

# GUIDEBOOK

DESIGN YOUR PRIDE



## **DESIGN YOUR PRIDE**

Daphne Nederstigt  
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Delft University of Technology  
ExploreLab XIII

Mentors  
Research – J. Heintz  
Architecture - R. Nottrot  
Technology - E. van Dooren



**Slum;** 1. a usually heavily populated area of a city, characterized by poverty, poor housing, etc. 2. something considered to be like a slum, as in being dilapidated or dirty (Your Dictionary).

**Favela;** a generally used term for a shanty town in Brazil (Wikipedia).

**Slums = Favelas = Comunidades**

The inhabitants of the slums of Rio de Janeiro, call this areas comunidades, The word favela has a bad image of being dangerous, poor and hopeless. Since this research came about with help from these people, and the pattern catalogue will be used in these areas, the word comunidades is used in this research.



## Preface

This book is useful for people who plan, or hope to plan, an education centre in the comunidades of Rio de Janeiro. The book is a summary of the issues concerned with the design of education centres. It can be used to guide the design of a new centre or to support the redesign of an existing centre. Each comunidade requires a specific approach, the guidebook therefore includes generic themes. However in either case, it should not be considered a '*do it yourself manual*' that provides blueprints for centres.

It goes deeper than that by offering a rationale for all the facets of education centres, and therefore gives people a chance to design their own centres, or find out what they really demand. The patterns are starting points for the staff to consider the daily program of a centre and the requirements for a physical environment.

It should be emphasised that this guidebook will not be comprehensive; this book is a solution and not the only solution. Therefore, everyone has the freedom to add, modify and change parts of the guidebook.

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# INTRODUCTION



## Introduction

### § 1.1 Living in a Comunidade

#### 1.1.1 Conditions

Though there is much variation from comunidade to comunidade, the shortage of utilities exists constantly (Global Footprint, z.j.). At the moment 6% of the Brazilian population is living in a comunidade. In Rio de Janeiro this number is much higher. Around 1,3 million people, 22%, of the 6 million inhabitants of Rio de Janeiro live in squatter areas. There are over 500 comunidades existing within the city of Rio (JornalNacional, 2011). The city Rio de Janeiro grows 2,7% a year; the comunidades are growing at a rate of 7.5% a year. This massive and uncontrolled urbanisation has exceeded Rio's utility and infrastructure limits. The comunidades are the areas that suffer most. (Macalester College, z.j.). Many people were expelled to areas outside the city centre without urban infrastructure.

#### 1.1.2 New comunidades

Due to the lack of space, new comunidades rise along the outer fringes of urban expansion. The comunidades in the city centre which were colonised a long time ago, have a broad history of gentrification projects that enhanced the

lives of residents of these formerly degraded neighbourhoods (Machado, 2003). The municipality however, does not realise amenities in the new comunidades; these new comunidades are not in the city centre and therefore less dangerous for tourists and the wealthy residents of Rio. Consequently, areas with a lot of deficiencies arise. Many people do not get sufficient education and hang around in the comunidade all day. Children growing up, face a lot of fears and fights by playing between older guys walking around with guns. 4.8% of the inhabitants of comunidades are involved in the drug scene.

### § 1.2 Relevance

#### 1.2.1 Drugs

The lack of education possibilities in comunidades causes a high participation in the drugs world. As people lose hope for a better future they easily get caught up in the enormous drug scene, ruling the comunidades of Rio. Almost 5500 adolescents have been employed as a child soldier in a drug war raging in the comunidades. They are recruited by the drug mafia to become heavily armed soldiers who defend points of sales against raids from the police or rival drug gangs. Sometimes the children only have an age of eight years old. This highly dangerous form of child labour demands a lot of lives. Many soldiers die an early, violent death during a

confrontation with the police, a rival gang or because of a shot in the back by the drug lord because they know too much. More than 80% of the child soldiers do not make it to their 21<sup>st</sup> birthday (Ibiss, z.j.). The drug and arms trade and high incidence of fatal violence has exploded. Almost one in five people report that a member of their family has been a victim of homicide (The Mega Cities Project, z.j.). Many people suffer by drug-related crime and gang warfare.

#### 1.2.2 Education

Becoming educated is hard in comunidades. In Rio, schooling is divided by address of residency. Because of this, residents of comunidades are not allowed to attend schools. This situation is very regrettable, because education is the key to the development of a child and a society. Good and sufficient education provides children the chance to make something of their lives. Anyone who follows education, learns to function independently and is able to pass knowledge on to future generations (Unicef Nederland, 2010). Besides, young people who are disengaged from schools and other community institutions are at the largest risk of failure or harm (Fiske, 1999).

#### 1.2.3 Need for educational centres

Education and recreation programs are required to help residents to process traumas and keep them away from drugs and violence.

People can participate in activities and start rebuilding their dreams (Unicef Nederland, 2010).

Education centres also facilitate social interaction. Moreover, education centres offer a place where everyone, regardless of age, culture or gender can come anytime for personal development, interaction and learning. This last part is very important, as in the end, the most profound effects are not the physical alterations to the comunidades, but the psychological and emotional impact. It is really important that residents regain their hope and their desire to follow their dreams because believing in a good future prevents that people end up in the drug scene, prostitution or begging.

## § 1.3 Education Centre

### 1.3.1 What is an education centre?

An education centre mostly consists of a combination of various functions, with at least one educational activity. If the site has enough space, outdoor functions can be added like a playground.

Education centres can have various positions in the development of children and adults;

- Providing several forms of education, like day care, coaching, reading books and adult education.

- Providing several forms of sport and recreation activities, like dancing and music lessons.
- Providing several forms of general functions, like a health care centre, meeting room and kitchen.

But the most important function of education centres is the function of a meeting place; a safe place where adults can come together, children can play together and people can share their dreams, fears and experiences.

### 1.3.2 Target Group

Education centres are accessible for all residents of Rio's comunidades. However, children between the ages of 2 to 18 mostly are the target group. Children should have the possibility to develop themselves, to maintain the regular school level and to keep away from the drug scene. It is also possible for adults to make use of an education centre. As well, adults participate in an education centre. They can participate in educational and recreational activities and use various facilities such as meeting rooms and health care centres.

Education centres are accessible for everyone. There is no room for moral judgement and everyone is invited. Young boys who work in the drug scene or girls involved in prostitution should join the centre. This enables people to talk with them and help them to get out their situation.

Special care should be given to;

- Children aged twelve to sixteen years, also called *the prevention group*. Boys of this age become easily attracted by guns, money and power. They may be convinced that the drug scene is interesting and tough. Education centres enable talking with them to take away the illusion that the drug world is fun.
- Children, aged ten to twelve years who have never been to school and should be retrained in order to secure the connection to the educational level they should have (Buuren, 2011).



PATTERN LANGUAGE



## Pattern Language

### § 2.1 Sufficient Knowledge

#### 2.1.1 Designing

Personal, social and community development have a marginal position in the new comunidades of Rio de Janeiro. If these developmental processes are not supported by educational, recreational and supporting activities, citizens of comunidades risk lagging personal development. Education centres provides these activities.

Currently, a few education centres have been built in Rio de Janeiro. Most of these centres are designed by a few residents of a comunidade in cooperation with a Non-Governmental Organisation (NGO). Figure 2.1 explains the current design process of education centres;

1. An NGO gives permission to build an education centre in a comunidade.
2. The neighbourhood council determines the target group and goal of the education centre, in cooperation with the NGO.
3. The future staff of the centre draws the first sketches, determines user

dimensions and relations between the various functions of the building.

4. An “architect” makes a final drawing; this architect does not have sufficient architectural knowledge but is someone who can draw a construction blueprint. This architect also determines the required amount of materials.
5. A constructor, with specific construction knowledge, is hired to build the education centre. Some residents, without construction knowledge, will be hired to help the constructor.

#### 2.1.2 Knowledge

The design of the existing education centres has been undertaken without sufficient knowledge of people’s spatial behaviour. This results in centres which are not providing appropriate physical conditions for people’s developmental needs (Sanoff, 1995). While the physical environment is key to support the pursued development. Education centres should therefore reflect people’s characteristics and requirements. Currently, the same mistakes occur again and again because people do not have sufficient knowledge to develop a suitable education centre. Due to this, the buildings do not operate optimally and unnecessary expenses are made (Buuren, 2011).

The realisation of suitable and qualitative education centres will increase people’s possibility to learn, recreate and develop. Therefore the required architectural knowledge to improve the usefulness, quality and sustainability of education centres should be provided.

### § 2.2 Design Tool

#### 2.2.1 Involvement

It is important that the users of a building are involved in the design process; it is only possible to make great buildings where you feel at home by designing it yourself (Alexander, 1979). In the current design process education centres are designed by the staff; the future users themselves. These residents know the history of a community and the required and desired activities (Evans, 2002). Involving residents in the design process also creates awareness. Involving residents allows people to affect the result; it gives them a feeling of control and they become partially responsible for the result. Furthermore, they have the possibility to contribute to the development of the community. Due to this awareness residents will have respect for the centre, through which it has a better chance to succeed and sustain. This guidebook preserves the involvement of a staff in the design process and enables people



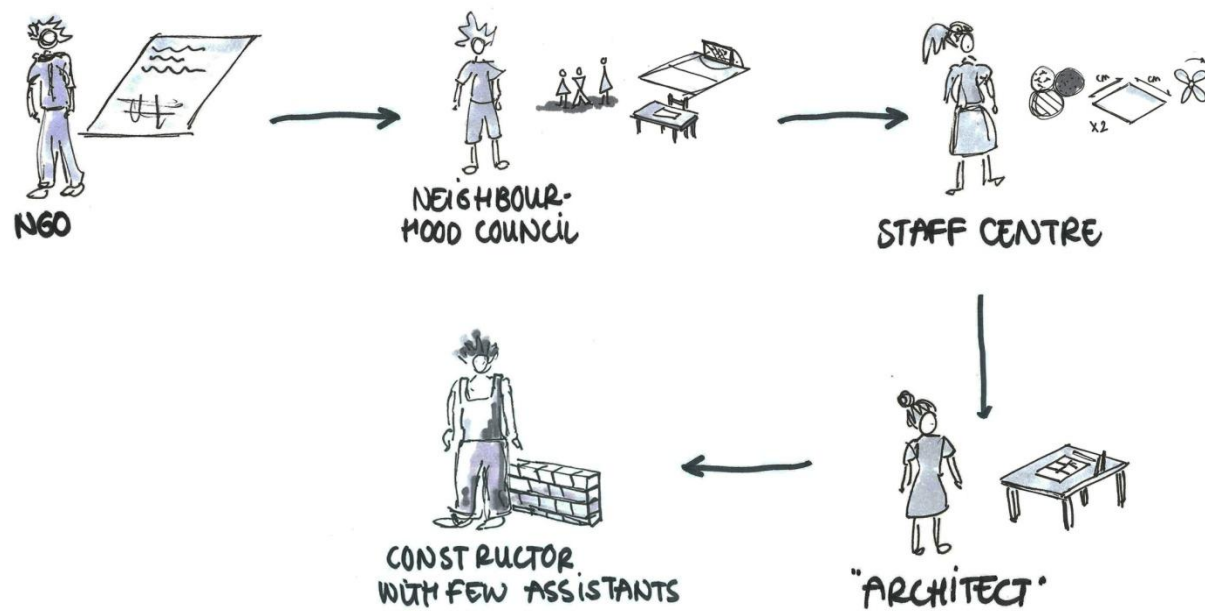


Figure 2.1: Design process education centres

without architectural knowledge to design appropriate education centres.

### 2.2.2 Design tool

A successful centre, developed by residents, can only occur if people are involved in the design of every part of the building. Each new design should be treated as unique (Alexander, 1985). Therefore a Pattern Language is the most suitable design tool for the residents of Rio de Janeiro's new comunidades. A pattern language enables residents to design a unique building to be proud of (§2.3 explains the concept of a Pattern Language). The guidebook provides the required knowledge to design a centre with its own identity and suitable qualities.

The guidebook primarily supports the designers; it provides directions towards a design. Secondly, the guidebook supports the communication in the design process (Dorst, 2005). Because the design tool is used by residents of comunidades, without guidance of people with architectural knowledge, it is more prescriptive than a tool used by designers. This prescriptiveness is necessary to make the guidebook suitable for the residents. Chapter 3 elaborates on the instructions of the guidebook.

## § 2.3 Pattern Language

### 2.3.1 The Language

A Pattern Language is a flexible instrument which makes it possible for everyone to design his or her own, unique building. Following example shows how this system of rules works;

*A person may cook for himself, but he still has to know how to cook. If he does not know some simple rules for making food, but just puts eggs and olive oil and bread and milk into a pan, the result will be a mess. If you want to cook an omelette, you have to know the rules for making omelettes. Just so, one needs to know the rules for designing buildings, to design a good building. And only when a person uses a good pattern language to lay out his building, we can expect the result to be a success (Alexander, 1985). A pattern language shows the rules you have to know for designing buildings.*

A pattern language is a *finite system of rules* which a person can use to generate an *infinite variety of new and unique buildings*. A pattern language is so powerful and fundamental that with its help any building in the world as beautiful as any place ever seen, could be made (Alexander, 1979). Each comunidade has its own characteristics and requirements; an ideal floor plan does not exist. Every education centre will have similar problems or

pattern areas, but each centre will have enough unique considerations to require a building particular to its needs (Osmon, 1975).

### 2.3.2 Patterns

A pattern language is built up by unique entities, called patterns. A pattern is a package of design requirements whose solution is focused on a distinct part of the physical environment. This part can be;

- a physical activity space, for example, a kitchen, a classroom,
- a part of a building, for example, the construction system,
- an overall design issue, for example, clustering and mixing various functionalities.

Each pattern describes a situation or quality, which occur over and over again in our environment and elaborate on a solution. Due to the lack of architectural knowledge of residents some patterns suggest a variety of concrete solutions to solve a particular problem rather than presenting the abstract geometry (the pattern) that would represent the general solution to this problem (Osmon, 1975).

For clarity and unity each pattern, which will be used in this research, will have the same format;

**Title**; the pattern starts with a clear title and related icon. The title is supported with a

picture which shows a typical example of the pattern.

**Statement;** the statement sets the essence of the problem. The statements presented are only as valid as your agreement with the problem as stated.

**Clarification;** the clarification describes the empirical background and context of the pattern, explains the range of different ways the pattern can be manifested in a building and gives evidence for its validity.

**Solution;** the solution describes the field of physical and social relationships which are required to solve the stated problem in the stated context. The solution is presented in the form of an instruction, explaining what needs to be done to build to pattern, clarified by various sketches, diagrams and pictures.

The sketches are examples to explain various possibilities; these concrete solutions are only shown to clarify the general solution. Other solutions should therefore also be considered.

**Relations;** relations link a pattern to other patterns within the language (Alexander, 1977).

### 2.3.3 Sequence

In a pattern language, the different patterns cannot be seen individually. The structure of

the language is composed of the links from larger patterns to smaller patterns, creating a network (Alexander, 1979). The link from earlier patterns to later patterns in this book define the order in which the patterns should be applied to a design. This is called the pattern language sequence. It is important to consider that this sequence is not completely linear.

Each pattern has various connections. Pattern A is connected to the larger Pattern B, which is hierarchically located above Pattern A in the language. Pattern A is also connected to Pattern C, which is hierarchically located below Pattern A in the language. In this way, pattern A can be seen as a building block of the larger Pattern B. In the same way, Pattern C is a building block of Pattern A. The sequence is used, going through the patterns, moving always from the larger patterns to the smaller, creating more and more detail in the structure.

An example is showed in figure 2.2; before you know you need a changing room, you decided that a capoeira room is required. And because of the capoeira room, also a tap have to be applied. You start at large scale and when you make choices, new, more detailed choices to make will result from the initial choice.

The sequence of patterns is both a summary of the language, and at the same time an index to the patterns. Reading through the sentences which connect the groups of patterns to one

another, gives an overview of the whole language and the possibility to find the patterns relevant to your project (Alexander, 1977).

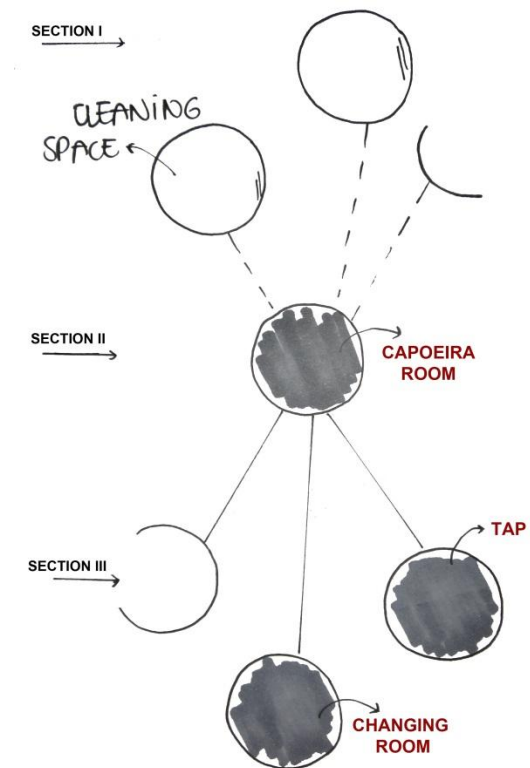


Figure 2.2 Example showing a sequence

#### 2.3.4 Completeness

Designing is and remains a high-quality, complex problem with an infinite solution space. This means the pattern language always has the possibility to grow and change by removing and adding patterns. This guidebook will not be able to solve all the problems related to the design of education centres. The patterns will add knowledge and quality to the centres and their environment, but it should be emphasised that these patterns will not be comprehensive or the only solution; this pattern language is a solution and not the only solution (Dorst, 2005). Therefore, everyone has the freedom to add, modify and change patterns.

# HOW TO USE



## How to Use

### § 3.1 Goal

#### 3.1.1 Use

This pattern language is meant for designing and planning without the presence of designers and planners. It contributes to the scarcity of design knowledge that is available and is accessible for communities in the comunidades in Rio de Janeiro. The pattern language prepares residents for architectural issues and makes them aware of the consequences of environmental decisions. As the residents of the comunidades have lack of architectural knowledge, the pattern language provides a roadmap; it takes the residents along the design process step by step.

The language does not offer quick solutions to recurring problems (Moore, 1986), because desirable solutions depend on personal preferences, the community and the location. The pattern language gives, besides a leading structure, a freedom of choice and the opportunity for personal interpretation. The pattern language should be an inspiring and structuring tool to support the users and facilitate communication (Dorst, 2005).

#### 3.1.2 Preliminary Design

The pattern language leads to a preliminary design. This design contains appropriate plans for the building, the outside areas, the materialisation, the appearance of the in- and exterior and satisfy required regulations.

In the preliminary design only the basic construction is determined. Due to safety it is important that this preliminary design is checked by a professional. This professional should have constructional knowledge to design the load-bearing structure and calculate the required foundation, measurements and maximum spans. Mistakes may not be made and it is therefore necessary that the construction of the design will be outsourced to people having the required knowledge.

### § 3.2 Structure

The pattern language contains various sections. Users must start at section I and end at section VI; each section should be considered when designing an education centre. The sections contain various steps and various levels of freedom and limitation of choice.

#### 3.2.1 Sections

##### *Section I – Framework*

Section I elaborates on the framework of education centres. The provided knowledge in this section is fixed information; it contains information which should always be considered when designing education centres. An example of fixed information is the presence of sanitary facilities; each education centre requires sanitary facilities.

##### *Section II – Functions*

A variety of learning activities, supporting the learning goals, is identified. It is not enough to only attract people to centres; they also have to stay there by activities that interest them. Section II elaborates on various activities, which can be applied in education centres. These activities contribute to the development of people. The activities can be chosen, dependent on the target group and required developmental goals of a centre.

##### *Section III – Facilities/required*

Section III provides information about required facilities. These facilities are required by the chosen functions; the required facilities are related with functions.

##### *Section IV – Facilities/architectural*

Architectural facilities increase the environmental and architectural quality of an education centre. Section IV should therefore



always be considered when designing education centres.

### Section V – Organisation

Section V provides information about organising the functions and facilities. This should be considered before developing floor plans; it provides the required architectural knowledge to design appropriate physical environments.

### Section VI – Framework II

The final section contains fixed information again. This section suggests manners in which indoor and outdoor spaces can be treated and designed for the proposed range of activities. The suggested manners are not radical and complex. The design solutions serve as a check list. These patterns always have to be considered when designing education centres.

#### 3.2.2 Relations

Relations are meant to mention relations between functions or facilities and to emphasize required interior conditions. Every pattern contains relations. These relations only mention extra relations between patterns. Relations are, for example, used to mention architectural facilities, because they add architectural quality to a building.

General relations are not mentioned, but assumed as fixed information. General relations are relations between functions or

facilities and the fixed sections. An example is *cleaning space*; each education centre requires a cleaning space. Another example of a general relation is the pattern *window*. Each room requires a window, this relation is therefore not mentioned at every function.

Sometimes following icon is added to a relation. The icon means that there is an adjacent relation between the function and facility. For example, a bathroom should be organised next to the crèche, while the sink can be organised somewhere in the building.



## § 3.3 Supporting Tools

### 3.3.1 Forms

The guidebook contains two forms to support the selection of functions and facilities.

#### Form - Functions

A form to fill in the chosen functions. Noting the selected functions structurally will prevent that related facilities are forgotten. In addition, this is easier to consider activities that have the same requirements and may possibly be combined in flexible spaces. An example of functions that can be combined in one room is *adult education* and *information meetings*.

#### Form - Facilities

A form to fill in the required facilities. Every function requires related facilities, for example, a capoeira room requires a changing room. Some facilities can be combined. This form provides a clear overview about the combinations that can be made. Besides, facilities require relations with each activity. A dining, for example, requires a sink adjacent to the dining but a crèche requires a sink somewhere in the building. This form provides a complete overview of the required relations.

### 3.3.2 Tables

The pattern language contains three tables. These tables provide supporting information.

#### Table I – Required space and facilities

Table I contains information about the required number of facilities. Examples are the required number of toilets and sinks in a centre.

#### Table II - Flexibility

Table II enables people to combine different activities in one room. The table shows which activities can be combined, due to corresponding requirements.

#### Table III – Noise pollution

Table III enables people to organise rooms, according to the noise activities produce and are able to receive. This table shows, for example, that the library should not be located next to the music room.



# PATTERNS



## Start

When a project starts the following aspects should be considered;

- Project site
- Target group
- Financial framework

### Project site

Gather information about the site;

- surrounding infrastructure,
- history of the site,
- nearby activities and facilities,
- deficiencies of the neighbourhood, etc.

### Target Group

A carefully developed education centre requires a good understanding of the target group, with its needs and priorities;

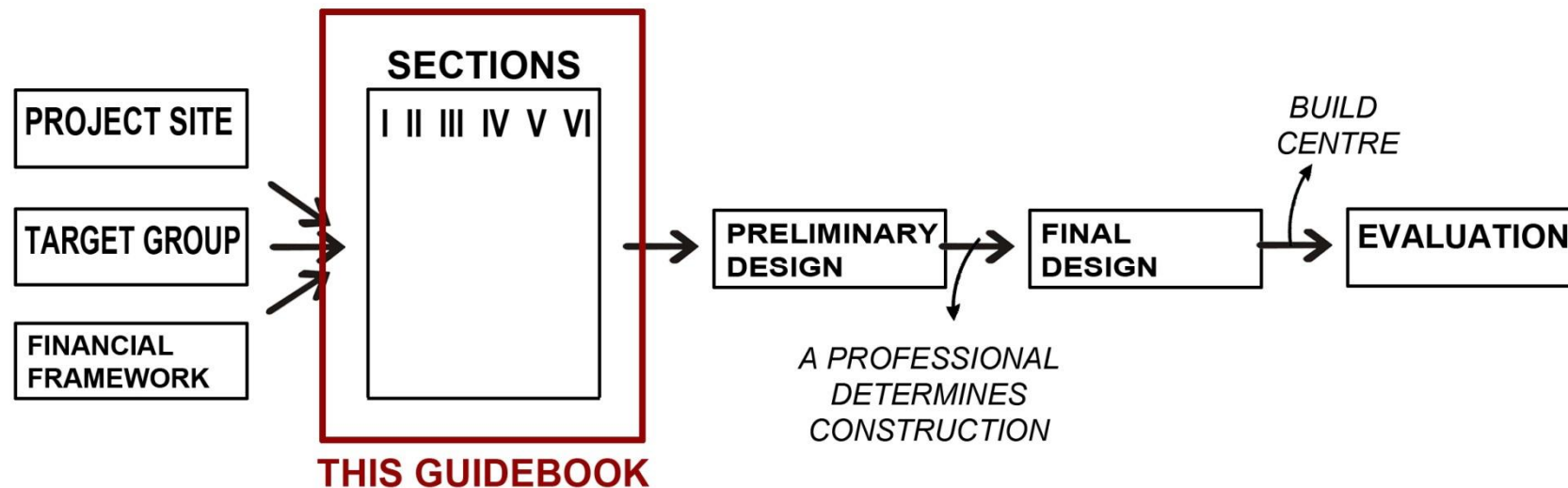
- who they are,
- how they live,
- their cultural, social and religious traditions,
- their psychological conditions and needs, etc.

After stating the target group, state the learning objectives for the specific groups.

### Financial Framework

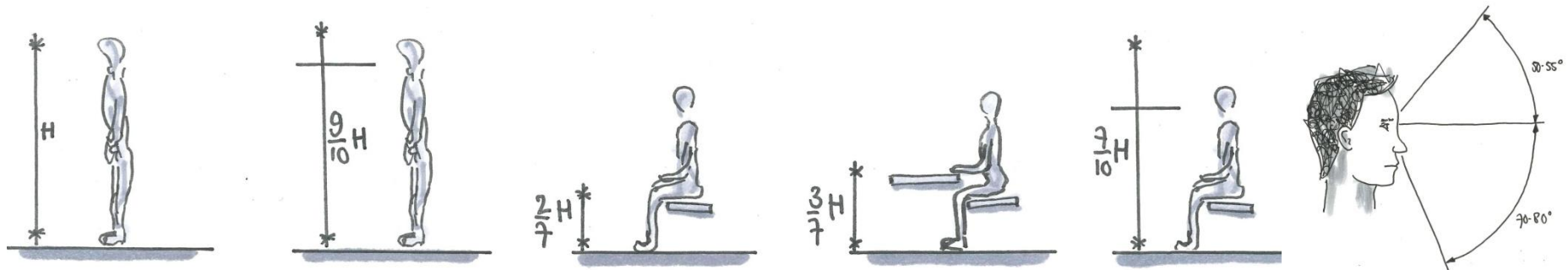
Consider the available finances to allow cost control. Buildings evolve and change during the process of construction. A flexible cost-control system should therefore be considered.

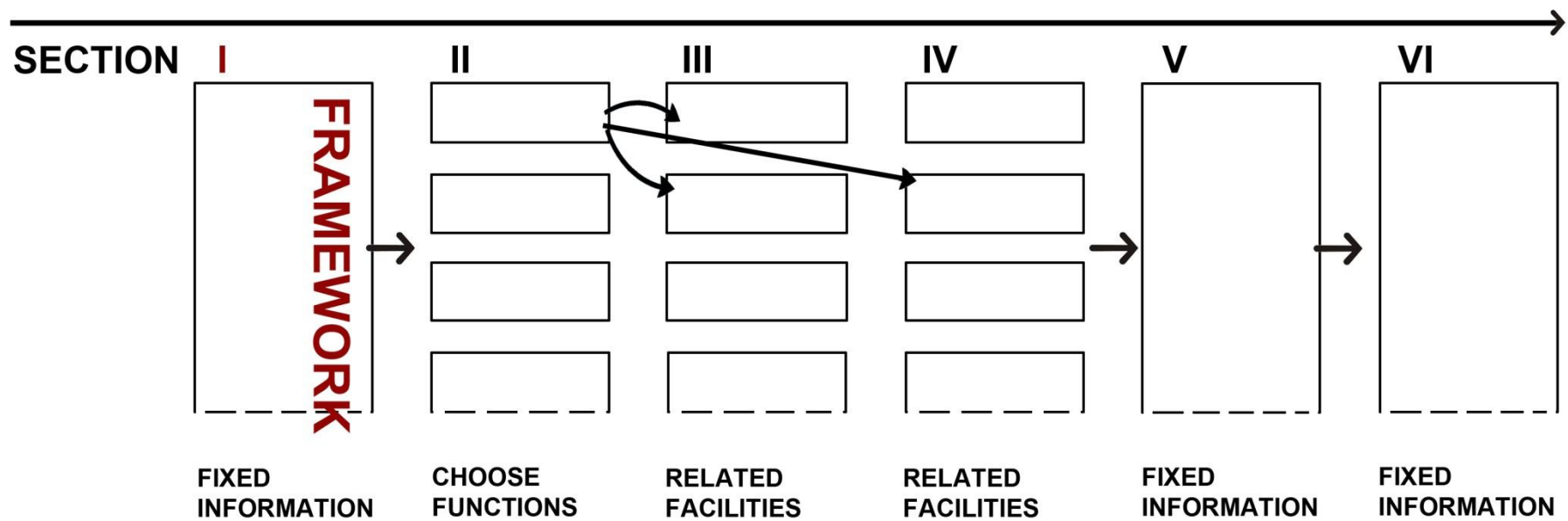
Figure 4.1: Content Guidebook



## Length People

| Age      | Female (metre) | Male (metre) | Age      | Female (metre) | Male (metre) |
|----------|----------------|--------------|----------|----------------|--------------|
| 3 years  | 0,90 – 1,04    | 0,90 – 1,04  | 12 years | 1,45 – 1,70    | 1,40 – 1,68  |
| 4 years  | 0,94 – 1,14    | 0,94 – 1,14  | 13 years | 1,50 – 1,75    | 1,47 – 1,75  |
| 5 years  | 1,02 – 1,19    | 1,02 – 1,19  | 14 years | 1,55 – 1,80    | 1,55 – 1,80  |
| 6 years  | 1,14 – 1,30    | 1,17 – 1,32  | 15 years | 1,57 – 1,80    | 1,55 – 1,85  |
| 7 years  | 1,17 – 1,37    | 1,24 – 1,42  | 16 years | 1,60 – 1,80    | 1,65 – 1,88  |
| 8 years  | 1,24 – 1,42    | 1,27 – 1,45  | 17 years | 1,60 – 1,80    | 1,68 – 1,90  |
| 9 years  | 1,27 – 1,45    | 1,30 – 1,50  | 18 years | 1,60 – 1,80    | 1,70 – 1,92  |
| 10 years | 1,37 – 1,55    | 1,35 – 1,57  | 19 years | 1,60 – 1,80    | 1,73 – 1,92  |
| 11 years | 1,37 – 1,60    | 1,37 – 1,60  | 20 years | 1,60 – 1,80    | 1,73 – 1,92  |









## **P.01 FRAMEWORK**



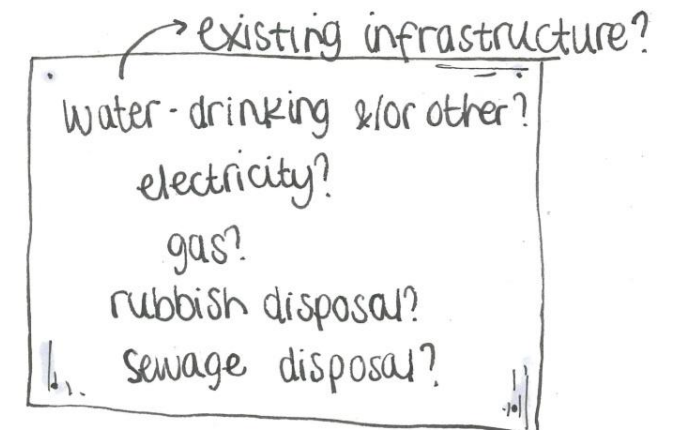
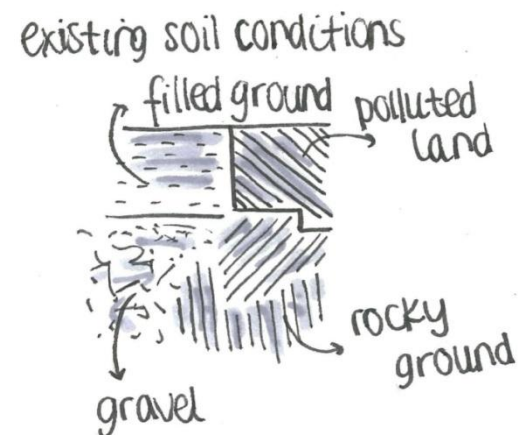
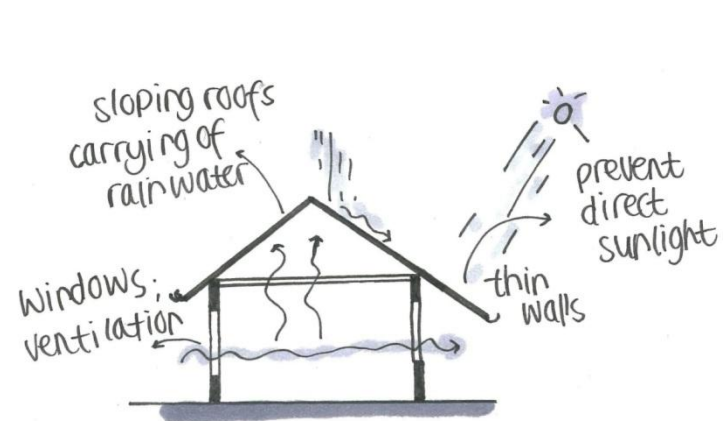
## Framework

Education centres must be sustainable and flexible.

### CLARIFICATION

A sustainable education centre is variable and changeable. The activities and extent of social interaction in a centre will change in the course of time. The building structure should therefore be flexible in use and prepared for adjustments in the future. Large and small changes should be possible without disturbing the social environment and without affecting the identity of the building; the structure is retainable and the interior is adaptable to the needs of the users (Dorst, 2005).

## RELATION



## SOLUTION

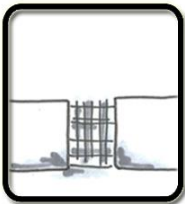
- Provide a building with a sustainable structure. Apply a frame of columns and beams to provide flexibility. Besides, columns and beams are the best way to enclose a space strongly and well, with the least amount of material (Alexander, 1977).
- Construction
  - Check the condition of the subsoil to determine the required foundation.
  - Apply an appropriate sewer system.
  - Place the columns at the corner of rooms or integrated in the walls to prevent disturbance of open space. Columns can also be used to mark a walking area, for example, along a veranda.
  - Apply a water-repellent material to the façade to protect it against moisture.
  - The roof should be layered; leave a layer of air above the walls and underneath the roof covering to allow ventilation.
  - Use prefabricated concrete plates, strengthened with steel wires, to build floors. These plates can have a length of two, four and six metres.
  - In case of bricks, use a small joint; a small joint is stronger and cheaper.
- Water
  - Apply gutters to drain off raining water to prevent damage of the façade and collect water.
  - If a water tank is required, place it on the highest point of the building.
- Electricity
  - Apply an excess of ducts in the walls during the construction process, to avoid that walls have to be broken open afterwards to place extra pipes and wires.
  - Apply sockets at a minimum height of 1,00 metre due to floods and small children putting their fingers into them.

