of age) who could see this being used in several ways.

In conclusion, the young boys from 6 to 11 years of age did not seem particularly interested in the shelter which was intended for them and preferred the shelter intended for the older children. The girls, on the other hand, liked the shelter intended for the younger children.

4.4 PROJECT D / MARIE-FRANCE MOYSAN

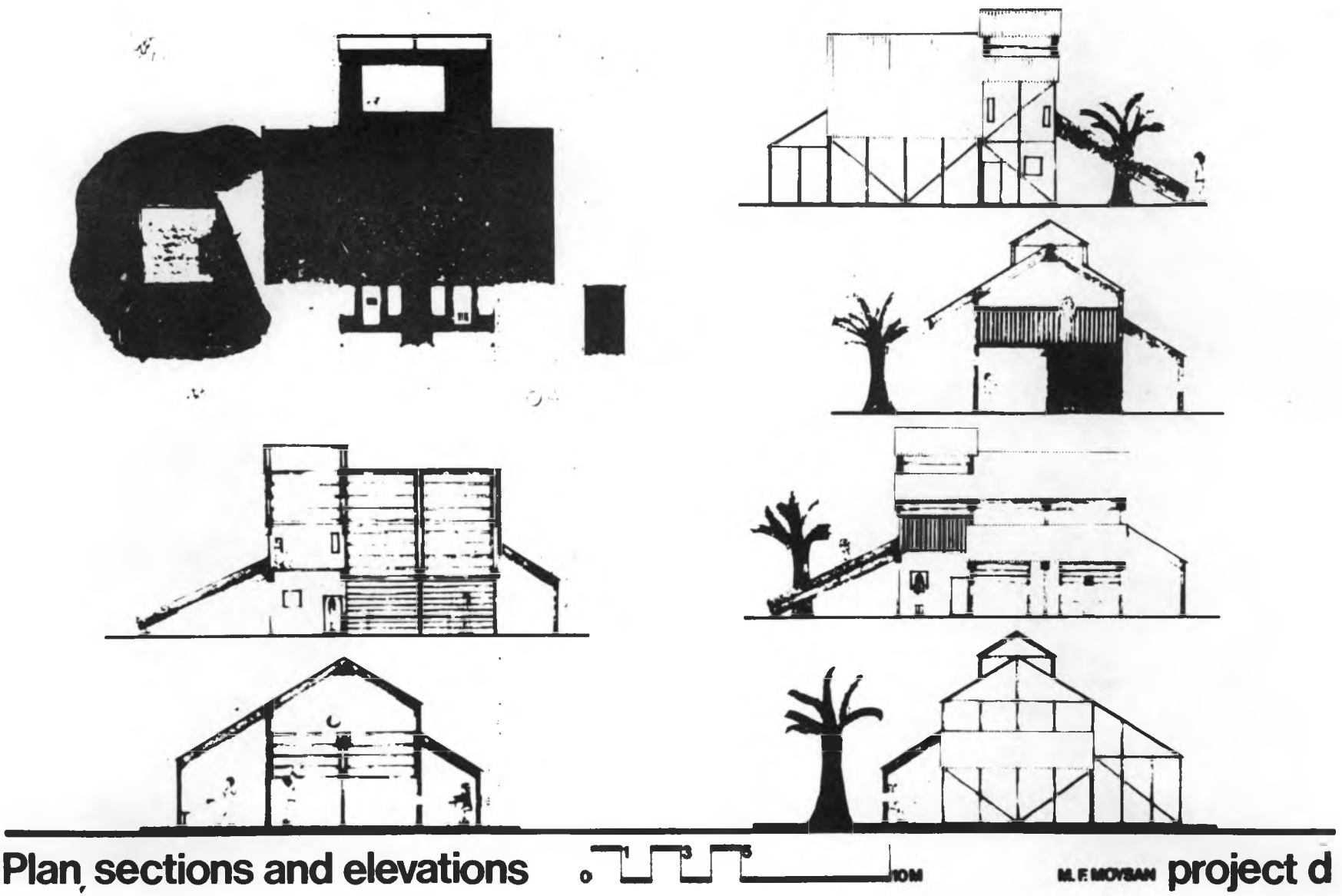
4.4.1 GENERAL REACTION OF THE CHILDREN

This project came in second in the vote held by the children but it is more difficult for us in this case, than in the preceding project, to summarize the general reaction of the children (see student's comments in section 4.4.3).

4.4.2 CONSULTANT'S COMMENTS

Among the four projects which were designed by the students, this is probably the one which was the most successful in creating specific atmospheres with which these children could identify. The following remarks made by a few children looking at the model for this project was a clear indication of this:

"....here, we could play hide-and-seek...."
"....here, I am going to play with my aunt...."
"....I would like to slide here...."



Preliminary sketch of Project D

N.B.: This is the second sketch prepared by the student subsequent to comments from the users.

The researchers listening carefully to a child's comments.

"....there, we could play basketball...."
"....there would be a good place to have picnics...."
"....there is a good place to play cards, etc.

4.4.3. STUDENT'S COMMENTS

As a global remark, I conclude that I did not get many comments from the children; I believe that this is due to the fact that I had set up shop furthest away from the entrance to the apartment, and therefore the children had already used up a lot of energy discussing before they met with me and, therefore they must have been tired. It seems that we had not chosen a good day for the meeting, since a certain number of families had left for the country.

To inititate the conversation, knowing full well that the children had already learned how to "read" the spaces, I did not describe my shelter to them immediately; I chose to ask them what they though of it, at first glance. Subsequently, I explained to them how the spaces functioned. If this approach proved fruitless, I then asked them to imagine a windy day and also to imagine that my shelter was built on a lot near their home. Then I asked them to tell me where, and what, they would play in the shelter.

Based on this, I obtained two types of replies:

From the older children (10 to 13 years of age): Their first choice was to play hockey, basketball, volley ball or any team game in the large space; next, they opted for ping-pong. This game, moreover, was very popular. If the ping-pong table was occupied, they would then play cards, or would talk to each other in the area where the tables are located, and last of all, they would stroll on the walkway and lounge on the benches.

A remark made by a child leaves this researcher wondering...

From the younger children (8 to 10 years of age): They were attracted, at first glance, by the slides. They therefore would climb up the logs, and along the slide and then they would slide down. They also liked to run through the mini-spaces and hide. The area reserved for tables gave them the idea of having picnics as well as playing cards or parlour games. They mentioned the benches where they would sit down when they were tired of running, skating etc... A few compared the walkway to a passageway and some even identified it as a street.

