

# OASIS SCHOOLYARDS

## Recommendations booklet

### for transforming schoolyards

### *Summary*



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# Introduction

## The context of the Oasis project

As a member of the international network of the 100 [Resilient Cities](#), pioneered by the [Rockefeller Foundation](#), the City of Paris has conducted an inventory of the city's strengths and weaknesses and developed an urban resilience strategy. The overall goal of this strategy is to help the city as a system- citizens, infrastructures and organisations - to survive, adapt and continue to develop despite the threats posed by acute shocks (heat waves, floods, terrorist attacks), chronic stresses (environmental, pollution, social inequalities) and global challenges (climate change, depletion of resources). Presented and voted on at the Paris Council on 25 September 2017, this [Resilience Strategy](#) is composed of 35 actions that respond to a threefold vision: «Paris relies on its inhabitants (I), adapts its infrastructures (II), mobilises the collective intelligence and territories that surround it (III) to transform the challenges of the century into opportunities». Within this framework, the City of Paris envisioned an urban "oasis" that will improve the citizens' life quality in the neighbourhood scale, considering that every Parisian resides within a radius of 250m from a public school. The strategy's action n°10 describes the schoolyard transformation of Parisian preschools, elementary and middle schools into «cool islands», by integrating nature-based solutions for shading and storm-water management. Thus, eventually, every neighborhood would acquire a small park - a cool and shaded refuge for days of extreme heat.

The OASIS schoolyards project is anticipated to contribute to alleviating rising temperatures and minimizing the Urban Heat Island and the risk of storm water flooding effect by making city's infrastructure more permeable and absorbent. Furthermore, OASIS aims to strengthen social cohesion by co-designing the schoolyard together with pupils and the local community and converting it into a neighborhood's meeting place.

This project is also in line with other Parisian long-term such as: the [Paris Climate Plan](#), the [Biodiversity Plan](#), the [Paris Rain Plan](#) and the [Circular Economy Action Plan](#). Moreover, in October 2018, [The Oasis project](#) was selected to be funded by the "[Urban Innovative Actions](#) Initiative" (a European Union initiative financed by the European Regional Development Fund-ERDF) under the topic "climate adaptation". Within the frame of the ERDF- UIA Oasis project, ten Parisian schools were selected to be transformed during the implementation period 2019 - 2021.

This framework is an opportunity to engage pupils, educators, school staff and local actors in an active participation process for the design and management of the OASIS schoolyards and for raising awareness of climate change impacts. The City of Paris collaborated with a cross-disciplinary group of local experts to explore in depth the OASIS multiple benefits across the environmental, social, educational, public health and governance domains.

- The [Council of Architecture, Urbanism and Environment of Paris](#) (CAUE 75)
- The [Paris Federation of the Ligue de l'Enseignement](#)
- The [Paris Interdisciplinary Energy Research Institute](#) (LIED), attached to the University of Paris-Diderot, the CNRS, and the ESIEE Paris
- The [Laboratory for Interdisciplinary Evaluation of Public Policies](#) (LIEPP) of Sciences Po
- [Météo-France](#)



## The ambitions of the Oasis project

The Oasis project aims to:

- **Place the well-being of children and teenagers back at the heart of the design and use of the schoolyard.** It is a question of creating spaces that allow personal fulfilment and motor, psychological and social development of each individual in the best possible conditions.
- **Mitigate the impacts of climate change and adapt to the new conditions**, by prioritizing the citizens' the health and well-being.
- **Help adults and children become aware of the need to respect the environment and each other** through daily and sustainable interaction with natural settings and in a shared environment.

In response to these three dimensions, nature plays a fundamental role and finds its place at the heart of the plans.

The transformed schoolyards are intended to encourage activities such as **playing, learning, discovering and socializing** not only during school and extracurricular time but also during the periods with open access to the local residents of all ages to develop new uses of the space and strengthen the community's social ties.

## The recommendations booklet

This document is written by the Innovation and Sustainable Building Centre of the Public Buildings and Architecture Department, the General Secretariat of the City of Paris and the Paris Council for Architecture, Urban Planning and the Environment.

The solutions presented in this booklet are expected to become **sources of inspiration and recommendations** for the technical services of local authorities, their partners, project managers and project developers wishing to undertake similar development projects.

These are not «miracle recipes» but rather **realistic and feasible solutions**. The Oasis schoolyards should result from a dialogue with the academic and technical teams and the pupils of the involved schools. **The aim is to create a space that meets the needs of each school community in the best possible way.**

## Preface: Designing the Oasis schoolyards

### Setting up a project team

Creating an Oasis schoolyard requires a cross-section of views and skills to achieve a complete project that meets the needs of future users of these new spaces. First of all, a multidisciplinary project team must be formed, including the following stakeholders:

- The **users** who understand and experience the daily function of the schoolyard (pupils/ students, educators, security guards, cleaning staff, school directors, extracurricular activities facilitators)
- The **project managers** who carry the ambitions of the project and its long-term viability: the contracting authority (public or private) and the educational services or even the general management of the services, or the local authorities
- The **designers** who provide technical support: project management, technical services. The Councils for Architecture, Urbanism and the Environment (present in each department) can be at the service of local authorities to advise and support them and provide resources on these aspects.

### Co-designing Oasis schoolyards

In the context of the ERDF Oasis project, the Parisian «Oasis schoolyard» projects start with a «co-design» phase. This involves engaging primarily the pupils as well as the entire school community (educators, school staff, parents) in the process, to integrate the everyday users' insights into the design priorities. The involvement of the users - who are the project's main beneficiaries- during all stages of the process encourages exchanges between stakeholders, ensures the project's coherence and is likely to prevent potential conflicts.

In a few words, the objectives of co-design are:

- to familiarise pupils and adults with the issues of resilience and the objectives of the project
- to carry out an inventory of usages before transformation;
- to identify the needs of the pupils and adults for the new schoolyard;
- to provision the use and management of the new sites by the school and the local community.

### A prior «technical» status report

During the co-design phase with the different stakeholders, or even as a complementary step, it is important to conduct an initial technical inventory of the schoolyard to:

- Identify the overall condition of the schoolyard
- Identify the strengths and what can be preserved (existing gardens, play equipment in good condition, trees, existing water points, etc.)
- Carry out a series of diagnostics that do not require external expertise (sunlight, urban environment, history of the site and recent work in this area, etc.);
- Identify the additional diagnostics required and schedule them quickly;
- Anticipate the possibility of simultaneous construction works and coordinate the work schedules of the companies.

Conducting this inventory to fully document and understand the project's technical constraints and successfully integrate them into the design is strongly recommended.

## Knowing the main design objectives

The main design principles are:

- **The diversification of the sites**, to allow everyone to find their place: a variety of materials, floors, facilities, and educational and recreational activities;
- **A «central» presence of nature**, for well-being and refreshment: natural materials, abundant vegetation, presence of water
- **Environmental awareness**, to respect the environment and preserve the resources, a «low-tech» concept is promoted: (re)use of existing materials, enhancement of natural spaces, simplicity of facilities, use of eco-materials, sourcing from local and participative manufacturing