Rooms should have a minimal height of 2,50 metres.

The floor or roof carrying the water tank should have a bearing power of 500 kg/m<sup>2</sup>.







## **P.02 ENTRANCE**



## Entrance

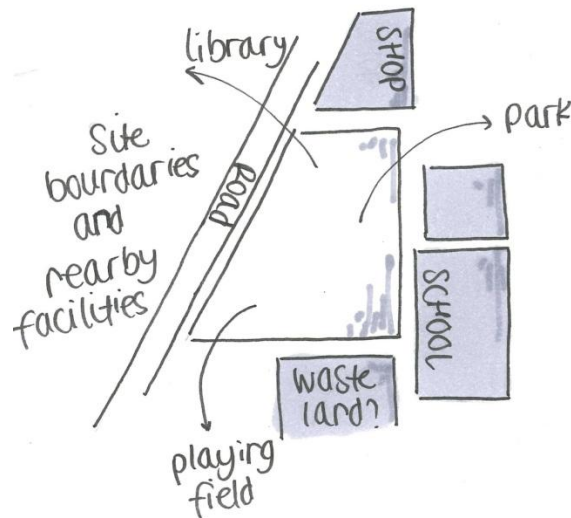
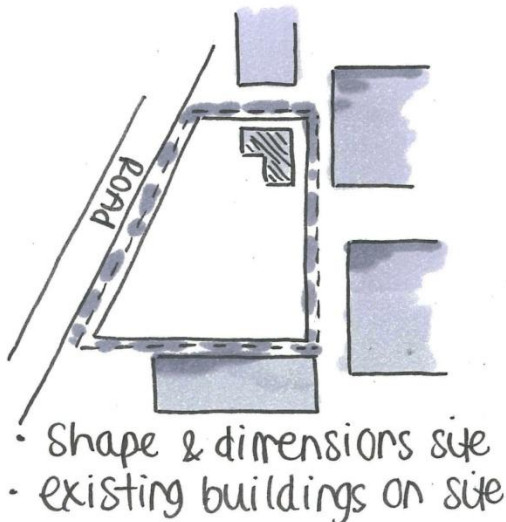
The entrance is a safe, inviting and definite place, facilitating the first social meeting.

### CLARIFICATION

The entrance should be a convenient place from which users can comfortably enter the education centre and immediately feel welcome, safe and respected. The physical environment should communicate to the users that the centre is a good place to be. This communication can be through views of children playing, by providing delightful transition experiences and by offering a pleasant area for users to part from their relatives (Osmon, 1975). The main door of a centre is therefore not located directly on the street, but contains an entrance area.

### SOLUTION

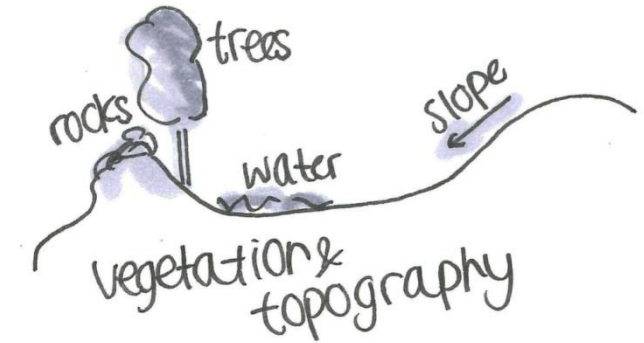
- Education centres can be enclosed by a fence; to protect people against violence during the day, to protect children from running into the street, to protect people against bullets and to protect the building against burglary during the night.
- A centre has one main entrance which is clearly recognisable from the street and located on the biggest street surrounding the plot. In connection with safety, the centre should have a second entrance, functioning as emergency exit. The building can be locked at night.
- The entrance area should facilitate social meeting between staff, users, parents and neighbours. This meeting activity can be fostered by placing benches and by providing areas protecting people against sun and rain.
- The entrance area has a concrete, tiled or wooden floor; the soil cannot remain sand because this becomes mud in case of rain.



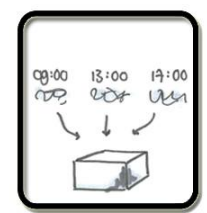
### RELATION

P.54 Veranda  
P.51 Permanent seats  
P.55 Orientation  
P.56 Zoning

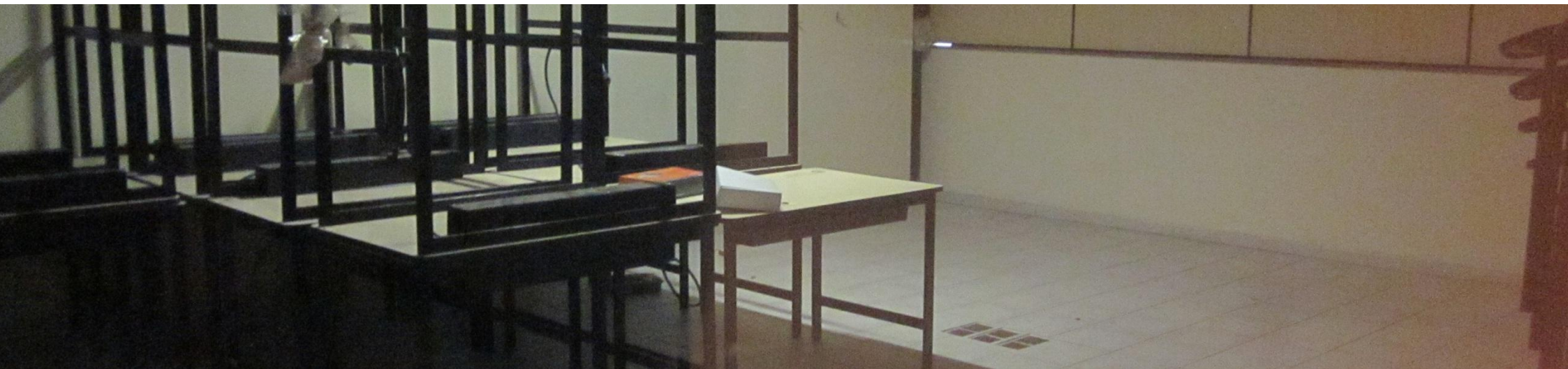
A fence should have a minimum height of 1,5 metre.







## P.03 FLEXIBILITY





## Flexibility

Successful centres are those that allow for flexibility in use.

### CLARIFICATION

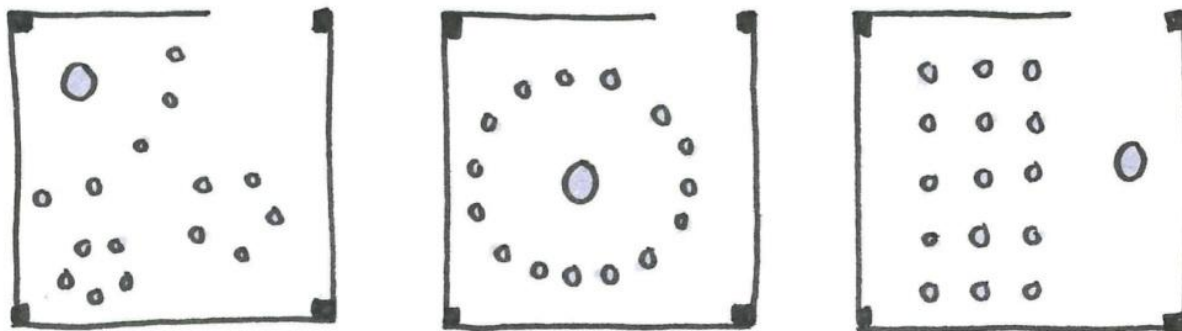
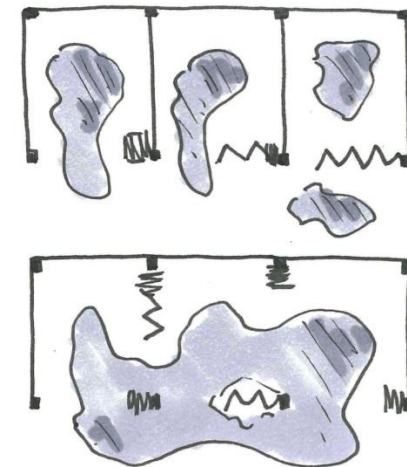
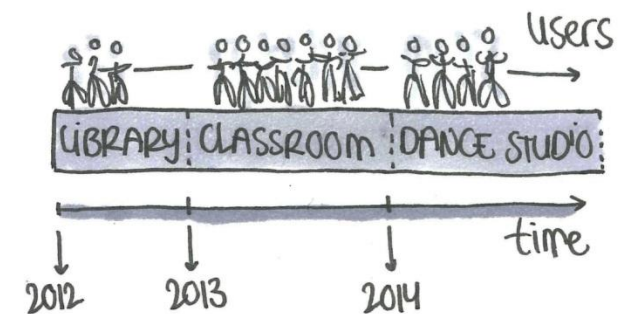
If space is limited, it will be advantageous to have areas that can be used for different activities (Brink, 1997). Education centres should provide rooms suitable for activities occurring at different times. Thanks to flexible spaces, more activities can be offered. Flexibility can be applied to activities taking place in a centre, but also in the size of participating groups. Before combining activities in one room, three things should be considered;

- the time an activity is happening.
- the requirements an activity requires to a space (for example, ceiling height or ventilation).
- the number of people joining the activity, because this requires specific dimensions to a space.

### SOLUTION

- Use table II (Chapter 5) to combine activities in one room. This table is based on the timetable of activities, shown in table X. Check this timetable to be sure these assumptions suit your education centre.
- Provide flexible walls to make rooms fit for use to several activities and allow rooms to open towards the traffic area or outside spaces; flexible walls can separate big spaces into various smaller spaces and vice versa.
- To achieve real flexibility quick changes should be possible without undue disturbance to the rest of the building and its users.
- Square or L-shaped rooms allow for more flexibility in arrangement and organisation of furniture (Brink, 1997).

## RELATION



| Activity                             | Morning<br>(08:00-<br>12:00) | Lunch<br>(12:00-<br>14:00) | Afternoon<br>(14:00-<br>17:00) | Evening<br>(17:00-<br>22:00) |
|--------------------------------------|------------------------------|----------------------------|--------------------------------|------------------------------|
| P.02 Entrance                        |                              |                            |                                |                              |
| P.04 Cleaning Space                  |                              |                            |                                |                              |
| P.05 Parking                         |                              |                            |                                |                              |
| P.06 Sanitary Facilities             |                              |                            |                                |                              |
| P.07 Staff Room                      |                              |                            |                                |                              |
| P.08 Storage                         |                              |                            |                                |                              |
| P.10 Crèche                          |                              |                            |                                |                              |
| P.11 Classroom Pré-escola            |                              |                            |                                |                              |
| P.12 Classroom Preparar              |                              |                            |                                |                              |
| P.13 Classroom Supletivo             |                              |                            |                                |                              |
| P.14 Classroom Adult Education       |                              |                            |                                |                              |
| P.15 Classroom Course                |                              |                            |                                |                              |
| P.16 Classroom Occupational Training |                              |                            |                                |                              |
| P.17 Classroom Reforço Escola        |                              |                            |                                |                              |
| P.18 Library                         |                              |                            |                                |                              |
| P.19 Computer Room                   |                              |                            |                                |                              |
| P.20 Music Room                      |                              |                            |                                |                              |
| P.21 Music Studio                    |                              |                            |                                |                              |
| P.22 Percussion Room                 |                              |                            |                                |                              |
| P.23 Theatre                         |                              |                            |                                |                              |
| P.24 Visual Arts Room                |                              |                            |                                |                              |
| P.25 Capoeira Room                   |                              |                            |                                |                              |
| P.26 Dance Studio                    |                              |                            |                                |                              |

| Activity                    | Morning<br>(08:00-<br>12:00) | Lunch<br>(12:00-<br>14:00) | Afternoon<br>(14:00-<br>17:00) | Evening<br>(17:00-<br>22:00) |
|-----------------------------|------------------------------|----------------------------|--------------------------------|------------------------------|
| P.27 Martial Arts Room      |                              |                            |                                |                              |
| P.28 Relaxing Sports Studio |                              |                            |                                |                              |
| P.29 Sports Field           |                              |                            |                                |                              |
| P.30 Swimming Pool          |                              |                            |                                |                              |
| P.31 Playground             |                              |                            |                                |                              |
| P.32 Dining                 |                              |                            |                                |                              |
| P.33 Kitchen                |                              |                            |                                |                              |
| P.34 Laundry                |                              |                            |                                |                              |
| P.35 Health Care Centre     |                              |                            |                                |                              |
| P.36 Information Centre     |                              |                            |                                |                              |
| P.37 Gossip Space           |                              |                            |                                |                              |
| P.38 Meeting Room           |                              |                            |                                |                              |
| P.39 Office                 |                              |                            |                                |                              |
| P.40 Reception              |                              |                            |                                |                              |
| P.41 Cinema                 |                              |                            |                                |                              |
| P.42 Garden                 |                              |                            |                                |                              |
| P.43 Bathroom               |                              |                            |                                |                              |
| P.44 Bedroom                |                              |                            |                                |                              |
| P.45 Changing Room          |                              |                            |                                |                              |
| P.47 Refrigerator           |                              |                            |                                |                              |
| P.48 Sink                   |                              |                            |                                |                              |
| P.49 Tap                    |                              |                            |                                |                              |
| P.50 Waiting Room           |                              |                            |                                |                              |
| P.62 Traffic Area           |                              |                            |                                |                              |

Table P.03.1: Time schedule activities



## **P.4 CLEANING SPACE**



## Cleaning Space

A cleaning space is required to dispose wastewater and safely store cleaning agents.

### CLARIFICATION

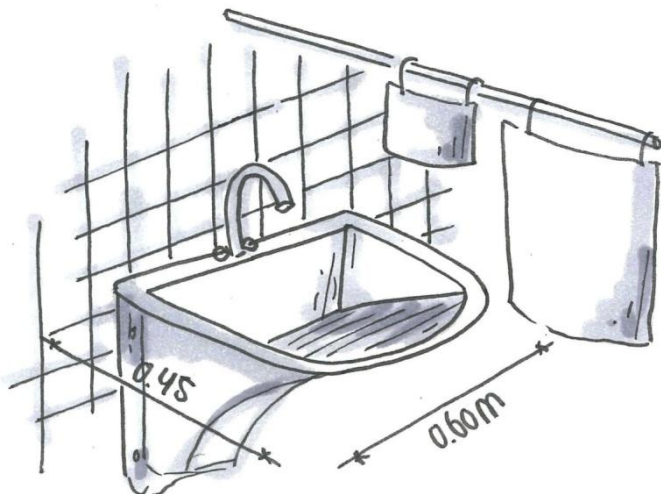
Cleaning spaces are required to avoid contamination of hand washing and food preparation sinks by wastewater. Education centres should therefore have a separate sink to clean mops and empty buckets. A centre should have a place to obtain clean water for mopping. Dirty water can be disposed in a toilet or a sink used only for such purposes. Cleaning products should be stored away from other products, like food, to prevent accidental poisoning, potential leakage and contamination (American Academy for Pediatrics, 2002).

### SOLUTION

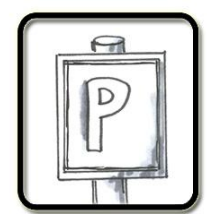
- Provide a sink with appropriate dimensions.
- Tile the walls and floor around the sink to protect these areas against splashing water.
- Provide a storage to store cleaning agents. The storage should be lockable to avoid children reaching poisonous agents.
- Provide a place to dry wet towels and dishcloths.

## RELATION

-







## P.05 PARKING





## Parking

Provide parking lots to park cars, motorbikes and bicycles.

### CLARIFICATION

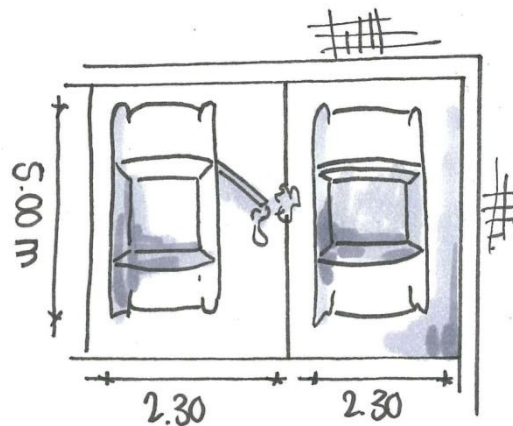
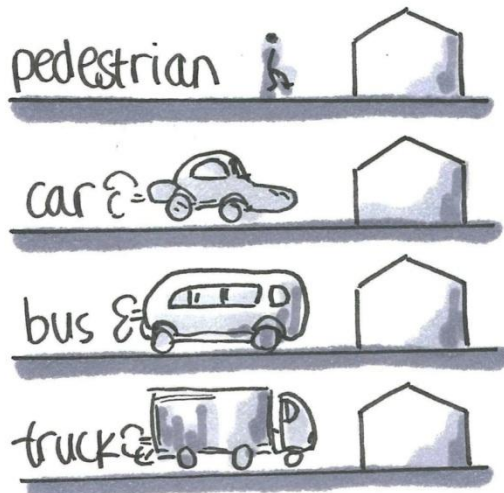
Parking lots prevent visitors from parking in the neighbouring street, standing in people's way. Besides, they avoid people parking in green areas or playgrounds. How many parking lots are required depends on the comunidade;

- the number of users,
- the age of the users,
- the distances users have to bridge from home to the centre,
- the quality of the roads,
- people's property; are they wealthy enough to own vehicles.

The number and type of required parking lots should be determined by the designers of an education centre; they have the required knowledge about the kind of users and comunidade.

### SOLUTION

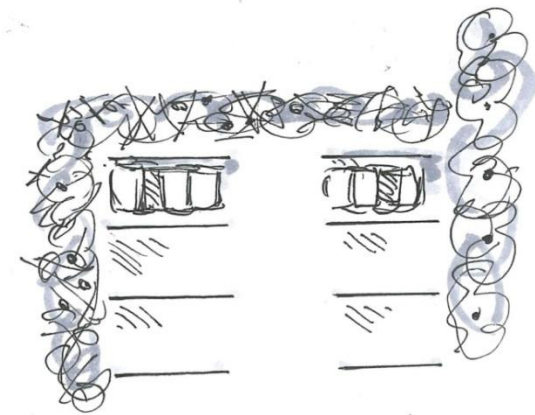
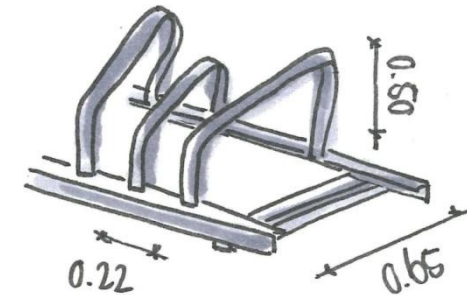
- The entrance to a parking structure needs to be visible and close to the main entrance of the building. People can keep an eye on their car, parking lots are easily accessible and this moderates handling of materials. Parking lots do not have to be inside the enclosure of a centre.
- Preferably parking lots are behind some kind of natural wall.
- A parking lot requires a covering floor, for example, concrete or asphalt; the soil cannot remain sand because this becomes mud in case of rain.



## RELATION

Assume a minimum dimension of 5,00 x 2,30 metre for parking cars

Assume a minimum dimension of 1,80 x 0,55 metre for parking bicycles





## **P.06 SANITARY FACILITIES**



## Sanitary facilities

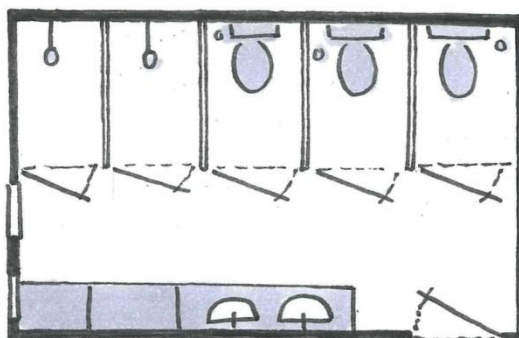
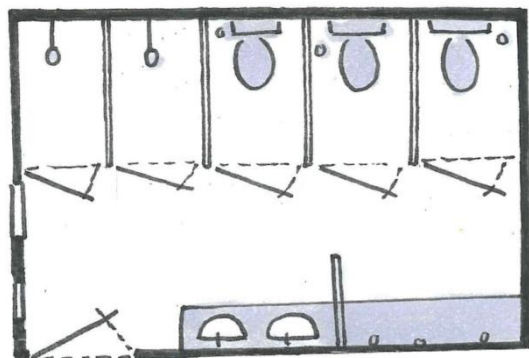
Sanitary facilities are important for hygiene.

### CLARIFICATION

Sanitation is not only an essential supporting facility, but is also part of children's development. Each child should learn how and when to use the toilet. Also hand washing and hygiene are required learning elements (American Academy for Pediatrics, 2002). Many sanitation blocks also have, besides a toilet, a shower. These showers are used by staff and children who became dirty or do not have a shower at home. Education centres should provide bathing facilities for children in crèche, to learn these children about hygiene and because they are too young to shower by themselves at home. Children of four years and older only shower at education centres in case of emergency or in changing rooms after sports. Check table I (Chapter 5) to determine the required number of sanitary facilities and maximum distances to the facilities.

### RELATION

P.43 Bathroom  
P.45 Changing Room  
P.66 Mirror  
P.69 Window  
P.72 Ventilation  
P.73 Wheelchair

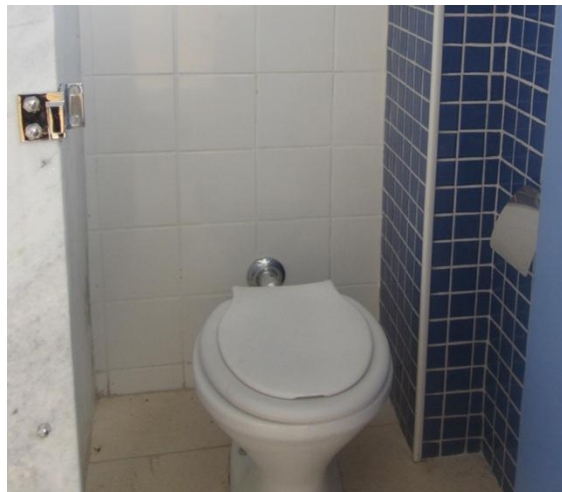


## SOLUTION

- Apply a toilet.
  - Apply a toilet with a seating height at 0,30 metre for children (ages maximum five years). Apply a toilet at 0,45 metre height for adults.
  - Apply a urinal at 0,40 metre height for children (ages maximum five years) and at 0,90 metre height for adults.
  - Separating walls between the individual toilets have a height of about 1,30 – 1,50 metre.
  - Apply appropriate latches and locks; children should be able to easily open the toilet room door from the inside and adults to open the toilet room door from the outside if assistance is required.
  - Provide the button to flush at appropriate height to children (at 0,85 metre maximum) and adults.
  - Provide a potty for young children.
- Apply a shower.
  - Prevent water from flowing from the shower to other parts of the sanitary facilities, for example by installing a doorstep.
  - Provide a shower curtain for privacy and to protect against splashing water.
- Apply a sink.
  - Apply sinks for children at a height between 0,50 and 0,60 metre. Sinks for adults should be applied at a height of 0,75 metre.
  - Provide a supply of hand cleansing liquid soap.
  - Provide towels, heated-air devices or paper towels to enable people to dry hands.
- The sanitary facilities should have a drain to simplify cleaning up the floor and drain off splashed water.
- Tile the walls and floor to protect these areas against splashing water and prevent mildew.
- Make sure the hot water tap is out of reach of children.
- Provide a small window in the sanitary facilities, at a height of 1,50 metre to provide ventilation and daylight.
- Provide sufficient ventilation.

Assume individual toilet rooms of at least 0,70-0,90 metre wide and 1,50 metre deep.

Assume showers, including space to change clothes, of at least 0,90 metre wide and 1,50 metre deep.







## **P.07 STAFF ROOM**

Sanitário Professor



## Staff Room

The staff needs a private room.

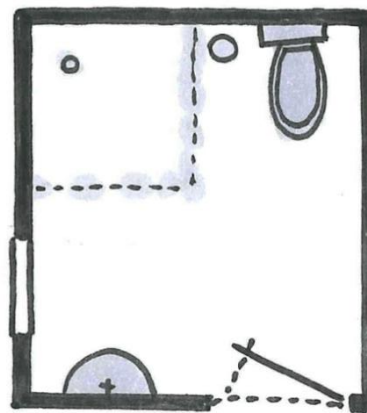
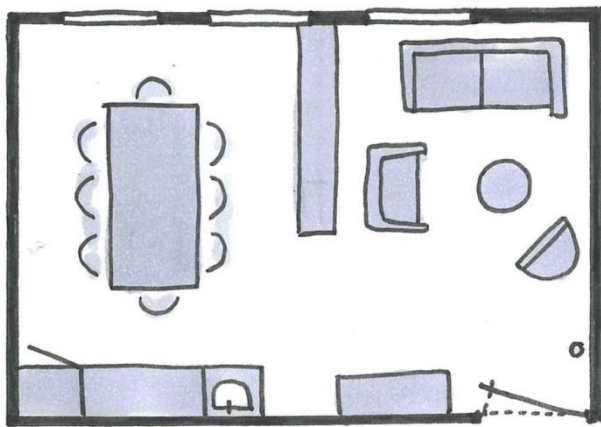
### CLARIFICATION

The staff needs a room to go for a moment of privacy and relaxation. The staff room is only accessible to staff and offers an area where staff can have a short break, freshen up and have a cup of coffee. Staff rooms can be self-sufficient; they can include a small kitchenette to prepare dinner.

### SOLUTION

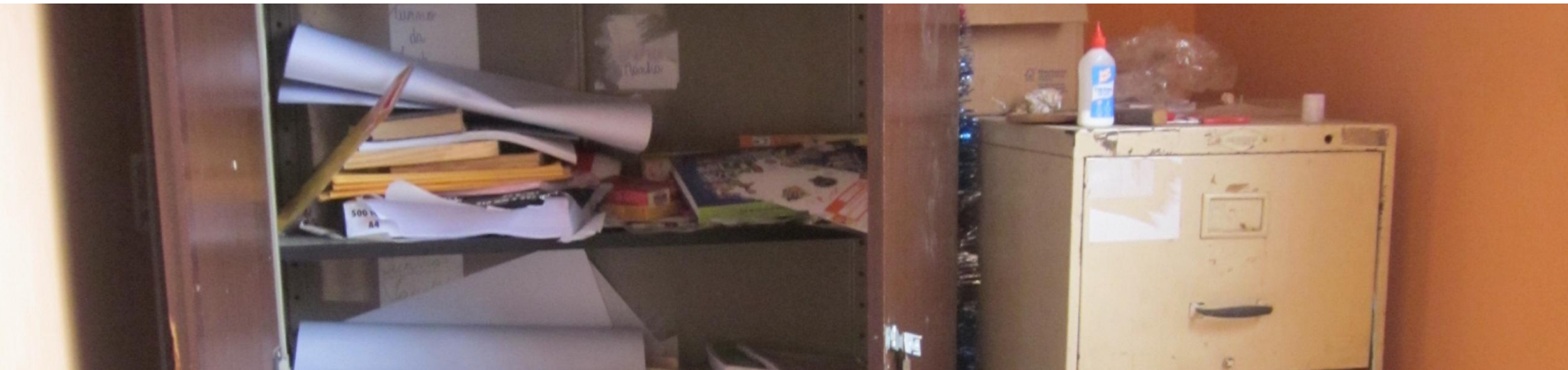
- Give the room acoustic and visual privacy from the users to facilitate privacy.
- Face the room onto an outside court, garden or the public environment surrounding the centre to achieve relaxation.
- Provide a sink, toilet and, if required, a shower to freshen up.
- Provide lockers to store personal belongings.
- The staff room can contain a sink and hot plate to prepare coffee and snacks.
- The staff room can contain a conference table to have meetings.
- In case of lack of space, later on, the staff room can be developed into both working area and lounge.

## RELATION





## P.08 STORAGE



## Storage

Sufficient storage place is required to store materials and equipment.

### CLARIFICATION

Education centres own many valuable products, which need to be stored; books, toilet paper, chairs, etc. Sufficient storage place should be designed to avoid closets standing in people's way, for example, in corridors. A storage also allows to protect materials well.

### SOLUTION

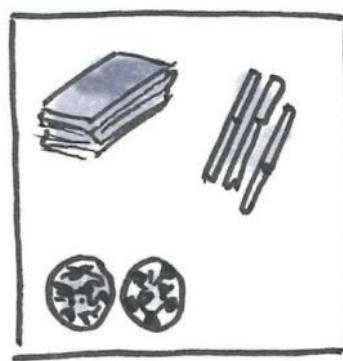
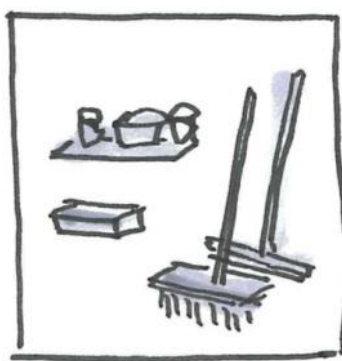
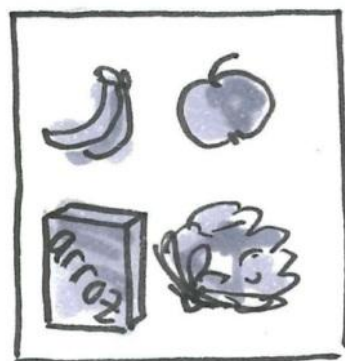
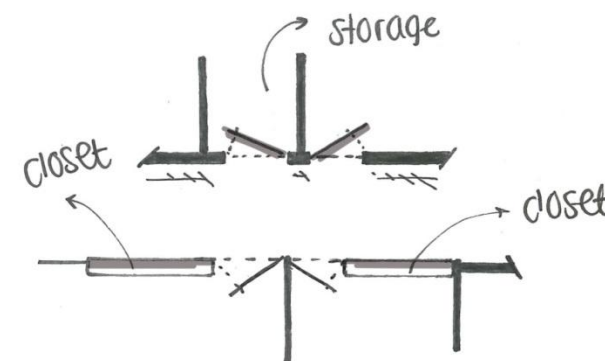
- Provide sufficient storage at several locations in a centre.
- Provide separate storage place for food, cleaning agents and materials in stock.
- Storage place should protect goods against rain and sun.
- Provide sufficient ventilation.
- Provide locks for storage places, which are only accessible by staff.

## RELATION

P.04 Cleaning Space

P.33 Kitchen

Assume about 0,2 m<sup>2</sup> storage place per person (include both staff and users).





## **P.09 WASTE**





## Waste

Rubbish bins may not be noticed during the daily affairs of a centre.

### CLARIFICATION

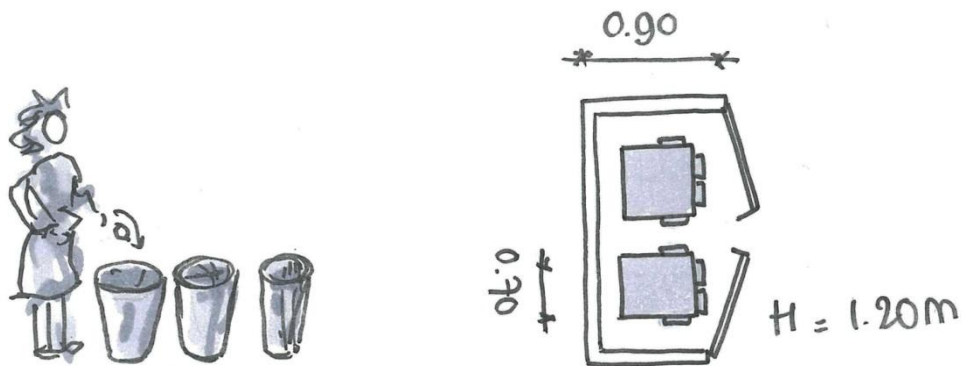
To minimise odours, control insects and protect people from contamination, garbage should be placed in containers inaccessible to users of a centre (American Academy for Pediatrics, 2002). The containers should be placed in a covered area, to avoid that users will be confronted with the waste. This area should be in the shade, to prevent waste from heating. To avoid pollution in the building every room should contain a wastepaper basket. The baskets of the dining room and kitchen should be removed daily, due to leftovers attracting vermin and spreading odours.

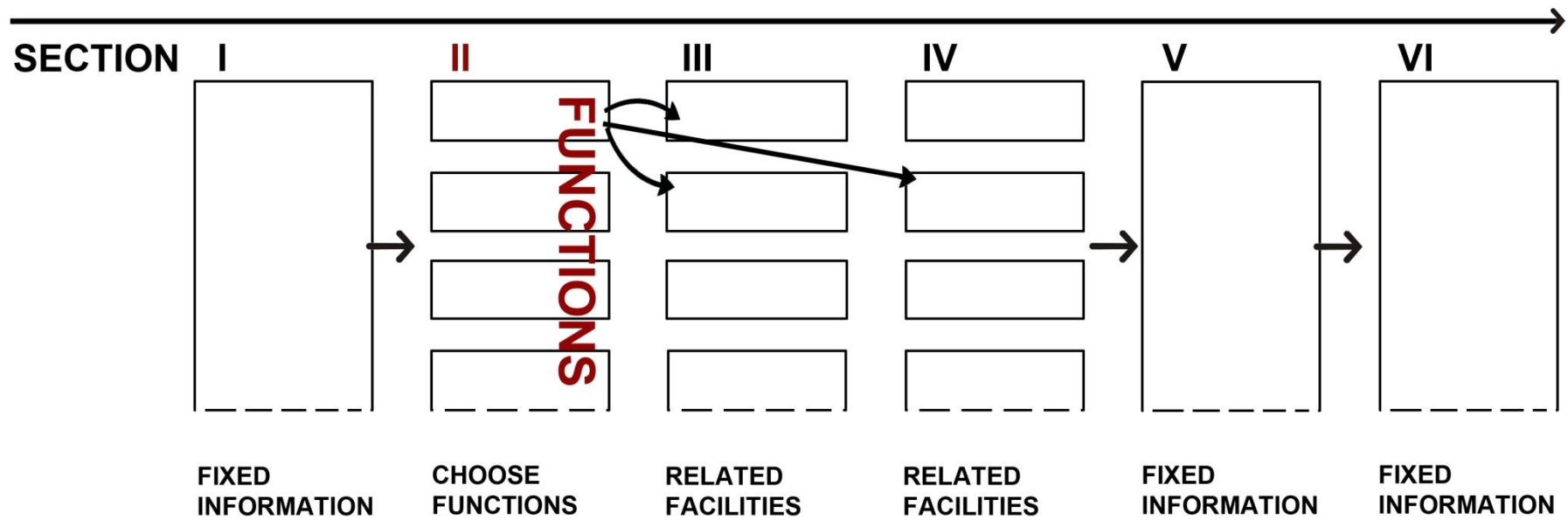
### SOLUTION

- Place the waste bins in the shade.
- The waste bins should be easily accessible from the building.
- The waste bins should be easily accessible from the street to allow collecting garbage.
- The waste bins should be placed invisible to the users of the centre.
- The waste bins should be placed inaccessible to children.
- Provide every room of wastebaskets.