I heard observations such as: be careful of metal slides which become very hot in summer but which are particularly appropriate in winter because they are very slippery; do not forget to provide for sand below the slides; and also install guard rails so that the children do not fall. These comments indicate that the children are conscious of the fact that there has to be a certain degree of safety.

To find out whether my shelter met their requirements, I asked the children if they saw certain changes to be made, such as adding or eliminating certain spaces, which would contribute to maximizing the shelter's use. There were only a few suggestions but it is nevertheless possible to draw conclusions. A boy 11 or 12 years of age, suggested organizing a walkathon path across the shelter and to organize a race. We could perhaps conclude from this that he perceived the shelter as a dynamic area offering varied spaces. Another boy, of the same age, proposed using the ping-pong table for other activities such as, for example, the "quatre-coin" game. Lastly, a boy concerned with the well-being of the younger children requested that there be an additional wall

accessible to the smaller children to play ball, when the large space was occupied by the older children. He also suggested installing a model race track for cars on the ping-pong table.

Lastly, in the same evaluation vein, I asked the children which space would, in their opinion be most popular. A certain number replied that they would play ping-pong in the large space and others that they would like to play in all the space. This leads me to believe that I had made a good choice in deciding to create several spaces which provides such space with a certain dynamic quality and also a particular attraction.

In conclusion, I would say that the children were very interested in our proposals, and that it was a good idea to go to see them, since this made it possible for us to realize that we had been working in the right direction, that is, in line with their needs.

...It was then the student's turn to explain certain things to the children visiting her model.

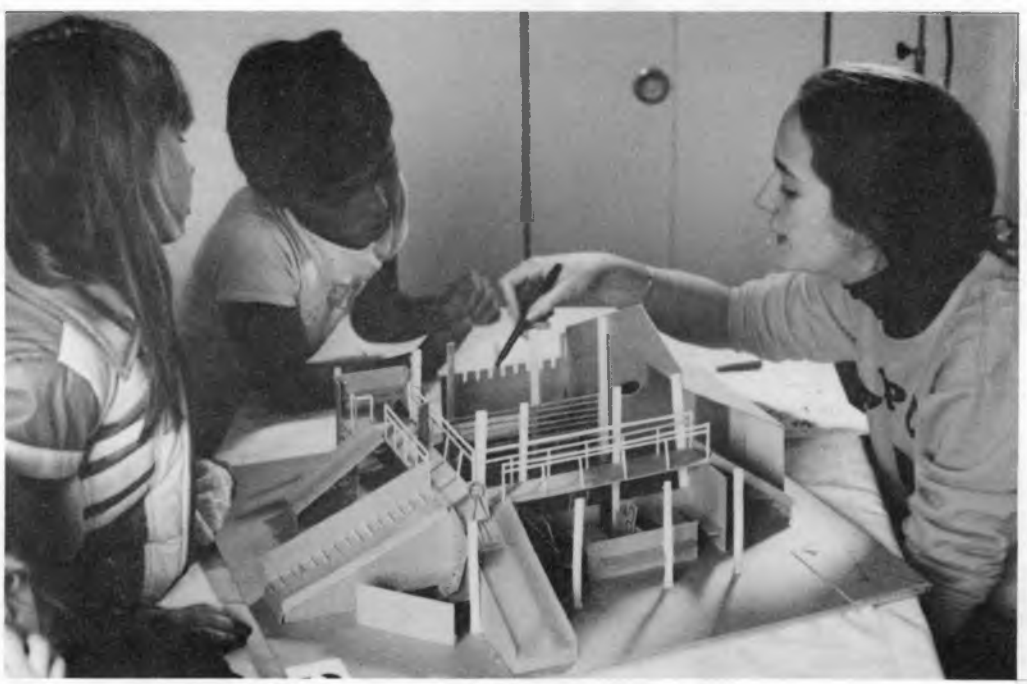


Illustration of the model for Project D modified by the students subsequent to comments from the users.

4.5 RESULTS OF THE VOTE TAKEN ON THE FOUR PROJECTS

CHILDREN'S AGE	NUMBER OF VOTES PER PROJECT				TOTAL NUMBER OF CHILDREN BY AGE CATEGORY
	PROJECT A	PROJECT B	PROJECT C	PROJECT D	
6 years	3		1	2	6
7 years					-
8 years	2			2	4
9 years	2	3		1	6
10 years	2			1	3
11 years		1		1	2
12 years	2				2
13 years	3		2		5
14 years			2		2
TOTAL	14	4	5	7	30

4.6 CONCLUSION

We would like to point out, once more, the fact that one should not attach too much importance to this vote which was much more a game than an actual survey tool for the reasons that we have mentioned above (See Chapter 2, Section 2.6.3).
On analysing the remarks made by the children it is observed that they found elements which pleased them in each of the projects.

The only general trends which we were able to observe in the remarks made by the children and in the vote were the following: the children prefer solutions in which priority is granted to practicing sports and those which group all the activities in one shelter. We also observed that the solutions which most ressembled actual buildings (Projects A and D) were preferred to those which looked more like playground equipment (Projects B and C).

Among the remarks made by professionals asked to make comments on these solutions, particular note is made of:

- Those who deplored the fact that no use had been made of the earth as a material to vary the lot's topography;

- Those who deplored the limits as to the use that could be made of these structures during the winter period.

In the composite project which we present in the following chapter, you will note that we have attempted, in one solution, to take into account the criticism and suggestions which we have just formulated.

CHAPTER 5 - COMPOSITE PROJECT

The composite project is different from the preceding solutions in that a slope has been added.

5.1 OBJECTIVES OF THE COMPOSITE PROJECT

After having evaluated the various solutions proposed by the students, the consultant developed a composite project which we present in the following pages. In this project, we have attempted to integrate, in one solution, the largest possible number of positive elements that we had identified in the projects designed by the students. We have also attempted to incorporate in this solution advantages which were not found in the preceding solutions.

Among the objectives which we set for ourselves to improve the preceding solutions, the most important undoubtedly was that of increasing the use of the shelter during the winter.

As pertains to the use of the shelter during the winter, we had noted that each of the projects designed by the students contained an area reserved for inside hockey and that certain designs also offered a slide. Use of these facilites, however was meant mainly for warm temperatures.