# 1. Biodiversity: strengthening flora and fauna

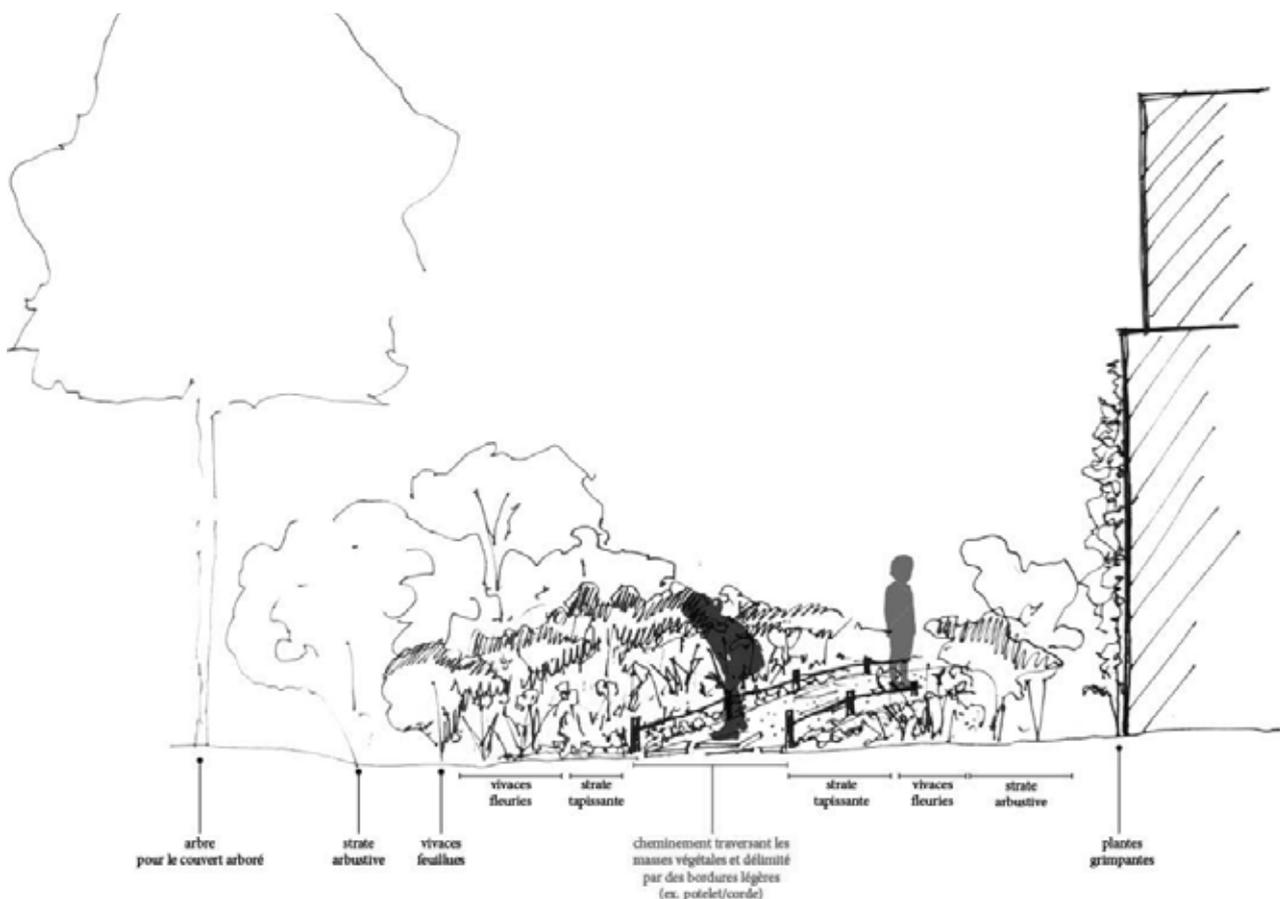
Schoolyards should be considered as “back-up” biodiversity areas, capable of ensuring the meshing of ecological continuities on urban scale. Therefore, the challenge is preserving and restoring the local natural ecosystems that already exist in schoolyards or nurturing new ecosystems with the additional vegetation.

## 1. 1. Creating different vegetation layers

In order to encourage biodiversity, one of the main challenges is to work on the diversity of vegetation layers (soil and vegetation cover, herbaceous, shrub and trees), the type of leaves (evergreen/caducous, floral/leafy) and to prioritise the local origin of the plants, in order to create a natural ecosystem and offer the appropriate habitats for the local fauna.



Vegetable layers, Paris  
© CAUE de Paris



Organising the vegetation masses and managing the paths through them. © CAUE de Paris

## 1. 2. Prioritize trees

The preservation of the existing trees and adding new ones must be a priority of the design considerations.

### 1. 2. 1. Existing trees

Urban environments create challenging conditions for tree growth due to exposure to pollutants, high temperatures, extreme drought and inundation, compacted soil, and lack of mineral nutrients. The addition of plants around the trees provides the much-needed soil aeration and enrichment with nutrients. Moreover, surrounding plants' roots improve the permeability of the soil, and contribute to the absorption of rainwater through infiltration and evapotranspiration.

### 1. 2. 2. Planting new trees

As often as possible, landscaping projects should include planting new trees. The planting of a new tree can become an important school event. Do not hesitate to involve pupils and teachers; it will be an unforgettable experience for everyone!



*Planting a lime tree, Daumesnil school, Paris.*

© Ville de Paris - Laurent Bourgogne

## 1. 3. Selecting the plants

The plant selection should:

- Promote diversity and prevent potential diseases that might ravage local species
- Nurture healthy ecosystems
- Prioritise hypoallergenic and non-toxic native and regional species, while taking into account the
- changing climate (mainly for the selection of trees)

## 1. 4. Make natural areas accessible to pupils

Children must be able to explore the soil, dig, pick up branches, gather leaves, and enjoy nature to its fullest. It is recommended to design «natural» paths in-between the planted areas in order to make them accessible while limiting the trampling of the planted species.



*Paving stone path, Paris*  
© CAUE of Paris



*Green tunnel, Antwerp*  
© CAUE of Paris

Plant distancing solutions:

- Rope poles: to mark the passage for the children;
- Wooden planks or Logs: form a surface that can be used as a seating area;
- Wooden fences: to protect the plants' growth in the first few years and afterwards the fences can be composted.



*Rope poles, Paris*  
© CAUE of Paris



*Jenner School Oasis Schoolyard's Terrace and Planting Pit*  
© Marie Konstantinovitch, Ville de Paris



*Wooden decking in the Oasis schoolyard of the Emeriau preschool school*  
© Laurent Bourgogne, CAUE of Paris

## 1. 5. Greening of buildings and school boundaries

A wide range of green infrastructure solutions are applicable to school buildings and their boundaries, such as green walls, rooftop gardens, green rooftops or hedges along the school fences.



*Tandou preschool school (before transformation), Paris*  
© CAUE of Paris



*Green wall on stainless steel cable trellis*  
© CAUE of Paris



*Hedge plants creating a boundary with the street, Paris*  
© CAUE of Paris



*Planted trellis fence.*  
© CAUE of Paris



*Rooftop garden, Paris*  
© CAUE of Paris



*Planted rooftop, Saint-Merri school*  
© CAUE of Paris



*Raised planting beds on a roof terrace.*  
© CAUE of Paris

## 1. 6. Creating swales, wet swales, rain gardens

There are several types of water management structures: the primary function of the **swale** is to store rainwater; the **wet swale** is a type of swale that doesn't necessarily collect and store rainwater but instead it functions as a linear open-air «trench» that drains and directs water to other collecting or storage points; lastly, the **rain garden** is a garden of native shrubs, perennials, and flowers and it is designed to temporarily hold and absorb rainwater runoff while also filter out pollutants in runoff. Rain gardens are mostly dry and typically hold water only during and following the rainfall event.



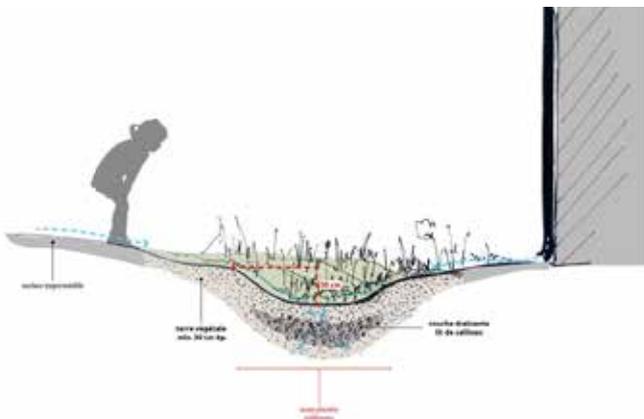
The swale as a playful landscape element to cross. Oasis schoolyard of Parmentier primary school, Paris.

© CAUE of Paris



Oasis schoolyard of the Emeriau school, Paris

© CAUE of Paris



Wet swale with infiltration layer © CAUE of Paris



Wet swale with infiltration layer, connected to the drainage .

© CAUE of Paris

## 1. 7. Create educational gardens

Educational gardens can be designed in various forms, such as flower gardens, vegetable gardens, aromatic gardens, located on the ground on mounds or in raised planting beds.



*Gardening platform with a depth of soil of 1.20m, school 14 Riblette, Paris.*  
© CAUE of Paris



*Educational garden in the Oasis schoolyard of Jeanne d'Arc School.*  
© Laurent Bourgogne, CAUE of Paris



*Raised planting bed (before planting), Dautancourt school, Paris.* © CAUE of Paris



*Aromatic garden, Pierre Mendès France College, Paris.*  
© CAUE of Paris

## 1. 8. Provide composting spots in the schoolyard

Composting converts organic matter into humus. The soil created by this decomposition enriches and improves the soil quality for plants and contributes to the retention of water and nutrients. In a school setting, composting will reduce the amount of food waste. Processing organic waste directly on site, it reduces the need to transport trash cans, greenhouse gas emissions and methane production in landfills. The composting system is also used in schoolyards to teach and raise awareness of the environment and encourage students to become more responsible for their actions.



*Composters, Courteline middle school, Paris © CAUE of Paris*



*Composters, Jeanne d'Arc school, Paris © CAUE of Paris*

## 1. 9. Participating in the maintenance of the schoolyard's green spaces

Maintenance can be a subject of educational activities in any season of the year. For example, during the school year, a team of pupils can be in charge and contribute to the watering and pruning works.

## 1. 10. Welcoming wildlife

Providing specific facilities for birds or bats in the walls is possible by creating nests or nesting boxes. The diversity of habitats also depends on the variety of the plants in the schoolyard, such as orchards, vegetable gardens, educational gardens, educational ponds, hedges, planted fences, swales, etc.

Insect hotels are also a fun facility that children can create.