## RELATION

-





## Form - Functions

Use the form to structure the functions and related facilities. An example is shown below;

| <b>FUNCTION</b>    | <b>Number</b><br>(required number of rooms) | <b>Users</b><br>(using room at same time) | <b>M<sup>2</sup></b><br>(per room) | <b>Facility</b><br>(should be present in centre) | <b>Facility – Adjacent</b><br>(should be organised close to room) |
|--------------------|---------------------------------------------|-------------------------------------------|------------------------------------|--------------------------------------------------|-------------------------------------------------------------------|
| Classroom Preparar | 2 rooms                                     | 25 children                               | 62,5 m <sup>2</sup>                | Sink<br>Tap<br>Refrigerator                      | -<br>-<br>-                                                       |
| Dance Studio       | 1 studio                                    | 30 people                                 | 100 m <sup>2</sup>                 | Tap                                              | Changing Room                                                     |
| Dining Room        | 1 room                                      | 50 people                                 | 75 m <sup>2</sup>                  | -<br>-                                           | Sink<br>Tap                                                       |
| ...                | ...                                         | ...                                       | ...                                | ...                                              | ...                                                               |

## Brazilian School System

The Brazilian school system is shown in following table. To participate in University, a test to be permitted should be done.

| Age            | Type of School   | Length                       |
|----------------|------------------|------------------------------|
| 1-4 years      | Crèche           | 3 years                      |
| 4-6 years      | Pre-school       | 2 years                      |
| 6-14 years     | Primary school   | 8 years                      |
| 15-17 years    | Secondary school | 3 years                      |
| 17 years and > | University       | (permission required)        |
|                | Course           | (mostly around three months) |





## P.10 CRÈCHE



## Crèche

A crèche supports children aged one to five in their early development.

### CLARIFICATION

One of the core programs of any comunidade should be the provision of day care for young children to avoid developmental arrears (Osmon, 1975). Besides, crèches offer parents the possibility to work. At crèche children have interaction with other children and adults from various backgrounds and learn to deal with each other and strangers. The crèche also ensures that children play with appropriate equipment and spend their day in a safe environment. The crèche is also the basis to move on to Pré-escola and Preparar.

### SOLUTION

- Provide a bedroom to ensure that children have the possibility to sleep during the afternoon.
- The crèche should also provide a bathroom to shower the children every day. This is important to make them aware of the importance of hygiene.
- Provide a place to change a child's nappy.

### RELATION

P.31 Playground

P.32 Dining Room

P.33 Kitchen

P.43 Bathroom 

P.44 Bedroom 

P.46 Coat hooks 

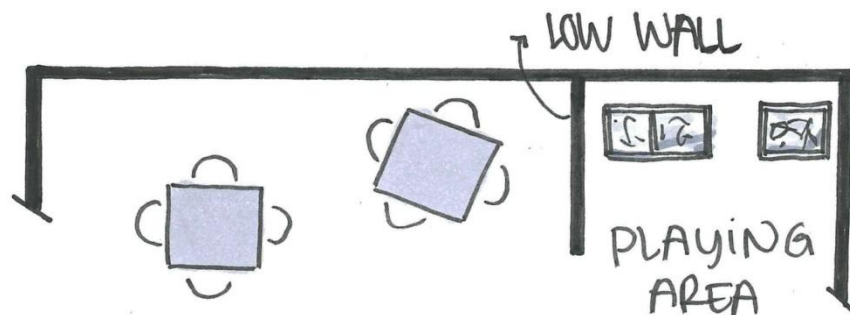
P.47 Refrigerator 

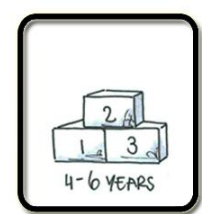
P.48 Sink

P.49 Tap 

P.57 Clustering

Assume about 3,00 m<sup>2</sup> per child for a crèche (without bathroom and bedroom).





## P.11 CLASSROOM PRÉ-ESCOLA





## Classroom Pré-escola

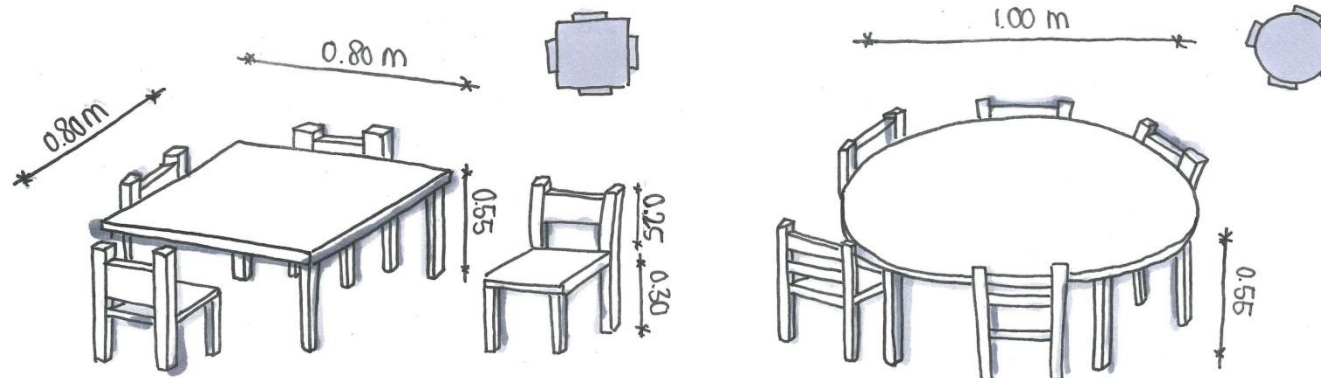
Pré-escola prepares children aged four to six for their move to preparar.

### CLARIFICATION

According to the Brazilian school system children start pré-escola after crèche. Pré-escola allows children to make a good move to preparar and to avoid that they have considerable arrears. Because a lot of schools do not offer this, the education centre should provide pré-escola. Activities are offered to improve children's physical and cognitive development. They learn, for example, to recognise colours and shapes and start writing and reading (Buuren, 2011).

### SOLUTION

- A classroom has one table in front of the room, nearby the blackboard, intended for the teacher.
- The children should have appropriate furniture, adapted to their length. They should be placed in small groups, to increase internal contact and cooperation between the children.
- The classroom should provide enough closets to store materials like books, paper and pencils. When designing the classroom the required space of closets should be taken into account, to avoid closets standing in the way.
- In the case that there are no recreational areas in the building, the classroom should be organised flexibly; it should be able to also easily use it for lessons like music and dancing.



### RELATION

P.31 Playground  
P.32 Dining Room  
P.33 Kitchen

P.46 Coat hooks  
P.47 Refrigerator  
P.48 Sink  
P.49 Tap  
P.57 Clustering



Assume about 2.5 m<sup>2</sup> per child for a classroom pré-escola.





# P.12 CLASSROOM PREPARAR





## Classroom Preparar

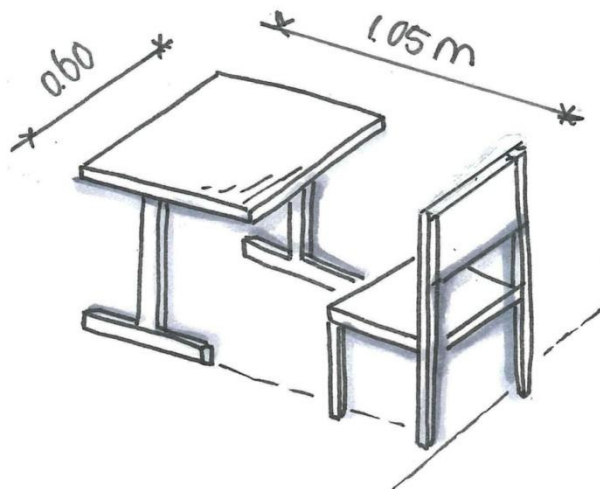
Preparar supports children aged six to fourteen in making up their educational arrears.

### CLARIFICATION

Preparar is very important, because it gives children the possibility to flow into primary school again. At primary school they can receive a diploma; with this diploma they can follow courses and increase their chances for a good job. By law children should enrol in the class of their age. Some children have considerable arrears, making this impossible, but one neither wants to enrol these children in 1<sup>st</sup> class. Preparar boosts their level to the required level. This has a direct effect on children's educational level, but will also indirectly influence them: their self-confidence will increase, they will get more pleasure in learning and they will regain faith in the future (Buuren, 2011).

### SOLUTION

- A classroom has one table in front of the room, nearby the blackboard, intended for the teacher.
- The children should have appropriate furniture, adapted to their length. Each child should have his/her own table; this will make them responsible for their own equipment. If possible, the tables should be placed in small groups, to increase internal contact and cooperation between the children.
- The classroom should provide enough closets to store materials like books, paper and tinkering. When designing the classroom the required space of closets should be taken into account, to avoid closets standing in the way.
- In the case that there are no recreational areas in the building, the classroom should be organised flexibly; it should be able to also easily use it for lessons like music and dancing.



### RELATION

P.31 Playground  
P.32 Dining Room  
P.33 Kitchen

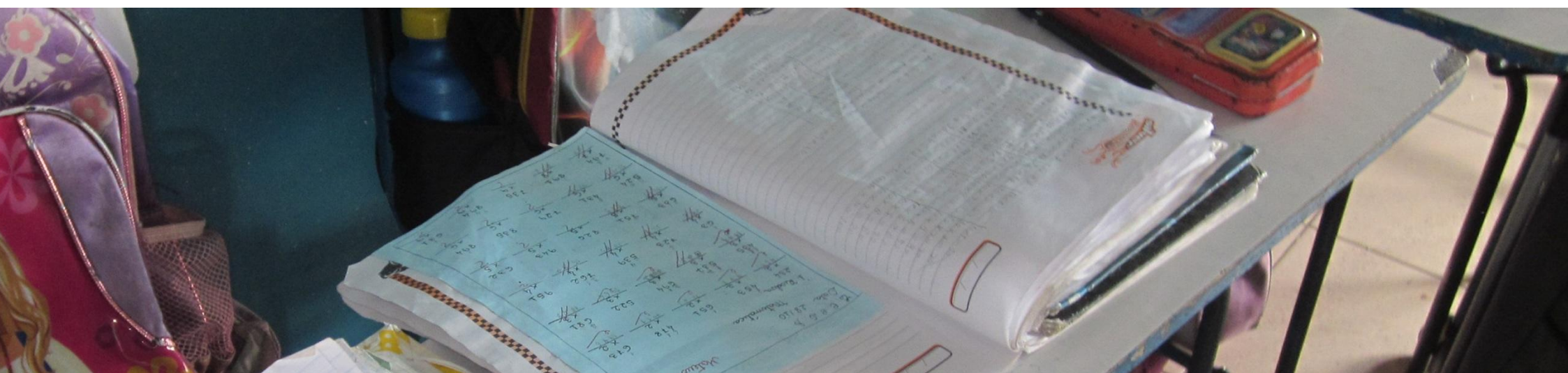
P.46 Coat hooks   
P.47 Refrigerator  
P.48 Sink  
P.49 Tap  
P.57 Clustering

Assume about 2.5 m<sup>2</sup> per child for a classroom preparar.





# P.13 CLASSROOM SUPLETIVO



## Classroom Supletivo

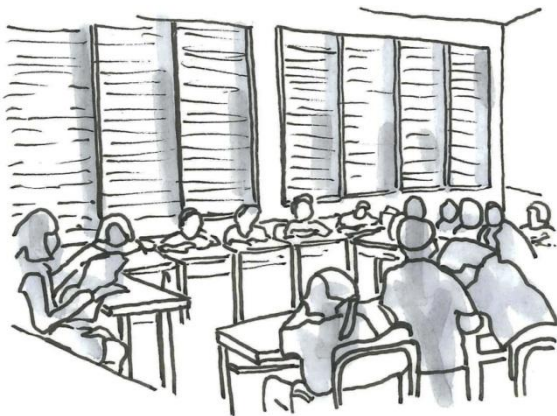
Supletivo enables children aged fourteen to twenty-one the possibility to finish primary school.

### CLARIFICATION

Supletivo supports children, who quit primary school because they, for example, had to work or joined a drug scene. Many children want to take the thread afterwards. Supletivo offers the possibility to finish primary school and receive a diploma. This is of great importance, because this diploma is required to participate in courses and to increase their chances to find a decent job (Buuren, 2011).

### SOLUTION

- A classroom has one table in front of the room, nearby the blackboard, intended for the teacher.
- Each person should have his/her own table and chair; this will make them responsible for their own equipment. The table and chair should be separate pieces of furniture, to improve writing skills and give people enough space to place books and paper.
- The classroom should provide enough closets to store materials like books and paper. When designing the classroom the required space of closets should be taken into account, to avoid closets standing in the way.



## RELATION

P.15 Classroom Courses

P.31 Playground

P.46 Coat hooks 

P.47 Refrigerator

P.48 Sink

P.49 Tap

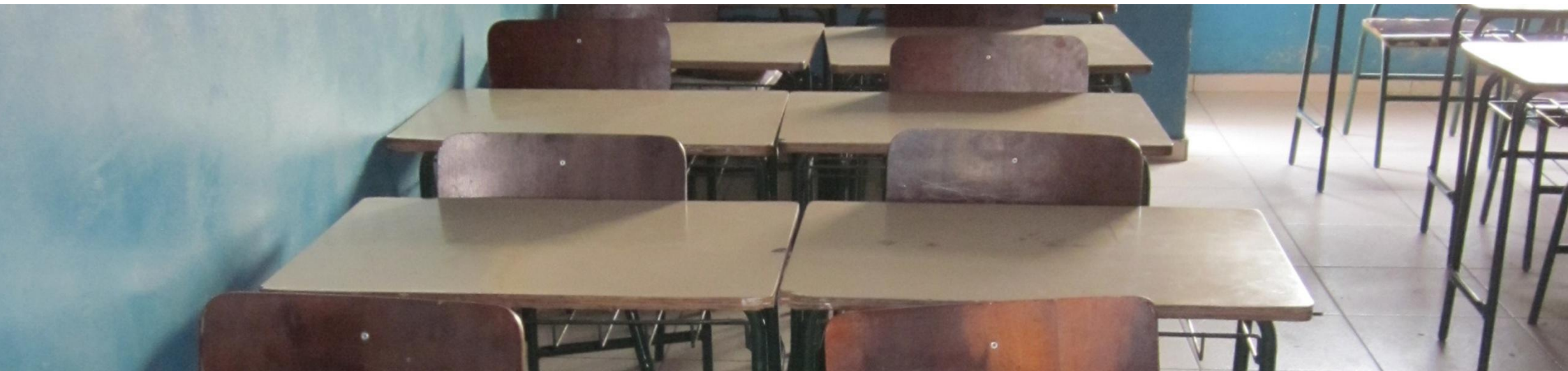
Assume about 2.5 m<sup>2</sup> per child for a classroom supletivo.







## **P.14 CLASSROOM ADULT EDUCATION**





## Classroom Adult Education

Adult education provides adults to finish primary school.

### CLARIFICATION

Educational arrears are also known for adults. Some adults did not have the opportunity to receive education or quit before finishing and they like to finish primary school nowadays. This activity usually happens at night, because most people have to work by day. Adult education mostly only occurs during the day when people aged 65 and older are participating (Buuren, 2011).

### SOLUTION

- A classroom has one table in front of the room, nearby the blackboard, intended for the teacher.
- Each person should have his/her own table and chair. The table and chair should be separate pieces of furniture, to improve writing skills and give people enough space to place books and paper.
- The classroom should provide enough closets to store materials like books and paper. When designing the classroom the required space of closets should be taken into account, to avoid closets standing in the way.

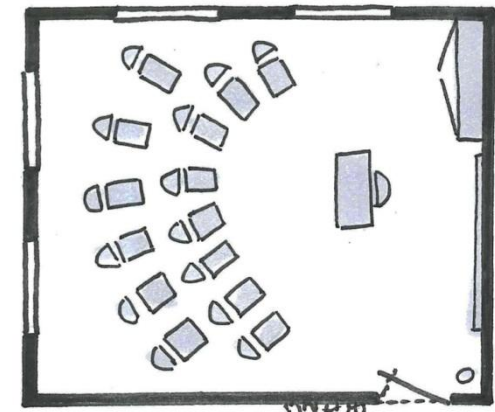
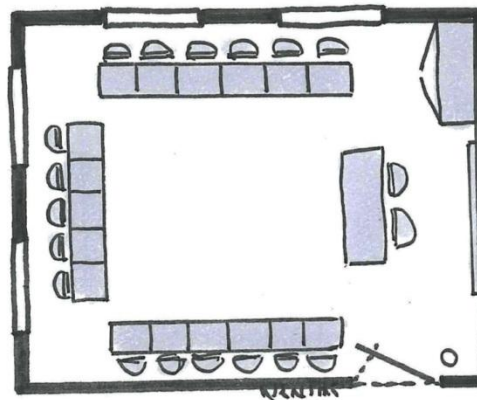
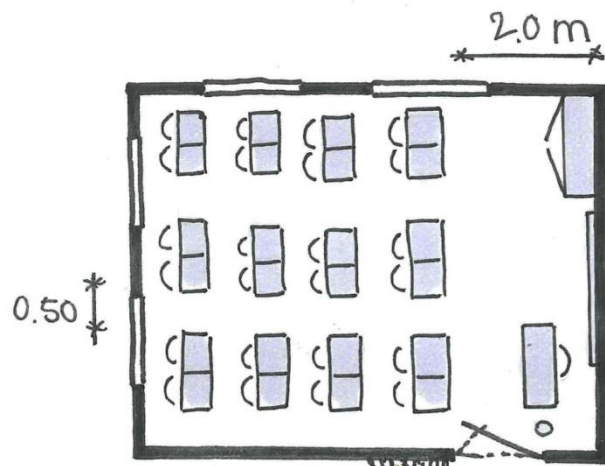
### RELATION

P.46 Coat hooks



P.49 Tap

Assume about 2.5 m<sup>2</sup> per person for a classroom adult education.





# P.15 CLASSROOM COURSE



## Classroom Course

Courses enable people aged maximum thirty years the possibility to learn a profession.

### CLARIFICATION

By following courses people can increase their chance for a job, because they learn specific skills and gain particular knowledge. Examples of courses are touch-typing, logistics and administrative work (Buuren, 2011).

### SOLUTION

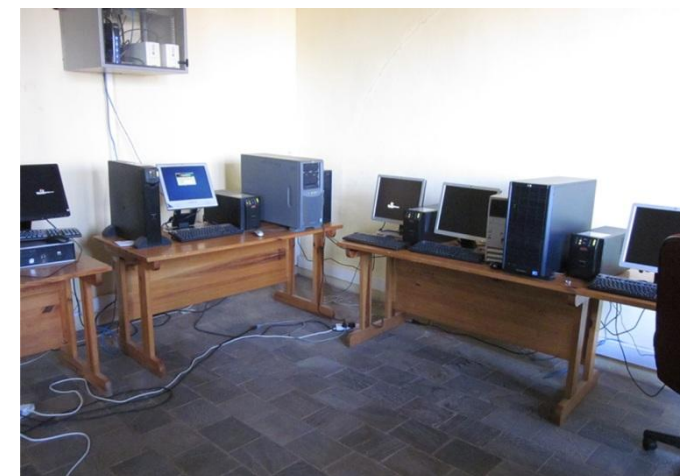
- A classroom has one table in front of the room, nearby the blackboard, intended for the teacher.
- If required the classroom contains computers. The room and the tables should provide enough space to allow two persons to sit behind one computer.
- The classroom should provide enough closets to store materials like books and paper. When designing the classroom the required space of closets should be taken into account, to avoid closets standing in the way.
- In case of computers, they need to be locked to the tables.
- The classroom needs to be locked at night, as it contains expensive equipment.

## RELATION

P.46 Coat hooks



Assume about 2.5 m<sup>2</sup> per person for a classroom course.





## **P.16 CLASSROOM OCCUPATIONAL TRAINING**





## Classroom Occupational Training

Occupational training increases the chances for a good job.

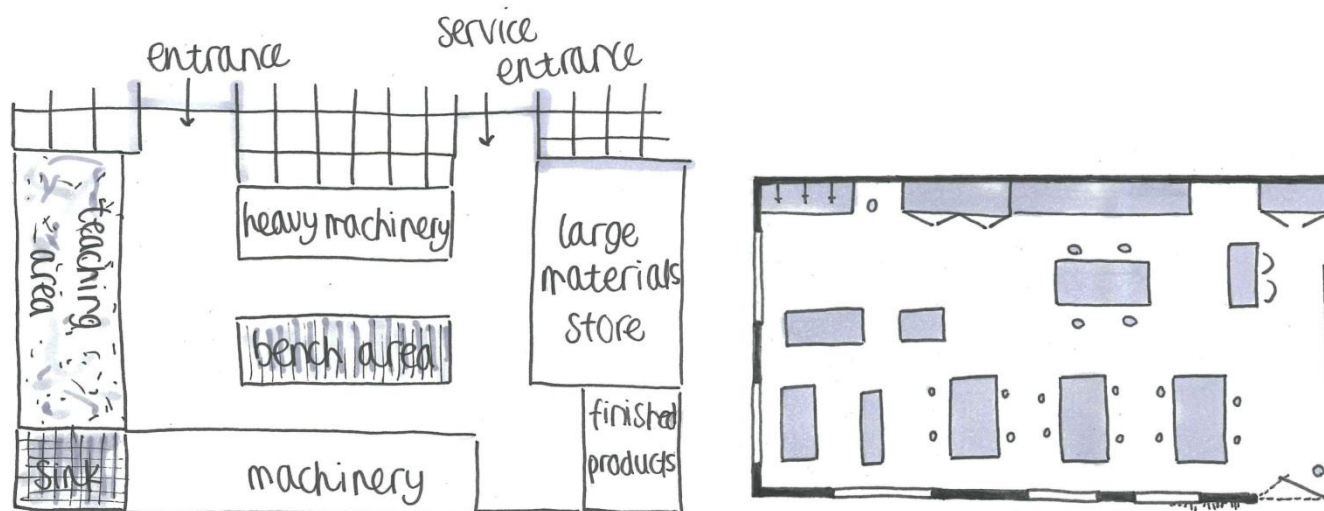
### CLARIFICATION

Occupational training provides training, directed at finding a job. An education centre comes in contact with an employer who passes the qualities required for a specific job. Next people receive, during a few months, specific training for this particular job. When they pass the training successfully, people have the certainty to start a job, for which they received specific training. Because they are trained on the specific qualities asked to do this job, the chance to get a decent job which is a plum increases (Buuren, 2011). Examples of occupational training are;

- welding, bricklaying, woodwork, plumbing, metalwork, mechanics, electric's
- repairing bicycles and cars
- making pottery
- sewing, knitting, making/printing clothes
- hairdresser, manicurist, beautician

### SOLUTION

- Provide a classroom suitable to the required processes of occupational training; supply of materials, required equipment and tables for training, day to day clearing up and general maintenance.
- Provide a sink to clean materials and wash hands.
- Provide storage place and closets to store for example. materials and items made.
- In case of trainings that are dirty, a centre should provide changing rooms and showers.



### RELATION

P.45 Changing Room



P.46 Coat hooks

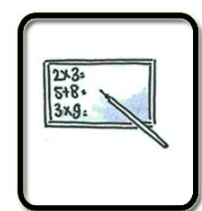


P.48 Sink



Assume about 5,00 m<sup>2</sup> per person for a classroom occupational training.





## P.17 CLASSROOM REFORÇO ESCOLA



## Classroom Reforço Escola

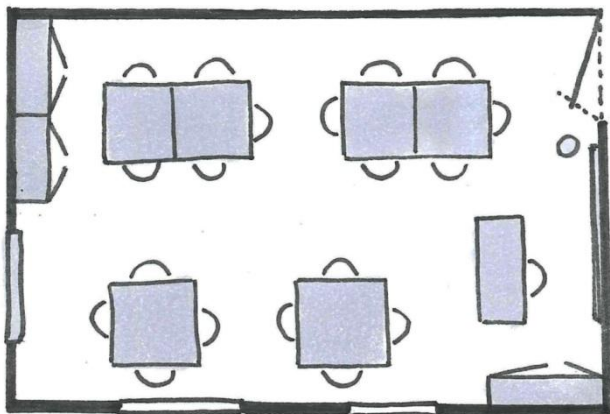
Reforço Escola coaches children aged six to maximum sixteen in their educational activities.

### CLARIFICATION

Many children need tutoring to meet the required educational level. Supervision of homework and extra lessons is important to enhance children's position in school. Teachers can support children in difficult fields and watch over the child's connection with the school level. Coaching gives also structure to children's lives and increases their self-confidence. Besides, for many children it is difficult to study at home. Classrooms reforço escola therefore also provide a place where children can do their homework in a quiet area (Buuren, 2011).

### SOLUTION

- A classroom has one table in front of the room, nearby the blackboard, intended for the teacher.
- Each person should have his/her own table and chair. The table and chair should be separate pieces of furniture, to improve writing skills and give people enough space to place books and paper.
- In the case that there are no recreational areas in the building, the classroom should be organised flexibly; it should be able to also easily use it for recreational activities like singing and music lessons, as a break during tutoring.



### RELATION

P.31 Playground

P.46 Coat hooks 

P.47 Refrigerator

P.48 Sink

P.49 Tap

Assume about 2.5 m<sup>2</sup> per child for a classroom reforço escola.







## **P.18 LIBRARY**





## Library

A library increases the general development and reading, writing and verbal skills of people.

### CLARIFICATION

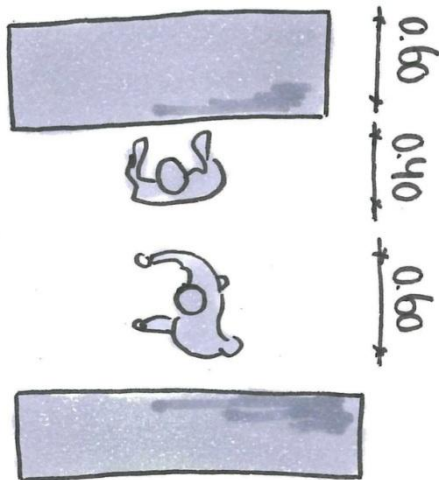
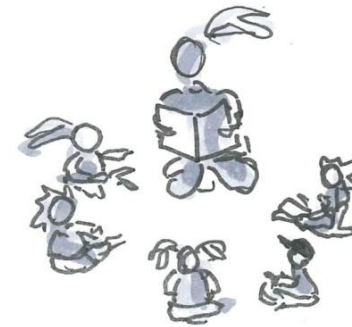
Reading should have a significant position in the development of people, because it improves language skills and literacy skills. A library persuades people to take and read a book. Learning also occurs when parents are reading with their child (Moore, 1979). To stimulate people to read, a library should be comfortable; it should be an approachable place, and provide books on both children's and adults' level (Sanoff, 1995). In addition, when reading is part of the educational program, the fun and importance of reading can be shown.

### SOLUTION

- Provide open closets, with books at appropriate height for children and adults.
- The library should contain a meeting area where people can sit around a table or at a couch, reading and talking about the books they read and the thing they learned. This place also provides interaction between children and adults; they can read together and share each other's thoughts on the things they read.
- Provide private places where people can withdraw into themselves when needed.
- To create a quiet area, the library should be located sufficiently away from noisy activities generated in other areas of the centre (Osmon, 1975).

## RELATION

P.46 Coat hooks   
P.49 Tap  
P.51 Permanent seats  
P.52 Privacy  
P.59 Noise





## P.19 COMPUTER ROOM



## Computer Room

In the current circumstances computer knowledge is a necessity.

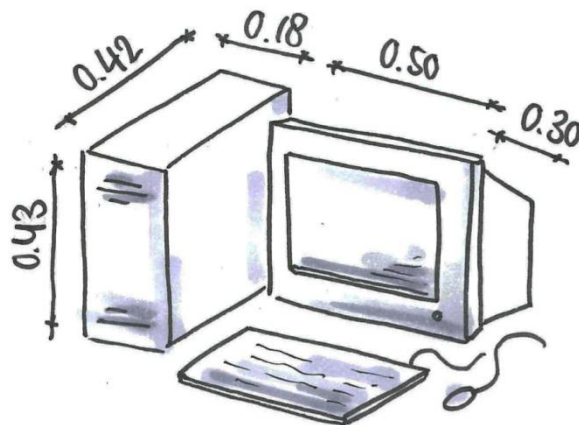
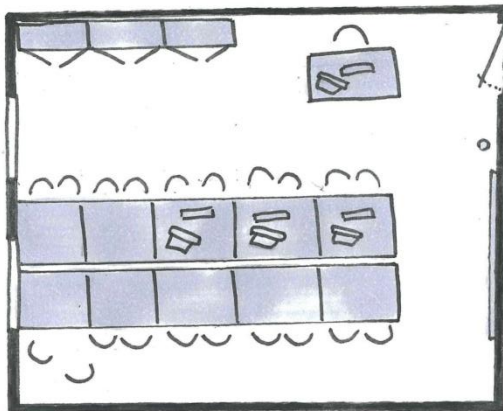
### CLARIFICATION

In this day and age the computer and internet world are growing rapidly and computers are used in almost every industry in the world. People who learn the concept of computers and internet enhance their education experience. Education centres should therefore provide computer lessons to teach everyone to work with computers and keep their knowledge up to date. Computers can also provide recreational activities and allow people to take part in conversations about current developments. Computer rooms can have various purposes (Buuren, 2011);

- Computer lessons to learn programs such as Word and Excel.
- Courses such as logistics and touch-typing.
- Internet as access to all types of knowledge.
- Free time on the internet; people see the advantages and disadvantages of internet.

### SOLUTION

- Provide a blackboard for the teacher to explain things.
- The room should provide enough space to allow two persons to sit behind one computer.
- In case of children ages younger than ten, provide tables and chairs suitable to their length.
- The computers need to be locked to the tables.
- The classroom needs to be locked at night, as it contains expensive equipment.



### RELATION

P.15 Classroom Course

P.46 Coat hooks 

P.49 Tap

Assume about 2,5 m<sup>2</sup> per person for a computer room.







## **P.20 MUSIC ROOM**





## Music Room

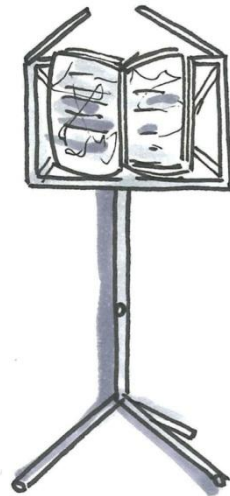
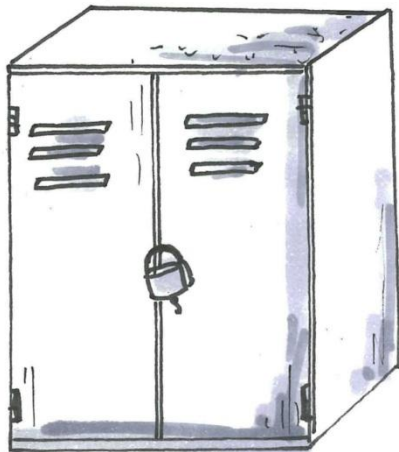
Making music and responding to it enhances all areas of development.

### CLARIFICATION

Activities in music, like singing and playing an instrument, allow children to experiment with and enjoy rhythmic and musical skills, the basic elements of music are sound and sound making. Making music and responding to it can enhance and integrate all areas of development. Singing is an important aid to the growth of language and can be used to introduce and reinforce concepts. Songs, using instruments and exploratory movement activities teach children to understand themselves, to be aware of their social environment and to value cultural diversity (Sanoff, 1995). Music can also reach people in ways that they are not otherwise being reached; young people who are disengaged from school are at the greatest risk of failure or harm. Music can provide a reason, and sometimes the only reason, for being engaged with school again. Besides, people who are considered having developmental arrears, can become high-achievers in music. (Fiske, 1999).

### SOLUTION

- The music room should be arranged with music equipment to make and listen to music.
- Provide lockable storage place to store instruments and other required materials.
- It should be considered to provide a room large enough for dancing and making music simultaneously (Osmon, 1975).



### RELATION

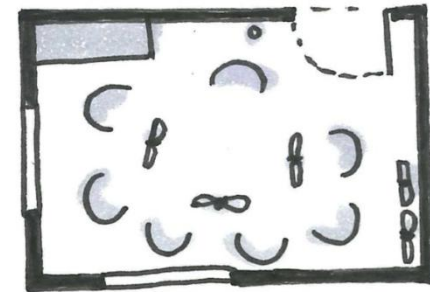
P.46 Coat hooks



P.49 Tap

P.59 Noise

Assume about 2,5 m<sup>2</sup> per person for a music room.





## **P.21 MUSIC STUDIO**



## Music Studio

## RELATION

P.59 Noise

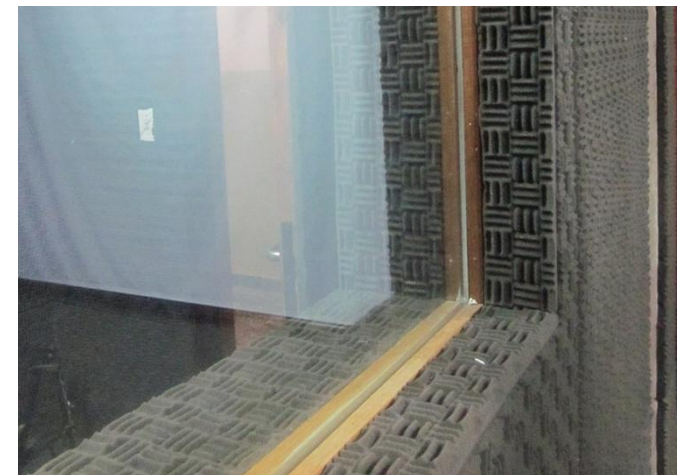
A music studio enables people to express themselves to other people and possibly record music for commercial purposes.

### CLARIFICATION

Making music is a personal experience. Recording your own music requires people to observe, analyse, create and evaluate. People with behavioural problems can become high achievers because arts give them the opportunity to excel (Almodovar, 2010). It is important for people to have the opportunity to express themselves, because it allows people to deal with circumstances. Providing a studio to record music and videos, gives people also the opportunity to sell their music and try to get a brand name known. Moreover, recording one's own music allows to express oneself. People's self-confidence will increase. Besides, people learn to cooperate with each other and to aim for a specific goal together.