The composite project is different therefore from the preceding solutions in that a slope of earth has been added which would be covered with asphalt and which would increase the use of the shelter not only during the winter period but also during the summer. In winter, children of all ages could ski on this slope, go tobboganing or sleigh riding; in the summer, they could use this slope for skate boarding, roller skating and for going down the hill in all sorts of small vehicules such as, for example, soap box cars.

This intention to increase the use of the shelter during the winter, however, had other repercussions in addition to the creation of the slope. This intention also led us to designing

the spaces in the shelter so that in certain areas, the social area, for example, could possibly be completely enclosed and used during the winter. This, however, will not be possible until additional funds are available to pay monitors; experience in fact has shown that completely closed areas cannot be made accessible to children without running large risks, unless these areas are supervised. In this perspective, it would also be necessary to find additional funds for windows, lights, insulating and heating the enclosed areas.

These then are the objectives which had the most influence on the composite project which we present below.

5.2 DESCRIPTION OF THE COMPOSITE PROJECT

5.2.1 SITING

The shelter is located in the very middle of "les Résidence Neuville" and consequently, in a location where many pedestrians converge. This site should increase its use and make it possible, at the same time, for bypassers to exercise a certain amount of supervision.

Inversely, since the shelter is in an intermediate zone between two groups of dwellings, the noise which the children could make should not disturb the people living in the residences. Adolescents will also appreciate the fact that they do not feel too closely supervised (see layout plan, section 5.3)

5.2.2 ORIENTATION

The shelter is oriented in such a way as to protect the users from the prevailing winds and to make the best possible use of the sun's rays.

Photo of the model where we can see the main elements of the shelter.

As for protection from the wind, one can see by the plans that the north and west facades have the least number of openings, and in terms of sunlight, the south facade has the largest number of openings.

5.2.3 MAIN COMPONENTS OF THE SHELTER

The shelter is composed essentially of the six following areas:

- the sport's area on the first floor
- the social area on the upper floor
- the children's annex on the east side
- the slope on the west side
- the storage annex on the north side
- the outside basketball court on the north side.

5.2.4 SPORT'S AREA

This area was designed initially for inside hockey but it is very versatile and may be used for other activities during the summer. On the north side of this area is a bench which will undoubtedly be used in various ways (players' bench, penalty bench, spectators' bench, etc...). Beside this bench is the storage annex which we shall describe in section 5.2.8. On two of the sides of this sports' area are moveable boards which can be stored during the warmer seasons of the year to accomodate other activities.

During the summer, in fact, this area will be able to accomodate less specific activities such as le ballon chinois, kick-ball, soccer and more passive activities such as ping-pong, skipping rope and hopscotch. The use of this area may then vary depending on the desires of the users. Incidently, this zone is designed mainly for children from 9 to 14 years of age.

Photo of the model illustrating the sports and the social areas (to the left) as well as the children's annex (to the right)

5.2.5 SOCIAL AREA

This area is above the sports' area and is intended mainly for children from 12 to 14 years of age. During the six warmest months of the year the children will be able to use this space for example to chat, lounge about, dance, listen or play music and play ping-pong. On the tables in this room they will also be able to play cards, checkers and other games.

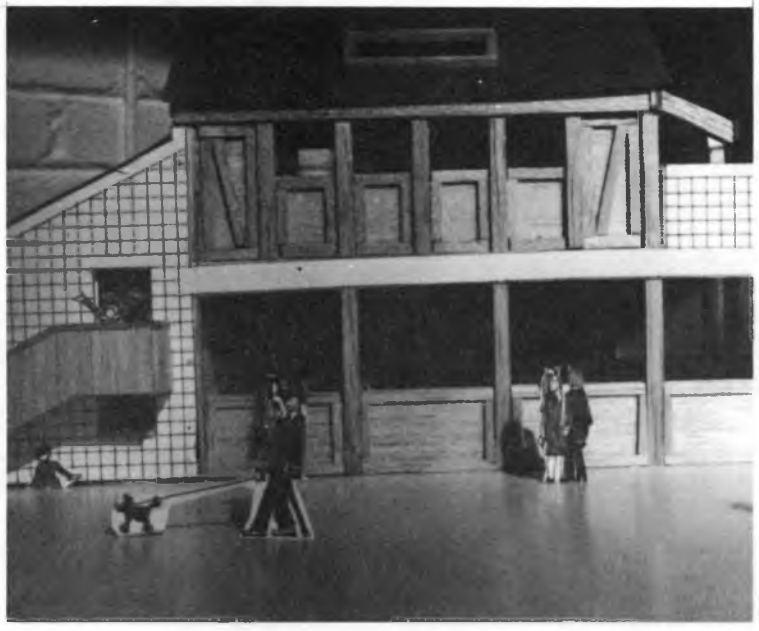
When the owner is ready to put in windows, to insulate and to heat this area, as well as to ensure permanent supervision its use could be extended to all twelve months of the year.

5.2.6 THE SMALL CHILDREN'S ANNEX

This annex is intended mainly for children from 6 to 8 years of age. Since it is very open and well ventilated, we believe that it should be possible to extend its use over the twelve months of the year. It was designed on a child's scale, and for that reason, the height of the rooms in it is approximately 1.5 meters. By thus limiting the height of the rooms, it was our intention, in addition to respect the size of the users to protect the latter from the older children who often have the tendency to tease the younger ones.

As for the siting of this annex, it is oriented towards the existing playground for small children and positioned so that it has its back against the areas intended for the older children.

The small children's annex includes essentially four areas, two of which are on the upper level and two on the ground floor.



This phot is a good illustration of how the children's annex (to the right) is built against the rest of the shelter.

On the ground floor

There is a covered area here in which, on the south side, a small space has been set up with a counter opening towards the outside. Using this opening above the counter, the children could play store. This same small space also contains a second counter where the children will be able to store certain objects and also perhaps to play at cooking. On the north side a square area has been set up consisting of a table surrounded by benches. On this table the children will be able to play all sorts of games or maybe even to pretend that they are in the living room of a small house. Through a mesh covered opening, the small children will be able to have a view of the sports' area from this location.

Adjoining this covered area, on the ground floor, a small uncovered yard enclosed by a fence has been set up containing a sand box as well as benches where parents will be able to sit down and watch their children play.