*Insect hotel created by the pupils, Jeanne d'Arc school, Paris © CAUE of Paris*

The hen house in a school is an educational tool that allows the pupils to learn about biology, the environment and food waste. Being in close contact with chickens can also contribute to the development of certain skills in children, such as autonomy, curiosity, responsibility, respect, social bonding, attachment to living things and can improve concentration in class.



*Hen house, A la Croisée des chemins school, Brussels © Ville de Paris*

Features such as educational ponds can be integrated in the schoolyard and used to raise awareness of natural environments and ecosystems.

The installation of beehives in a school provides an additional educational tool for learning the basic biology of bees.



*Wetland, Courteline middle school, Paris. © CAUE of Paris*

## 2. Soil: diversifying, shaping and renaturing schoolyards

Protecting and expanding natural open spaces in cities is a real challenge. Re-introducing the use of natural materials in urban open spaces is anticipated to re-establish the continuity of natural areas in the city and restore the local ecosystems.

In the OASIS schoolyards, the concept is to use as much natural soil as possible. It is therefore essential to balance the proportion of permeable natural soil and impermeable surfaces.

Additionally, the ground covering materials should also contribute to mitigating the Urban Heat Island effect. Therefore, materials that absorb and store heat during hot weather, such as asphalt pavements, should be avoided. On the contrary, natural materials can regulate the temperature on a local scale, thanks to the evapotranspiration of the plants. For the areas where natural covering materials are not applicable, the suggested solution is to provide shade (e.g., trees, canopy etc.).



© CAUE of Paris

### 2. 1. Making the most out of the existing grounds: preservation and re-use

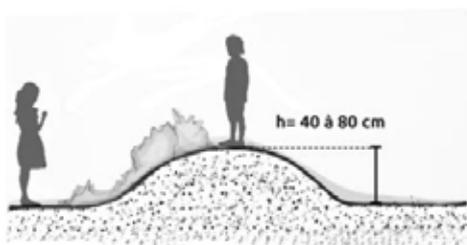
For the purposes of economy, it is suggested to preserve – at least in part- the existing ground covering materials that are still in good condition.



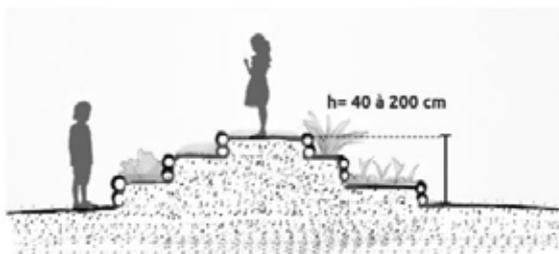
*Landscaping with Cut-out asphalt surfaces, La Courneuve* © CAUE of Paris

## 2. 2. Creating a terrain relief with elevations

Schoolyards are often plain and flat spaces. Creating a terrain relief with elevations allows younger and older pupils to develop their motor skills, to understand distances better, learn how to overcome an obstacle, and control their bodies. The creation of the terrain relief encourages the pupil's physical activity, who has the opportunity to experiment with a variety of movements (climbing, running, balancing, jumping, observing, etc.).



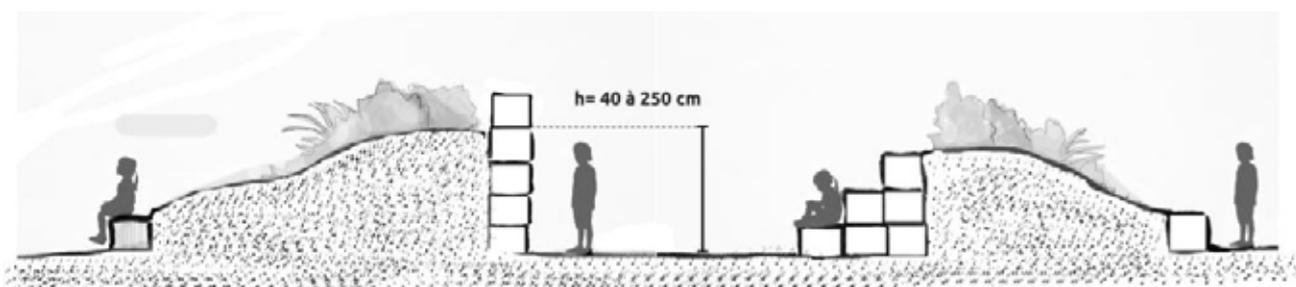
Embankment typology © CAUE of Paris



Typology with support: terraces and planting beds © CAUE of Paris



Keller School's Oasis schoolyard mounds © CAUE of Paris



Typology with support: seats, steps and wall © CAUE of Paris



Earth mound with gabion walls. Oasis schoolyard of Maryse-Hilsz primary school, Paris.  
© Théo Menivard, CAUE of Paris



Earth retention with wooden logs. Oasis schoolyard of Emeriau school, Paris. © Théo Menivard, CAUE of Paris



Asphalt retaining wall reused on site. Oasis schoolyard at Quatre Fils primary school, Paris. © CAUE of Paris



Gabion berm, Oasis schoolyard, Maryse Hilsz Elementary School. © Théo Menivard, CAUE of Paris.



Bleachers in the Oasis schoolyard of Octave Gréard middle school, Paris. © CAUE of Paris



Wooden bleachers at Alviset middle school, Paris. © CAUE of Paris



Stone clad amphitheatre in the Oasis schoolyard of Tandou School, Paris. © Théo Menivard, CAUE of Paris

## 2. 3. Prioritising natural materials

Removing asphalt from floors and the using natural materials (wooden chips, soil, gravel, etc.) should be a priority.

Natural materials are suitable for various activities (running, gardening, playing, etc.) and are preferred for their sensory qualities. Such materials are likely to form shock-absorbing surfaces. Thus, they can be used for activities or games that require safety zones (free-fall zone).

### 2. 3. 1. Natural soil

Although it might sound improbable to leave the schoolyard's ground bare just with soil, it will in fact be much appreciated by the children for various creative activities, such as playing with the mud, scratching, digging and so on.

It is recommended to provide «scrubbing» areas at the entrance in order to limit the amount of dirt in the school building. Moreover, to reduce the presence of mud in the schoolyard and the need to use boots, the most effective way is to cover the bare soil with a mulch of various materials.



Topsoil, Stadsmus School, Brussels © CAUE of Paris



## CAUTIONARY NOTE

### Compacted soil is not living soil

When the bare soil is exposed to rain and trampling, it tends to become compact and solid, a phenomenon that often happens with the soil around the tree roots. To avoid soil compaction, the soil must be kept “alive”, by digging up the roots of plants and remaining ventilated by the insects that live there. It must also be nourished by compost and protected from frost with mulch.



*Compacted soil, Paris*  
© CAUE of Paris

### 2. 3. 2. Grassy areas

Lawns can be used in low-traffic areas, at the edge of shrubbery or in the cases of large schoolyards.



*Lawn, schoolyard Oasis of the Emeriau School.*

© Laurent Bourgogne, Ville de Paris

### 2. 3. 3. Wooden chips and mulch

Wooden chips protect and strengthen the soil against moisture and temperature changes. They promote water retention, improve soil structure and provide shelter for micro-organisms. In addition, wooden chips are a soft material used to promote children’s sensory stimulation and develop their motor skills. They can also be used as a **shock-absorbing floor or as mulch**.



*Wooden chips as a covering, Oasis schoolyard of the Tandou pre-school.*

© CAUE of Paris



*Wooden chips as a covering, Oasis schoolyard of Keller Elementary School.*

© Ville de Paris

### 2. 3. 4. Sand

Sand can be used as a shock-absorbing ground surface for games (e.g. for the landing area of a slide) and as a sandbox. Sand is also a very useful soft material for the development of children’s sensory and motor skills. It is recommended to use it on large surfaces to avoid conflicts and allow shuffling. Sand is not suitable for areas near building entrances and wetlands (swales, fountains, educational rivers, etc.).

Pea gravel or vegetable gravel (crushed cores/pits) can also be used as loose, natural and permeable soil.



*Sand, Oasis schoolyard of Maryse-Hilsz elementary school, Paris*  
© CAUE of Paris



*Pea gravel, Oasis schoolyard of Maryse-Hilsz preschool school, Paris.*  
© CAUE of Paris

### 2. 3. 5. Wooden floors

Wooden floors can be designed in many different ways and form different landscapes in the schoolyard, considering their various aesthetic qualities and the multiple wood types that are available.



*Oasis schoolyard of Kuss school, Paris.*  
© Laurent Bourgogne, Ville de Paris



*Oasis schoolyard of Maryse Hilsz School.*  
© CAUE of Paris



*Riblette School, Paris.*  
© CAUE of Paris

## 2. 4. Using hard floors

Hard floors are suitable for dynamic activities without free-fall zones (sports, cycling, running, etc.). In some cases, they also allow the movement of vehicles (light vehicles, fire trucks, delivery vehicles, etc.) and trolleys. They also form a transition zone between the - sometimes dirty - natural floors and the school's indoor spaces.

### Stabilised sand

This type of paving is constructed by mixing fine aggregates (sand) with a hydraulic binder or without a binder by compaction. Its roughness is low, and it is not very permeable and it is crucial to be cautious about the flatness of the finished soil. Soil can be carried into buildings by children's shoes.