### SOLUTION

- The music studio should be arranged with music equipment to record music.
- The music studio should be isolated well, to improve the quality of the records and avoid noise pollution.
- Provide lockable storage place to store instruments and other required materials.
- The music studio must be locked at night, as it contains expensive equipment





## **P.22 PERCUSSION ROOM**





## Percussion Room

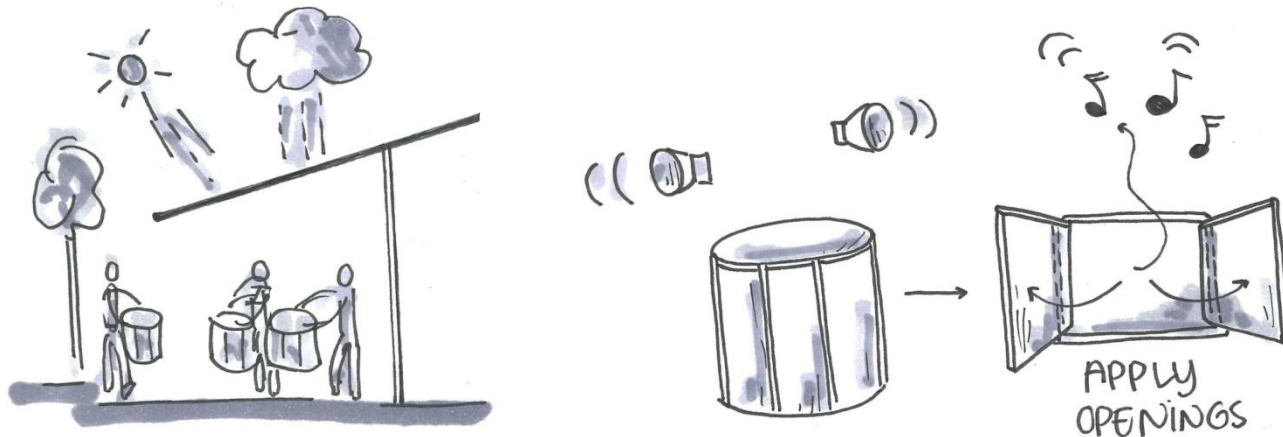
Percussions groups and other bands need a place to practise.

### CLARIFICATION

Provide a room where people can practise with small and big bands. This area can be a closed room, but can also be an outside area, for example, a part of the playground. In Brazil many percussion bands exist. It should be taken into consideration that percussions bands make a lot of noise; if an inside room is designed, it should be possible to open windows during a rehearsal to prevent hearing loss.

### SOLUTION

- Provide a room to practise with bands, suitable to various kinds of bands.
- Percussion groups are integrated parts of communities, through which residents like to listen to them when they are practising. It should therefore be considered to provide permanent seats or a small stage nearby the percussion room.
- Provide lockable storage place to store instruments and other required materials.



### RELATION

P.46 Coat hooks   
P.49 Tap  
P.51 Permanent Seats  
P.53 Stage  
P.59 Noise

Assume about 3,0 m<sup>2</sup> per person for a percussion room.





## P.23 THEATRE





## Theatre

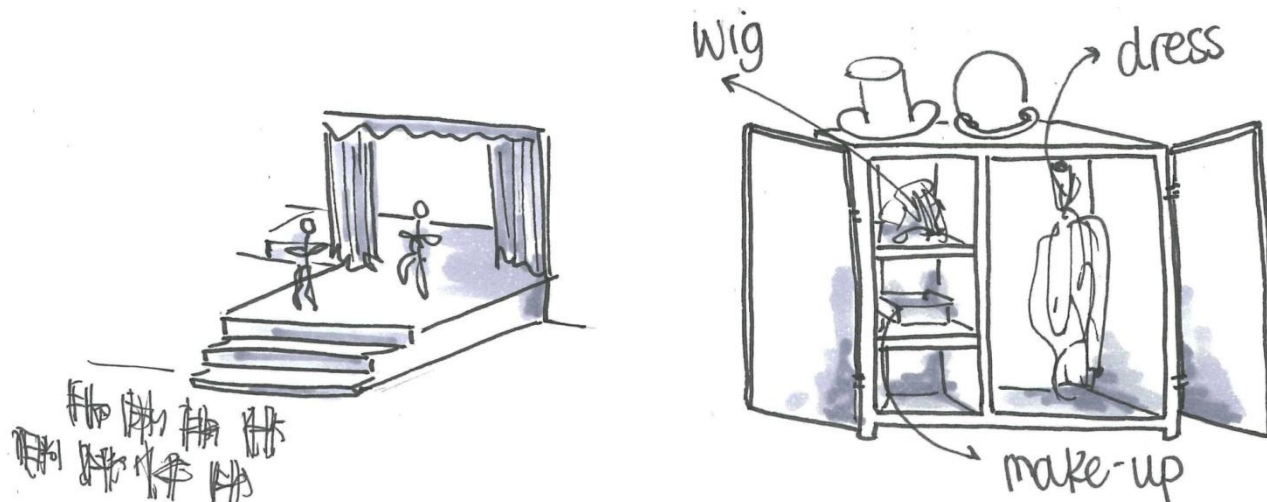
Acting gives people the possibility to express themselves, excel and feel appreciated.

### CLARIFICATION

Fascinated by the experiences of every day's life, people enjoy interpreting these experiences and re-enacting them. They learn what it is like to be mother, father, police officer, storekeeper and what their peers feel about people in such roles. People develop social skills and learn to experiment and pretend. They will begin to discover themselves as individual beings, similar to others, yet unique in their own way. The importance of dramatic play lies in people's development in understanding themselves and others. Besides, they gain confidence that they can be whatever they wish to be (Sanoff, 1995).

### SOLUTION

- Provide a room to give dramatic lessons, to rehearse plays and to facilitate free play allowing children to use their own infinite imagination.
- The room should contain a platform to give appearances. This platform can be flexible; it can be removed after practising or a performance, to make the room suitable for other activities.
- A theatre should contain empty space to place seats and a stage to enable appearances.



### RELATION

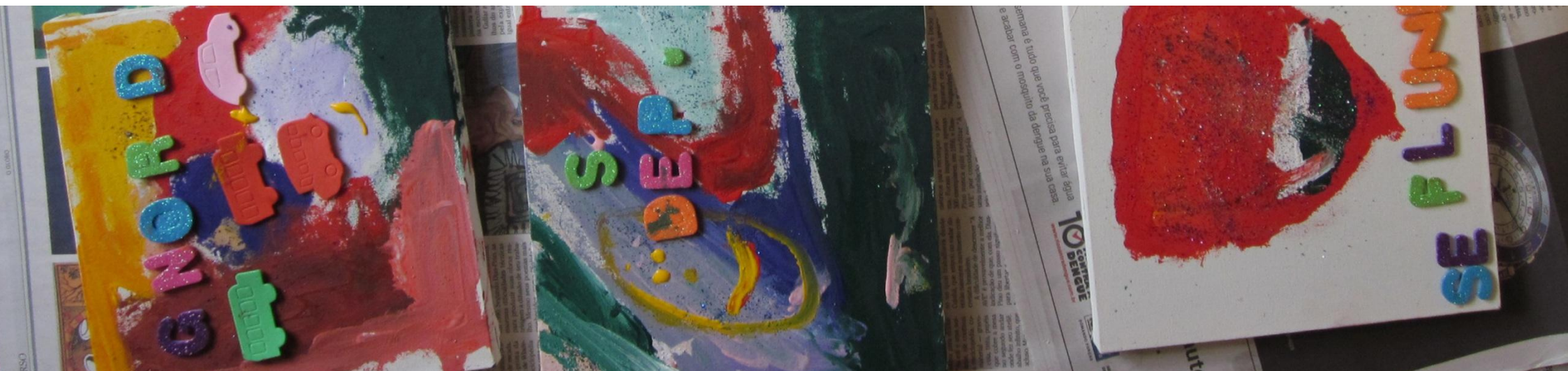
P.46 Coat hooks   
P.49 Tap  
P.51 Permanent Seats  
P.53 Stage

Assume about 3,5 m<sup>2</sup> per person for a theatre.





## P.24 VISUAL ARTS ROOM





## Visual Arts Room

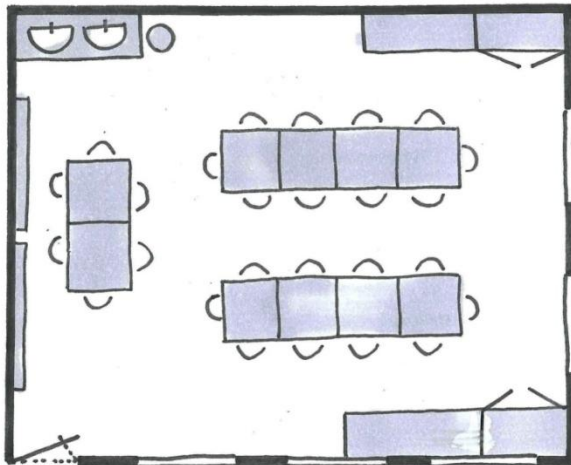
Art motivates children toward learning and helps them develop socially and emotionally.

### CLARIFICATION

Art work is a visual expression of people's feelings. To express these feelings visually, people must think about themselves and their physical and social environment (Sanoff, 1995). Experiences, memories and your own identity can be expressed in art. Art is therefore an original and effective way to cope with circumstances. Participating in arts will improve people's self-confidence and self-identity (The Progress of Education Reform, 2004). Visual arts have a developmental role for everyone; arts can reach people in ways that they are not otherwise being reached and help them dealing with their circumstances. Arts can become a bridge to learning and finally people will also succeed in other areas of learning (Fiske, 1999).

### SOLUTION

- Provide various materials as paint, crayons, markers, scissors and paper to allow people to represent things they have done, seen and imagined.
- In case of working with young children, provide tables and chairs suitable to their length.
- A sink is required to clean materials and wash your hands.
- The room should contain enough storage place to store materials and items made. When designing the room the required space of closets should be taken into account, to avoid closets standing in the way.



### RELATION

P.46 Coat hooks



P.48 Sink

P.49 Tap

Assume about 2,5 m<sup>2</sup> per person for a visual arts room.





## **P.25 CAPOEIRA ROOM**



## Capoeira Room

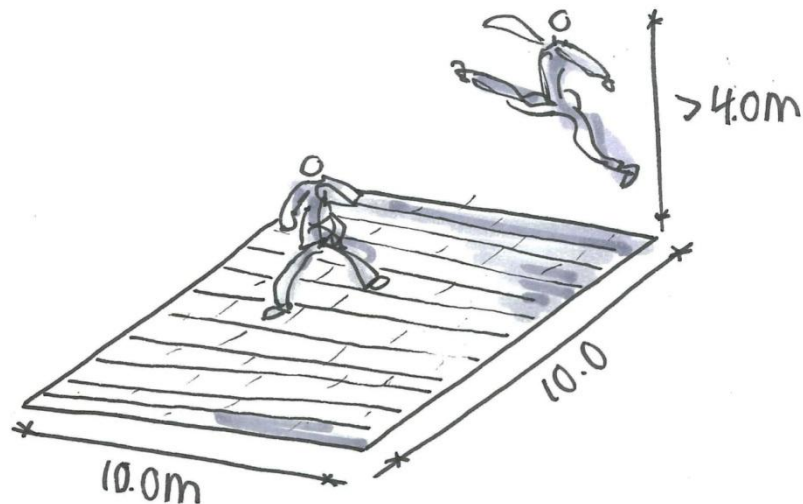
Capoeira is part of the Brazilian culture and should be accessible to everyone.

### CLARIFICATION

Capoeira is an Afro-Brazilian martial art marked by deft and tricky movements often played on the ground. It has a strong acrobatic component in some versions and is always played with music. It is a culturally significant sport and internationally practiced (Wikipedia, 2012b).

### SOLUTION

- A capoeira room can be an inside space, but also an outside area. In case of an outside area, it should be protected against rain and sun.
- Provide a music installation.
- Provide sufficient ventilation.
- Provide a lockable storage place for the music installation.



### RELATION

P.45 Changing Room



P.46 Coat hooks



P.49 Tap

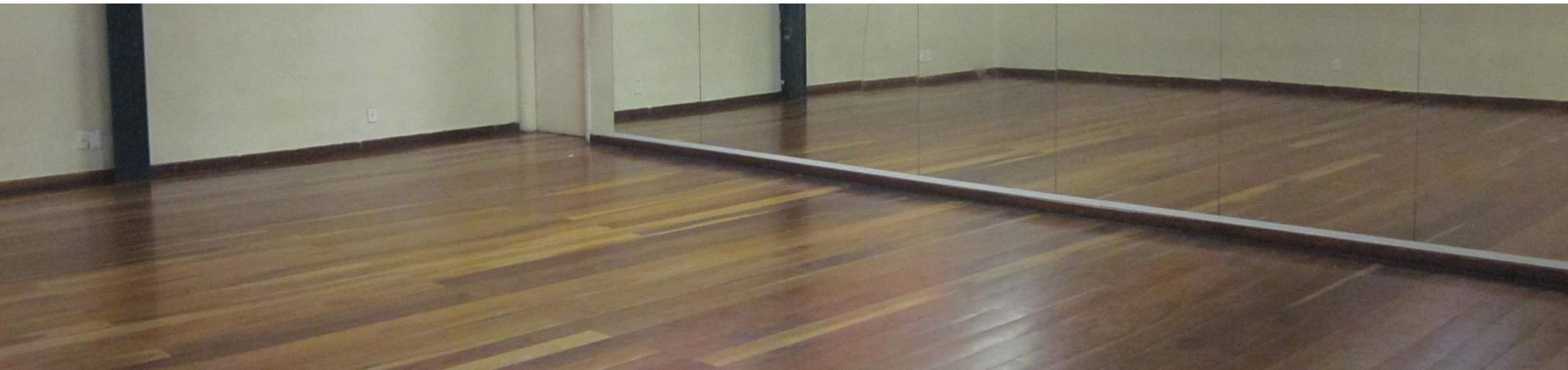
Assume a minimum of 10,0 x 10,0 metre for a capoeira room. This is suitable to about 28 people. A capoeira room has a minimum height of four metre.







## **P.26 DANCE STUDIO**





## Dance Studio

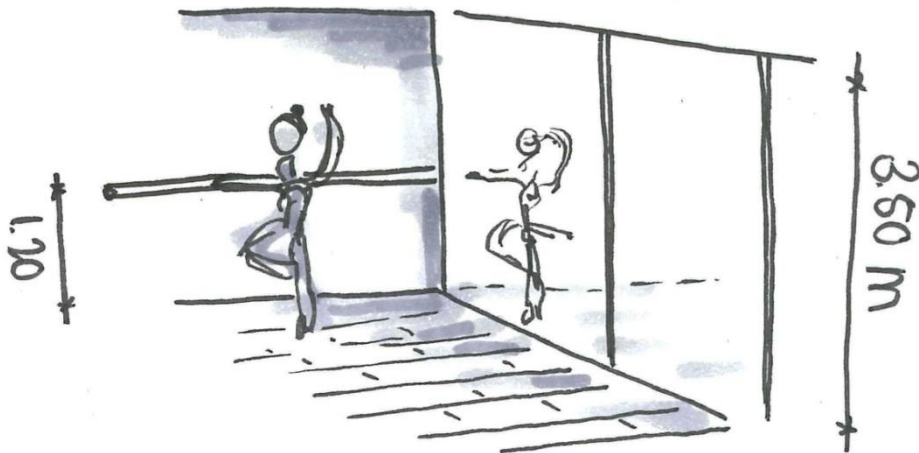
People relax and improve social and motoric skills by dancing.

### CLARIFICATION

Dancing gives a moment of relaxation, the possibility to exclude negative outside experiences for a moment and express oneself. The combination of music and dance has a positive impact on the human being. Besides, people develop rhythmic skills and learn to cooperate closely with other people. Dances like salsa and ballet are very popular, especially among girls and women.

### SOLUTION

- A dance studio should have a wooden floor.
- A dance studio contains full-length mirrors, at least at one wall.
- Provide a music installation.
- Provide sufficient ventilation.
- Provide a lockable storage place for the music installation.



### RELATION

P.45 Changing Room



P.46 Coat hooks



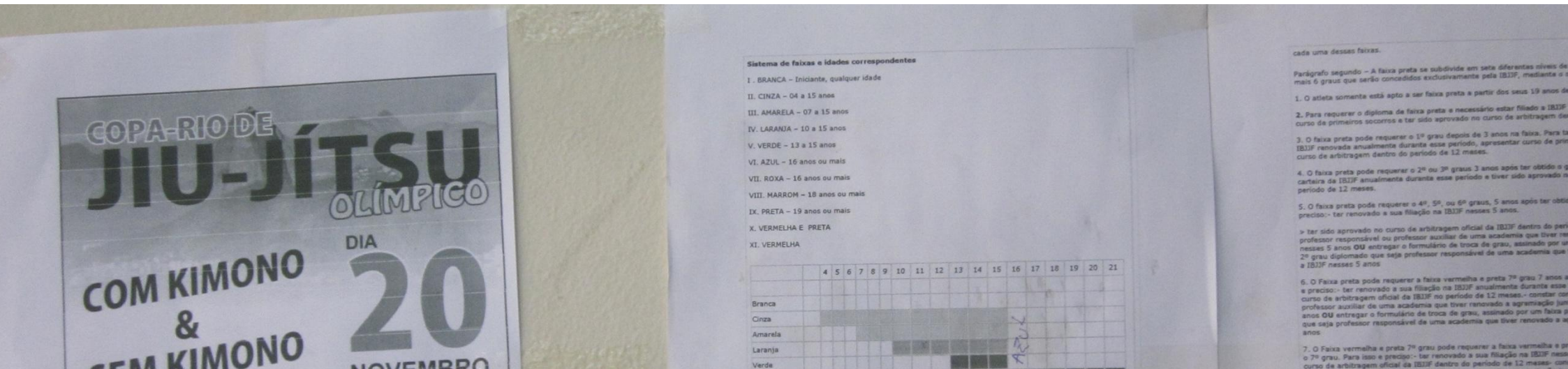
P.49 Tap

Assume about  $3,5 \text{ m}^2$  per person for a dance studio.  
A studio should have a minimum height of 3,5 metre.





## P.27 MARTIAL ARTS ROOM



## Martial Arts Room

Martial arts allow people to sport, learn and relax.

### CLARIFICATION

Martial arts emphasises ground fighting techniques and submissions holds. Participating in a martial arts lesson allows people to let off steam, reduce excitement and deal, in a good way, with pent-up aggression. Besides, people learn to protect themselves in a responsible way.

### SOLUTION

- Martial arts require soft mats on the ground. Provide a place to store these mats; when these mats can be removed, the room can also be used by other activities.
- Provide sufficient ventilation.

### RELATION

P.45 Changing Room

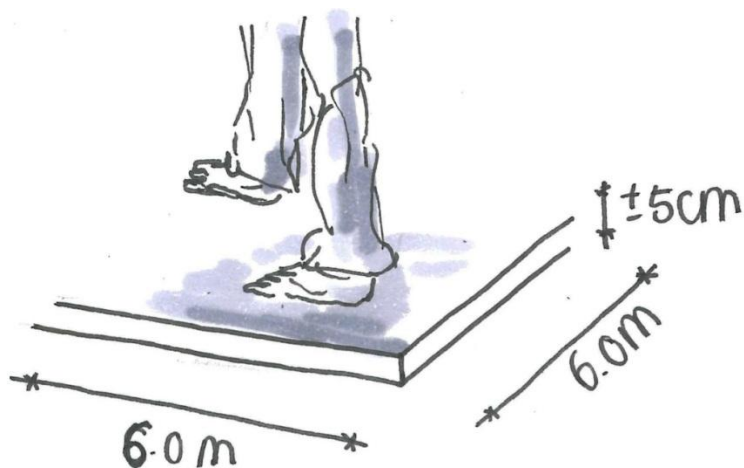
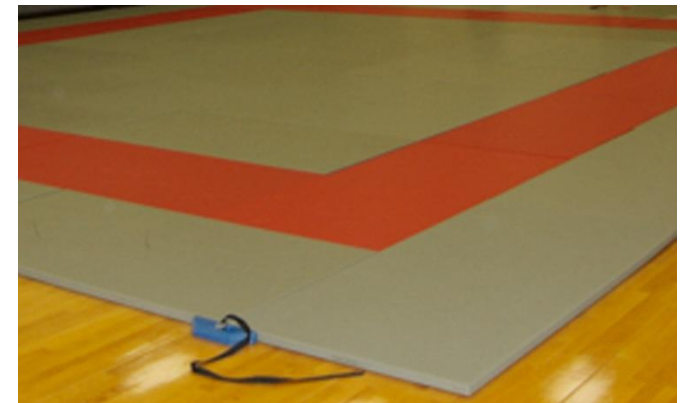


P.46 Coat hooks



P.49 Tap

Assume a minimum of 6,0 x 6,0 metre for a martial arts room. This is suitable to about 12 people. The room should have a minimum height of 3,5 metre.







## **P.28 RELAXING SPORTS STUDIO**





## Relaxing Sports Studio

Relaxing sports relieve stress and strengthen people both physically and mentally.

### CLARIFICATION

Relaxing sports strengthens the harmony between body and mind. Examples of relaxing sports are yoga and pilates. The exercises are aimed at strengthening the muscles, adopting a good figure and increasing concentration. Relaxing sports are good for your health, because they reduce the built up tension in the body. Yoga and pilates help relieving stress and enjoying life through which people can get more out of everyday life (Nieland-Weits, 2003).

### SOLUTION

- Relaxing sports require soft mats on the ground. Provide a place to store these mats; when these mats can be removed, the room can also be used by other activities.
- A relaxing sports studio contains full-length mirrors, at least at one wall.
- Provide sufficient ventilation.

### RELATION

P.45 Changing Room

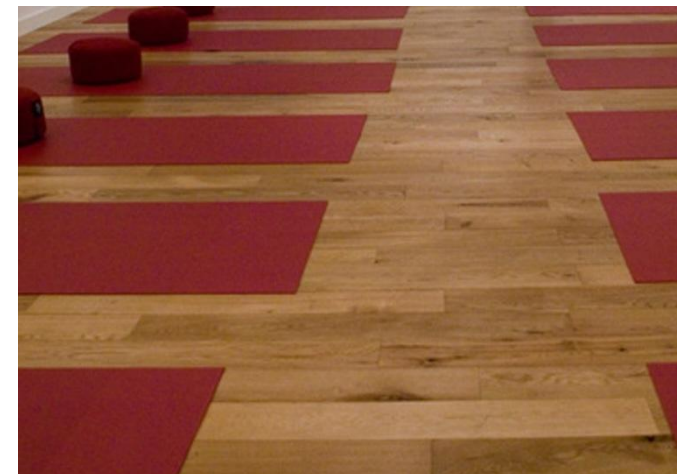
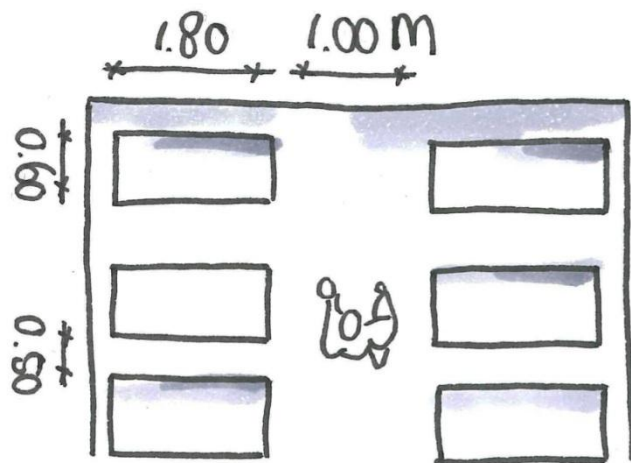


P.46 Coat hooks



P.49 Tap

Assume about 3,00 m<sup>2</sup> per person for a relaxing sports studio.





# P. 29 SPORTS FIELD



## Sports Field

Everyone should be able to participate in sport.

### CLARIFICATION

Sports have a very strong heritage in Brazil and many people regularly participate in various sports items. Sporting increases health and supports social and physical development. It is important that a sports field is also accessible beyond the opening hours of the education centre; this allows people to come at any time during the day or night, choosing activities that best suit their needs. A sports field should contain the required lines and furniture to play;

- Football
- Volleyball
- Basketball

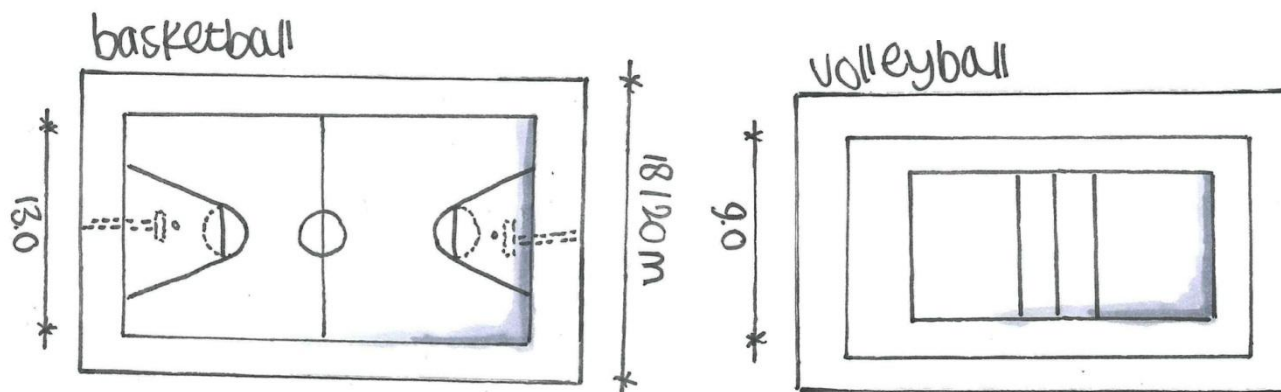
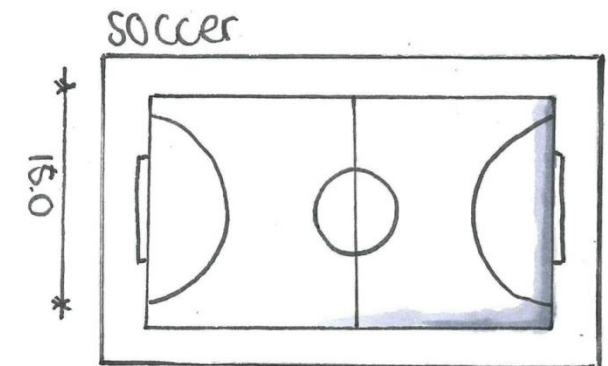
### SOLUTION

- The sports field should be designed on a flat surface.
- The playground should be surrounded by a fence, to prevent balls rolling on the road. The fence should be at least 2,0 metre high. The fence should have several entrances to enter the sports field.
- Provide suitable floor covering, like concrete or asphalt; the soil cannot remain sand because this becomes mud in case of rain.
- Provide lighting to be able to use the sports field at night.
- Drains should be applied to drain off rainwater.

### RELATION

P.53 Stage

Assume minimum dimensions of 10,0 x 16,0 metre.







## **P.30 SWIMMING POOL**





## Swimming Pool

Everyone should be able to swim.

### CLARIFICATION

It is very important that everyone, and especially children, learn to swim. Not only because of security, people falling into the water and drowning, but also because it increases people's movement possibilities. Children can join the beach, sea, lakes and rivers playing with their friends. Besides, swimming provides a workout and it is a fun activity (Swimming, z.j.). Education centres providing swimming pools increase people's health and physical development by offering this recreational activity.

### SOLUTION

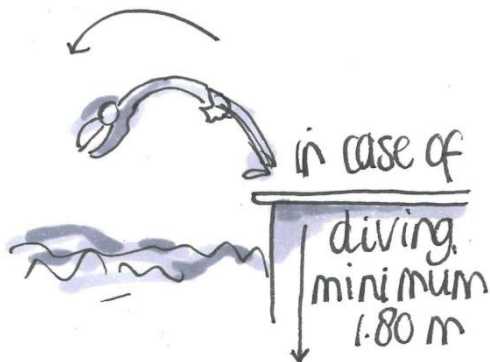
- The swimming pool should be enclosed by a fence to protect small children against falling into the water. This fence should be lockable, to prevent people to go swimming at night.
- Provide permanent seats or a small stage to allow visitors and other users to watch the swimming fun. These places can also be used to have a break during swimming.
- Swimming lessons may only be given by a qualified person.
- The swimming pool must be equipped by life jackets, in case of emergency.
- Provide a lifeguard chair.
- If required, provide a springboard.
- Provide appropriate materials, like boards, to enable swimming lessons.

### RELATION

P.45 Changing Room  
P.49 Tap  
P.51 Permanent Seats  
P.53 Stage



A swimming pool should be at least 5,00 x 10,00 metre to enable swimming lessons.





## P.31 PLAYGROUND





## Playground

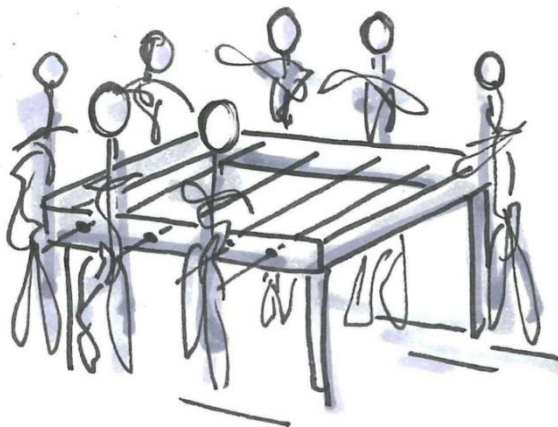
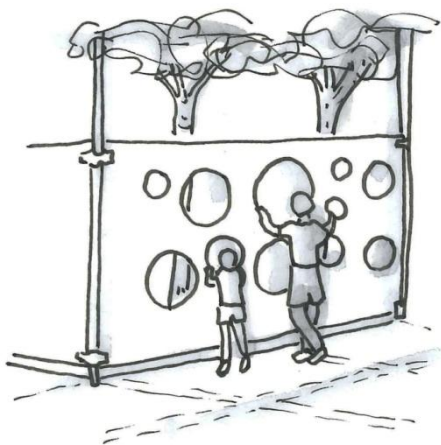
Outdoor play is a required part of a child's development.

### CLARIFICATION

The outdoor environment is a necessary part in a child's development. Education centres should provide a space where children can come and play, relax and meet other children in an environment in which they feel comfortable and safe. Playing allows children to use large and small muscle skills, express feelings and stimulates curiosity (Jackman, 2001). Playing outside is important for every child. Simply because some things that happen outside cannot happen adequately anywhere else, like experiencing weather and the seasons. The chance to run, to leap and to hide is a compelling reason for most children to be outside for much of the time. Playgrounds allow children of different ages to play together, this is developmentally important for children (Moore, 1986). A playground is a safe place to play because no traffic is passing by and playing equipment is geared to children. It is important that an outdoor playground is also accessible beyond the opening hours of the education centre; it will be a safe place to go for children and adolescents.

### SOLUTION

- The playground should protect children against sun.
- Provide suitable floor covering; the soil cannot remain sand because this becomes mud in case of rain.
- The playground should have sufficient surface to allow running around and riding a tricycle.
- Provide basic earth substances as water, clay and sand; children enjoy playing with such elements.
- Provide elements to facilitate hiding, climbing and sliding, for example, trees and slopes.
- Provide private corners to allow children to prefer privacy.
- A playground can contain a football and ping-pong table.
- Drains should be applied to drain off rainwater.
- Lockable storage places for the playing equipment.



### RELATION

P.42 Garden  
P.51 Permanent Seats  
P.52 Privacy  
P.53 Stage  
P.55 Orientation

Assume about 5,00 m<sup>2</sup> playing area per child.





## **P.32 DINING**





## Dining Room

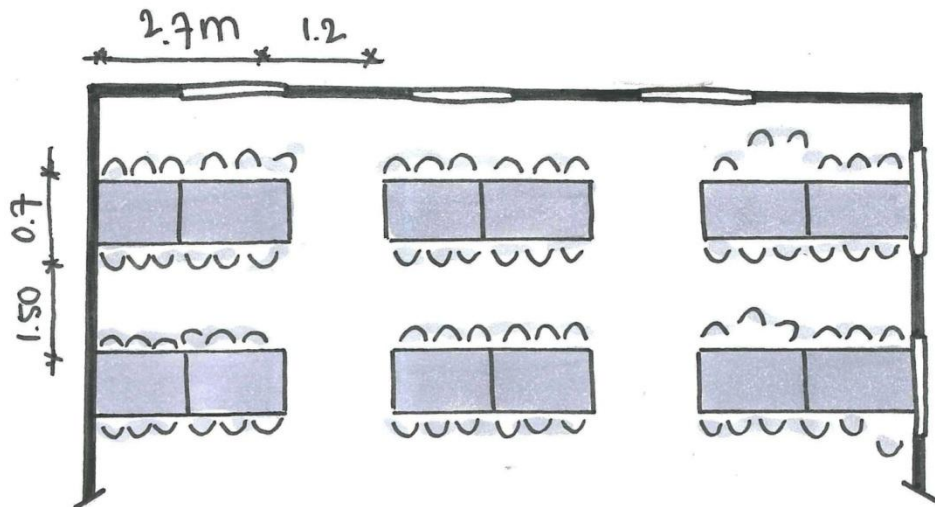
A dining room is required to have a break and dinner.

### CLARIFICATION

Having lunch is not just a moment of eating, but should also be a moment of togetherness; during meals people have the opportunity to interact with various children and adults. Having dinner every day gives structure to someone's life, besides children can develop table manners (Kind & Samenleving, 2010). Sufficient tables and chairs are required.

### SOLUTION

- The dining room should be of sufficient size; it should be able to facilitate a certain number of people simultaneously.
- The dining room must protect people against sun and rain.
- If the dining room is only used by young children, the furniture should be adapted to their length.



### RELATION

P.33 Kitchen 

P.48 Sink 

P.49 Tap 

Assume about 1,50 m<sup>2</sup> dining room per person (calculate the number of people using the dining room simultaneously).





## P.33 KITCHEN



## Kitchen

A kitchen is required to prepare a cup of coffee and a meal.