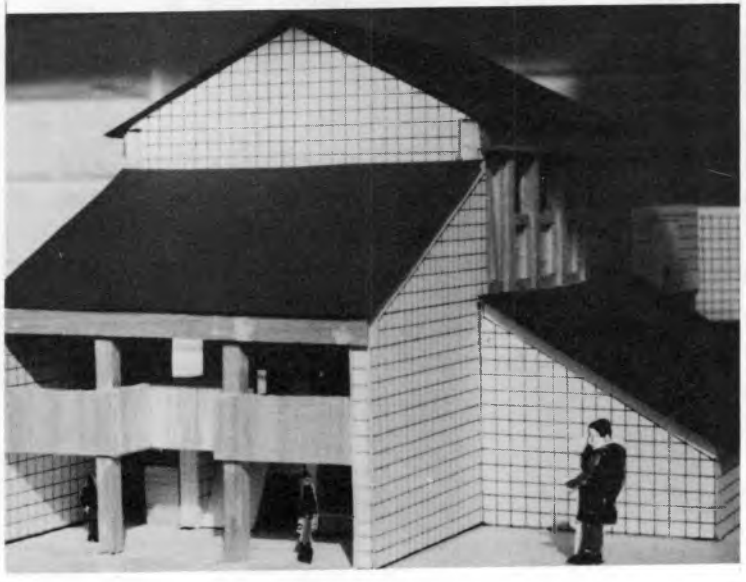
On the upper level

Access is provided to the upper level by a stairway separating two similar but distinct spaces also providing a view, through mesh covered openings, of the sports' area.

In these two spaces, which aim at recreating the atmosphere of tree houses built by children, the youngsters, using their imagination, will be able to participate in all sorts of games or simulations. These spaces will also be equipped with large wood blocks which will be used for game purposes and also as furniture.

This slope may be used as a slide both in winter and summer.

View of the storage annex to the right of the children's annex.



Lastly, an exterior slide will make it possible for the children to slide down to the ground floor from the storey as part of their play activity.

5.2.7 THE SLOPE

On the west side of the shelter an artificial slope has been installed using fill which will be covered with asphalt. On this artificial slope which we have already described in section 5.1, children of all ages will be able to play both in winter and in summer.

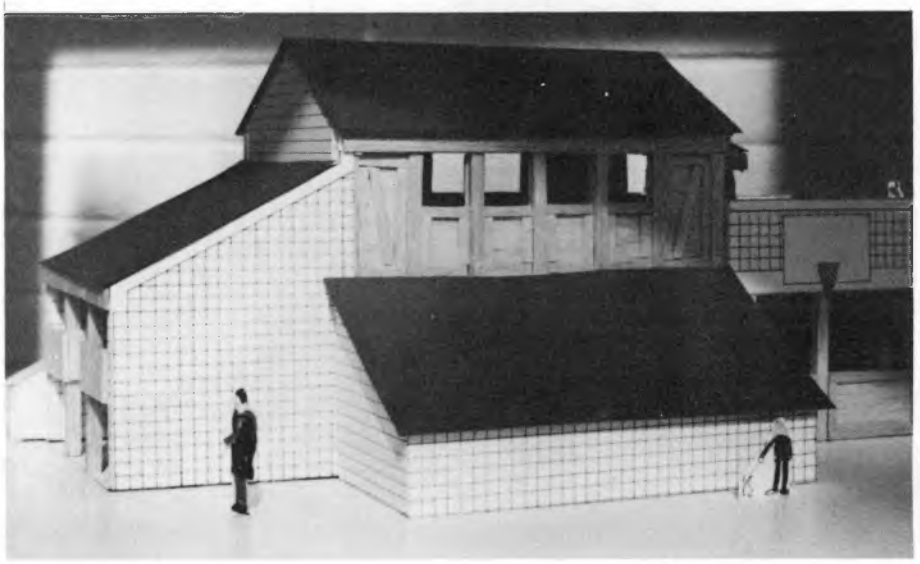
5.2.8 STORAGE ANNEX

This annex which is found on the north side of the sports' area was designed first of all, to store the moveable elements of the shelter during the seasons when they are not used (for example, the boards for the interior hockey area, during the summer). This annex was also designed to store sports equipment such as hockey goals during the summer and ping pong tables during the winter.

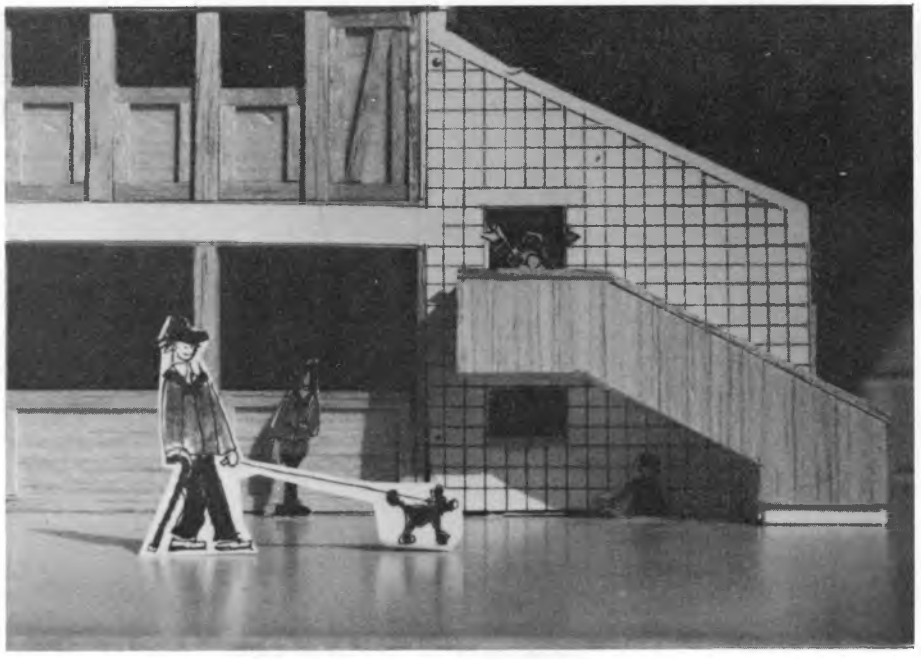
5.2.9 EXTERIOR BASKETBALL COURT

This area was set up (in the same way as the small yard adjoining the children's annex) to provide another exterior extension to the shelter and to increase its use as much as possible.

From left to right: the small children's annex, the storage annex, the basketball court and the slope.



View of the slide adjoining the small children's annex. Under the slide you can see the opening where the children could play store.



5.2.10 PARTICULARITIES OF THE SOLUTION

Ease of maintenance

The main materials chosen for building the shelter: asphalt on the ground, concrete blocks and natural wood for the walls, and lastly steel roofing should be relatively easy to maintain.