The installation cost is low, but the floor requires regular maintenance and compaction/recharge.

### Conventional concrete

Conventional concrete floors are impermeable and can be used as run-off surfaces. This material offers a wide range of finishings (swept, textured, deactivated, etc.) allowing adhesion without causing injury in the event of a fall.

### Pervious concrete

The porous structure of the mix, due to the absence of sand, allows water and air to penetrate easily. Its permeability is linked to (1) the size of the aggregate used and (2) the technique of laying the concrete.

### Pervious asphalt

This type of paving material is made by fixing aggregates with a naturally black bituminous binder. The material's surface or the binder must be discoloured in order to obtain a light colour. It is possible to use recycled asphalt aggregates.



*Oasis schoolyard of the Emeriau school, Paris.*

© Laurent Bourgogne, Ville de Paris.



*Oasis schoolyard of the Keller school.*

© Ville de Paris



*Installation of pervious concrete, Riblette school, Paris*

© CAUE of Paris



*Porous asphalt, Daumesnil school, Paris*

© CAUE of Paris

## Asphalt with organo-mineral or plant-based binder

The manufacturers present this asphalt type as «ecological» alternatives to conventional asphalts. Plant-based binders are made from renewable and recyclable raw materials. They are similar in thickness and application to conventional asphalt.



*Urbanith floor, Netter school, Paris*

© Ville de Paris

## Resin-bound aggregates

This paving material is made up of fine rolled or crushed aggregates bound with a petrochemical polyurethane resin. This resin is colourless and therefore retains the natural colour of the aggregate (plain or mottled).



*Resin-bound aggregate floor, Stéphane Hessel primary school, Montreuil*

© CAUE of Paris

## Stabilised crushed gravel

This material is made up of aggregates of various sizes, compacted to make them solid. It is similar to stabilised sand (construction and maintenance) but has a very rough surface due to the large diameter of the aggregates. It is not suitable for areas where falls are frequent.

## 2. 4. 1. Paving materials

### Concrete paving stones

Factory production makes it possible to control the final appearance of the floor (roughness, colour) and offer a wide variety of colours and finishings.



*Concrete paving stones in the Oasis schoolyard, Jean Dolent school, Paris.*

© CAUE of Paris

### Pervious concrete paving stones

This floor is permeable because the paving stones are made of pervious concrete. For this type of paving stones, the joints are of little importance to permeability. They are, therefore, generally thin. Perforated conventional concrete paving stones can also be used. The perforations allow water to pass through and make the paving stone drainable.



*Draining shell concrete paving stones*

© Alkern

## Paving stones

Paving stones can be produced in various sizes and types and can be particularly used in cases where the floor thickness is reduced.



*Stone paving stones, Dautancourt pre-school, Paris.*

© CAUE of Paris

## Grass paving stones

As schoolyards are heavily and regularly used areas, the chosen grass must be able to withstand heavy foot traffic. This type of ground covering is recommended to be used in sunny and irrigated areas. Although it requires time to grow, it provides a good compromise between the need for hard flooring for heavy use and the desire to provide green surfaces.



*Oasis schoolyard of the Parmentier school, Paris.*

© Ville de Paris

## Grass pavers

This type of flooring is made up of cellular slabs (plastic or concrete) that are filled with a mixture of uncompacted soil. The main risk with this type of flooring is the absence of grass. Therefore, the type of the selected substrate is critical. Otherwise, these slabs can be filled with gravel.



*Concrete and plastic permeable paving*

© Free license

## Paving (concrete and stone)

Due to its large size, concrete paving is unsuitable for vehicular traffic areas as it is more fragile. However, it offers an excellent alternative to cast floors. Concrete floors offer a smooth, uniform finish that can be used for sports activities as the large size of the tiles require fewer joints. As a factory-made material, its appearance (colour, gradation, slipperiness) is perfectly controlled.



*Oasis schoolyard of the Jean Dolent school © Ville de Paris*

## Stone paving in opus incertum (irregular pattern)

The thickness and various shapes of the stones mean that they have to be laid slab by slab and the substrate has to be prepared carefully.



*Paving of the Claude Levi-Strauss promenade, Paris © CAUE of Paris*

## 2. 5. Treating the boundary between two floorings

Boundaries are necessary between two materials to join, maintain a level or create a difference in level. Depending on the materials, the height of the boundary should be different. The boundaries must allow water to pass through. If runoff is expected on the selected surface area.

### Boundaries between levels



*Boundary between grassed paving stones and pervious concrete using a metallic rail.*



*Boundary between wood chips, decking and pervious concrete using a wooden rail.*

### Create a boundary with materials of different thickness



*Paving stone barrier in-between concrete and wood chips*



*Standing wooden log boundary. Oasis schoolyard of the Emeriau School.*

© CAUE of Paris

## 3. Water: valuing a resource

The majority of open public spaces today are paved with impervious surfaces causing alterations to the hydrological cycle on the city scale while also contributing to the urban heat island effect. Water is essential for creating comfortable urban spaces and protecting the local biodiversity. Therefore, it is a priority to integrate water management systems in the OASIS schoolyards.

It is essential to consider water as an economic, ecological and social resource in order to design and implement an efficient water management system. An additional challenge in the schoolyards is to make the water accessible to children, with features designed for drinking, cooling the area, playing or even learning!

### 3. 1. Rainwater

Rainwater management is essentially linked to the soil: the natural soil needs water to live and allow vegetation to grow; in exchange, the earth and plants absorb rainwater - whether light or heavy - and release it in the form of evapotranspiration when the weather is hot.

The idea is to help restore the water cycle locally by treating the water as close to where it falls.

In the case of the schoolyards, there are several solutions for rainwater management:

- Infiltration of rainwater directly into the soil,
- Runoff to supply water to schoolyard plants, evapotranspiration and infiltration into natural soil,
- Temporary retention of runoff water on flat roofs or in storm water basins,
- Collection of water for watering green areas, sanitary facilities or other uses.