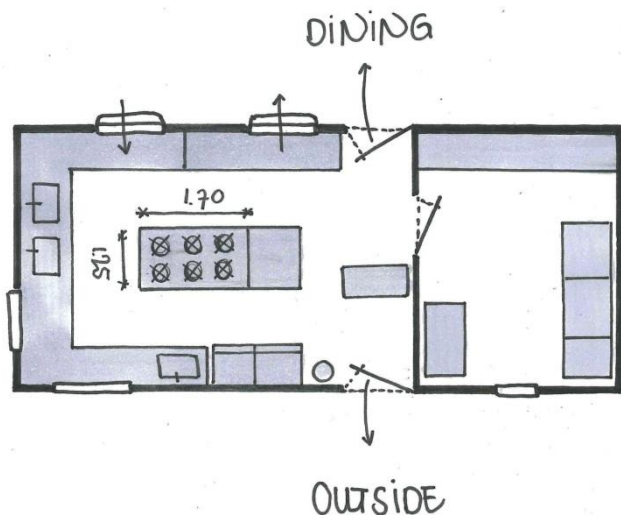
### CLARIFICATION

Education centres should be able to offer the users and the staff a substantial meal during lunch time. This meal is especially important to young children; a healthy meal is required to develop physically and emotionally. Besides, having dinner is a daily routine that gives structure to the day of a child. The kitchen should be suitable to prepare lunch for a large number of people; everyone should be able to have lunch between about twelve and two o'clock. Besides lunch, the kitchen must be able to make coffee, for example, for the staff. Serving coffee to visitors and users will support the meeting function of the education centre.

## RELATION

P.32 Dining Room

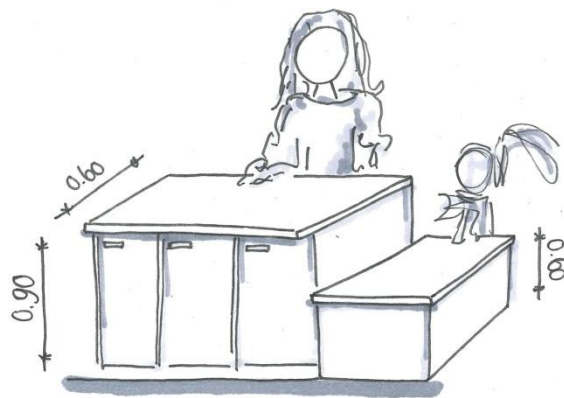
P.37 Gossip Space



## SOLUTION

- Provide a kitchen suitable to the different steps of preparing meals: supply of the fresh food ingredients, the preparation of the meal and the serving of the meal;
  - The kitchen must have a door, opening to the outside, to supply products. In connection with supply, the kitchen should be at the ground floor.
  - The kitchen must have sufficient space to place a gas cylinder, if required.
  - Provide a sink to wash the food ingredients. If required, this tap can have a filter.
  - The kitchen must have a door and an interior opening to the dining room, to serve meals.
- Provide a kitchen suitable to the different steps of cleaning meals; clearing and washing up, cleaning and waste disposal.
  - Provide a large washing-up sink to do the dishes.
  - The kitchen should be close to the waste disposal.
- Provide sufficient storage place.
  - The kitchen must have sufficient space to store utensils such as pans and pots and other equipment.
  - The kitchen must have sufficient space for shelves and lockable storage place to store non-perishable foods such as salt, oil, rice and flour. These foods must be stores at least 15 centimetre above the floor in a clean, dry and well-ventilated storage to prevent insects from entering the products. This practice also facilitates cleaning.
  - The kitchen must have sufficient space for a refrigerator and freezer to store perishable foods such as meat, vegetables, fruit and dairy product.
  - The storages should be lockable to prevent children from entering the spaces.
- Provide a cooker hood and sufficient ventilation.
- The kitchen should have a drain to simplify cleaning up the floor.

To prepare 100 meals simultaneously a kitchen of 30,0 m<sup>2</sup> is required. Assume a storage place of 8,0 m<sup>2</sup>.







## P.34 LAUNDRY



## Laundry

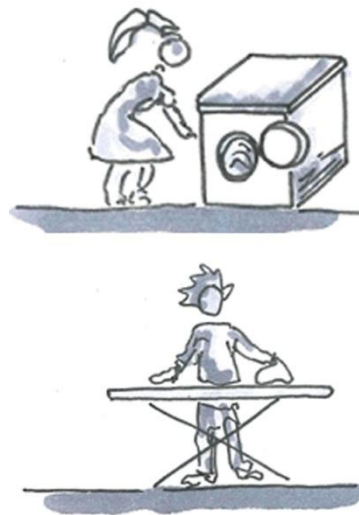
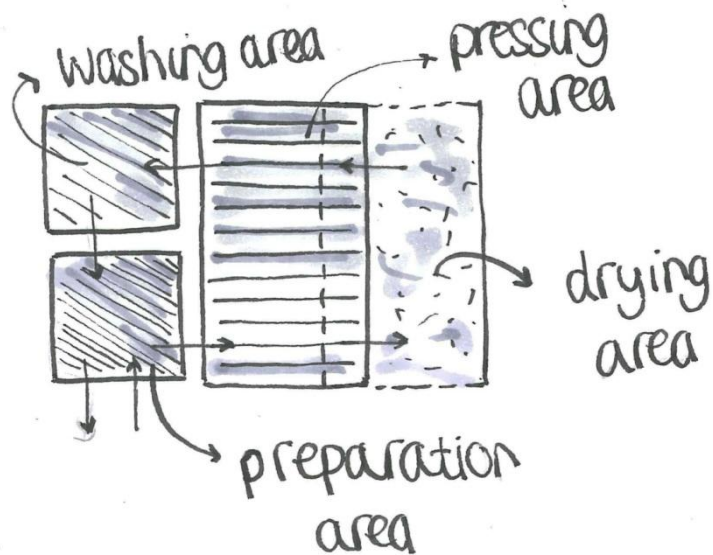
A laundry allows people to launder.

### CLARIFICATION

A laundry provides a place where residents of a comunidade can do their dirty washing for free. Hygiene is very important for everyone and people are very proud and careful about their properties. A laundry provides a place where people have sufficient space to wash these properties with clean water. Due to increased hygiene and the possibility to be careful with your clothes, a laundry will contribute to people's self-confidence and the communities' health. A laundry is also a place where people can meet and have a talk; it facilitates informal meeting between residents.

### SOLUTION

- Provide a laundry suitable to the different steps of doing the wash: sorting, removing stains, washing, rinsing.
- Provide a place protecting against rain and sun.
- Provide sufficient sinks, of appropriate size.
- The laundry should have a drain to drain off splattered water.
- Provide a laundry suitable to the different steps of drying the wash: drying, ironing, folding.
- Provide sufficient clotheslines, covered against rain and sun.
- Provide sufficient ironing equipment and folding tables
- Provide permanent seats to facilitate social meeting.



## RELATION

P.37 Gossip Space

P.51 Permanent Seats





## **P.35 HEALTH CARE CENTRE**





## Health Care Centre

A health care centre provides the necessary health care.

### CLARIFICATION

Preventive health care is required to stop specific diseases. Also professional mental health care may be needed. A health care centre can be a place to test people to identify diseases, to prescribe medication and inform people about their health (American Academy for Pediatrics, 2002). By providing health care and information, bridges can be built between people who are socially excluded and existing government services (Ibiss, z.j.). A health care centre can provide various kinds of care;

- Doctor, Nurse, Paediatrician, Obstetrician, Physiotherapist
- Dentist, Psychologist, Dietician

### SOLUTION

- The health care centre should be accessible by a private entrance.
- Provide flexible rooms; employees will mostly not be present daily and room sharing provides efficient use of space. The rooms should be provided with lockable closets to allow employees to store their equipment and materials.
- The consultation rooms can be provided with a toilet and shower to allow patients to change clothes. This space is also useful to allow people to freshen up in case of specific tests.
- Make sure to provide sufficient space between the consultation rooms and be careful with placing interior openings, to respect the patient's privacy.
- If required, a health care centre should be accessible by wheelchairs.

### RELATION

P.36 Information Centre

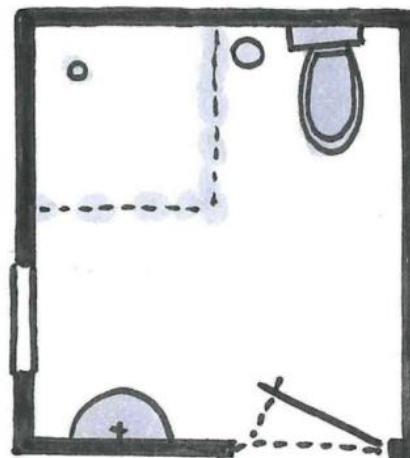
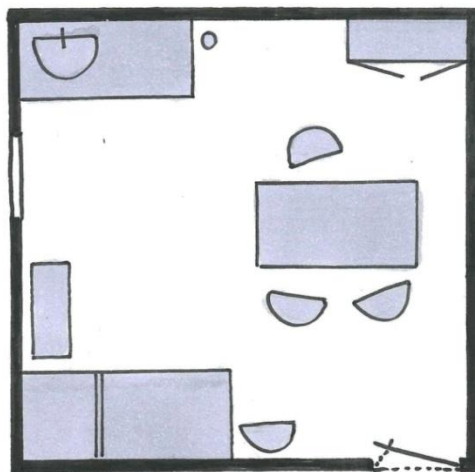
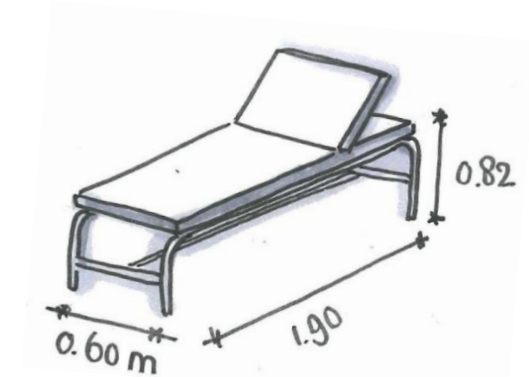
P.49 Tap

P.50 Waiting Room

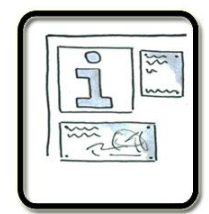
P.73 Wheelchair



Assume about 12,0 m<sup>2</sup> for a consultation room.  
Assume about 4,00 m<sup>2</sup> for the sanitary facility.







## **P.36 INFORMATION CENTRE**



## Information Centre

An information centres passes on knowledge.

### CLARIFICATION

An information centre gives advice to make people aware of problems and risks. Information about, for example, personal hygiene, health, citizenship and human rights should be given to residents of comunidades. People should also be informed about, for example, raising a child and budget control (American Academy for Pediatrics, 2002). Information meetings education centres should provide, for example;

- Psychology
- Hygiene
- Anti-conception and sexually transmitted diseases
- First aid
- Upbringing
- Finance
- Starting a company

### SOLUTION

- An information meeting can be given in large and small groups; the centre should provide the required rooms. Many rooms can be used flexibly; consultation rooms can be used for small gatherings while, for example, meeting rooms can be used for large meetings.
- Make sure to provide sufficient space between the consultation rooms and be careful with placing interior openings, to respect the patient's privacy.

## RELATION

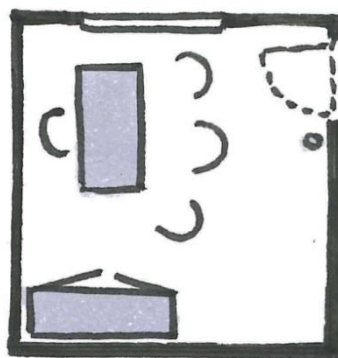
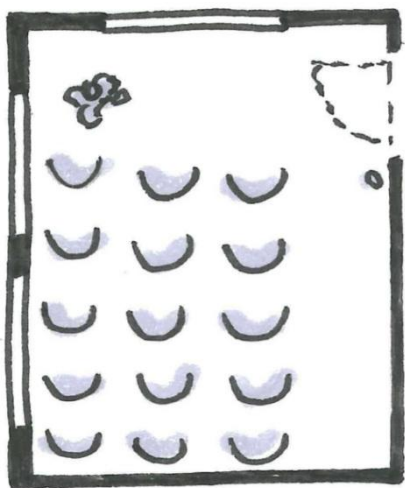
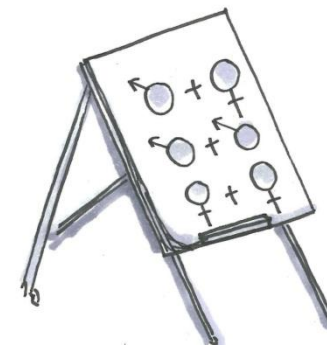
P.14 Classroom Adult Education

P.35 Health Care Centre

P.38 Meeting Room

P.39 Office

P.50 Waiting Room 





## P.37 GOSSIP SPACE





## Gossip Space

A gossip space is a place to meet, talk and share experiences and stories.

### CLARIFICATION

Spending time outside with other people is part of the Brazilian culture. Education centres should facilitate this habit because it is of great value for people to participate in each other's life; sharing experiences and talking about the future is important to deal with your circumstances. Gossip spaces in education centres can provide a safe place to meet. A gossip space also gives the opportunity to show the importance of educational and recreational activities and to enthuse residents to participate in activities. It also enables the staff of a centre to talk with parents about the development of their children or problems that may be of importance (Buuren, 2011).

### SOLUTION

- The gossip space should be approachable and comfortable to everyone. It can be located nearby the entrance area, to increase the accessibility of the gossip space.
- The gossip space should protect people against rain, sun and wind.
- The kitchen can provide coffee to encourage people to linger and take a seat.
- Provide seats to facilitate social meeting.

### RELATION

P.02 Entrance

P.33 Kitchen

P.42 Garden

P.51 Permanent Seats

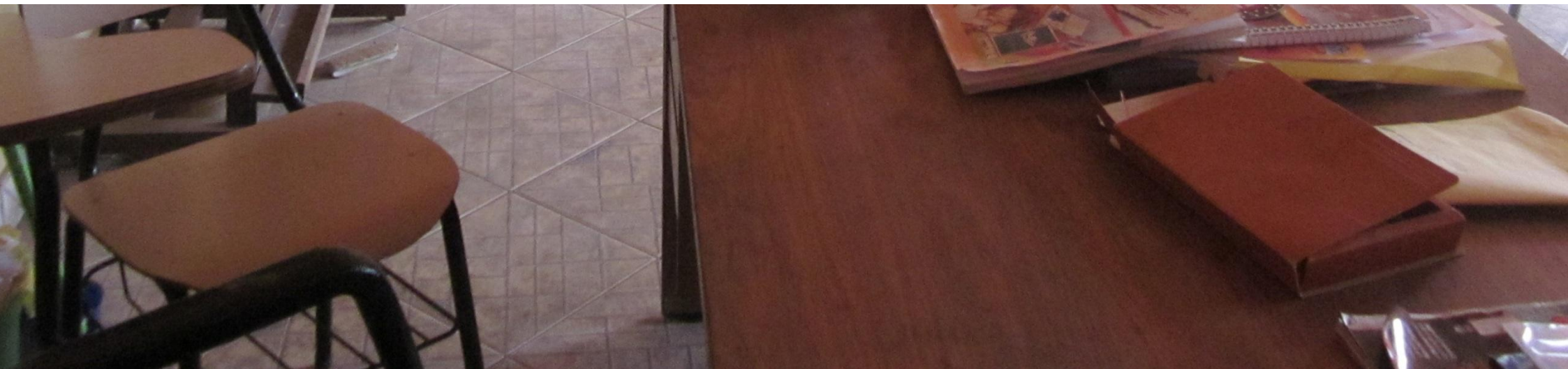
P.54 Veranda







## **P.38 MEETING ROOM**



## Meeting Room

A meeting room is required to facilitate formal meetings.

### CLARIFICATION

Education centres should provide formal meetings of, for example, the neighbourhood council, companies and nongovernmental organisations (Osmon, 1975). A centre should offer a meeting room to facilitate these meetings. This room can also be used for meetings of the staff, meetings with parents and information meetings to the residents of a comunidade (Buuren, 2011). In case of small groups, offices can be used to prepare and have a meeting.

### SOLUTION

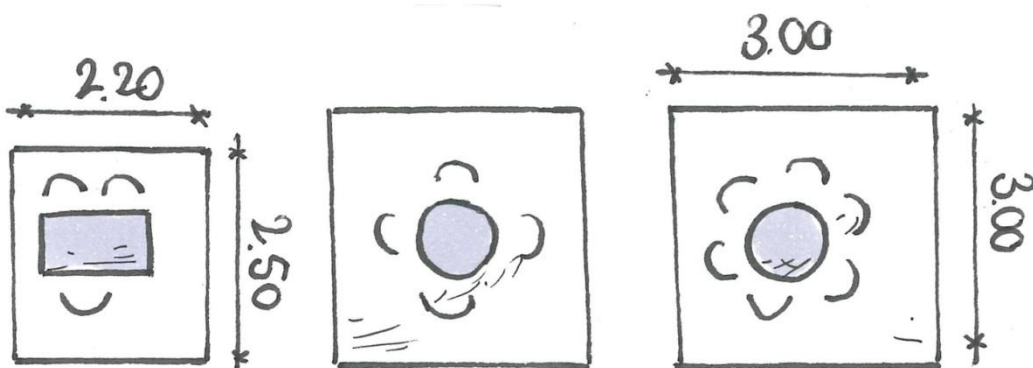
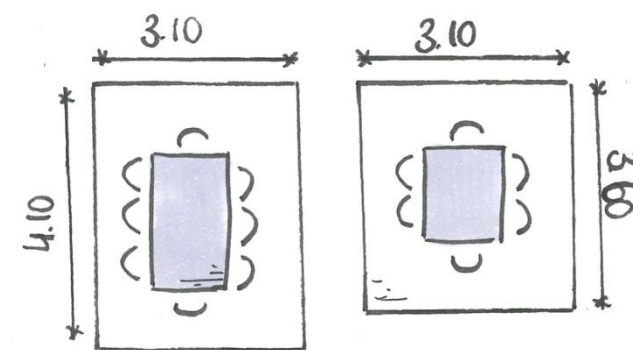
- Provide a flexible room; the room should allow to easily adapt it to facilitate, for example, information meetings and watching movies.
- The meeting room should have a blackboard and white screen to support meetings.
- The meeting room can contain a (flexible) platform, to be useful for performances.

### RELATION

P.36 Information Centre

P.39 Office

Assume about 1,50 m<sup>2</sup> per person for a meeting room.





## P.39 OFFICE





## Office

An office is required to do individual work, have meetings and receive visitors.

### CLARIFICATION

The duties of the education centre's director and staff will be to meet with parents inquiring about services, to discuss problems with parents, to meet with visitors, to organise with the staff the daily program and to keep records. This work will require a quiet office for individual work and small group meetings (Osmon, 1975).

### SOLUTION

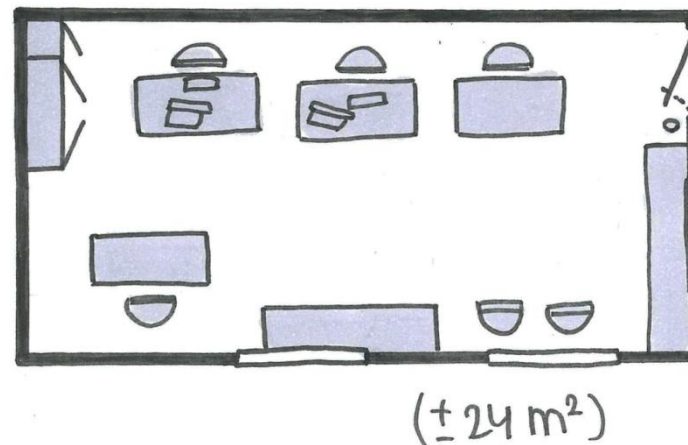
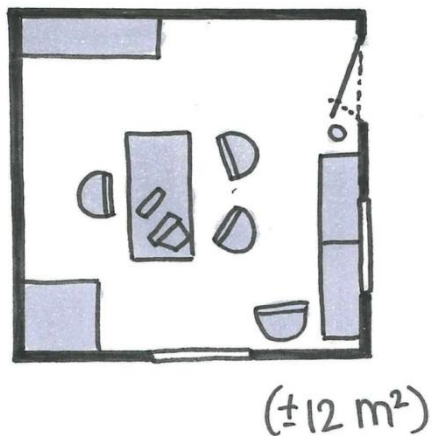
- Provide an office also useful to welcome individual and small groups of users and visitors.
- An office should contain a lockable closet to store private belongings and confidential archives.
- In case of a small education centre the director's office and reception can be combined.
- In case of a large education centre an office can contain several desks. The office area should provide one room to have private meetings in small groups.

## RELATION

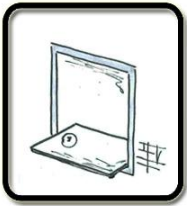
P.38 Meeting Room

P.40 Reception

P.50 Waiting Room







## P.40 RECEPTION



## P.40 Reception

The reception welcomes visitors of an education centre.

### CLARIFICATION

A reception should announce visitors that they entered an education centre. This entrance area should be a place of welcome. The reception should therefore help relieve people's fear to enter the education centre; it should be approachable. The reception is a place to ask questions about, for example, activities and timetables. Besides, the receptionist can control the flow of visitors (Osmon, 1975).

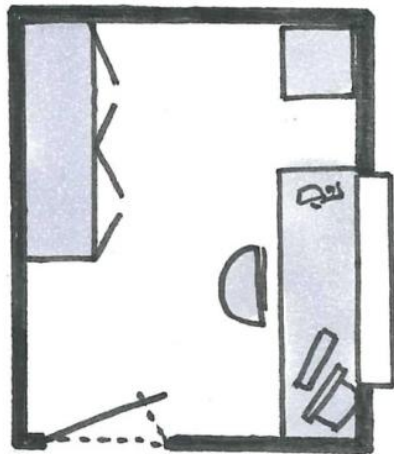
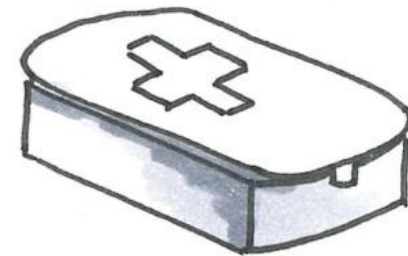
### SOLUTION

- Provide an interior opening to the entrance to allow people to approach the receptionist and to control visitors.
- The reception should contain a notice board with information about, for example, activities.
- The reception should contain a First Aid Box.
- The entrance area can be a place to exhibit children's art and other delights.
- Provide seats to enable people to wait.

### RELATION

P.02 Entrance   
P.39 Office  
P.51 Permanent Seats  
P.56 Zoning  
P.70 Interior Opening

Assume about 8,0 m<sup>2</sup> for a reception.





## P.41 CINEMA



## Cinema

Watching television and movies affects the social and cognitive development of people.

### CLARIFICATION

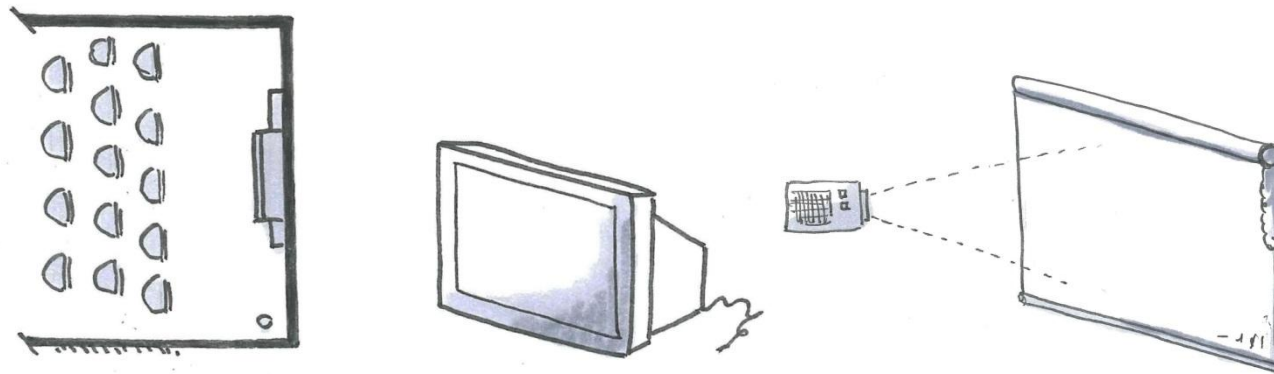
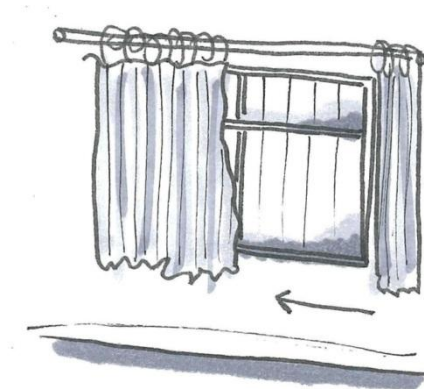
Watching informative movies supports people's general knowledge; educational, innovative programmes have beneficial effects. Television also has an indirect effect on people's behaviour and development because it affects people's notions and opinions (Altman, 1978). Watching television is important for people; it allows people to take part in conversations about new programs. Showing educational movies is important to increase people's general knowledge and facilitate personal development.

### SOLUTION

- Provide a white screen and beamer, or television to watch television.
- Provide a white screen and beamer, or television to watch educational movies.
- Cinema needs to be lockable, as it contains valuable equipment

## RELATION

Assume about 1,20 m<sup>2</sup> per person for a cinema.







## **P.42 GARDEN**



## Garden

Green areas facilitate relaxation, learning and play.

### CLARIFICATION

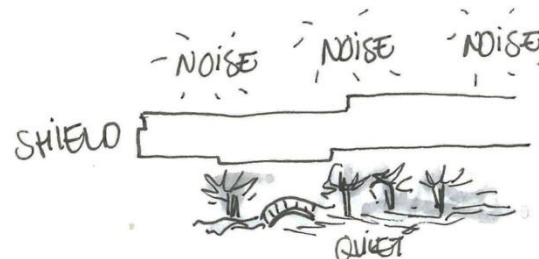
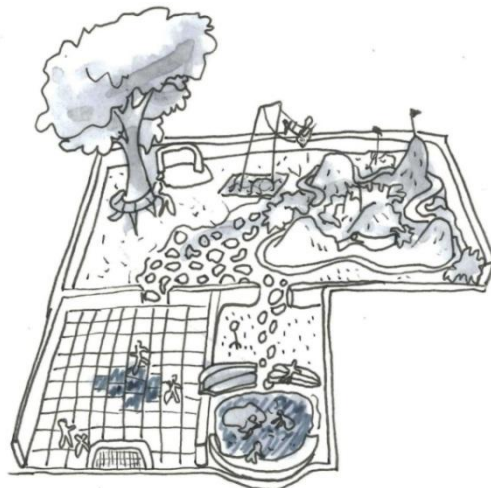
Green areas with trees, grass and bushes can easily be applied in education centres. People need these green spaces to go to; green areas reduce fatigue, enhance positive affect and are restorative. People are able to nourish themselves by walking, playing and sitting in green areas. (Alexander, 1977). Children prefer playing in outdoor settings, particularly those predominated by nature. Reason may be the wider array of motoric and social play opportunities and greater independent mobility provided by such spaces (Evans, 2006). Green areas support development by providing rest and a playing and learning environment.

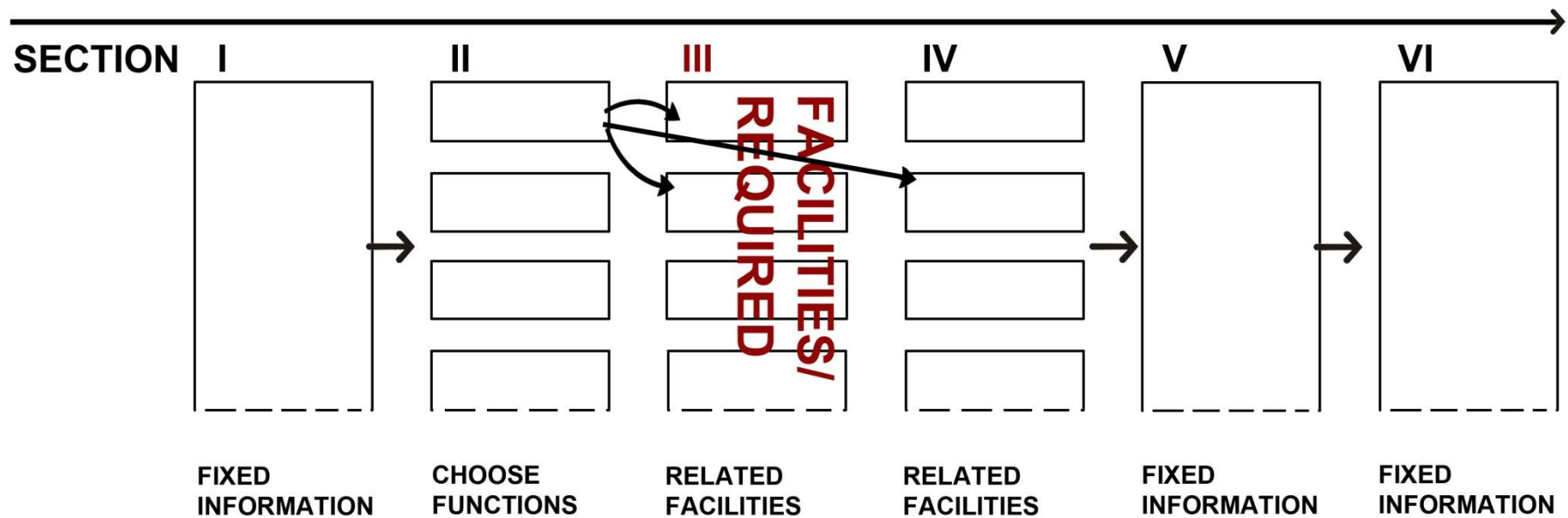
### SOLUTION

- Provide green areas.
  - Greenery like trees, bushes and flowers in planters.
  - Vegetated walls or fences.
  - Gardens where people can grow fruits, vegetables and herbs. These gardens allow people to gather knowledge about gardening.
  - Green quiet areas where people are able to pause and refresh themselves in a natural environment.
  - Meeting places in a green environment, facilitating a quiet and relaxing area to meet.
- Provide green areas to create shade.
- Provide natural elements like water and sand to play; these elements provide a wide range of possibilities for child play.

### RELATION

P.02 Entrance  
P.31 Playground  
P.37 Gossip Space  
P.51 Permanent Seats  
P.52 Privacy





## Form - Facilities

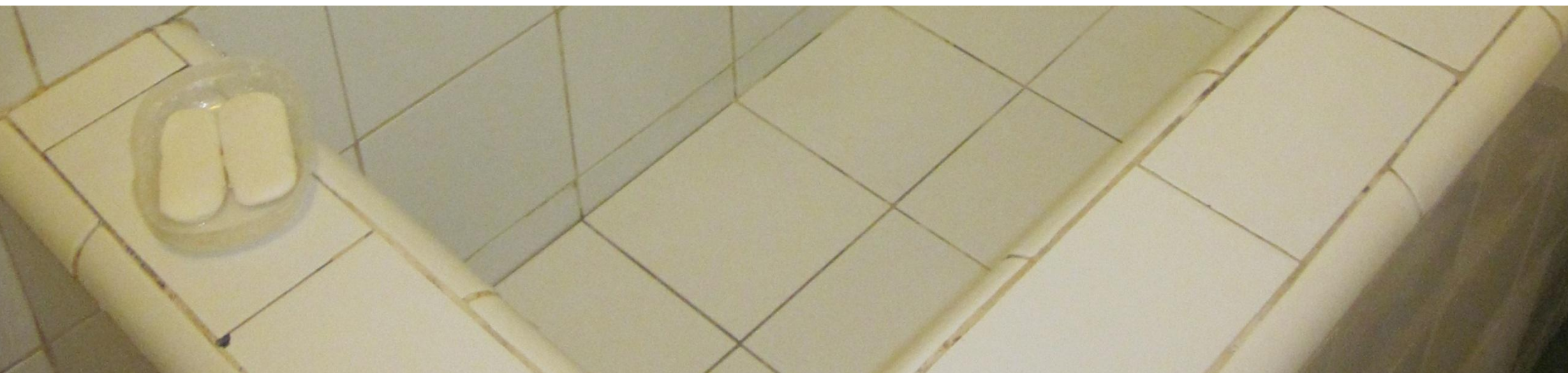
Use the form to structure the required facilities. An example is shown below;

| <b>FACILITY</b> | <b>People</b><br>(using facility at same time) | <b>Number</b><br>(required number of rooms) | <b>M<sup>2</sup>/per room</b> | <b>Adjacent Relation</b><br>(adjacent relation with which function) |
|-----------------|------------------------------------------------|---------------------------------------------|-------------------------------|---------------------------------------------------------------------|
| Changing Room   | 15 people                                      | 2 ( one boys and one girls)                 | 15,0 m <sup>2</sup>           | Dance Studio                                                        |
| Refrigerator    | 25 people                                      | 1                                           | -                             | -                                                                   |
| Sink            | 50 people                                      | 1                                           | -                             | Dining Room                                                         |
| Tap             | 50 people                                      | 2                                           | -                             | Dining Room                                                         |
| ...             | ...                                            | ...                                         | ...                           | ...                                                                 |





## **P.43 BATHROOM**



## Bathroom

A bathroom allows people to increase their health and hygiene.

### CLARIFICATION

Showering is an important part of the development of children, because children have to learn about hygiene. Therefore, a bathroom is required to shower children ages one to five. These children, participating in crèche, should be showered because they are too young to do this by themselves. To relieve parents' responsibilities day care activities should assume this activity; showering is essential to stay healthy.

### SOLUTION

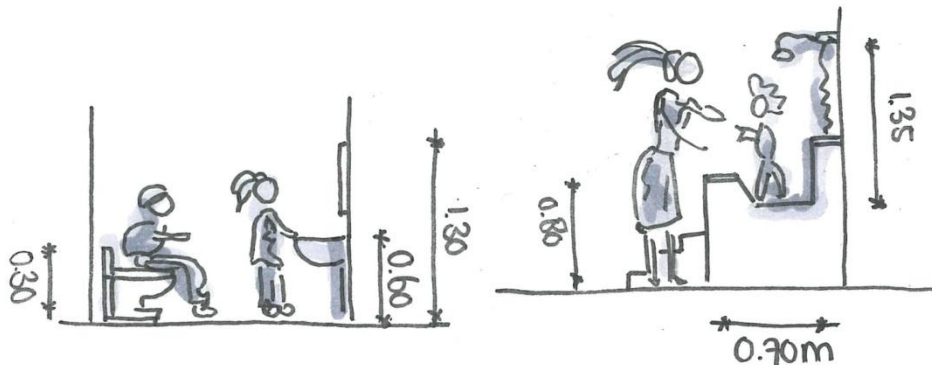
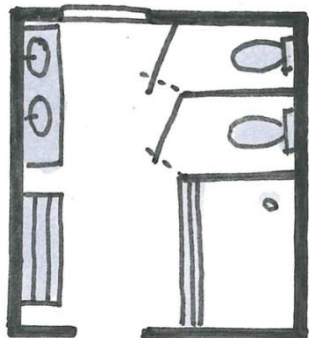
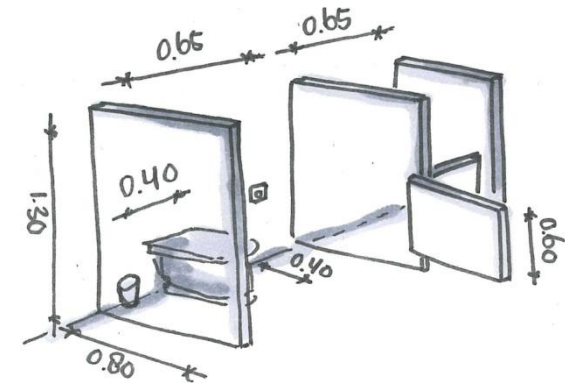
- Place the sink, toilet and shower at appropriate height.
- Apply toilet doors which do not reach the ceiling, to allow the staff to look into a toilet.
- Raise the bath or shower; this prevents that the staff does have to stoop while showering children.
- Make sure the hot water tap is out of reach of children.
- Tile the walls and floor to protect these areas against splashing water and to prevent mould.
- The bathroom should have a drain to drain off splashed water and to simplify cleaning up the floor.
- Provide sufficient ventilation.