Resistance to vandalism

The site of the shelter as we mentioned in section 5.2.1 as well as the choice of materials described in the preceding section should minimize the risk of vandalism.

Flexibility of the shelter

The shelter, as designed, is flexible at the level of the project, its spaces and materials. At the level of the project, it could easily vary in shape, that is, increase or decrease in size, depending on the funds available. For example: the length of the slope, the dimensions of the annexes and of certain areas could vary. As for the flexibility of spaces, we have already mentioned their versatility. As for the flexibility of materials, we took particular note here of the suggestion already made by a few students to use unfinished wood panels on which the children could scribble graffiti to their heart's content without detracting from the physical appearance of the shelter.

Universality of the shelter

The prototype for the shelter which we developed could be set up easily and blend in with other

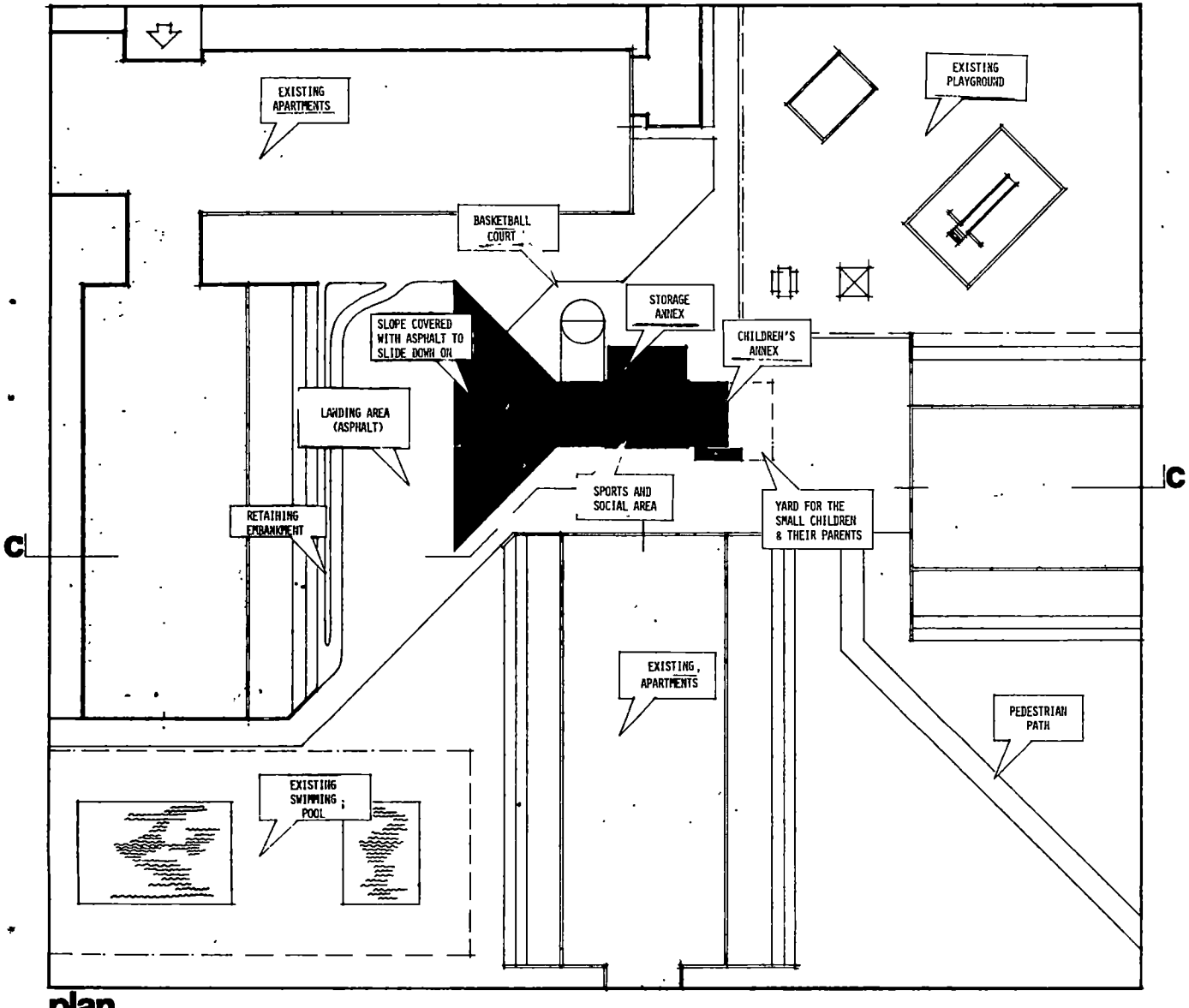
residential projects in the various regions of the country. This is possible because its design is simple, its exterior appearance is relatively neutral and lastly because a certain number of its component parts may easily be modified or removed to adapt to local conditions and constraints. On the plans which we present in the following section, we have, for example, indicated as an optional element, a corridor under the slope of the shelter. This corridor is not necessary on "les Résidences Neuville" site but could be necessary in another location.

5.3 PLANS

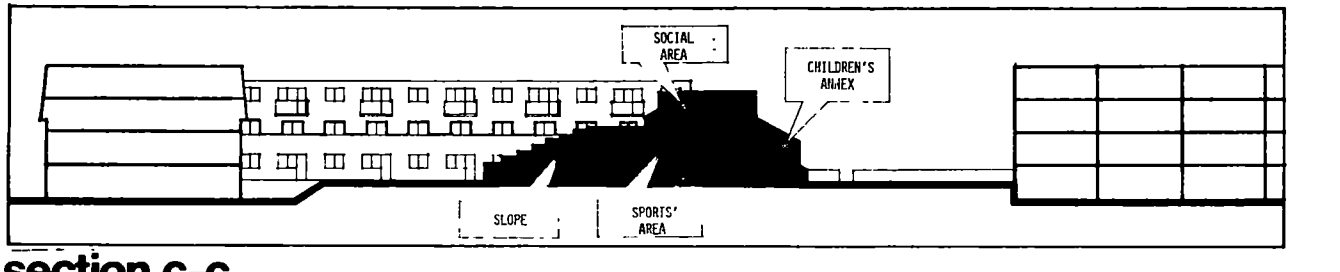
On the following pages, you will find three documents in the following order:

- the layout of the composite project
- the plans and sections
- the elevations

Then you will find, in section 5.4, a budgetary estimate for the project.