*Before and after of the schoolyard of the Maryse-Hilsz school.*

© CAUE of Paris

## Combining rainwater management, soil permeability and vegetation

Levelling the soil to use water as a resource for plants

Staging the gravitational runoff of rain from roofs

Designing educational water paths

**Multiply the planting strata**

Plant the wall with a medium + low layer

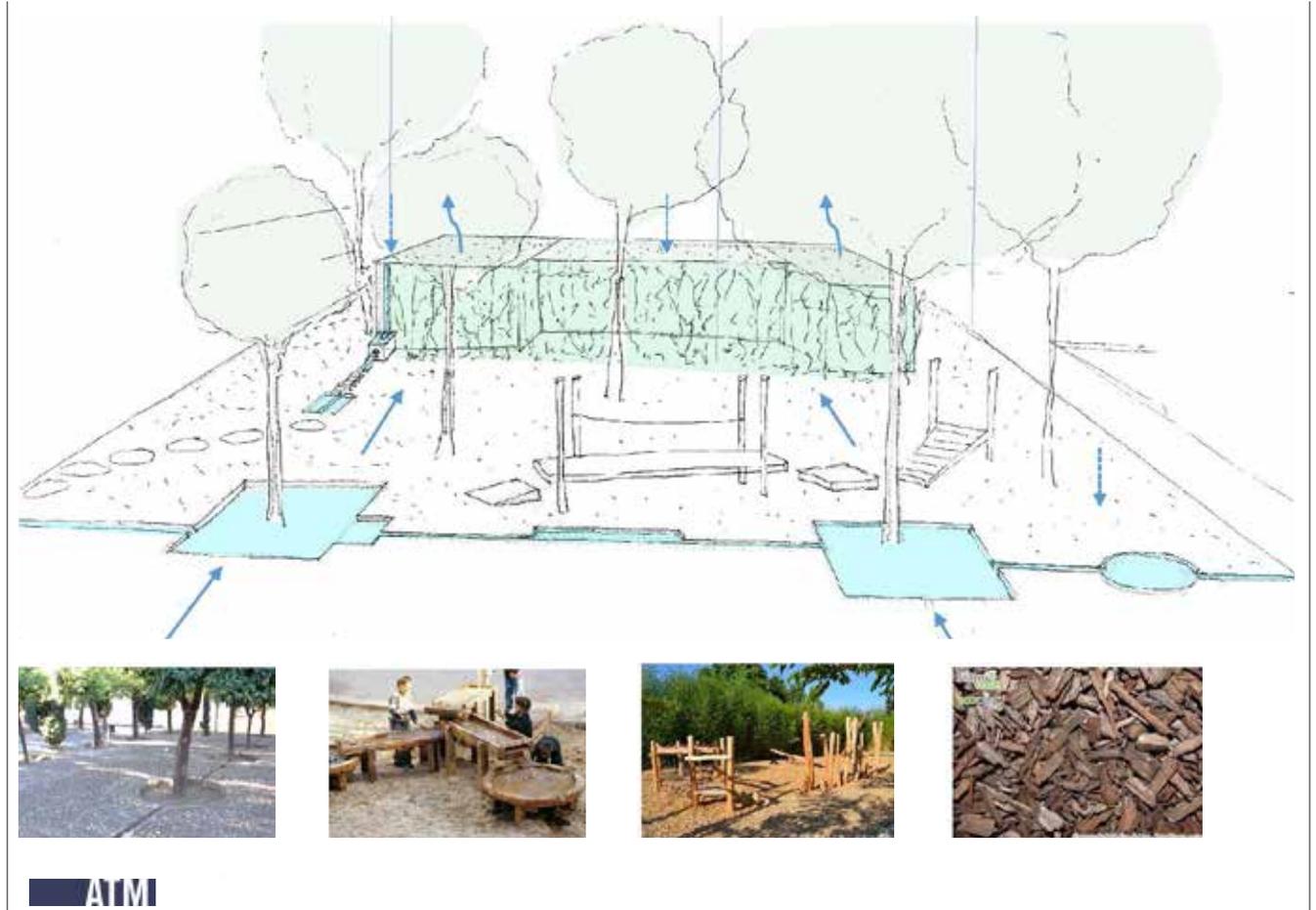
Study the greening of the roof

Increase the number of trees

**Make the floor permeable by covering it with natural materials**

Wood chips, grass or sand

Design wooden play equipments related to nature, balance and water run-off.



### 3. 1. 1. Managing rainwater on the ground



1. Precipitation
2. Interception by vegetation
3. Evaporation / evapotranspiration
4. Runoff
5. Soil infiltration
6. Soil retention
7. Hypodermic discharge
8. Drainage to the subsoil, groundwater recharge

## Level out impermeable areas with permeable areas

Runoff from impermeable surfaces should be directed to the natural soil as much as possible. The combination of permeable and impermeable soils requires precise levelling of the soil to bring the water to where it will be useful and can be infiltrated. For example, the planted areas or tree pits can be sunken or lowered to receive rainwater, which nourishes the roots and cools off the area.

**Continuous or networked tree pits** allow better infiltration and tree development. Due to gravity, the water circulates from one tree to another and is also a fun feature for children.



*Orange tree square in Cordoba*  
© CAUE of Paris



*Parmentier Oasis Schoolyard's Swale*  
© Ville de Paris

## 3. 1. 2. Rainwater harvesting and storage

Rainwater harvesting not only reduces the amount of water entering the sewerage system, but the collected water is also reused for purposes that do not require the quality of clean drinking water (e.g. irrigation).



*Water collector at the Dautancourt school, Paris*  
© CAUE of Paris



*Water collector, Oasis schoolyard of Quatre Fils school, Paris.*  
© CAUE of Paris



*Example of a modular overhead storage with wood cladding, in the Emeriau Oasis schoolyard*  
© Laurent Bourgogne, Ville de Paris

### 3. 1. 3. Making rainwater fun and educational

Making water visible in the schoolyard allows students to become aware of the water cycle, learn how to preserve the resource and to make them aware of its presence. The schoolyard is ideal for overlapping uses with rainwater management facilities combined with more playful uses.



*Educational river, Emeriau's Oasis schoolyard*  
© Laurent Bourgoigne, Ville de Paris

## 3. 2. Drinking water

### 3. 2. 1. Install water points accessible to children

These can take the form of push-button taps on the wall, outdoor basins or drinking fountains.

**The excess water should, in priority, be redirected to planted areas or to a playful water path, such as an educational river.**



*Outdoor taps, Maryse-Hilsz's Oasis schoolyard*  
© Théo Menivard, CAUE of Paris

### 3. 2. 2. Provide mobile or permanent water features



*Oscillating sprinkler*  
© Gamm vert

## 4. Shade: Protection during hot weather

Creating shade can reduce the ambient temperature by several degrees during hot weather. The Oasis schoolyards make it possible to increase the number of accessible shaded spaces in the city. The balance between shaded and sunny areas is essential to maintain comfortable lighting, humidity regulation and maximum sunlight in winter while creating shade for the summer.

The shading mechanisms can be designed in various ways. They can be seasonal (in the case of plant shading), coloured, providing soft light, or even refreshing by letting the wind through. It is therefore necessary to respond to a need for shade with a suitable solution to the project's context.

### 4. 1. Planting trees for shade

The easiest way to provide shade is to plant trees.



*Trees' shadow, Jeanne d'Arc elementary school, Paris*

© CAUE of Paris

### 4. 2. Planting supports: greening pergolas and canopies

Climbing vines will provide shade and coolness by creating a canopy to support the existing shade from taller trees.



*Cantilevered pergola, trellis. Oasis schoolyard of the Parmentier School*

© CAUE of Paris



*Wooden pergola anchored to the ground in open pits, Oasis schoolyard of the Emile Levassor School. © CAUE of Paris*

© CAUE of Paris



*Wooden pergola, Oasis schoolyard of the Blanche School.*

© CAUE of Paris

### 4. 3. Installing sunshades

Sunshades can be used to create shaded areas in the schoolyard.



*Oasis schoolyard of Gérard Philippe school, Paris*  
© CAUE of Paris



*Oasis schoolyard of Quatre Fils school, Paris*  
© CAUE of Paris

## 5. Play and sports facilities: diversifying uses for the well-being of children

Games play an essential role in the development of each individual: at any age, they stimulate the body and mind and invite creativity and freedom of practice.

Schoolyards are an opportunity to offer a first approach to this challenge. Providing a more natural recreation setting and a diversity of spaces and materials will positively impact on children's development: their imagination, autonomy, self-confidence and ability for cooperation.

The natural spaces created in the new Oasis schoolyards (natural islands, slopes, accessible and manageable natural materials, etc.) are vibrant play areas. The schoolyard's furniture elements complete and diversify the playing possibilities (wooden walkways, gazebos, paths with wooden logs, etc.).

It is crucial to redesign the schoolyard to strengthening the skills and fulfill the developmental needs of each individual in a peaceful relationship with others and their environment. Playful and sports spaces are essential to promoting this new vision of schoolyards that foster social interactions and encourage free play.

### 5. 1. Promoting motor development

The acquisition of physical skills and agile movements positively influence on the autonomy and self- confidence of children, which are essential for their development. The youngest children learn to fall smoothly and get up again, while the older ones overcome their fear and face difficulties and even failure. When they climb, jump, slide, swing, move around, they have fun and thus expand their knowledge. **The proposed facilities allow for controlled risk-taking.**



## TECHNICAL RECOMMENDATIONS

### Analysing the risk in order to promote the play value: from a schoolyard as safe as possible to a schoolyard as safe as necessary

According to Ben WALSCHAERTS, safety advisor for schoolyards at the Antwerp municipality, **it is necessary to evaluate the interest of a structure concerning the playful aspects and the motor development of the child while admitting an acceptable, measured and beneficial risk-taking.**

«The biggest challenge is ensuring safety whilst integrating nature and play value. **The play value is at the very top of the triangle in the hierarchy of values.** [...] In general, the play value decreases when safety increases. We don't want to play in the safest possible way. So it's a trade-off between managed risk, play value and safety.»

«Increasing 'risk competence' in children is a considerable challenge. Offering an overprotected environment means that children no longer learn to manage risk. [...] Most accidents happen with children who just let themselves fall. You climb somewhere and then you let yourself fall; you let go. «

To make a risk analysis, **we will consider 3 areas:**

- **Exposure**, i.e. the number of hours of use, and therefore the exposure to risk is much less in a school than in a public playground,
- **Impact**, i.e. we have to evaluate the possible incident and its consequences,
- **Probability** of having an accident, but this risk analysis is more difficult, so several people often do it in order to compare different points of view and then be discussed.

«In our case, we will first analyse the risk and then we will be able to set standards. [...] We can only use standards as references. It is a database of knowledge. What is important is the risk analysis. This is the reality. «

Interview at the Toverbol School, Antwerp, on 3 October 2019 and transcribed by the CAUE of Paris

Children go through different stages of gross motor development, each at their own pace. The facilities must adapt to the different age groups or difficulty levels. **It is desirable that schoolyards can be used freely and independently during playtime, but that they can also be used for supervised sports activities.**

## 5. 1. 1. Climbing

At all ages, children climb, gain height and overlook their surroundings. They confront their fear of height and test their skills and agility, as well as their strength and body control. Appropriate play structures can be designed based on the schoolyard's context, for example, structures attached to the school building, on poles, or around existing trees.