### RELATION

P.10 Crèche



Assume about 8,00 m<sup>2</sup> for a bathroom, with two toilets, two sinks and a bath.





## **P.44 BEDROOM**



## Bedroom

Young children need a nap.

### CLARIFICATION

The provision of a separate sleeping area has the advantage of allowing the classroom to be cleaned and reprogrammed while the children are sleeping. And if only some children need a nap, the other children just can continue their activities. Besides, a separate bedroom allows for variation in the sleeping habits of the children. If there is not sufficient space to design a bedroom, stackable cots or plastic mats can be used in the classroom. This approach requires a large area of multi-use floor space (Osmon, 1975).

### SOLUTION

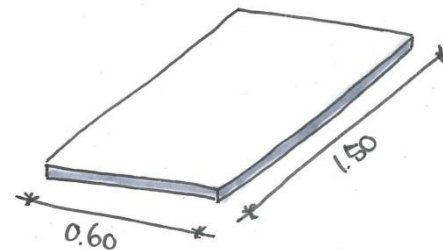
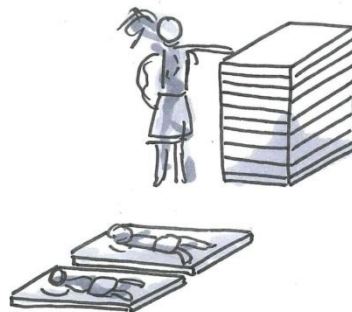
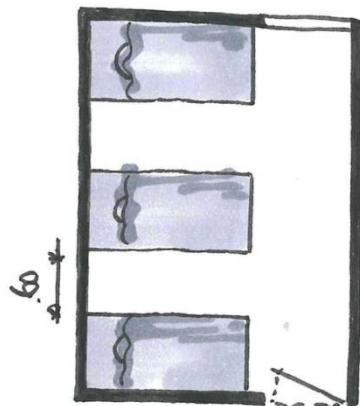
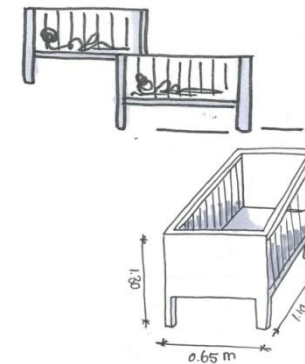
- Provide sufficient bedclothes, cots and/or mats.
- Use plastic mats and mattresses due to wetting the bed.
- Provide circulation space between the individual cots to provide assistance to the child as needed.
- Make sure the bedroom is placed in a quiet area of the building.
- Provide sufficient ventilation.

## RELATION

P.10 Crèche



Assume about 2,0 m<sup>2</sup> per child for a bedroom.







## **P.45 CHANGING ROOM**



## Changing Room

People need a place to change clothes and freshen up before and after activities.

### CLARIFICATION

A changing room is required to allow people to change clothes for sports. A changing room should also provide a shower, to allow people to freshen up. This is important because people may not have a shower at home, want to participate in another activity in the centre after sports or have a long journey home ahead. A changing room is required to facilitate changing clothes and taking a shower.

### SOLUTION

- Provide separate changing rooms for men and women.
- Apply a sink, toilet and shower in the changing room.
- Provide sufficient benches and lockable closets to store your belongings.
- Tile the walls and floor around the sanitary areas to protect these areas against splashing water and prevent mould.
- The changing room should have a drain to drain off splashed water and simplify cleaning up the floor.

### RELATION

P.06 Sanitary Facilities

P.25 Capoeira Room

P.26 Dance Studio

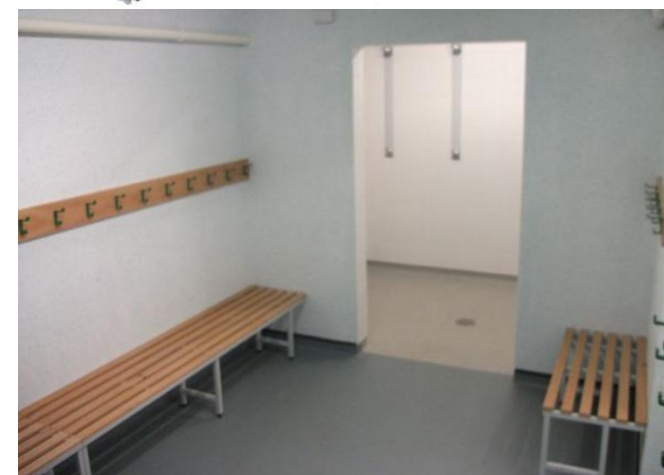
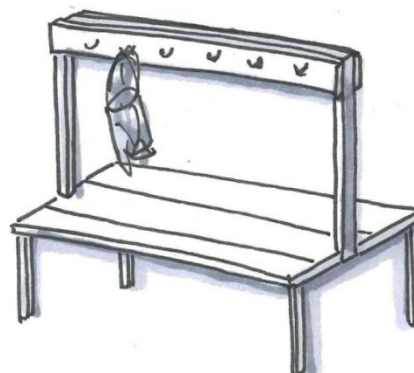
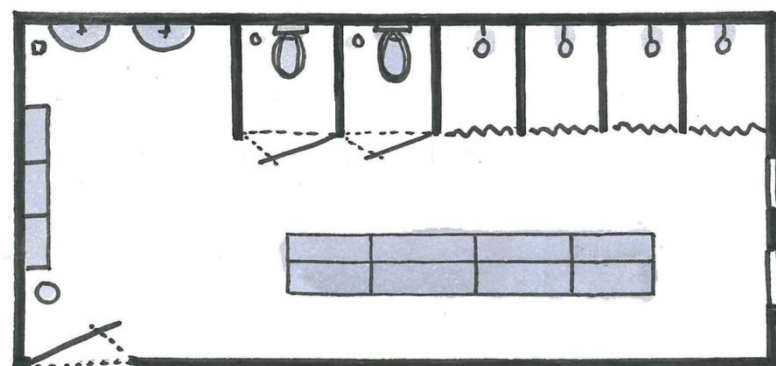
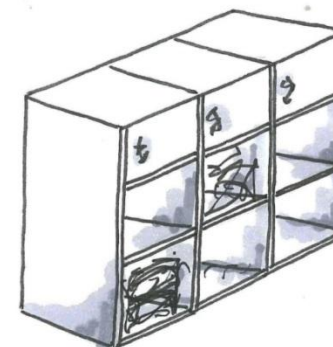
P.27 Martial Arts Room

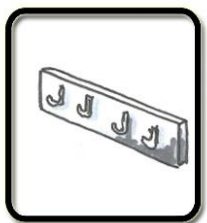
P.28 Relaxing Studio

P.29 Sports Field

P.30 Swimming Pool

Assume about 2,0 m<sup>2</sup> per person for a changing room.





## P.46 COAT HOOKS





## Coat Hooks

Coat hooks enable people to hang coats and bags.

### CLARIFICATION

It is not hygienic to place bags on the ground. Coat hooks provide a hygienic solution to place bags.

### SOLUTION

- Provide coat hooks to enable people to hang coats and bags.

### RELATION



P.10 Crèche

P.11 Classroom Pré-escola

P.12 Classroom Preparar

P.13 Classroom Supletivo

P.14 Classroom Adult Education

P.15 Classroom Course

P.16 Classroom Occupational Training

P.17 Classroom Reforço Escola

P.18 Library

P.19 Computer Room

P.20 Music Room

P.22 Percussion Room

P.23 Theatre

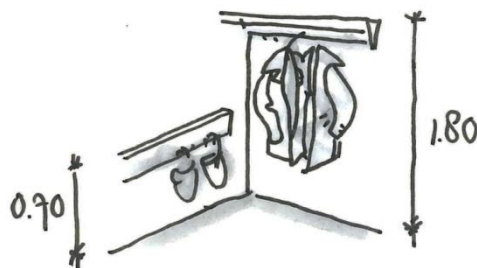
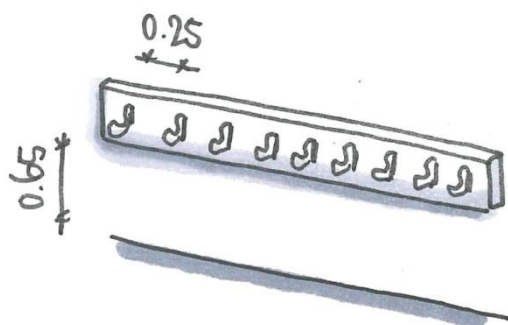
P.24 Visual Arts Room

P.25 Capoeira Room

P.26 Dance Studio

P.27 Martial Arts Room

P.28 Relaxing Sports Studio







## P.47 REFRIGERATOR



## Refrigerator

Drinking chilled drinks during the day is needed in Rio de Janeiro.

### CLARIFICATION

Education centres should offer users the possibility to chill their brought water and soft drinks during classes. Often outside temperature in Rio de Janeiro is high and people should drink sufficiently. When people participate in an activity all day, a centre should provide refrigerators to allow people to cool their drinks. Spots to place refrigerators should be designed, to prevent that they end up in a disturbing location like in the corridor; a refrigerator should be placed at strategic locations, accessible to everyone and without annoying passing people.

### SOLUTION

- Provide a spot to place the refrigerator.
- The refrigerator should be fast accessible to children, in the neighbourhood of their activity.
- Apply a socket nearby the refrigerator.
- If possible, place the refrigerator in the neighbourhood of a tap.

## RELATION

P.10 Crèche



P.11 Classroom Pré-escola

P.12 Classroom Preparar

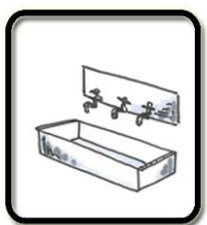
P.13 Classroom Supletivo

P.17 Classroom Reforço Escola

P.49 Tap

Assume about 0,55 x 0,55 metre for a refrigerator.





## P.48 SINK



## Sink

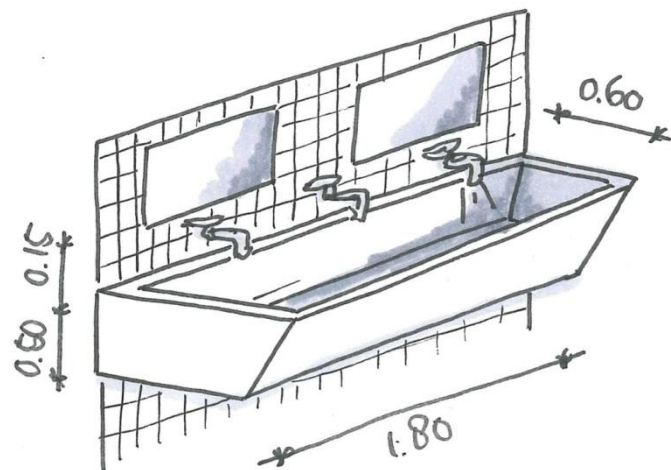
A sink increases hygiene because it allows people to wash their hands.

### CLARIFICATION

When children have a break or start dinner, they should wash their hands. Transmission of many contagious diseases can be prevented through hand washing. Hand washing is also important to inform children about hygiene and diseases. Providing sinks of appropriate dimension facilitates to create the routine of hand washing of many children. Large sinks will save time, because children can wash simultaneously. The sinks also allow people to brush their teeth together.

### SOLUTION

- Provide a sink large enough to allow several children to use it simultaneously.
- Provide an appropriate height to allow young children to use the sink.
- Provide places to store towels, paper and liquid soap.
- Tile the walls and floor around the sink to protect these areas against splashing water.
- Provide a drain in the neighbourhood of a sink to easily drain off splashed water.



### RELATION

P.32 Dining Room  
P.66 Mirror



Assume about 1,80 x 0,60 metre for a sink.







**P.49 TAP**



## Tap

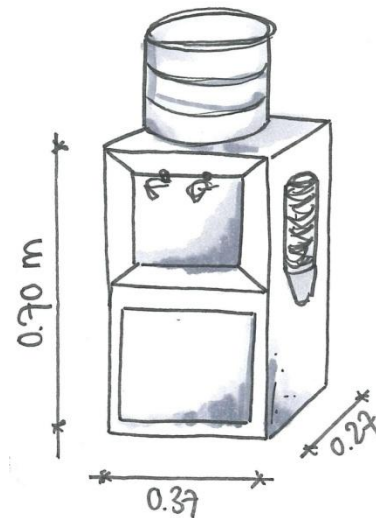
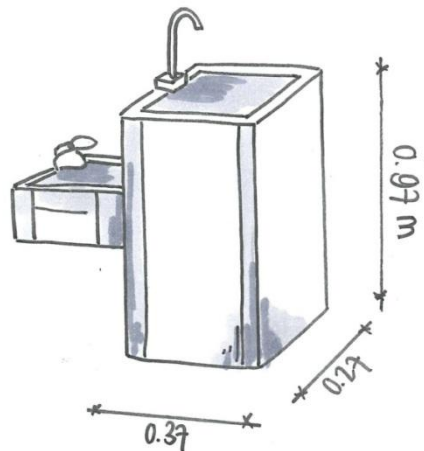
Children must drink from moveable water taps.

### CLARIFICATION

Children should only drink from filtered water taps. The government requires that public buildings have moveable water taps. These taps have to be connected to a water pipe (Buuren, 2011) and socket. Spots to place taps should be designed properly, to prevent that they end up in a disturbing location like in the corridor; a tap should be placed at strategic locations, be accessible to everyone and without annoying people passing by.

### SOLUTION

- Provide a spot to place the moveable tap. This spot should be in the neighbourhood of water and electricity.
- The tap should be fast accessible to children, in the neighbourhood of their activity.
- In case of young children, make sure the tap has two levels to allow everyone to drink water.
- If possible, place the refrigerator in the neighbourhood of a refrigerator.
- If required, provide storage place to store water casks.



### RELATION

P.47 Refrigerator

All educational, recreational and general activities children are participating in.

Assume about 0,30 x 0,40 metre for a tap.





## P.50 WAITING ROOM



## Waiting Room

A waiting room makes waiting more comfortable.

### CLARIFICATION

A waiting room is required to offer people a reassuring environment to wait before an appointment, to wait before an information meeting starts or to wait for their children participating in activities. This room should be comfortable; it should reassure and make people feel welcome.

### SOLUTION

- Provide a place with seats where people can wait.
- A waiting room should protect against rain, sun and wind.
- Place (permanent) seats in a waiting room.
- Make sure there is a toilet in the neighbourhood of a waiting room.
- If required, the waiting room should be enclosed to allow people to wait in a private area.
- If allowed, the waiting room can be combined with a gossip space.

### RELATION

P.06 Sanitary Facilities

P.35 Health Care Centre

P.36 Information Centre

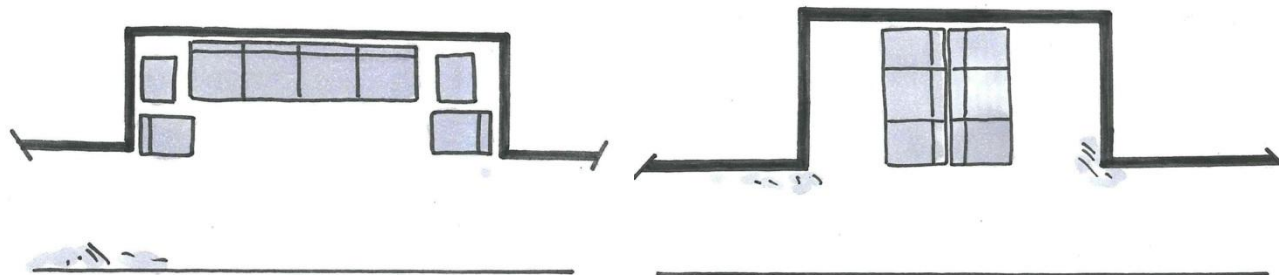
P.37 Gossip Space

P.39 Office

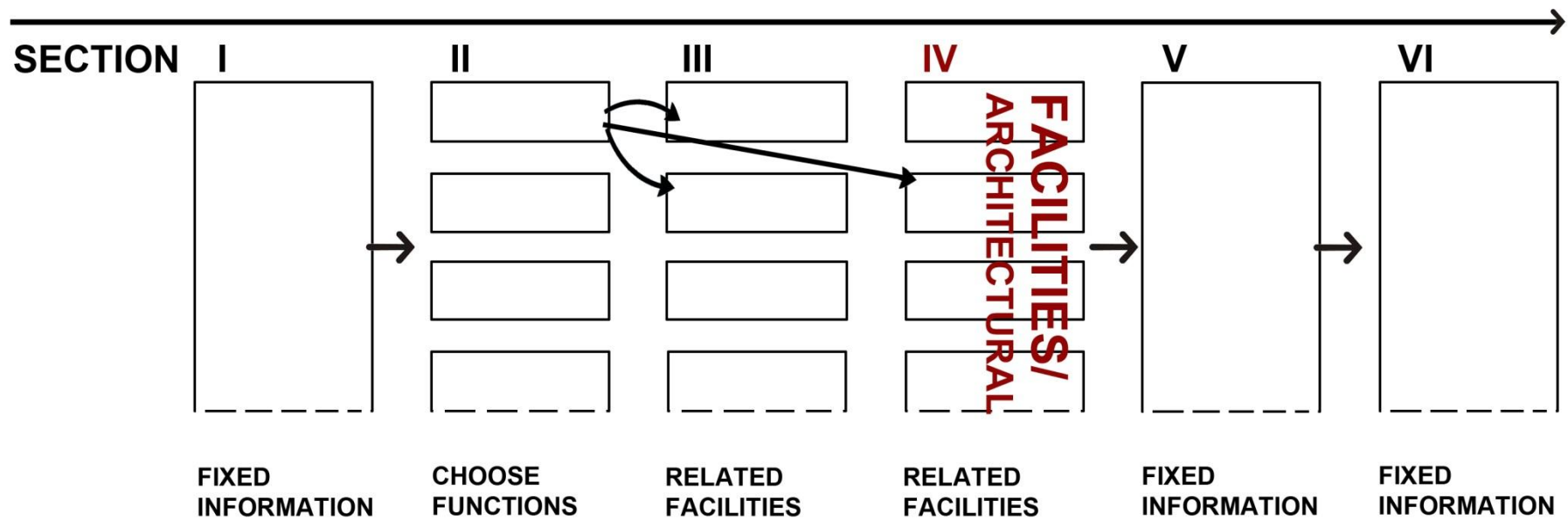
P.40 Reception

P.51 Permanent Seats

Assume about 6,0 m<sup>2</sup> for a waiting room with six chairs.









## **P.51 PERMANENT SEATS**



## Permanent Seats

Permanent seats encourage social meeting.

### CLARIFICATION

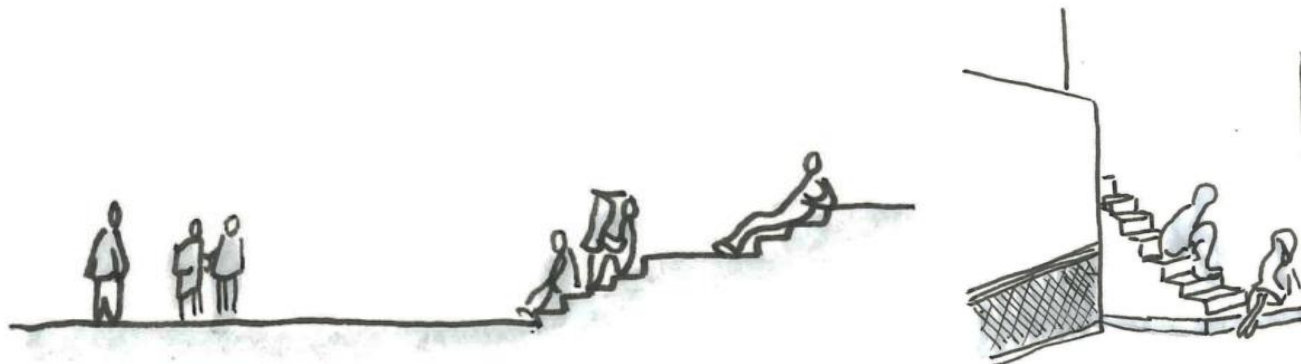
Permanent seats facilitate meetings between users of an education centre and increases interaction between various ages, genders and cultures. People prefer to sit when they are waiting or watching activities. Social meeting is very important for people, because it supports coping with bad experiences and increases community bonds. Permanent seats stimulate talks about daily life, gossips and future dreams. Besides, permanent seats are nice play equipment for children.

### SOLUTION

- Place outdoor seats in shade, open to breezes and preferably covered, due to rain.
- Place seats at the right spots; people require a view at, for example, activities, other people or nature.
- Provide permanent seats like;
  - Benches, chairs, etc.
  - Sitting walls; low walls making minor boundaries between outdoor areas, wide enough to sit on.
  - Stair seats; stairs with steps wide enough to sit on.
  - Window seats, behind covered windows.
  - Cubes etc.; usable as seats but which can also participate as playing equipment.

### RELATION

P.02 Entrance  
P.31 Playground  
P.37 Gossip Space  
P.42 Garden  
P.50 Waiting Room  
P.52 Privacy  
P.54 Veranda  
P.62 Traffic Area







## P.52 PRIVACY





## Privacy

People need privacy.

### CLARIFICATION

Next to giving a group of people the opportunity to be together as a group, a building must also give individuals the opportunity to be alone (Alexander, 1977). People need privacy to manage and digest information and to be alone. Being in the continuous presence of others (non-chosen) does not support positive social interaction, but can also encourage severe psychological withdrawal or aggressive behaviour. Opportunities for chosen aloneness give people the possibility to control access; this gives people a sense of autonomy (Altman, 1978). Many houses do not permit the appropriate degree of privacy. Education centres should therefore provide privacy areas. These should be quiet areas where people can be alone, hide and play. Children like to be in tiny places; their private areas should therefore be small corners and shelters, scaled to their size.

### SOLUTION

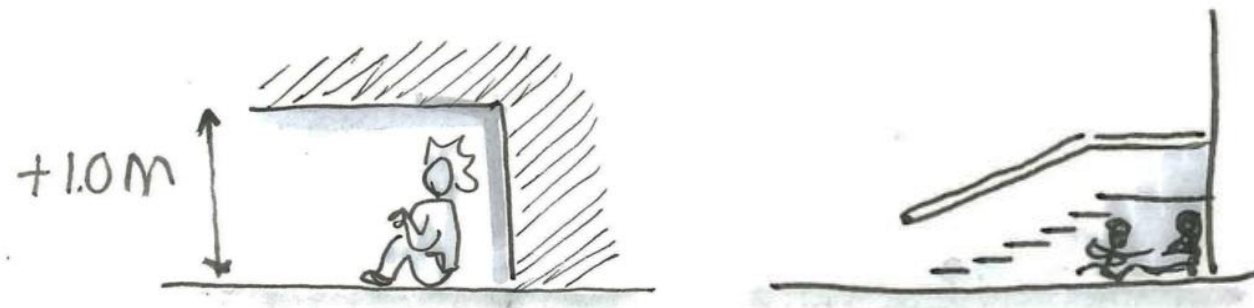
- Provide spaces which offer security to an individual person.
- Provide spaces where people can withdraw to a quiet corner to pursue their own activity. Consider that intimacy is not gained from a low ceilinged space; a low ceiling is obviously intimate to an adult but totally different to the child's perception.
- Provide child caves; small corners and shelters, scaled to children's size. These caves can be tucked away in natural left over spaces, such as under stairs. To achieve true private spaces, these child caves should exclude the adults completely.
- Provide private areas in green areas.
- Provide private areas in the traffic area.

## RELATION

P.42 Garden

P.51 Permanent Seats

P.62 Traffic Area





## P.53 STAGE



## Stage

A stage facilitates meeting, play and watching appearances.

### CLARIFICATION

Stages can be used to watch sports, theatre and dance. They provide a place where people can interact and join together; stages facilitate social meeting because they provide outdoor seats, where people can sit, talk and watch. The steps do not only offer a seat during organised activities, but also facilitate spontaneous activities (Hertzberger, 2008). Besides, stages are valuable playing areas due to their height differences. Stages are preferred places, due to their height, where people are able to overview the whole education centre and as they provide a remote space to retire and to gossip.

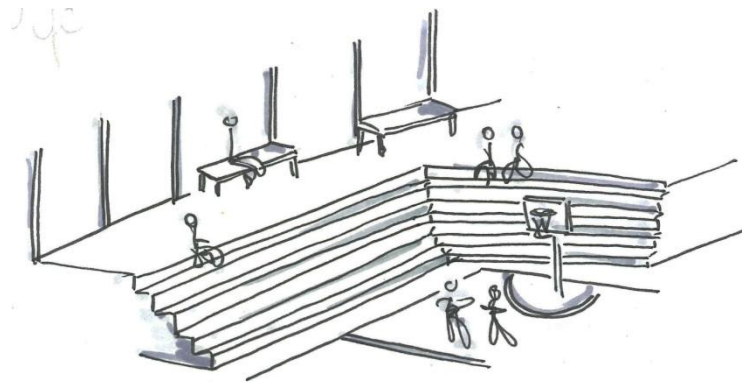
### SOLUTION

- Provide a stage in an education centre to facilitate watching performances and games; showing interest in other people is important.
- Provide a stage to facilitate meeting.
- Place a stage in a playground to enable playing at different levels.
- Make sure the stage has appropriate steps and railings to assure safety.

### RELATION

P.29 Sports Field  
P.31 Playground  
P.37 Gossip Space  
P.51 Permanent Seats

Assume steps with length 0,46 metre and height 0,34 metre. If a stage is required, the height should be at least 1,00 metre.







## P.54 VERANDA





## Veranda

Verandas facilitate meeting and make walking areas more comfortable.

### CLARIFICATION

Verandas are covered walkways at the edge of buildings which are partly inside, partly outside. Verandas create an ambiguous territory between the public outside area and the more private inside area. With openings in the building, like windows and half-open walls, verandas increase the interaction from the outside to the inside area. Verandas are accessible places to meet. Besides, they are pleasant areas to meet due to the ability to be outside, protected against varying weather conditions, in a shielded, more private, area.

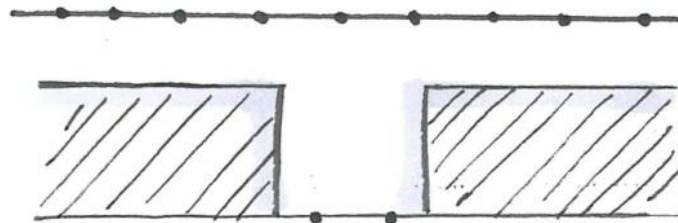
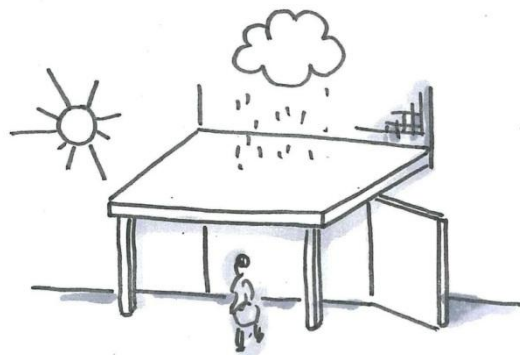
### SOLUTION

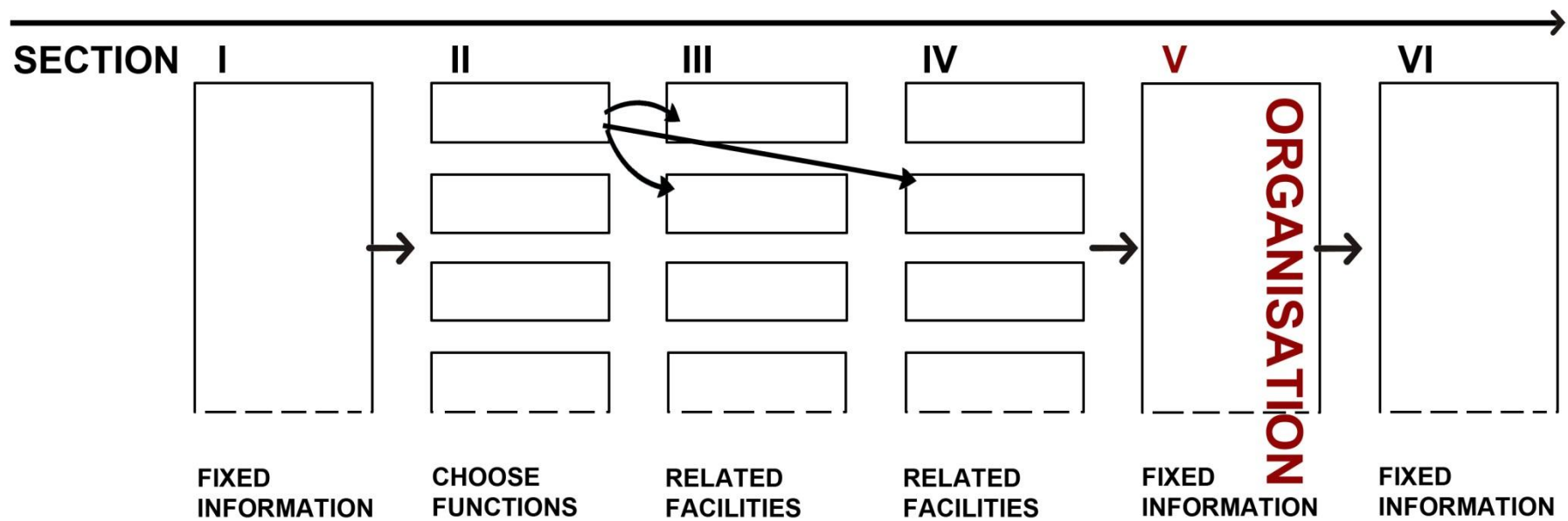
- Provide verandas to protect people against rain and sun.
- Provide verandas to protect the façade.
- Provide verandas to protect users against direct sunlight.
- Make sure the veranda has appropriate dimensions; a veranda should facilitate both meetings and movements.
- Provide seats and benches at a veranda to support meeting.
- Provide suitable floor covering; the soil cannot remain sand because this becomes mud in case of rain.
- Make sure a veranda at first and further floors has suitable railings and blinds against burglary and falling down.
- Provide verandas at first and further floors to support natural ventilation.

### RELATION

P.02 Entrance  
P.62 Traffic Area  
P.42 Garden  
P.37 Gossip Space  
P.50 Waiting Room  
P.51 Permanent Seats

Assume a width of 1,20 metre for a veranda. To facilitate meeting, assume at least 1,80 metre.







## **P.55 ORIENTATION**



## Orientation

The building must be adjusted to the local climate.

## CLARIFICATION

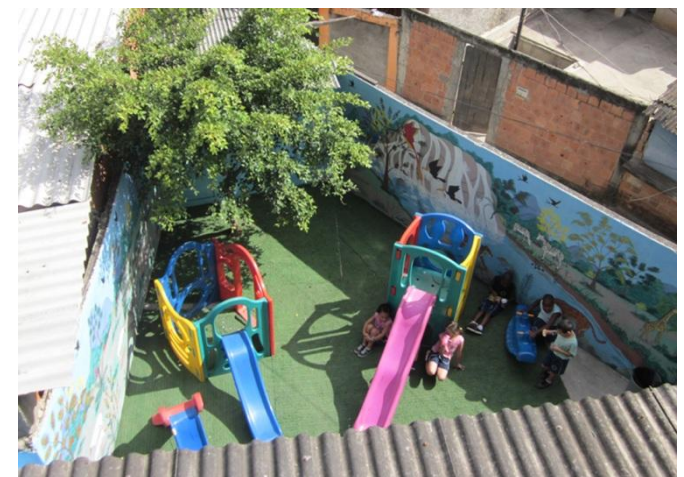
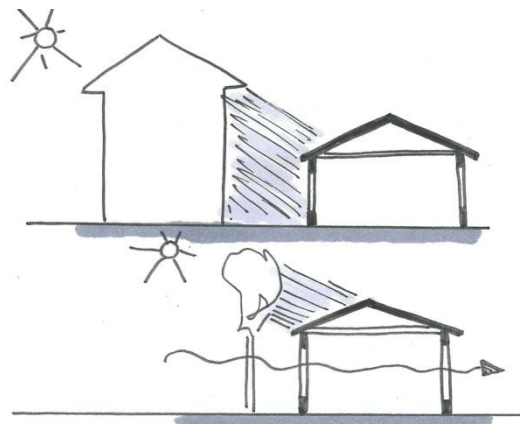
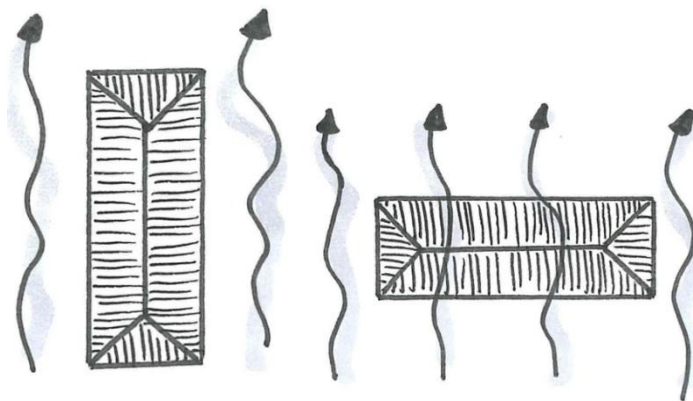
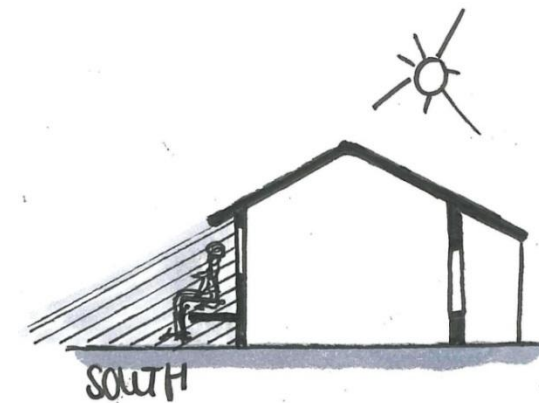
Rio de Janeiro is located at the border of a tropical savannah climate and a tropical monsoon climate. The city is often bothered by heavy rain from December to March. Temperatures above 40 °C are common during the summer, though rarely for long periods. Maximum temperatures above 27 °C occur on a monthly basis. Along the coast, the breeze moderates the temperature and causes frequent weather changes. Buildings protect people from wind and water. Due to suddenly changing weather, buildings should be easily adaptable; it should, for example, be possible to easily close openings and to protect people and the interior against sudden rainfalls. Rio de Janeiro is afflicted by strong showers provoking catastrophic floods and landslides, mostly occurring in summer. Due to erosion, the comunidades established in the hills, are really vulnerable to floods. In the comunidades established in the flat, suburban areas of Rio de Janeiro floods rarely occur (Wikipedia, 2012a).