plan



section c-c

lay-out and section

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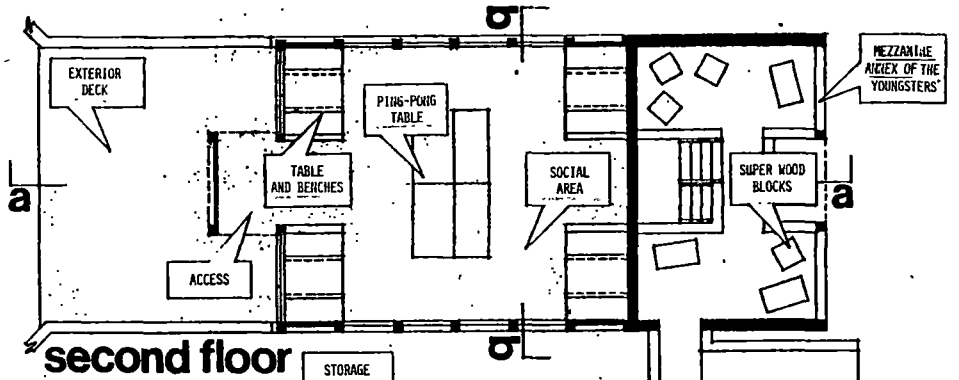
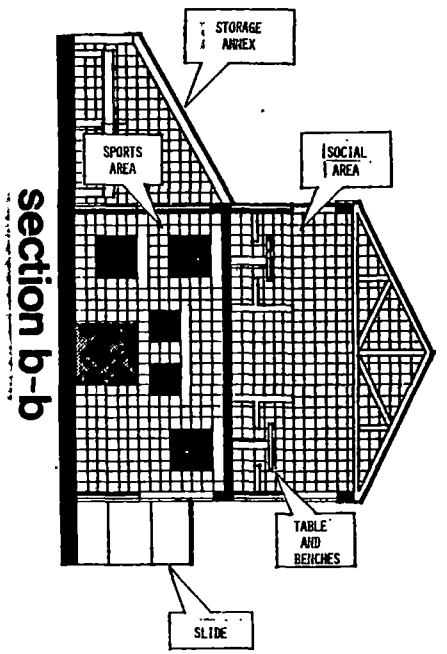
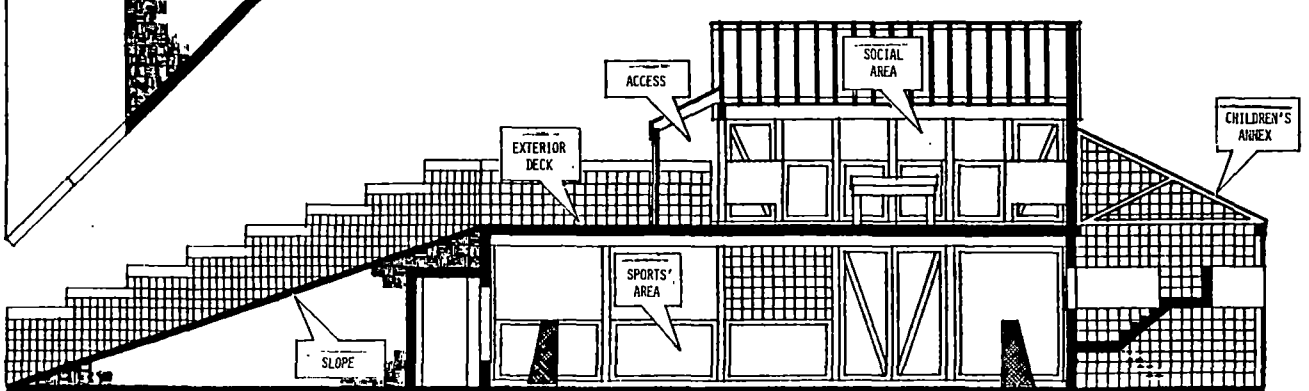