### Games of balance



*Oasis schoolyard of Keller school, Paris*  
© Théo Menivard, CAUE of Paris



*Oasis schoolyard of Jeanne d'Arc school, Paris*  
© CAUE of Paris



*Oasis schoolyard of Jeanne d'Arc school, Paris*  
© CAUE of Paris



*Oasis schoolyard of Kuss school, Paris*  
© Laurent Borgogne, Ville de Paris



*Oasis schoolyard of Jean Dolent school, Paris*  
© Théo Menivard, CAUE of Paris



*Lying logs, Oasis schoolyard of Emeriau school, Paris*  
© Laurent Borgogne, Ville de Paris



*Oasis schoolyard course, Jeanne d'Arc school, Paris*  
© CAUE of Paris



*Oasis schoolyard of Maryse-Hilsz school*  
© Théo Menivard, CAUE of Paris



*Oasis schoolyard of Jean Dolent school*  
© Ville de Paris

## Terrain

A terrain relief element (hill, embankment, bump, swale) can become itself a play element; it can be climbed, walked around, explored and many more activities. If a terrain relief already exists in the schoolyard, it is recommended to utilize it as the schoolyard's play area. The uneven topography of the schoolyard encourages the child's ability to overcome obstacles and thus develop their motor skills.



*Oasis schoolyard of Maryse-Hilsz school* © Ville de Paris



*Oasis schoolyard of Tandou school, Paris* © Ville de Paris



*Oasis schoolyard, Quatre fils school* © CAUE of Paris



*Mound with logs for climbing. Oasis schoolyard, Keller school, Paris* © CAUE of Paris



*Oasis schoolyard of Emeriau school, Paris* © Laurent Bourgogne, Ville de Paris



*Butte with slide, Oasis schoolyard of Maryse-Hilsz school* © Théo Menivard, CAUE of Paris



*Oasis schoolyard tunnel, Tandou School* © William Rio, Ville de Paris



*Tunnel in a mound, Oasis schoolyard of Emeriau School* © Théo Menivard, CAUE of Paris



*Pontoon between two mounds, Oasis schoolyard of the Maryse-Hilsz school* © Théo Menivard, CAUE of Paris

## Climbing routes and vias ferratas



*Climbing on the quays of the Seine, Paris*  
© CAUE of Paris



*Climbing in the Oasis schoolyard of the Quatre Fils school, Paris*  
© Théo Menivard, CAUE of Paris



*Oasis schoolyard of the Emeriau school*  
© CAUE of Paris

### 5. 1. 2. Sliding

Children enjoy the idea of sliding, either on a flat surface such as a slide or along a tube such as a fireman's pole. These facilities for individual use are also places of exchange and socializing where everyone observes each other, talks to each other and waits for their turn.



*Oasis schoolyard of Jeanne d'Arc school*  
© CAUE of Paris



*Slide at Maryse-Hilsz school*  
© CAUE of Paris

### 5. 1. 3. Swinging

Swinging can be very beneficial for some children. When practiced in a group or in front of a group of children, this activity also promotes socializing among younger children, giving them a sense of teamwork, of doing things together, even without knowing each other.



*Hammocks in the Oasis schoolyard of the Emeriau school*  
© Laurent Bourgogne, Ville de Paris



*Hammocks at Kuss School*  
© Laurent Bourgogne, Ville de Paris



*Bars at Maryse Hilsz Pre-school, Paris*  
© CAUE of Paris

### 5. 1. 4. Moving around



*Marked street, Riblette school, Paris*  
© CAUE of Paris

## 5. 1. 5. Sports activities

It is essential to ensure that the location and marking of sports facilities are gender-neutral, facilitate the needs of the physical education (PE) classes and allow other activities in the schoolyard.

Sports facilities should not be oversized. The areas dedicated to ball sports should be clearly restricted so they do not spill over into the rest of the schoolyard. To reinforce both sports practices and the gender mix, it is preferable not to place the sports fields in the centre of the schoolyard but connected to the inner courtyard to facilitate the dynamics of PE classes.

The markings make it possible to create visual margins of the ball game fields in an otherwise multi-use and flexible area of the schoolyard.



*Sports wall in the Oasis schoolyard at Kuss School.*

© Laurent Bourgogne, Ville de Paris.



*Coloured targets of the Riblette school, Paris*

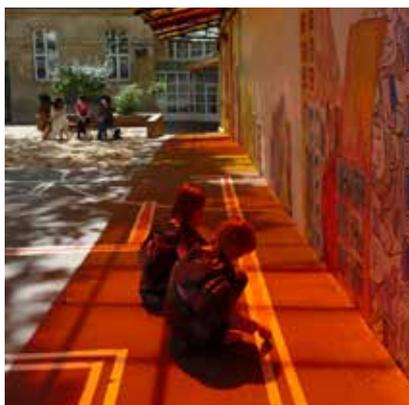
© CAUE of Paris

## 5. 2. Encouraging exploration and experimentation

The design of schoolyards should support creativity. The presence of elements that can be used without a defined way, objects that can be experimented without precise instructions and accessible areas suitable for discovery are all spaces for imagination that influence the child's motor, relational and emotional capacities positively.

### 5. 2. 1. Story-telling

**Floor markings in various geometries and colours** are invitations for imagination.



*Participatory floor marking workshop in the Oasis schoolyard of Quatre Fils primary school.*

© CAUE of Paris

## 5. 2. 2. Imitate and build

Trunks filled with recycled objects (suitcases, fabrics, computers, pipes, tubes, etc.) can be integrated into schoolyard games. They allow the children to let their imagination run wild by using everyday objects.

«**Life-size» everyday objects** can also be placed in the schoolyard. They can be the same height as the children who use them, preferably made of recycled materials. They can be flat surfaces such as kitchens or workbenches, which can also be used as tables, seats or borders, with different textures and an alternation of full and empty spaces.

It is interesting to **combine real objects with elements that leave room for the imagination**. Children can make-up witch's soups, patouiller, practice experimentation and develop their creativity. They also learn about the concepts of matter and movement with objects on an axis or lever arm.



*Imitation games - Imaginary hut -  
Sound games with recycled materials*  
© Ville de Paris



*Oasis schoolyard of the Jean Dolent  
school*  
© Ville de Paris



*Steering wheels, Amiral Roussin school,  
Paris*  
© Ville de Paris

## 5. 2. 3. Refining the senses

From an early age, children develop their sensory abilities in parallel with their motor skills and the environment stimuli. In order for them to develop their senses in a harmonious and playful way, it is important to provide schoolyards with **activities that stimulate the senses**.

**Sensory paths** allow children to discover and touch different textures while walking. When children walk through an area barefoot, they feel the warmth, wetness, roughness etc., of the material with their feet, and develop their stability, coordination and muscle strength.

**Musical games** with solid and hollow elements of different materials (metal, wood, plastic, etc.), suspended in the wind or struck by the children are a common way to learn about sound, frequency, intensity, melody and rhythm.

**With distorting mirrors**, the little ones can differentiate between what is real and imaginary while giving free rein to their creativity and often provoking laughter.

Reserves can be used to connect two distinct parts of the slope in order to **communicate secretly**, in earthen shapes. When the ground is reshaped, pipes can also run through it to connect two points in the schoolyard. The outlet of the pipe acts as a microphone and earpiece.



Sound pipes in an embankment at the Toverbol school, Antwerp  
© CAUE of Paris



Musical games of the Souverain school centre, Brussels  
© CAUE of Paris



Sound tube at the Belleville Park, Paris  
© CAUE of Paris



Distorting mirrors, Thionville pre-school, Paris  
© CAUE of Paris

## 5. 2. 4. Exploring biodiversity

The presence of biodiversity is an essential element that often encourages the discovery of natural cycles. In addition to being an educational, awareness-raising, and experimentation activity supervised by teachers, **the garden, the orchard, or simply small natural areas can be accessed** independently during school breaks.



Manual watering in René Coty Avenue, Paris  
© Atelier + 1



Insect hotel, Oasis schoolyard of the Kuss school, Paris.  
© Laurent Bourgogne, Ville de Paris



Plant incubator made by the students. Oasis schoolyard of Gérard Philippe middle school. © CAUE of Paris

When children are close to plants, they can **smell the herbs, flowers**, but also the damp earth and mulch. In these inhabited spaces, they have the opportunity to **contemplate the small fauna**, the pollinating insects and the birds.



*Workshop in the pedagogical river.  
Oasis schoolyard of the Emeriau  
school, Paris. © CAUE of Paris*



*Participatory work site, Oasis  
schoolyard of Jean Dolent school  
© Ville de Paris*



*Planting of the Oasis Schoolyard,  
Octave Gréard middle school.  
© CAUE of Paris*

## 5. 2. 5. Transferring materials

By providing containers such as buckets, pots, or bowls as well as small rakes and shovels, children can freely experiment and play with the raw material in the soil, imagining **their own construction and transformation site**.



*Playing with leaves and wood chips at the Maryse-Hilsz school  
© Théo Menivard, CAUE of Paris*



*Covered sandpit in the Oasis  
schoolyard at Tandou School  
© Théo Menivard, Ville de Paris*



*Oasis schoolyard of the Jean Dolent school  
© Ville de Paris*

## 5. 2. 6. Playing with water

Water is also a playful element. Children can **participate in hand-watering** the garden with small watering cans and a rainwater tap at their level. This activity is fun and, at the same time, **makes them aware of the needs of the plants.**

The children also enjoy **observing the path of the water:** in an educational river, a gutter, along water chains or in playful circuits. Besides observing the course of rainwater, children like to **play with drinking water: touching it, decanting it, making it flow, mixing it, and getting wet.** With recycled objects such as pipes, bottles and funnels, water circuits can be set up in schoolyards.