## SOLUTION

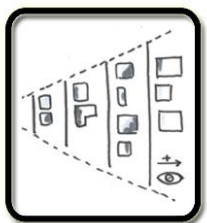
- The orientation of a building in Rio de Janeiro should be to the south; daylight will be able to enter the building, while the sun can be kept outside.
- Create sufficient shade in the outside area to protect people against sun. These covered areas also protect people against rain.
- Make sure water can be drained off the building and the outside area.
- The façade should be protected against heavy rainfalls and blazing sun.
- The building should use the wind to naturally ventilate the building.
- The building should protect people against rain.

## RELATION

P.02 Entrance  
P.54 Veranda  
P.70 Interior Opening  
P.72 Ventilation  
P.69 Window







## P.56 ZONING



## Zoning

An education centre must be organised according to vulnerability.

## RELATION

P.02 Entrance

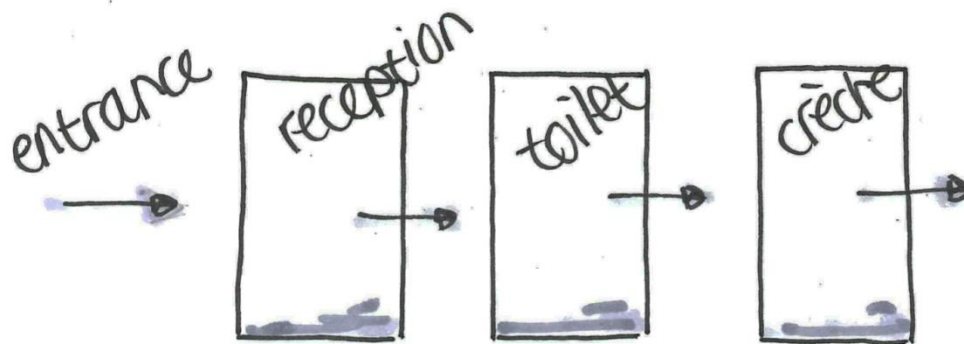
P.40 Reception

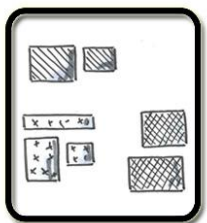
## CLARIFICATION

Spaces in a building should be arranged in a sequence which corresponds to their degrees of privacy and vulnerability. Most vulnerable activities should be arranged in a safe environment, protected against dangerous activities occurring outside. Besides, people need a gradient of settings, which have different degrees of intimacy and vulnerability. In a building without a clearly defined gradient of intimacy homogeneity of space takes place. This homogeneity, where every room has a similar degree of intimacy, rubs out all possible subtlety of social interaction in the building (Alexander, 1977). Zoning in education centres is required to show people, as soon as they entered the building, which places they are allowed to visit.

## SOLUTION

- The concept of zoning should be applied in education centres, because a building with zoning from public to private gives the possibility to regulate the extent of interaction. The real organisation of spaces depends on the needs of a comunidade. Because the interpretation of zoning is personal - the required extent of intimacy differs per comunidade - the real organisation of spaces should be determined by the comunidades themselves. The pattern language cannot give a specific advice about zoning of activities.
- Examples of zoning can be organisation according to privacy and age. Other examples are regularity of activities; people only visiting the building once, do not want to search for their destination and regularity according to similarity of activities.
- The reception should be placed in the entrance area.





## P.57 CLUSTERING



## Clustering

Clustering increases the usefulness of a building.

### CLARIFICATION

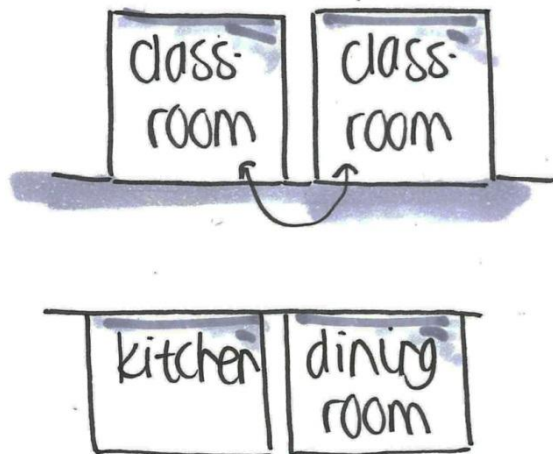
Clustering of activities fosters comfort and is required to share similar facilities. If two parts of one activity are too far apart, people will not move between them as often as they need to. An education centre will function efficiently as people do not consider the trips they have to take as a nuisance (Alexander, 1977). In addition, by clustering supporting facilities can be shared. Clustering is also advantageous for the visitors of an education centre. When activities are clustered a building is more legible and therefore more user friendly (Conners, 1983).

### SOLUTION

- Functions with many mutual movements should be closest together.
- Activities can be clustered in various ways. Examples are clustering according to age, clustering according to activity to share common facilities and exchange knowledge or clustering due to water pipes, drains and sewers (both horizontal and vertical).

## RELATION

-







## **P.58 MIXING USERS**



## Mixing Users

Interaction between different ages has a psychological, learning and social contribution.

### CLARIFICATION

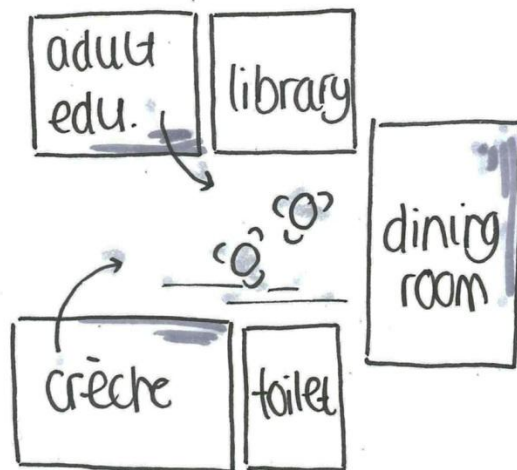
Collaboration between adults and children is essential to people's development. Facilitating interaction between children and adults offers the possibility to learn from each other and share gained knowledge. Besides, people can stimulate each other and stories, fears and dreams can be shared. People need support and confirmation from people who have reached a different stage in the life cycle, at the same time that they also need support from people who are at the same stage as they are themselves (Alexander, 1977). With adults participating in lifelong learning, young people will gain understanding that learning in any field is a never-ending process (Fiske, 1999). On the other hand adults can enjoy and learn from children's enthusiasm and openness; adults do not only influence the behaviour of children, children also influence the behaviour of adults (Feldman, 2005). In addition, involvement of all residents will strengthen the community.

### SOLUTION

- Provide activities for various ages in one building.
- Offer meeting possibilities in the traffic area.
- Combine various ages in one activity.

## RELATION

P.62 Traffic Area





## P.59 NOISE





## Noise

Noise – unwanted sound – at low level is disturbing and annoying.

### CLARIFICATION

Background noise and sound intrusions can cause problems in education centres. Some activities can be noisy and will cause problems if they are located next to other activities or too close to those areas requiring more quiet conditions. The objective of preventing noise pollution is to provide acoustic conditions in education centres that facilitate clear communication between people, do not interfere with activities and do not disturb other activities and people (DfES, 1993).

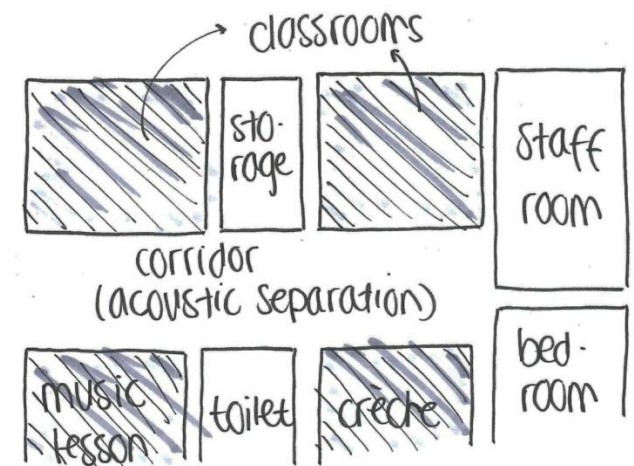
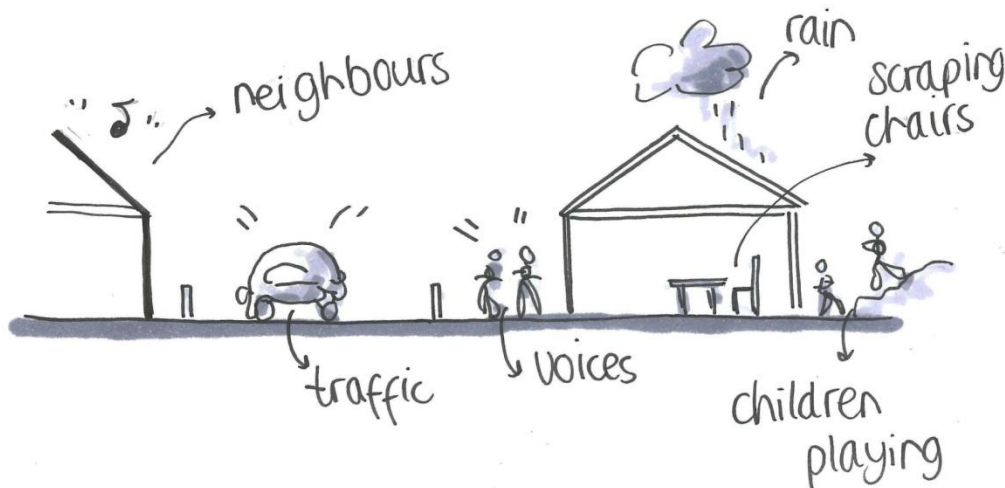
### SOLUTION

- Consider the amount of noise, which activities produce and are able to receive when organising rooms.
- Organise rooms according to the information given in table III (Chapter 5).
- When designing education centres, three suitable solutions are known to prevent noise pollution:
  - Increase distances; sound sensitive activities should be positioned far away from the sound source. Activities producing a lot of sound, should be placed well thought through, for example, at a dead-end corridor.
  - Place buffer zones; placing buffer zones like a storage, to decrease the noise level (table P.59.1).
  - Check times; several activities appear to conflict with each other, but in practice the time these activities occur can be very different, through which there will not arise any problems (DfES, 1993) (table P.59.2).
  - Apply sound absorbing materials.
  - Avoid air passages between rooms.

### RELATION

P.56 Zoning

P.57 Clustering





| Activity                                | Activity Room<br>(Source Room) | Noise Tolerance<br>(Receiving Room) | Buffer<br>Zone |
|-----------------------------------------|--------------------------------|-------------------------------------|----------------|
| P.02 Entrance                           | Medium                         | Medium                              | +              |
| P.04 Cleaning Space                     | Medium                         | High                                | +              |
| P.05 Parking                            | Medium                         | High                                | +              |
| P.06 Sanitary Facilities                | Medium                         | High                                | +              |
| P.07 Staff Room                         | Medium                         | Medium                              | +              |
| P.08 Storage                            | Low                            | High                                | ++             |
| P.10 Crèche                             | High                           | Low                                 | --             |
| P.11 Classroom Pré-escola               | High                           | Low                                 | --             |
| P.12 Classroom Preparar                 | Medium                         | Low                                 | -              |
| P.13 Classroom Supletivo                | Medium                         | Low                                 | -              |
| P.14 Classroom Adult<br>Education       | Medium                         | Low                                 | -              |
| P.15 Classroom Course                   | Medium                         | Low                                 | -              |
| P.16 Classroom<br>Occupational Training | Medium                         | Low                                 | -              |
| P.17 Classroom Reforço<br>Escola        | Medium                         | Low                                 | -              |
| P.18 Library                            | Medium                         | Low                                 | 0              |
| P.19 Computer Room                      | Medium                         | Low                                 | 0              |
| P.20 Music Room                         | High                           | Low                                 | --             |
| P.21 Music Studio                       | High                           | Low                                 | --             |
| P.22 Percussion Room                    | High                           | Low                                 | --             |
| P.23 Theatre                            | High                           | Low                                 | --             |
| P.24 Visual Arts Room                   | Medium                         | Medium                              | +              |
| P.25 Capoeira Room                      | High                           | Medium                              | +              |
| P.26 Dance Studio                       | High                           | Medium                              | 0              |

| Activity                       | Activity Room<br>(Source Room) | Noise Tolerance<br>(Receiving Room) | Buffer<br>Zone |
|--------------------------------|--------------------------------|-------------------------------------|----------------|
| P.27 Martial Arts Room         | Medium                         | Medium                              | +              |
| P.28 Relaxing Sports<br>Studio | Medium                         | Low                                 | 0              |
| P.29 Sports Field              | High                           | High                                | +              |
| P.30 Swimming Pool             | High                           | High                                | +              |
| P.31 Playground                | High                           | High                                | +              |
| P.32 Dining                    | High                           | High                                | +              |
| P.33 Kitchen                   | High                           | High                                | +              |
| P.34 Laundry                   | Medium                         | High                                | +              |
| P.35 Health Care Centre        | Low                            | Low                                 | -              |
| P.36 Information Centre        | Low                            | Low                                 | -              |
| P.37 Gossip Space              | Medium                         | Medium                              | +              |
| P.38 Meeting Room              | Medium                         | Low                                 | -              |
| P.39 Office                    | Medium                         | Medium                              | +              |
| P.40 Reception                 | Medium                         | Medium                              | +              |
| P.41 Cinema                    | Medium                         | Low                                 | -              |
| P.42 Garden                    | Low                            | High                                | ++             |
| P.43 Bathroom                  | High                           | High                                | +              |
| P.44 Bedroom                   | Low                            | Low                                 | -              |
| P.45 Changing Room             | High                           | High                                | +              |
| P.47 Refrigerator              | Medium                         | High                                | +              |
| P.48 Sink                      | High                           | High                                | +              |
| P.49 Tap                       | High                           | High                                | +              |
| P.50 Waiting Room              | Medium                         | Medium                              | +              |
| P.62 Traffic Area              | High                           | High                                | +              |

Table P.59.1: Characteristics regarding noise of activities in education centres

| Activity                             | Morning<br>(08:00-<br>12:00) | Lunch<br>(12:00-<br>14:00) | Afternoon<br>(14:00-<br>17:00) | Evening<br>(17:00-<br>22:00) |
|--------------------------------------|------------------------------|----------------------------|--------------------------------|------------------------------|
| P.02 Entrance                        |                              |                            |                                |                              |
| P.04 Cleaning Space                  |                              |                            |                                |                              |
| P.05 Parking                         |                              |                            |                                |                              |
| P.06 Sanitary Facilities             |                              |                            |                                |                              |
| P.07 Staff Room                      |                              |                            |                                |                              |
| P.08 Storage                         |                              |                            |                                |                              |
| P.10 Crèche                          |                              |                            |                                |                              |
| P.11 Classroom Pré-escola            |                              |                            |                                |                              |
| P.12 Classroom Preparar              |                              |                            |                                |                              |
| P.13 Classroom Supletivo             |                              |                            |                                |                              |
| P.14 Classroom Adult Education       |                              |                            |                                |                              |
| P.15 Classroom Course                |                              |                            |                                |                              |
| P.16 Classroom Occupational Training |                              |                            |                                |                              |
| P.17 Classroom Reforço Escola        |                              |                            |                                |                              |
| P.18 Library                         |                              |                            |                                |                              |
| P.19 Computer Room                   |                              |                            |                                |                              |
| P.20 Music Room                      |                              |                            |                                |                              |
| P.21 Music Studio                    |                              |                            |                                |                              |
| P.22 Percussion Room                 |                              |                            |                                |                              |
| P.23 Theatre                         |                              |                            |                                |                              |
| P.24 Visual Arts Room                |                              |                            |                                |                              |
| P.25 Capoeira Room                   |                              |                            |                                |                              |
| P.26 Dance Studio                    |                              |                            |                                |                              |

| Activity                    | Morning<br>(08:00-<br>12:00) | Lunch<br>(12:00-<br>14:00) | Afternoon<br>(14:00-<br>17:00) | Evening<br>(17:00-<br>22:00) |
|-----------------------------|------------------------------|----------------------------|--------------------------------|------------------------------|
| P.27 Martial Arts Room      |                              |                            |                                |                              |
| P.28 Relaxing Sports Studio |                              |                            |                                |                              |
| P.29 Sports Field           |                              |                            |                                |                              |
| P.30 Swimming Pool          |                              |                            |                                |                              |
| P.31 Playground             |                              |                            |                                |                              |
| P.32 Dining                 |                              |                            |                                |                              |
| P.33 Kitchen                |                              |                            |                                |                              |
| P.34 Laundry                |                              |                            |                                |                              |
| P.35 Health Care Centre     |                              |                            |                                |                              |
| P.36 Information Centre     |                              |                            |                                |                              |
| P.37 Gossip Space           |                              |                            |                                |                              |
| P.38 Meeting Room           |                              |                            |                                |                              |
| P.39 Office                 |                              |                            |                                |                              |
| P.40 Reception              |                              |                            |                                |                              |
| P.41 Cinema                 |                              |                            |                                |                              |
| P.42 Garden                 |                              |                            |                                |                              |
| P.43 Bathroom               |                              |                            |                                |                              |
| P.44 Bedroom                |                              |                            |                                |                              |
| P.45 Changing Room          |                              |                            |                                |                              |
| P.47 Refrigerator           |                              |                            |                                |                              |
| P.48 Sink                   |                              |                            |                                |                              |
| P.49 Tap                    |                              |                            |                                |                              |
| P.50 Waiting Room           |                              |                            |                                |                              |
| P.62 Traffic Area           |                              |                            |                                |                              |

Table P.59.2: Time schedule activities



## P.60 IDENTITY



## Identity

An education centre must have an own identity.

### CLARIFICATION

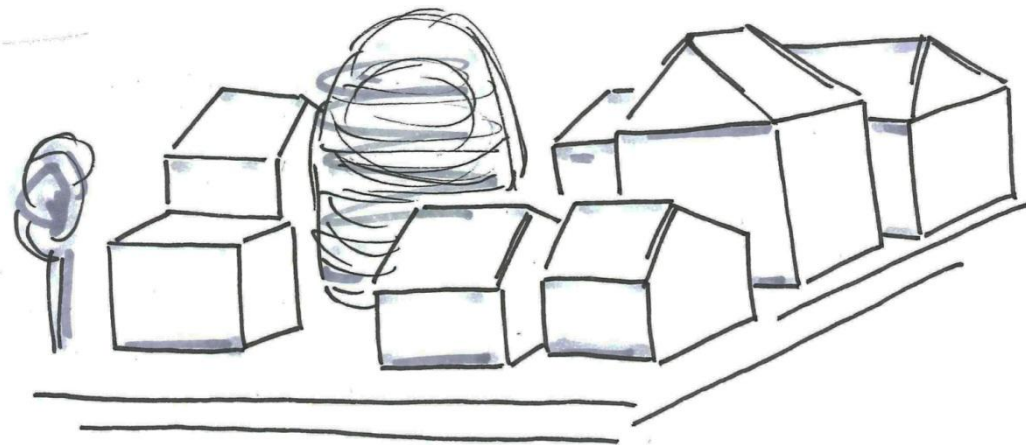
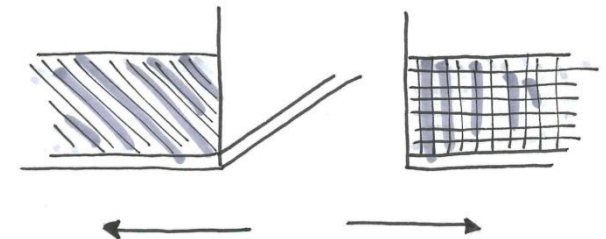
Identity distinguishes a building from others, but is constant in itself. This identity should be considered in two scales; an education centre should be a landmark in the comunidade and a centre should have strong characteristics in the building itself. The basic purpose of identity is to permit way-finding in the environment and building, without getting lost and to serve as organisers for people's experience (Altman, 1978). Identity offers an environment which is understandable for both children and adults. Besides, identifiable elements are easy to remember, which offer children the possibility to reconstruct the route they have to take. Besides, people need an identifiable unit to belong to (Alexander, 1977).

### SOLUTION

- The building should have identity, but must also be functional.
- Education centres should be a landmark in a comunidade because they fulfil a special role; they should be safe places, approachable to everyone. They should therefore be (Buuren, 2011);
  - always visible.
  - visible to everyone.
  - traceable and retraceable to everyone
- Provide identifiable elements in a smaller scale to organise and to indicate routing in an education centre.

## RELATION

P.65 Differentiation







## **P.61 TERRACES**



## Terraces

## RELATION

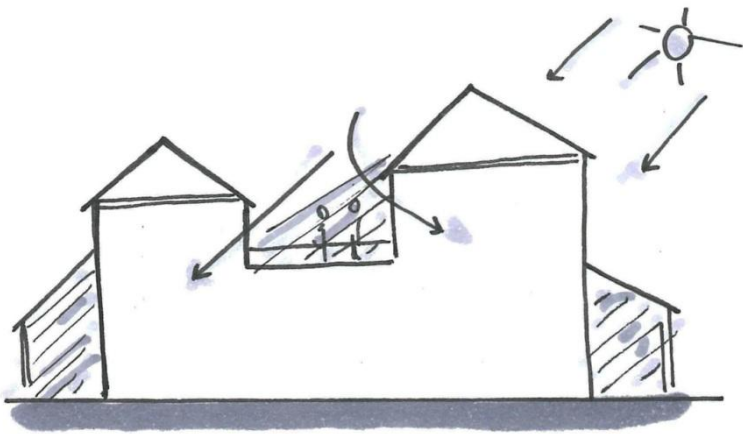
Never build large monolithic buildings.

### CLARIFICATION

A building cannot be a human building unless it is a complex of smaller buildings or smaller parts which manifest its own internal social facts. Education centres have different activities and user groups within it and should therefore act as a complex of these smaller activities. The building program should be translated into a building complex (Alexander, 1977). Stepped buildings are less pontifical and easier to approach.

### SOLUTION

- Provide stepped roofs.
- The building should slope towards the south to avoid large surfaces aimed at the sun.
- Design outside areas at the flat roofs.
- Use the stepped roofs to admit more daylight and encourage natural ventilation.





## **P.62 TRAFFIC AREA**



## Traffic Area

The traffic area itself is a space.

### CLARIFICATION

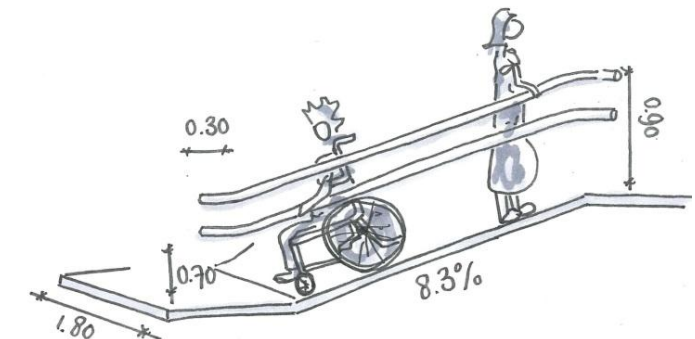
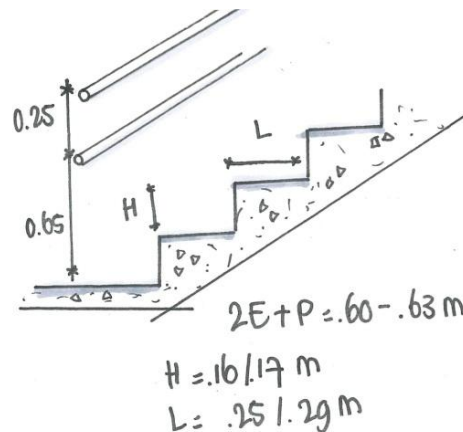
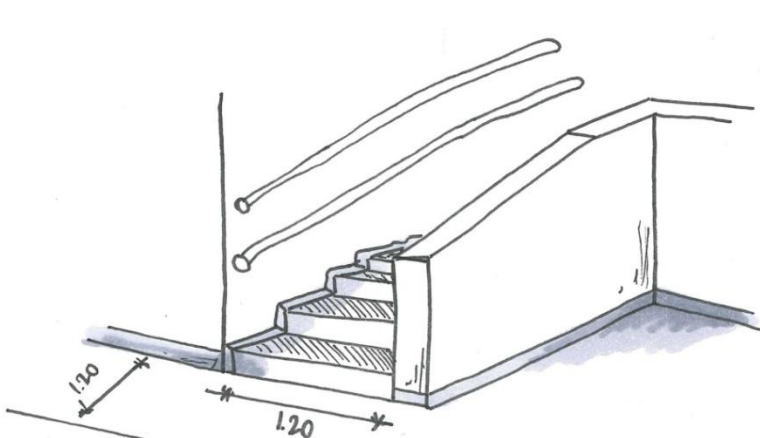
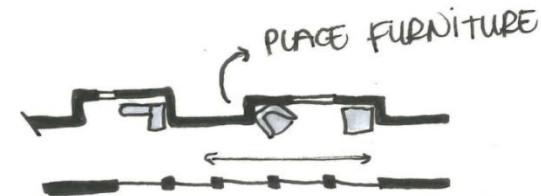
The traffic area gives access to other areas and is an area to meet friends, to learn and play. The traffic area is a place for public life, a place where one can go to see people and where one enjoys spending time. A staircase, for example, is not just a way of getting from one floor to another. The stairs itself are a space and should naturally facilitate people to use the stairs for seats. The traffic area should have two social functions; it should make people feel comfortable outside the closed rooms and act as a meeting and learning place (Hertzberger, 2008).

### SOLUTION

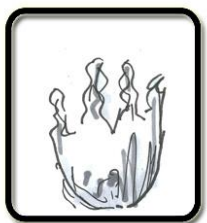
- Combine the traffic area with learning and meeting areas.
- Central halls in a traffic area can facilitate parents' evenings, performances, etcetera.
- Enable simple access ways to simplify people's orientation.
- Provide appropriate stairs in an education centre, considering the number of users.
  - Stairs should have a minimum width of 1,20 metre. Steps should have about a minimum length of 0,25 metre and maximum height of 0,19 metre.
  - Provide a landing in stairs after 15 steps maximum.
- If required, provide an access ramp.
  - The minimum width of an access ramp is 1,80 metre. The maximum slope is 8,3 °.
- Provide an appropriate corridor in an education centre, considering the number of users.
  - A corridor should have a minimum width of 1.20 metre, and should be well illuminated and ventilated.
- Provide railings, appropriate for children and adults, along stairs and access ramps.
  - Railings should have a height of 0,65 metre for children and 0,90metre for adults.
  - Bars in a railing should have a maximum width of 0,20 metre.
- Apply antiskid strips to prevent slipping.

### RELATION

P.51 Permanent Seats  
P.52 Privacy  
P.54 Veranda  
P.73 Wheelchair







## P.63 FIRE



## Fire

People must be able to escape in case of fire.

### CLARIFICATION

Fire escapes are a necessity in education centres. Fire escapes and, for example, minimum dimensions to doors and stairs are required to safely leave a building. Education centres should apply these requirements; they increase people's safety.

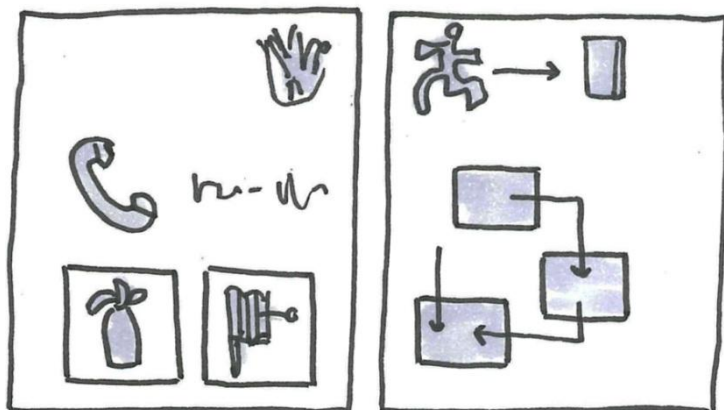
### SOLUTION

- Provide sufficient stairs and doors to leave a centre; people must always have at least two different ways out.
- Apply removable bars in front of some windows, to allow escaping through a window. This release may not require the use of tools or keys. If these windows are fire escapes used by children under five years of age they should be less than 0,30 metre high to allow accessibility.
- Provide fire alarms in a centre, spread through the building.
- Provide at least one fire extinguisher per corridor.
- Provide information boards, explaining the fire escapes, in every corridor.

### RELATION

P.02 Entrance  
P.60 Traffic Area  
P.68 Door  
P.69 Window  
P.71 Bars

Inside a room, the distance to the door should have a maximum of 20,0 metre.





## P.64 HEIGHT VARIETY



## Height Variety

Ceiling variety makes people feel comfortable.

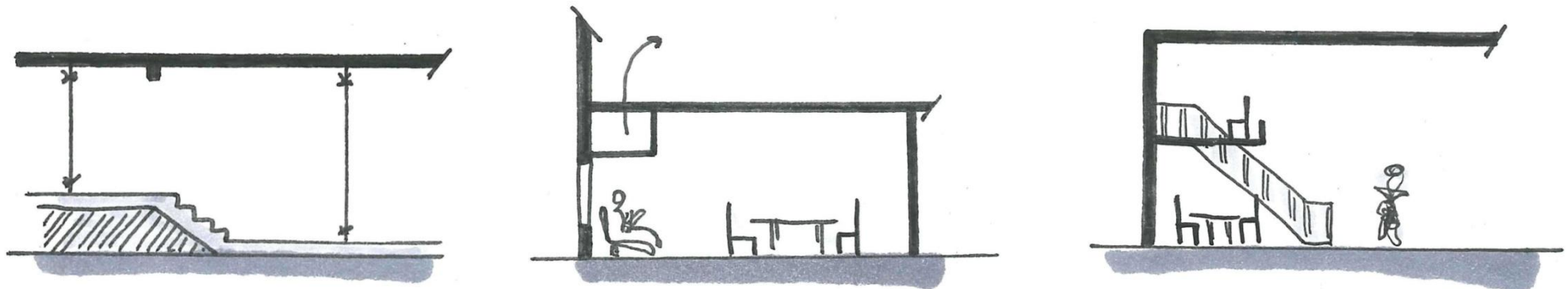
### CLARIFICATION

Warmth and intimacy of education centres are partly created by the lowness of the ceilings (Osmon, 1975). Because height variety is correlated with intimacy and it has psychological impact. Height has an effect on social relationships. The building should contain rooms with varying ceiling heights; allow people to move from high rooms to low rooms and vice versa, according to the degree of intimacy people seek. It is just the variation itself, which matters, not merely the absolute height in any given room.

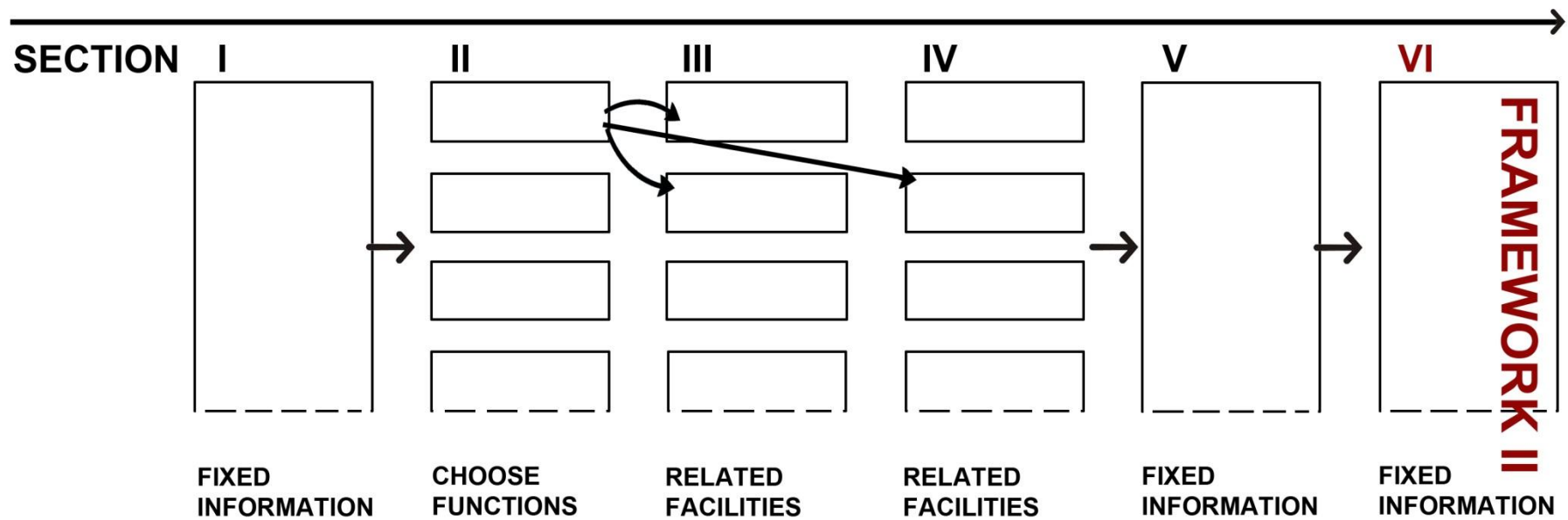
### SOLUTION

- Apply various ceiling heights between rooms which open into each other; this allows people to feel the relative intimacy of different spaces.
- In general, ceilings in public rooms or rooms meant for large gatherings should be higher than in rooms for smaller gatherings.

## RELATION







# P.65 DIFFERENTIATION



## Differentiation

Differentiation supports the organisation of spaces, protects the building and characterises spaces.

### CLARIFICATION

Distinctive elements should be applied to make a distinction between different areas. Besides, differentiated space has an impact on people's behaviour (Read, 1999). Colour and textures are useful design elements for way finding, spatial orientation and space definition. Designers have the opportunity to offer people complex and varied stimuli experiences via the design of the physical environment. This will make education centres stimulating, harmonious and organised environments. Moreover, the users' sense of orientation can be enhanced by using colour to direct them to their destinations. Colour is a valuable design element because it is easily applicable in a variety of design materials. Additional, colour evokes both emotional and physical responses depending on the users' individual experiences (Read, 2003).