second floor

ground floor



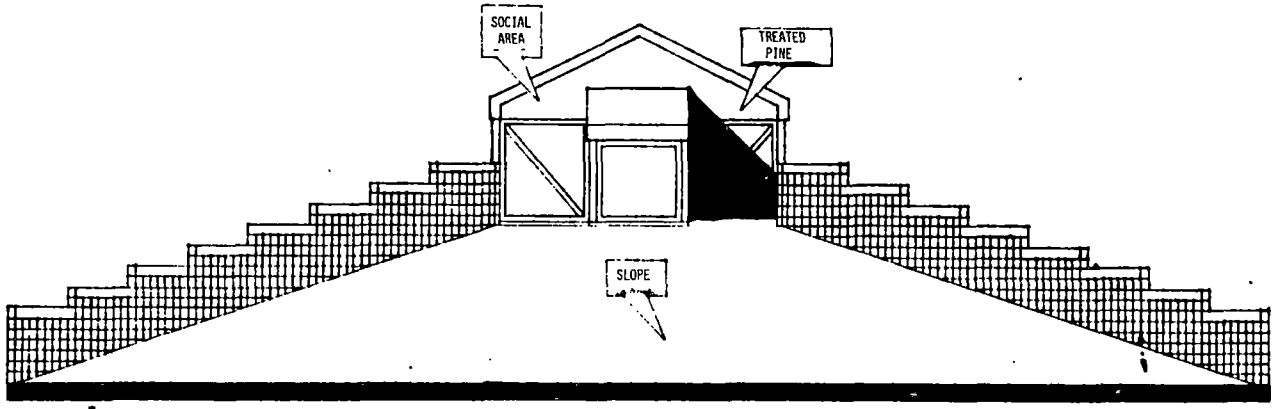
section b-b



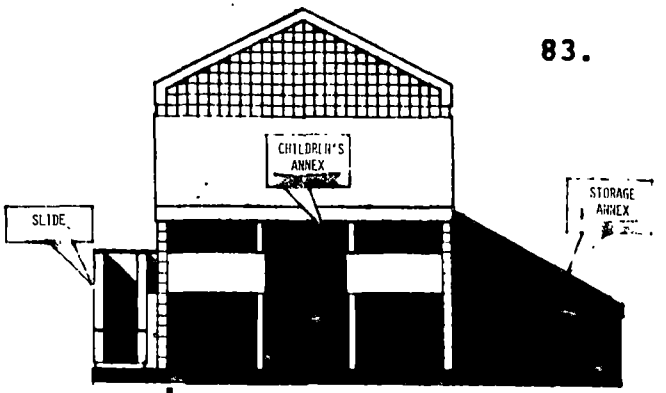
section a-a

lay-out and section

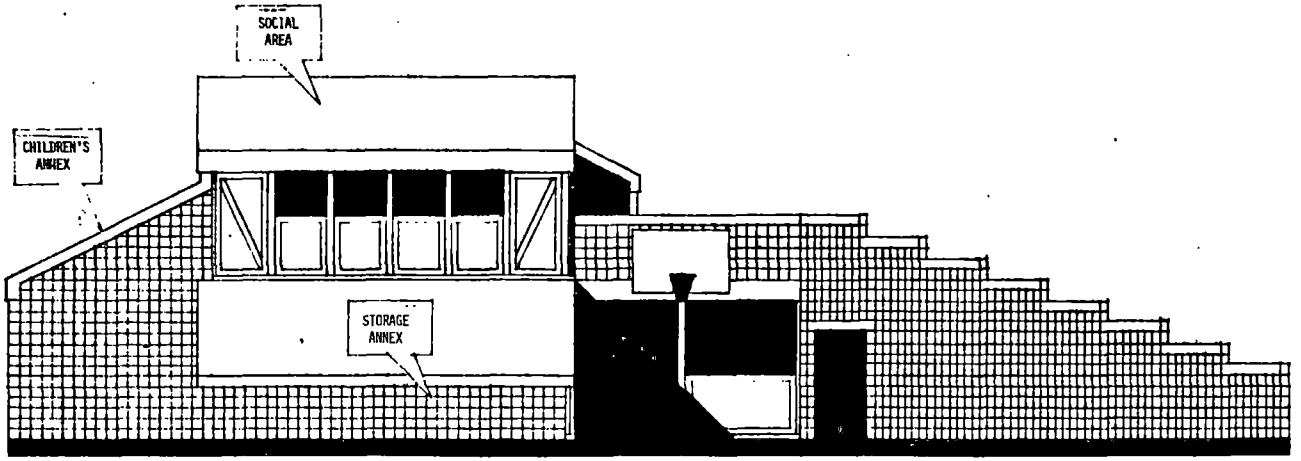
0 1 3 5 10M



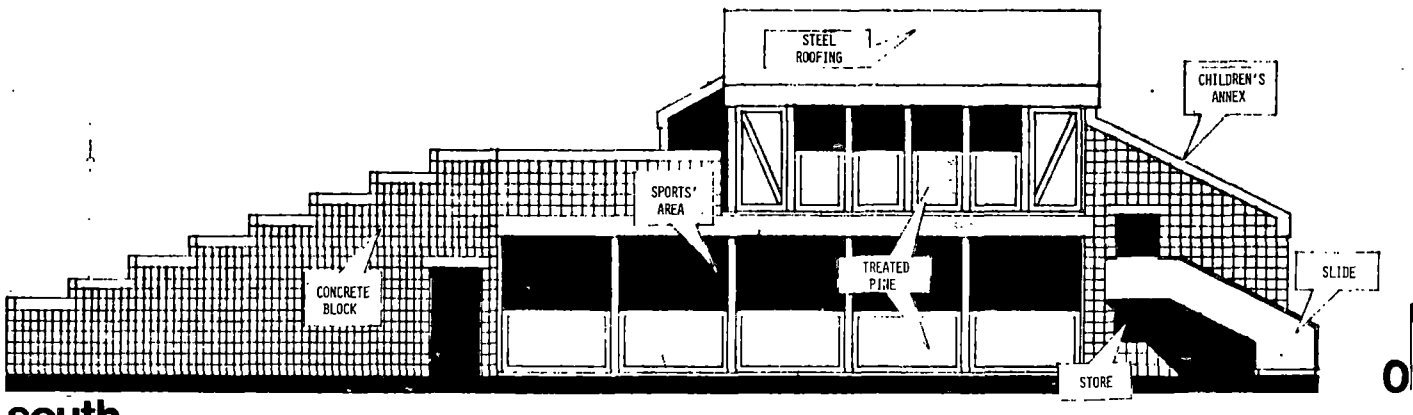
west



east

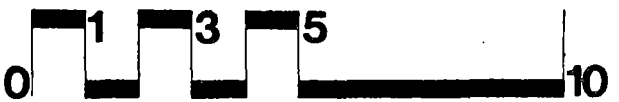


north



south

elevations



5.4 BUDGETARY ESTIMATE*

5.4.1 EXCAVATION

a)	Footings for the walls: 80m3 @ $1.90	152
b)	Footings for the columns: 14cm3 @ $1.40	57

5.4.2 MASONRY

a)	Concrete blocks: 206m2 @ $28.00	5 768
b)	Reinforcing: 1km @ $600.00	600
c)	concrete lintels: 7,98m2 @ $57.00	455

5.4.3 CONCRETE

a)	Forms: 23m2 @ $19.25	443
b)	Concrete: 7,7m3 @ $45.00	346
c)	Placing: 7,7m3 @ $7.00	54
d)	Hollow concrete slab: 59m2 @ $31.00	1 829
e)	Special pre-fabricated beams: 22.8m @ $40	912

5.4.4 DEVELOPMENT OF THE SLOPE

a)	Fill: 197.2m3 @ $9.50	1 873
b)	Levelling of the earth by hand: 237m2 @ $1.50	355

5.4.5 ASPHALT

a)	Slope: 138m2 @ $3.25	448
b)	Social area and deck: 61m2 @ $3.25	198
c)	Ground floor: 100m2 @ $3.25	325

*N.B: This budgetary estimate is approximate and was calculated using "Yardsticks for Costing - 1979" published by Southam Business Publications Limited.

5.4.6	WOOD (materials only)	
a)	Columns	145
b)	Beams	220
c)	Walls, panels and boards	1 090
d)	Trusses (social area and annexes)	750
e)	Stairway (children's annex)	70
f)	Frame (slide)	250
g)	Floor joists (children's annex)	51
h)	Wood decking (children's annex)	128
5.4.7	CARPENTRY WORK	2 600
5.4.8	SKYLIGHT : 2m2 @ $165.	330
5.4.9	STEEL ROOFING	2 095
5.4.10	ACCESSORIES	
a)	Hockey goals	250
b)	Two ping-pong tables	500
c)	Furniture (social area)	600
d)	Large wood cubes (children's annex)	150
e)	Basketball (hoop and net)	150
f)	Hardware (storage door)	150
g)	Counters and square (children's annex)	400
5.4.11	ELECTRIC SERVICES	1 200
TOTAL		$24 944*

* N.B.: This appendix does not include the cost of installing the corridor under the slope. This optional element would cost approximately $1 500 more.