*Water games in the Oasis Schoolyard at Kuss School*

© Théo Menivard, CAUE of Paris



*Educational river, Oasis schoolyard of the Emeriau school*

© Théo Menivard, CAUE of Paris



*Educational river at Maryse-Hilsz school*

© Théo Menivard, CAUE of Paris

## 5. 3. Fostering social interactions

### 5. 3. 1. Learning to live together

The different areas of the schoolyard should be visually or physically demarcated to eliminate conflicts between uses. Signage can be added to **indicate further instructions. These signage elements can be the subject of an educational project with children.**



*Oasis schoolyard use conditions, Keller school, Paris*

© LIGUE of Paris



*Signage design workshop for the Oasis schoolyard of the Alviset school, Paris*

© LIGUE of Paris



*The rules of the Emeriau School Oasis schoolyard*

© Ville de Paris

### 5. 3. 2. Gathering in quiet spaces

It is recommended to provide comfortable seating areas in the schoolyards in order to allow pupils to gather, discuss or play quiet games during school breaks.

Facing benches, circular benches or platforms are preferable to linear seating: **they facilitate communication** between the users and **form a dedicated space**.

It is interesting to **add tables surrounded by seats to these quiet spaces, which can be used for board games, card games, reading, etc.** It is also helpful to place them close to a **games box or a book box for easy access**.



Wooden log amphitheatre in the Oasis schoolyard, Keller School, Paris

© CAUE of Paris



Oasis schoolyard bleachers, Tandou School

© CAUE of Paris

### 5. 3. 3. Hiding in small groups

Facilities **such as huts, green tunnels, wicker huts or teepees** allow children to feel like they are in a space on their scale, isolated and sheltered, like a cocoon.



Wicker huts. Oasis schoolyard of Maryse-Hilsz school

© Théo Menivard, CAUE of Paris



Wicker teepee. Oasis schoolyard of the Keller school

© Théo Menivard, CAUE of Paris



Wicker tunnel. Oasis schoolyard of the Emeriau school

© Laurent Bourgogne, Ville de Paris

### 5. 3. 4. Learning outdoors

A challenge in schoolyard design is to diversify learning methods and to use the schoolyard as an educational tool. It is recommended to design the schoolyard as a space to host outdoor classes and various outdoor learning activities.

The installation of an amphitheatre is recommended when the configuration and surface area of the schoolyard allows it.

**A stage** can also be an interesting multi-purpose element in a schoolyard.



*Bleachers in the Oasis schoolyard of the Maryse Hilsz School.*

© Théo Ménivard, CAUE of Paris



*Wooden kiosk, Oasis schoolyard of Maryse Hilsz School*

© Théo Ménivard, CAUE of Paris



*Quatre Fils Elementary School Oasis Schoolyard Kiosk*

© CAUE of Paris

### 5. 3. 5. Expressing yourself freely

The installation of a large expression wall allows children to express themselves freely. They can draw and write on it, individually or in groups.



*Paintings in the Oasis schoolyard, Jean Dolent school*

© Théo Ménivard, CAUE de Paris



*Expression board. Oasis schoolyard of the Keller School*

© Théo Ménivard, CAUE of Paris

## 6. Technical and practical arrangements: anticipating project constraints

The location of schools in cities is often central within the neighbourhood and, therefore, it is recommended to consider the surrounding context when planning the schoolyard transformation. Schools and their outdoor spaces are particular urban areas as their role tends to diversify to accommodate new uses.

### 6. 1. Renovate the facades and building elements facing the schoolyard

The inventory of the schoolyard's-built environment provides an overview of the possible ancillary works that can be integrated into the project or even programmed and carried out beforehand. These «small» works can make a difference to the quality of the project, regarding its sustainability and the overall aesthetics.



*Gate repainted and transformed into an expression board, 16 rue Riblette school, Paris*  
© CAUE of Paris



#### CAUTIONARY NOTE

##### **Artistic frescoes decorating schoolyards**

There are often various types of artistic frescoes (painted, mosaic, etc.) on the walls of schoolyards. The schoolyard transformation project is an opportunity to check the state of these artworks to consider their conservation, restoration (if possible), or removal and cleaning of the supporting wall.

The Oasis schoolyard project can also be the subject of a new artistic creation. Very often, the frescoes bore the occupants of the school after a few years and the colours fade, so it is essential to develop a new project.



Refectory before/after, 16 rue Riblette school, Paris © CAUE of Paris

## 6. 2. Incorporating storage facilities into the design

It is preferable to anticipate the storage of any outdoor equipment that will allow the children to go outside: shoes, coats or rain gear. Lockers can be placed inside or outside in a sheltered area.



Oasis Schoolyard bike room, Gérard Philippe middle school.

© Ville de Paris



Storage of the Oasis schoolyard at the Jeanne d'Arc School.

© CAUE of Paris

## 6. 3. Thinking about outdoor lighting and electrical outlets

From the street to the schoolyard, the lighting system is part of the safety and accessibility of the new schoolyard.



Ceiling light under an awning to illuminate the awning space and the adjoining storage area, French high school, Antwerp © CAUE of Paris

## 6. 4. Managing waste in the schoolyard

Waste management is of great importance in schools, including separating and treating organic waste. Devices such as floor markings can help to create good waste sorting habits.



*Sorting bins in the Oasis schoolyard at Alviset College*  
© CAUE of Paris



*Marking for basketball bins, Paris*  
© CAUE of Paris

## Benchmarking - Schoolyards from abroad

In France and in general, around the world, cities are implementing projects to make schoolyards more inclusive and adaptive to climate change. The valuable impact of green spaces on the development of children's social, cognitive and motor skills as well as on the enhancement of the citizens' life quality stand in the heart of the Oasis project in Paris. The following examples have been an inspiration for the implementation of the project.

### France

#### «The outdoor school» - Strasbourg (France)

Inspired by the pedagogy of Scandinavian outdoor schools (see below), the city of Strasbourg has been implementing the outdoor school project since 2011 in the Jacqueline pre-school. The idea is to allow kindergarten pupils to experiment, discover and learn in natural areas of the schoolyard that have been made «wilder».

As part of a plan to revitalize the neighbourhood, this school was able to redesign part of its schoolyard. New facilities have been integrated, such as a dry pond, an educational river, wooden games or games made of natural materials (log paths, walkways). These areas are considered «wild» because nature is not restricted: the soil is demineralised, plants grow freely, dry leaves are left on the ground to encourage the development of a natural environment and vegetation. In these areas, the teacher has the role of the guide. He or she «observes, encourages, answers questions, reassures, verbalizes and encourages to go further». In fact, the child chooses his/her activities – developing his/her soft skills such as autonomy and responsibility.

A manual that serves as advocacy, technical and educational support for the implementation of this type of project is available [here](#). In addition, this project was the subject of a documentary film by Mariette Feltin entitled «Les enfants du dehors»; and a [presentation by Joelle Quintin](#) at a conference organised as part of the Oasis project.

#### Green schoolyards - Lille (France)

Following a [similar approach](#) to the Oasis schoolyards, the city of Lille decided to green its schoolyards to promote the educational aspect for the children's benefit while mitigating the urban heat island effect. Many schools already had a few trees or green space. Still, the city council decided to increase the planted area, by greening the walls and facades of the schools («Greening our walls» scheme) and integrating different uses of a schoolyard. In addition, primary attention has been given to the water element in redesigning the schoolyards. (rainwater collection tank for watering and cooling off the area during a heatwave).

#### Outdoor classes - Deux-Sèvres, Nouvelle-Aquitaine and Paris (France)

Some kindergartens in France organise outdoor excursions one morning a week throughout the year to a public park where children can be in direct contact with nature. Parents and grandparents are asked to accompany the children on this weekly excursion. The only equipment required for children and adults is a pair of boots, trousers and a waterproof jacket.

There are several documents to learn more: an [interview with a teacher](#), the documentary «[Il était un jardin](#)», a [blog of the Parisian outdoor class](#). Two presentations at the «Education through Nature» conference, organised within the frame of the OASIS project, «[Ma classe dehors](#)» and «[Faire classe à l'extérieur](#)».

## Europe

### «Playing in nature - Planvers» - «Speel Natuur Plantwerpen» - Antwerp (Belgium)

The [initial idea](#) of this project was to green the schoolyard and allow more free play for the children. However, many co-benefits were identified after the implementation. For example, the all-natural schoolyards installed in almost 40 Antwerp schools allow children to have real contact with natural materials (soil, plants, sand, wood chips) - making them more aware of the environment while promoting the development of their motor skills. The different spaces also allow the invention of new games for the children, the diversification of activities that are accessible and appropriate for all pupils (girls/boys, younger/older etc). The children also strengthen their skills through learning by risk. Finally, these new schoolyards have contributed to creating a more comfortable local microclimate. For more information, refer to the two online articles written by the City of Antwerp: «[Is a green schoolyard dangerous](#)» and «[7 tips for maintaining a natural schoolyard](#)».