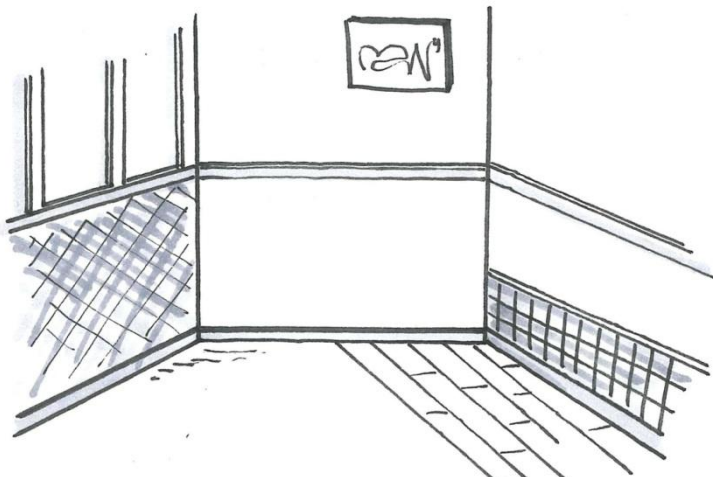
### SOLUTION

- Use several colours to distinguish specific rooms and activities. Check table P.65.1 to read about the impact of specific colours.
- Colour can be applied by the use of paint; paint is cheap and can easily be changed.
- Colour can also be applied by the use of tiles; tiles are more durable but also more expensive (buy tiles in special offer)
- Use several textures at walls and floors.
- Apply distinctive elements to the floor because young children do not notice differentiation on the walls.
- Paint and tiles protect walls and floors against stains, moisture and bumping
- Distinctive elements can create a horizon at eye level of a child; this horizon can for example be used to show children which areas are accessible to them.
- Distinctive elements can involve people; for example, mosaics or decorative paintings made at previous events.

## RELATION

P.60 Identity

P.64 Height Variety



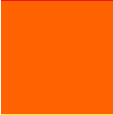
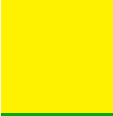
| Colour    |                                                                                     | Space                                                                                                                          | Use/Operation                                                                                                                                           |
|-----------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Red       |    | For active areas, corridors, passages. Not for bedrooms, offices, factories.                                                   | Rooms seem smaller, increases pulse, promotes breathing, vigilance, simplifies judgment, promotes activity, aggravating and tiring if strong and dense. |
| Orange    |    | Suitable for canteens, social rooms, dance clubs and corridors. Not for sleeping or study areas.                               | Encourages movement and dance. Promotes joy, a light feeling, unloaded, fun.                                                                            |
| Yellow    |    | Pure yellow is difficult, should only be used in single rooms. Not for offices or study and work areas.                        | Promotes detachment, nervousness and shallow breathing. Suits mature minds.                                                                             |
| Green     |    | For places where people must carefully weigh, such as operating rooms. Not for residential or recreational areas.              | Increases balance and careful judgment. Rooms seem flat, dead and empty. Fosters indecision. Impedes movement, promotes stagnation.                     |
| Turquoise |    | Kitchen, bathroom, bedroom, offices, treatment chamber. Not for recreational areas.                                            | Cool, refreshing, soothing, comforting. Good for neuritis.                                                                                              |
| Blue      |    | Bedrooms, offices, treatment chamber. Not for a dining or entertainment area.                                                  | Soothes, relaxes, gives a sense of breathing, sleep. Combats stress, asthma, nervousness and insomnia.                                                  |
| Violet    |   | Where dignity is required – hospital-receptions, chapels, and also ballrooms, lecture rooms. Not for wards or treatment rooms. | Stimulates purposefulness, prayer and meditation. For dignity, honouring. Calms the body and brings the mind into balance.                              |
| Magenta   |  | Churches, reception areas. Not for entertainment areas.                                                                        | Colour of spiritual fulfilment. Gives satisfaction and a sense of accomplishment and self-esteem.                                                       |
| Black     |  | Not suitable as main colour.                                                                                                   | Increases the emotional response.                                                                                                                       |
| White     |  | A rigid colour, requiring complements of decorations, paintings or plants.                                                     | Exaggerated purity. Seems to ignore experiences. Has a rigid effect.                                                                                    |

Table P.65.1: Impact of colour





## **P.66 MIRROR**



## Mirror

Mirrors increase self-confidence and hygiene.

### CLARIFICATION

People need mirrors to look to themselves and increase self-confidence. Besides, mirrors make people aware of hygiene. Houses often do not have mirrors, therefore education centres should provide mirrors.

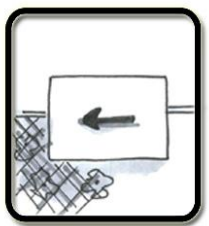
### SOLUTION

- Place mirrors at several spots, accessible to everyone.

## RELATION

-





## **P.67 SIGNS**



## Signs

Signs increase the legibility of an education centre.

### CLARIFICATION

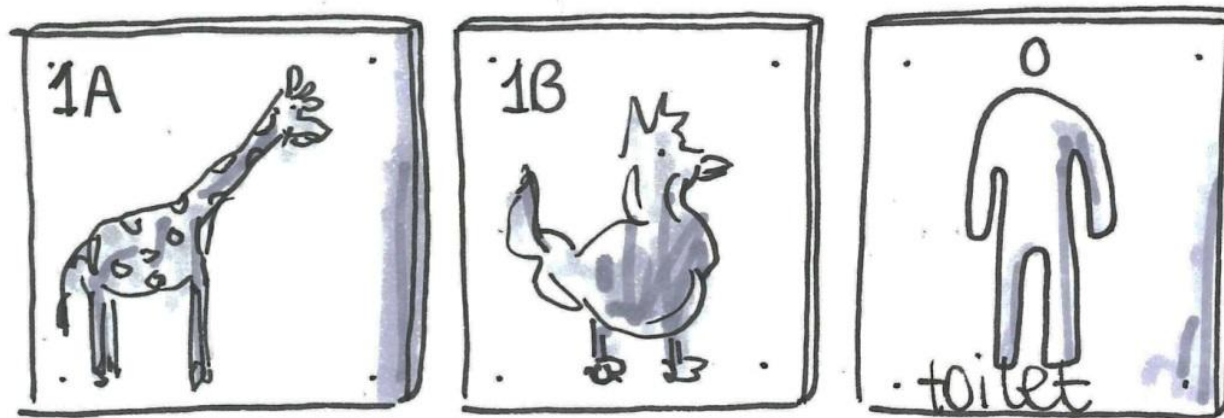
Signs and names are non-physical characteristics which enhance the visibility of spaces. Signs will also support people's orientation in the building. Due to the presence of children, signs should be developed with drawings. Text can possibly be added; this will support the language skills of children.

### SOLUTION

- Provide each room with a nameplate, explaining the planned activity.
- Provide text and pictures to make the plates useful to children.

## RELATION

-







## P.68 DOOR



## Door

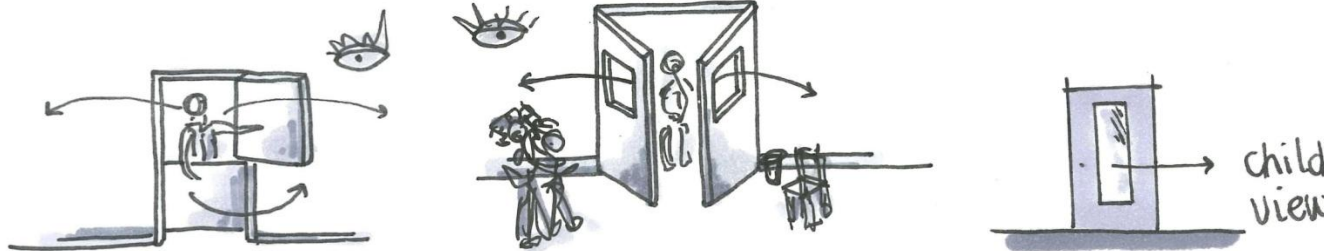
Doors facilitate privacy, rest and safety.

### CLARIFICATION

Doors are applied to close rooms. Reasons can, for example, be safety, private meetings and the prevention of noise pollution. The rotation of doors should provide easy, quick passage and prevent injuries (American Academy for Pediatrics, 2002).

### SOLUTION

- Apply doors to close rooms and the building itself. Doors can be made of, for example, steel, plastic and wood. In case of wood, the doors should be lacquered.
- Apply doorframes to avoid draught.
- Apply a doorstep; doorsteps may be placed in the tiles, to simplify cleaning and facilitate wheelchairs and buggies to enter.
- Provide locks if the door should be lockable. Place these locks at sufficient height, if a room is not accessible to children and to prevent that young children shut up themselves. Provide locks with keys if a room is only accessible to the staff.
- Provide windows in the door, to provide interaction between people. Apply these windows at appropriate height; if required, young children should be able to look through the windows.
- Place a small block behind the door, on the floor or wall, to protect the wall against bumping.

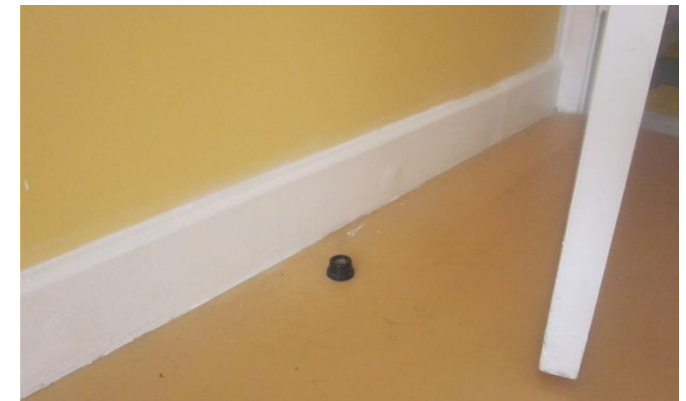


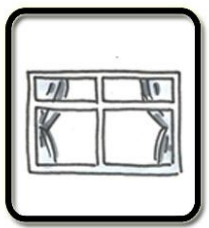
### RELATION

P.63 Fire  
P.70 Interior Opening  
P.73 Wheelchair

Interior doors swing into the room, to prevent blocking of fire escapes. The main entrance and fire escape doors swing to the outside.

Entrance doors should have a minimum width of 2,0 metre and height of 2,50 metre. Interior doors should have a minimum of 0,80 metre width and 2,0 metre height. Place door handles at 0.90 metre height.





## P.69 WINDOW



## Window

Windows are required to see properly, feel comfortable and facilitate ventilation.

### CLARIFICATION

Each room must have at least one window. Rooms with natural light are fit places to spend the day. Besides, money will be saved by using natural instead of artificial light. To allow natural light to enter the room, windows or open gaps should be designed. These openings can also be used to ventilate the room. Windows also facilitate interaction between users of the building and people outside. This is very important because it supports interaction between the users.

### SOLUTION

- Provide windows considering access, views and sunlight (Alexander, 1977).
- The size of windows should be considered carefully because big windows can cause significant changes in temperature.
- Windows can be made of, for example, steel, plastic and wood. In case of wood, the windows should be lacquered.
- Provide windows that can open; this will facilitate natural ventilation.
- At first floor and higher, windows must be placed at least 1,0 metre high to prevent that people fall down.
- Apply sunscreens to protect people against direct sunlight; this can be screen, but may also be overhanging roofs, blinds or verandas. In case of permanent blinds, the screen simultaneously acts like sunscreen and bar.
- Apply sunscreens which prevent direct sunlight, but still allow daylight to enter.
- Provide sunscreens to create more private areas; screens avoid people of being seen from outside.
- Also special screens against insects can be provided.

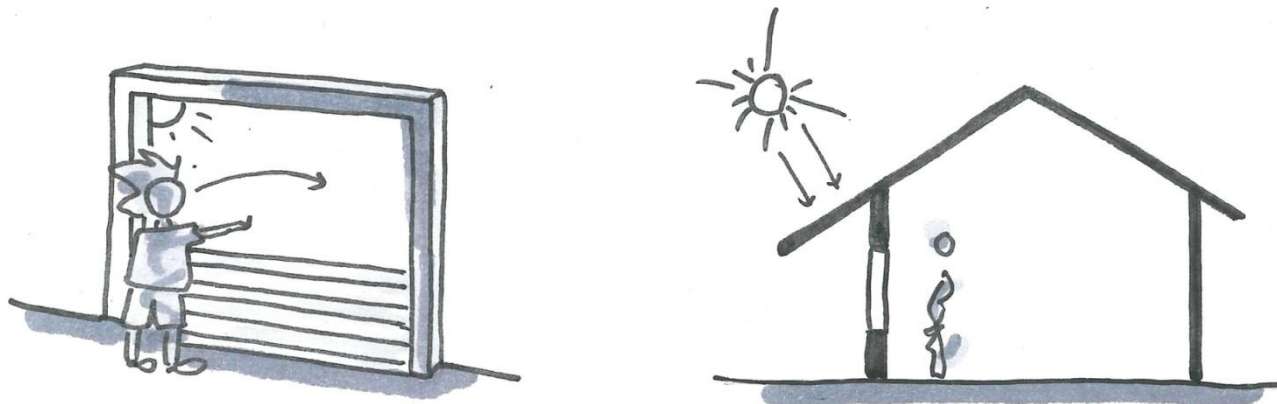
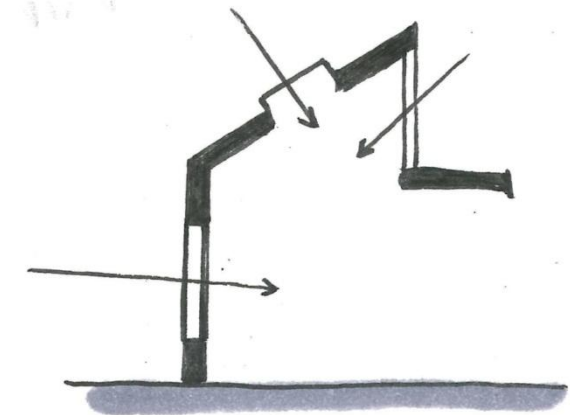
### RELATION

P.54 Veranda

P.71 Bars

P.72 Ventilation

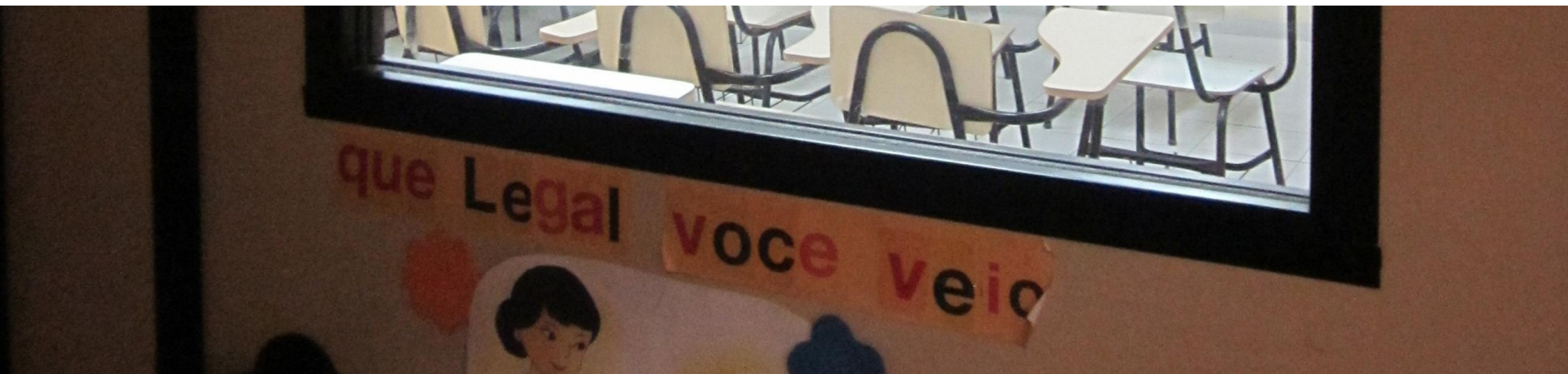
Due to ventilation and lighting, windows/openings/doors should have a minimum total area of 1/6 floor area of the room.







## P.70 INTERIOR OPENING



## Interior Opening

Interior openings increase interaction, lighting and ventilation.

### CLARIFICATION

Place interior openings between spaces to facilitate interaction or to light rooms which are unusually dark. People feel more connected to one another by interior windows. Besides, the passages in a building become less deserted. Furthermore, when rooms and passages are visibly connected to one another, it is possible to grasp the overall arrangement of a building far more clearly than in a building with blank walls between all the rooms (Alexander, 1977).

### SOLUTION

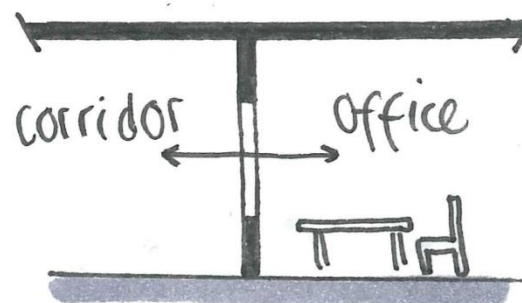
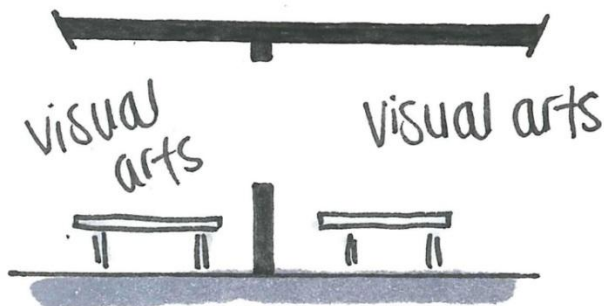
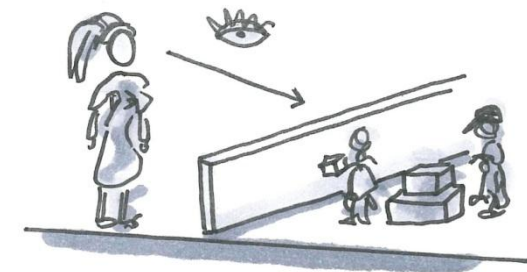
- Provide openings towards corridors to facilitate interaction between users and visitors of a centre.
- Provide openings between adjacent rooms, if possible.
- Provide openings if a room does not have a window (an exception can be a storage)
- Provide openings at appropriate height; the gaps should allow people to see through them.
- Interior openings can be real openings as well as glazed fixed windows, avoiding noise pollution.
- Provide an opening in the door when interior openings are not possible.

### RELATION

P.68 Door

P.69 Window

P.72 Ventilation





## **P.71 BARS**



## Bars

Bars increase safety.

### CLARIFICATION

Bars are used against burglary and sometimes to prevent children from falling down. Bars are used in front of windows and along balconies and verandas.

### SOLUTION

- Provide bars, allowing an inviting façade.
- Rails, meshes and metal fins can be applied. Permanent fins simultaneously protect against burglary and sun.
- Many small windows instead of one big window can be applied; children cannot fall down and the likelihood of burglary decreases.
- If required, some bars should be removable due to fire safety.

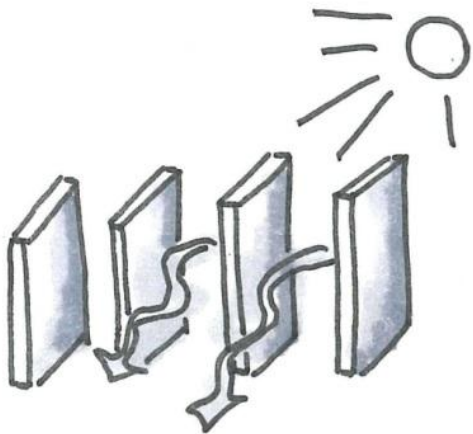
### RELATION

P.54 Veranda

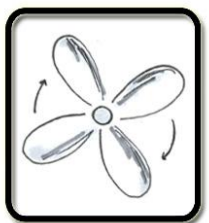
P.63 Fire

P.69 Window

Assume a maximum of 0,20 metre between single bars. Bars are required at windows within 0,90 metre of the floor.







## **P.72 VENTILATION**



## Ventilation

People need fresh air.

### CLARIFICATION

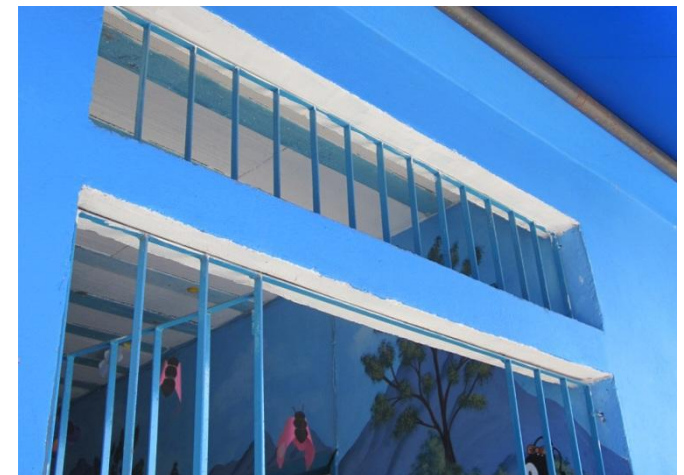
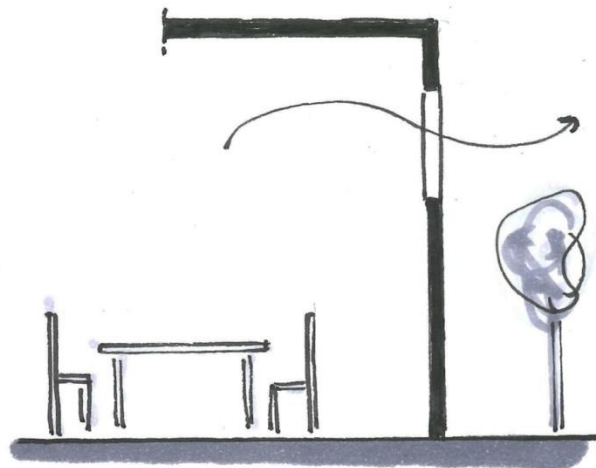
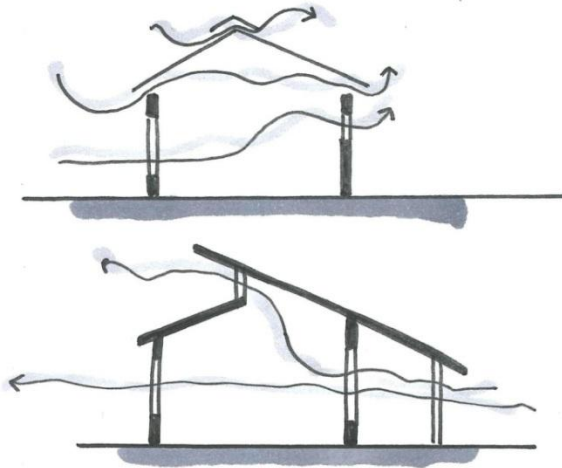
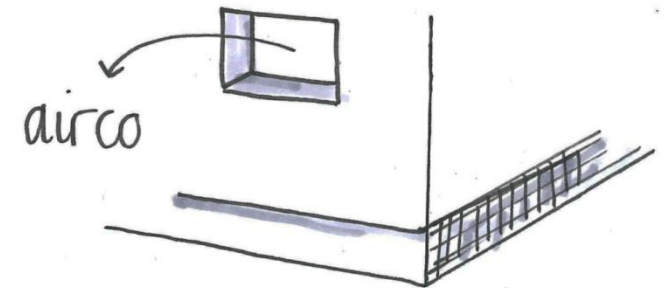
Ventilation affects people's development both direct and indirect and enhances performance. Buildings should be ventilated to provide fresh air and remove used air. A cooler temperature is healthier and produces less fatigue (Rosenfeld, 1977). This will increase users' ability to concentrate and support their development. Due to the Brazilian climate conditions the building should facilitate sufficient ventilation. To facilitate natural air circulation, ventilation gaps can be applied. Air-conditioning systems can be applied if the natural ventilation is not sufficient.

### SOLUTION

- Provide sufficient openings to ventilate the building in the façade.
- Provide openings in the interior walls to support natural ventilation.
- Consider the air flow at the site when designing an education centre.
- Consider the air circulation in buildings when designing an education centre.
- Use fans if the natural ventilation needs to be supported.
- During construction the holes required for air-conditioning systems should already be considered; avoid that holes have to be made in the walls afterwards. The holes can temporary serve as, for example, windows.
- If required, place fences around the air-conditioning system against burglary.

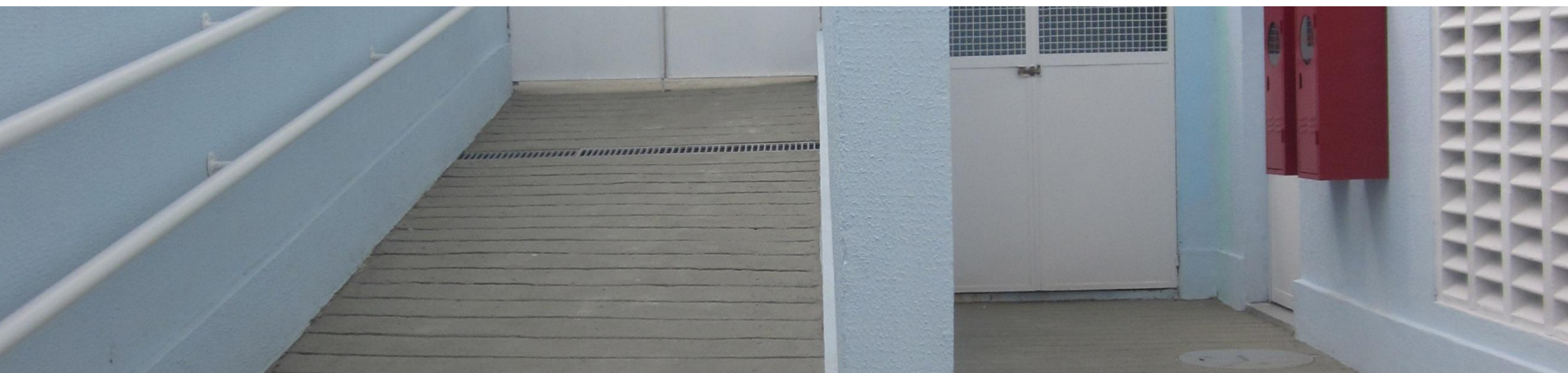
### RELATION

P.01 Framework  
P.55 Orientation  
P.69 Window  
P.70 Interior Opening





## **P.73 WHEELCHAIR**



## Wheelchair

Make sure handicapped can participate in education centres.

### CLARIFICATION

If required in a comunidade, education centres should be adjusted to the handicapped. Disabled people are often shut out by the society. It is therefore important that handicapped people can fully participate in education centres and are not cast aside or treated as 'problem cases'. If required in a specific comunidade, education centres should be accessible to for example people wearing irons and wheelchairs.

### SOLUTION

- Apply access ramps and accessible traffic areas.
- Adjust the dimensions of doors.
- Avoid doorsteps.
- Provide adjusted sanitary facilities.
- Make specific rooms accessible to wheelchairs, for example, the dining, a classroom or recreational areas. Adjustments are, for example, required turning circles and open passages.

### RELATION

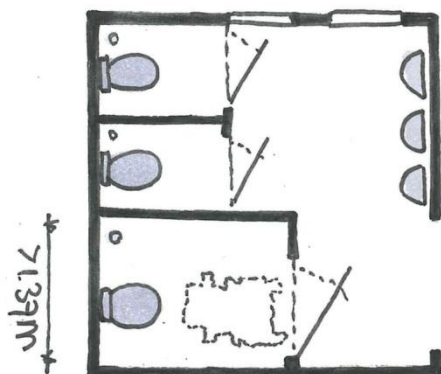
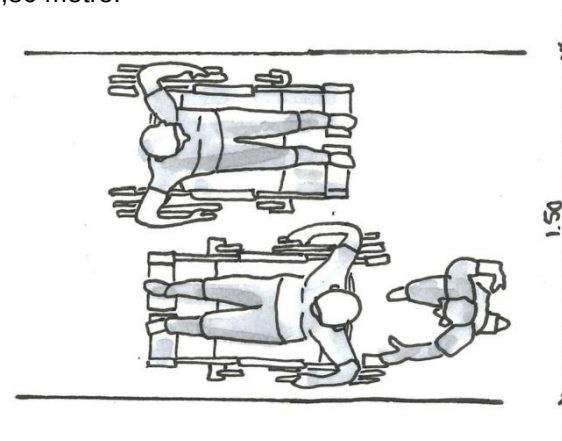
P.06 Sanitary Facilities

P.62 Traffic Area

P.68 Door

Wheelchairs have a turning circle of diameter minimum 1,50 metre. Assume 1,50 metre for a corridor and 0,90 metre width for a door.

Toilets should be at least 1,40 x 1,90 metre. Place toilets at a height of 0,45 metre and sinks at a height of 0,80 metre.





# TABLES



**Table I - Number of required space and facilities**

**Framework**

| Function            | Part    | Number/person<br>Number/m <sup>2</sup> |
|---------------------|---------|----------------------------------------|
| Cleaning Space      | Sink    | 1                                      |
|                     | Storage | 2,0 m <sup>2</sup> /room               |
| Sanitary Facilities | Sink    | 1/15 persons                           |
|                     | Shower  | 1/60 persons                           |
|                     | Toilet  | 1/15 persons                           |
| Staff Room          | Sink    | 1/8 persons                            |
|                     | Shower  | 1/10 persons                           |
|                     | Toilet  | 1/8 persons                            |
| Storage             | Storage | 0,2 m <sup>2</sup> /person             |

**Facilities/required**

| Function      | Part         | Number/person<br>Number/m <sup>2</sup><br>Number/room |
|---------------|--------------|-------------------------------------------------------|
| Bathroom      | Sink         | 1/30 children                                         |
|               | Shower       | 1/15 children                                         |
| Bedroom       | Bed          | ± 1/5 children                                        |
| Changing Room | Sink         | 1/20 persons                                          |
|               | Shower       | 1/4 persons                                           |
|               | Toilet       | 1/40 persons                                          |
| Refrigerator  | Refrigerator | 1/60 persons                                          |
| Sink          | Sink         | 1                                                     |
| Waiting Room  | Chairs       | 3                                                     |
| Tap           | Tap          | 1/40 persons                                          |
| Wheelchair    | Sink         | 1                                                     |
|               | Shower       | 1                                                     |
|               | Toilet       | 1                                                     |

## Table II – Flexibility

### Supporting information to combine different functions in one room

Example; in a Classroom Adult Education, also Supletivo can be given.

|                           | Entrance | Crèche | Classroom Pré-escola | Classroom Preparar | Classroom Supletivo | Classroom Adult Education | Classroom Course | CR. Occupational Training | Classroom Reforço Escola | Library | Computer Room | Music Room | Music Studio | Percussion Room | Theatre | Visual Arts Room | Capoeira Room | Dance Studio | Martial Arts Room | Relaxing Sports Studio | Sports Field | Swimming Pool | Playground | Dining | Kitchen | Laundry | Health Care Centre | Information Centre | Gossip Space | Meeting Room | Office | Reception | Cinema | Garden |
|---------------------------|----------|--------|----------------------|--------------------|---------------------|---------------------------|------------------|---------------------------|--------------------------|---------|---------------|------------|--------------|-----------------|---------|------------------|---------------|--------------|-------------------|------------------------|--------------|---------------|------------|--------|---------|---------|--------------------|--------------------|--------------|--------------|--------|-----------|--------|--------|
| Entrance                  |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Crèche                    |          |        | V                    |                    |                     |                           |                  |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Classroom Pré-escola      |          | V      |                      |                    |                     |                           |                  |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Classroom Preparar        |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Classroom Supletivo       |          |        |                      |                    |                     | V                         | V                |                           | V                        |         |               |            |              |                 |         | V                |               |              |                   |                        |              |               |            |        |         |         |                    | V                  |              | V            |        |           |        | V      |
| CR. Adult Education       |          |        |                      |                    | V                   |                           | V                |                           | V                        |         |               |            |              |                 |         | V                |               |              |                   |                        |              |               |            |        |         |         |                    | V                  |              | V            |        |           |        | V      |
| Classroom Course          |          |        |                      |                    | V                   | V                         |                  |                           | V                        |         | V             |            |              |                 |         | V                |               |              |                   |                        |              |               |            |        |         |         | V                  |                    | V            |              |        |           |        | V      |
| CR. Occupational Training |          |        |                      |                    |                     |                           |                  | V                         |                          |         |               |            |              |                 |         | V                |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| CR. Reforço Escola        |          |        |                      | V                  | V                   |                           |                  |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    | V                  |              | V            |        |           |        | V      |
| Library                   |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Computer Room             |          |        |                      |                    |                     | V                         | V                |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Music Room                |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            |              | V               |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Music Studio              |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            | V            |                 | V       |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Percussion Room           |          |        |                      |                    |                     |                           |                  |                           |                          |         |               | V          |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Theatre                   |          |        |                      |                    |                     |                           |                  |                           |                          |         |               | V          |              |                 |         |                  | V             |              | V                 | V                      |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Visual Arts Room          |          |        |                      |                    |                     |                           | V                |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Capoeira Room             |          |        |                      |                    |                     |                           |                  |                           |                          |         | V             |            | V            | V               |         |                  |               | V            | V                 | V                      |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Dance Studio              |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Martial Arts Room         |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Relaxing Sports Studio    |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Sports Field              |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            |              | V               |         |                  | V             |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Swimming Pool             |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Playground                |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            | V            |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    | V            |              |        |           |        | V      |
| Dining                    |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         | V                  | V                  | V            |              |        |           |        | V      |
| Kitchen                   |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Laundry                   |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Health Care Centre        |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    | V                  |              |              | V      |           |        |        |
| Information Centre        |          |        |                      |                    | V                   | V                         | V                |                           | V                        |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              | V            |        |           |        | V      |
| Gossip Space              |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              |        |           |        |        |
| Meeting Room              |          |        |                      |                    | V                   | V                         | V                |                           | V                        |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    | V                  |              |              | V      |           |        | V      |
| Office                    |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    | V                  |              | V            |        |           |        |        |
| Reception                 |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            |              |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    |              |              | V      |           |        |        |
| Cinema                    |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            |              |                 | V       |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    | V            | V            |        |           |        |        |
| Garden                    |          |        |                      |                    |                     |                           |                  |                           |                          |         |               |            | V            |                 |         |                  |               |              |                   |                        |              |               |            |        |         |         |                    |                    | V            |              |        |           |        |        |

## Supporting information to organise education centre

Various functions can appear several times in a building. Therefore it is also examined whether the space with the same function, can be organised next to each other.



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