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PROJECTS SUPPORTED BY CMHC AS PART OF THE RESEARCH AND DEVELOPMENT PROGRAM UNDERTAKEN BY THE CHILDREN'S ENVIRONMENTS ADVISORY SERVICE (CEAS) FOR THE INTERNATIONAL YEAR OF THE CHILD

The research reports from the following projects are available through the CEAS Resource Service from CMHC National Office and CMHC Regional Offices.

1. INTERNATIONAL INVENTORY AND COMPARATIVE STUDY OF LEGISLATION OF PLAY SPACES

   This will provide a basis for comparison of CMHC standards and policies with those of other countries, regarding the allocation of space for children in the residential environment and is seen as a resource for municipalities establishing such standards.

   Aussi disponible en français.

2. HOUSING CANADA'S CHILDREN - A DATA BASE

   The compiled statistics will provide a profile of Canadian children and their housing.

3. MAINTENANCE AND RETROFITTING COSTS OF CHILD-RELATED FACILITIES IN THE REAL ESTATE PORTFOLIO

   Life cycle costing of child-related facilities and maintenance costs due to lack of child-related facilities will be used to determine cost effective solutions.

4. EVALUATION OF EXTERIOR FACILITIES FOR CHILDREN IN THREE LOW INCOME PROJECTS

   The report will provide an evaluation of three approaches to play space design in terms of play experiences, use by different age groups, accessibility, and resident satisfaction, using a technique that allows children to respond naturally.

5. CHILD'S PERCEPTION OF THE NEIGHBOURHOOD

   The study will document how children use selected urban neighbourhoods that vary in character and the influence of the design of the neighbourhood on the children's activities.

6. HOUSING NEEDS OF URBAN NATIVE FAMILIES - A COMPARATIVE STUDY OF CHILDREN'S AND PARENTS PERCEPTIONS

   A study of the needs of native children and their parents in the area of housing, neighbourhood and community, on the basis of which housing strategies can be developed to respond to their needs in the urban setting.

7. WORKSHOP: "HOUSING THE FAMILY IN 2001", FOURTH CANADIAN CONFERENCE ON CHILDREN

   The report deals with the changing family structure, the needs of children and the suitability of present forms of neighbourhood design to house the future family.

8. LOST AND FOUND: RECYCLING SPACE FOR CHILDREN

   The study deals with the identification of waste or unused spaces in residential projects and design suggestions to recycle them into play spaces for children.

9. OUT OF THE CELLAR AND INTO THE PARLOUR - GUIDELINES FOR THE ADAPTATION OF RESIDENTIAL SPACE FOR THE CARE OF PRE-SCHOOL CHILDREN

   The study will utilize existing knowledge of indoor and outdoor environmental requirements of children in order to accommodate the developmental needs of pre-schoolers in conventional family living space.

10. PRAIRIE WINTER PLAY PATTERNS

    The project goal is to provide for children's play during the winter months, and will be conducted in two parts: (a) A study of social and environmental factors influencing children's activities in winter, and (b) A study of climatic, topographical and environmental factors that must be considered in the design of winter play facilities that accommodate physical, social, creative and intellectual play.

11. DESIGN CRITERIA FOR THE DEVELOPMENT OF A SHELTERED PLAY SPACE IN MEDIUM TO HIGH DENSITY FAMILY HOUSING PROJECTS IN THE ATLANTIC REGION

    The report will examine the need for sheltered play facilities in high density family housing projects and recommend design details such as location, size, space allocation, construction materials, and play facilities.

12. PROJET PARAPLUIE - A USER GENERATED SHELTER DESIGN FOR THE RECREATION OF SCHOOL-AGE CHILDREN IN A MONTREAL PROJECT

    The report will document a procedure that was used to involve school age children and their parents in the design, implementation, maintenance, and management of a sheltered play space, as a possible model for other residential developments.

Aussi disponible en français

13. GUIDELINES FOR THE SELECTION OF CONSTRUCTION MATERIALS, CONSTRUCTION METHODS, LANDSCAPE MATERIALS AND VEGETATION USED IN PLAY SPACES

    An inventory of materials, finishes and methods with a description of qualitative characteristics and possible use in a play space in terms of user groups, climatic conditions, availability and maintenance will be produced.

14. PLAY SPACES TO ACCOMMODATE DISABLED CHILDREN

    Design suggestions will be developed for an integrated play space that accommodates both disabled and normal children.

15. CHILDREN'S PLAY SPACES ON ROOF DECKS

    The study will result in design suggestions that deal with the technical aspects, such as drainage, containment, and control of the microclimate, as well as the provision of stimulating play opportunities for child users.

16. LA SECURITÉ DES ENFANTS VS LA CIRCULATION - AUTO

    The study will analyze accident statistics and traffic patterns in selected multiple housing projects and develop design suggestions in terms of traffic separation, lighting, landscaping, barriers, etc., to minimize the conflict between automobiles and children.

17. A CASE STUDY OF A COMMUNITY PARTICIPATION PROCESS FOR IMPROVING A NEIGHBOURHOOD TO BE MORE SUPPORTIVE OF CHILDREN AND YOUTH.

    The case study will identify the process of community participation, the mechanisms available, the problems faced, and the resources tapped, and will serve as a model for other communities.

18. ADAPTATION OF CMHC DESIGN GUIDELINE ADVISORY DOCUMENT "PLAY OPPORTUNITIES FOR SCHOOL AGE CHILDREN, 6-14 YEARS", TO MUNICIPAL LEGISLATION

    An example or model policy guideline on planning for play for school age children that is applicable to the municipal residential development control approval process and is written in such a way as to be easily adopted by municipalities.

19. MANAGING URBAN SPACE IN THE INTEREST OF CHILDREN

The proceedings of the International Symposium, dealt with the allocation of urban space to respect children's interests and the political, legal and socio-economic conditions required for various forms of organizations to function adequately. The report has been published by "Man and his Biosphere", the organizers of the symposium. Requests received will be forwarded to "Man and his Biosphere".

20. INCENTIVES FOR THE PROVISION OF IMPROVED CHILDREN'S FACILITIES IN HOUSING PROJECTS

The position paper will investigate alternatives which can serve as incentives to developers under the National Housing Act, to provide children's facilities within residential developments.

21. MONOGRAPH SERIES

Titles will be announced in the CEAS newsletter.