Lycée Français, Antwerp ©Ville de Paris

### «Ose le vert, recrée ta cour» - Wallonia (Belgium)

«[Ose le vert, recrée ta cour](#)» is an initiative to remove asphalt and bring green spaces into Walloon schoolyards in Belgium. This programme was the subject of an annual call for projects. Once selected, the projects receive technical, financial and educational support to encourage the integration of biodiversity in the schoolyard and to raise awareness of environmental issues among pupils and educational teams. While proposing significant transformations, these renovations are inexpensive (between 1000 and 3500 euros) and rely on the involvement of educational teams, parents and pupils.

This programme enabled the development of [technical](#), [educational](#) and [communication](#) toolkits, among other elements. Moreover, their website offers a [guide to managing the facilities](#) of a natural schoolyard.



Souverain School Centre, Brussels  
©Ville de Paris

### Milan's urban forests - «ForestaMi» - Milan (Italy)

As part of the ForestaMi plan, the city of Milan wants to plant nearly three million trees by 2030. [This initiative](#) (web page in Italian) aims to combat urban heat islands and improve air quality. More than 2,000 schools have been selected for the new schemes.

In addition, several schools already have educational gardens and vegetable gardens. These are installed by the municipality or developed on the initiative of each school's educational team - with the support of parents and grandparents. These gardens help raise children's awareness of sustainable and healthy food habits. The project's vision resonates with national education programmes on nutrition.

At schools that do not have enough space, the municipality implements the project «Recycling and culture - The vertical garden at school», which proposes vertical gardens with aromatic and horticultural plants. The vertical gardens are created with containers from recycled plastic (mainly collected from the school) and the schools' wet waste also produces the compost that is used for nourishing these plants.

### «Forest Schools» - Denmark

In Denmark, 10% of the kindergartens are «[forest kindergartens](#)» where the pupils - accompanied by teachers - spend their days learning outdoors in close contact with nature. This educational concept is mainly based on the children's sense of responsibility. Some children living in cities take the bus every morning to the forest in the city's outskirts. These outdoor classes are also practiced in [Germany](#) and [Austria](#) (web pages in English) and currently similar programs begin to develop in France.

In addition, children's playgrounds are also transformed in Denmark. The approach remains the same as in schools - to increase children's contact with nature (especially in urban areas). Thus, these «natural playgrounds», such as those in [Valbyparken](#) or Himmelhoj, offer relief and different spaces for creative development and free play.

### Climate refuge schools - «Ecoles refugis climàtics» - Barcelona (Spain)

The [Ecoles Refugis Climàtics](#) programme, which has also received funding from the ERDF - Urban Innovative Actions Initiative, aims to create refuges from extreme heat. The project focuses on adaptation solutions implemented in the school buildings as well as the greening of the schoolyards.

In addition, academical, municipal and associative actors are considering [sharing space between genders and resolving conflicts in the schoolyard](#) - as shown by the [Dovella school](#), winner of the 2018 Pedagogical Innovation Prize (prize awarded by the city). The solutions proposed include more vegetation in the schoolyard and the delimitation of different play areas so that every child can find a place to enjoy and feel comfortable.



Mare Nostrum School, Barcelona  
©Ville de Paris

### The «MICOS» programme - Programa «MICOS» - Madrid (Spain)

In Madrid, the greening of 241 public schoolyards aims to [improve the city's air quality and mitigate the effects of extreme heat](#) (web page in Spanish). The program also seeks to improve children's physical and cognitive development, while creating spaces for social inclusion (among children, and the local community). To achieve this, the city has decided to green the schoolyards and the streets around the schools (modification of materials, planting of vegetation, increased albedo, installing canopies to increase shading, etc.).

### «Open schoolyards» - «Patis Oberts» - Barcelona (Spain)

Since 2006, the [Patis Oberts project](#) (web page in Catalan) has aimed to transform Barcelona's schools into a place that strengthens the neighbourhood's social ties. The project's primary goal is to provide new accessible play spaces for children in a dense urban environment, thus the schoolyards are open to the public during the weekends. Some of the school openings allow for the coordination of recreational activities (sports, games, etc.). These activities are supervised by guards in collaboration with the pupils' parents, the school management, neighbourhood associations, and the City of Barcelona.

### « Places de jeux » - Geneva (Switzerland)

The city of Geneva has designed multi-purpose playgrounds with natural surfaces in an effort to foster intergenerational relationships. These playgrounds are installed directly in the schoolyards and remain open to the neighbourhood's residents during after-school hours. The proposed structures offer a [wide variety of games](#) (symbolic, movement, multifunctional), contributing to the development of the imagination and motor skills of children.

Moreover, [some schools in Geneva](#) are already located in parks. Thus, the schoolyard is a natural place which remains open to the public all day, including during school hours.

### «Open Schools Project» - Athens and Thessaloniki (Greece)

These two Greek cities, aim to [transform schools into cultural centers for the local community](#) (video in Greek with English subtitles), with open access to the residents after school hours. The Municipalities support with subsidies local associations and volunteers to coordinate activities in the school buildings and schoolyards for participants of all ages. Such activities include carpentry, theatre, early musical education, knitting, maker's workshops, dance classes, yoga classes, neighbourhood parties, gardening, circus, and more.

## World

### «Schoolyards to Playgrounds» New York (USA)

Since 2007, New York City has been transforming its [schoolyards into green spaces, open to the public](#) during after-school hours. Although the initiative's primary goal is the children's well-being, this project also increases the amount of green space in the city, with the ambition to provide an accessible park within a 10-minute walk for every New Yorker.

Additionally, the «[Edible Schoolyard NYC](#)» programme aims to develop school gardens and teach children how to cook, thus raising their awareness of nutrition and biodiversity.

### «Mullins» cool islands - Montreal (Canada)

This [project developed in Montreal](#) aims to green the schoolyards by removing the asphalt from most of the space. The project is based on the evapotranspiration principles with massive vegetation and permeable paving materials to mitigate the Urban Heat Island effect.

In addition, the schoolyard is now open to the residents and associations of the neighbourhood. Other initiatives of this type are underway in Montreal, especially in the Saint-Henri neighbourhood.

Finally, a broader consideration is being carried out in Canada on the importance of nature in children's cognitive, social and psychomotor development. For example, the Toronto Education Authority and the Evergreen Association have developed a technical guide to include more nature in schoolyards.

### «The Shared Schoolyard Project» - San Francisco (USA)

Launched in 2008, this project aims to provide a [play space for children and their families](#) within a walkable distance from their homes. The schoolyards are open on weekends, adding another 19 hectares of recreational space to the area. Additionally, the program aims to strengthen the social cohesion of the local community and offers activities for young people. Subsidies are allocated to various associations to organise free sports courses or events open to the neighbourhood.

### «My community, my school» - «Mi comunidad es escuela» - Cali (Colombia)

The city of Cali is [transforming schools through the lens of urban resilience](#). The aim is to strengthen the resilience of schools towards natural hazards (climate change impacts, seismic risk) while increasing the number of students enrolled, providing appropriate teacher training, and opening school access to the neighbourhoods. The vision is to make schools the «heart» of the community.

In the same concept, the «[My street is a school](#)» project (article in Spanish) invites students, residents and social actors to gather around schools for cultural and artistic activities to strengthen social links. The project also raises awareness about the risks of violence and illegal activities that sometimes occur around schools.

### **Fuji Pre-school - Tokyo (Japan)**

With its atypical architecture, this kindergarten prioritises the well-being of children through play and discovery while encouraging the development of their physical and social skills. [The main idea was to abolish borders](#) the school was designed in an oval shape. There are no interior walls and a few storage structures only symbolically separate the different classrooms. The advantage of an oval structure is that a child walking straight ahead will inevitably end up back in his/her workspace! As the school's architect points out, children sometimes need to move around to be able to concentrate.

Additionally, the indoor/outdoor boundary is abolished. The rooms are open to the courtyard during almost the entire year. The shoe cleaning area is the only compulsory point of passage between outside and inside. The architecture is influenced by play. The roof is accessible, and children can run freely on it. A student runs an average of 4 km during the daily breaks. Finally, the trees are an integral part of the building, and the students can access the branches from the roof. Nets are used to prevent injury. However, learning through risk is desired. Another play structure that is 5 meters high with 7 different floors is designed to promote risk play. The structure itself does not dictate any pre-defined play pattern allowing children to invent their own games and urging them to cooperate to get over certain floors - which they do intuitively.

### **«Schoolyard without rules» - Auckland, New Zealand**

Risk is an integral part of [playtime at Swanson School](#). Children can climb trees, walk barefoot, speed on their scooters, and play with wooden boards and metal tubes. The play is free. Indeed, the director has chosen to gradually remove the restrictions, until only one rule remains: «don't kill a playmate»... and it works! Since the beginning of the experiment, the number of injuries during breaks has dropped, and the children are more attentive in class and willing to learn.

