CHILD-FRIENDLY CITIES

Planning and Design Guidelines

Israel


מינהל
הפיתוח
משרד החינוך
מינהל הפיתוח


Bernard
van Leer
FOUNDATION


URBAN
95


SEED CENTER
האקדמית תל-אביב-יפו


Robert Ishaq, Ph.D.
Transportation Planning Ltd.


REED


גבריאלי
סגל


הקליניקה האורבנית
THE URBAN CLINIC
عيادة التخطيط الحضري


האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

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Message from the Ministry of Education

The planning and construction of infrastructure for educational institutions have an impact and leave a significant mark on children and the urban space. The urban space and the public areas that it contains (in particular, educational institutions) play a key role in shaping and developing the character and identity of our children from a number of perspectives (cognitive, emotional, physiological, social-communal, cultural, and others). This is especially true in a country where the population growth rate is high and planning policy seeks to achieve greater efficiency in land use.

Creative and accommodating thinking is therefore required, which will facilitate the realization of social potential in the long term, with a focus on the population of children. This approach derives from the need and importance of **maintaining the advantage of urban living**, while addressing the design and construction of the future space in which our children will grow and develop.

The Senior Mapping and Planning Division at the Ministry of Education finds the products of the committee to be highly valuable and appreciates the fruitful collaboration. Understanding that the 'world of children' and education extend beyond the boundaries of educational institutions and are present throughout the entire urban space is essential to planning policy. Consequently, designing the urban space to be child-friendly, while implementing an educational-social-planning approach, is necessary and crucial to shaping our future.

Ram Nahari
Deputy Director of the Development Administration and Director of the Senior Mapping and Planning Division

Orit Nagar-Shamir
Senior Coordinator, Mapping and Planning Educational Institutions

Message from the Israel Representative of the Bernard van Leer Foundation

If you could experience the city from an elevation of 95 centimeters – the average height of a healthy three-year-old – what would you do differently?

That is the question that the Urban95 initiative of the Bernard van Leer Foundation seeks to answer. The aim is to create a healthy, safe and vibrant urban environment, where young children and their families can thrive and develop.

To achieve that, we have been collaborating with decision-makers and leaders, planners, designers and representatives of communities across the globe. We are looking for ways to foster the healthy development of young children and the wellbeing of their caregivers in the cities they reside in. We believe that a city which takes steps to better the lives of young children and the individuals who take care of them, is a city that strives to better the lives of all of us.

Over the years that we have done groundbreaking work in different cities around the world. We saw just how important it is to formulate specific guidelines that will help decision-makers and professionals in Israel who wish to create a good urban environment for the children growing up here.

We realized that guidelines of this nature should be a product of joint work with a wide variety of stakeholders, including government ministries, local authorities, civil society organizations, and experts from academia. The outcome is an insightful and creative set of practical guidelines that will help us broaden the impact of the Urban95 worldview in many urban environments in Israel. We made a special effort to adapt the guidelines to the diverse population groups in the country, including unique ones such as the Arab sector and the ultra-Orthodox community.

We anticipate that with assistance from Urban95's numerous partners in Israel, we will be able to implement these guidelines in many cities and incorporate them in different plans. For that purpose, we are also training a variety of professionals, supplying the cities with technical supports, and working to integrate our approach into national and local plans. At the next stage, also facilitated by Urban95's work on the ground, the guidelines will be updated and become a living and evolving document that will be published in revised editions in the future.

I wish to thank the Ministry of Education, our strategic partner, and Urban95's national steering committee for their active participation and for the insights and comments they have provided us with in the last few years. Owing to their commitment and the collaboration with them, we managed to produce a document that reflects the expertise, viewpoints and priorities of all of us. I also wish to express my deep appreciation to the dedicated professional staff, who enabled us to utilize the decades of their cumulative experience in many fields. By doing so, they made it possible to translate Urban95's approach into practical and implementable guidelines that will benefit the youngest residents of Israeli cities, and even beyond them.

Daniella Ben-Attar
Israel Representative of the Bernard van Leer Foundation

Message from the Editors

This document, which contains planning guidelines pertaining to young children and their caregivers, is a product of a fascinating and unique work process. We are proud and pleased to have had the opportunity to prepare and edit this special document.

Israel is a young country, which in recent years has undergone accelerated growth and development. The average number of children per family in Israel is very high compared to OECD countries. A family structure characterized by many children, coupled with the significant growth data, necessitate unconventional thinking about the environment in which our children will grow up, in cities that are increasingly congested.

To address this challenge, the Bernard van Leer Foundation, through the Urban95 project, initiated the preparation of unique planning and design guidelines that will benefit children in their respective environments. This undertaking was facilitated by a steering committee comprised of representatives from government ministries, local authorities, private sector organizations, and civil society organizations.

The guidelines deal with numerous aspects of urban environment planning, ranging from the stage at which master and statutory plans are prepared, which determine the spatial distribution of the land uses and define the scopes of construction and the connections and links between the different parts of the city, to the design stage, when architects and landscape architects are expected to prepare plans for designing open and built spaces. Those plans include the general layout of the space as well as specific elements, such materials, colors, etc.

The guidelines are arranged by subject and contain chapters dealing with the residential environment, the planning and design of public institutions and parks, the planning and design of the street space, and mobility.

Users of these guidelines can easily locate the section of interest to them, both in terms of the level of detail (comprehensive planning or design stage) as well as specific topics. The guidelines were edited by a multidisciplinary planning team consisting of town planners and a child development expert, advised by an academic consultant. In our estimate, the out-of-the-box combination of developmental considerations with spatial planning contributed greatly to formulating a document whose implementation will benefit the living environment of young children in Israel.

We wish to thank our partners on the work team for their invaluable contribution: Dr. Dana Shai, an expert on early childhood development, Dr. Emily Silverman, our academic consultant, the landscape architect, Ram Eisenberg, and the transportation planner, Dr. Robert Ishaq.

We also extend our thanks to the Bernard van Leer Foundation and the Urban95 initiative for the trust they put in us, and to the members of the steering committee and feedback workshop participants for their involvement and contribution.

We hope that the guidelines will be implemented, and that their implementation will impact the quality of life of our children and grandchildren in the Israeli urban space.

Tami Gavrieli, Planner
Guido Segal, Architect

Gavrieli-Segal Town Planning and Architecture

A covered yard at a kindergarten in Harish. Design and photograph: Jl Think Nature Landscape Architecture & Urban Design, Julie Levy-Peled and Ifat Gal Shpeizman

Work Team

Head of the Design and Architecture Team

Gavrieli-Segal Town Planning and Architecture
Tami Gavrieli-Planner
Guido Segal-Architect and Planner
Hila Bar-Ner-Planner
Mor Mittelman-Planner
Shlomo Mazor-Architect
Ofer Cohen

Landscape Architecture

Ram Eisenberg Environmental Design
Ram Eisenberg-Landscape Architect
Yaron Zelnik-Landscape Architect
Lana Khoury-Landscape Architect

Transportation Planning

Dr. Robert Ishaq Transportation Planning Ltd.
Dr. Robert Ishaq
Asaf Smaransky-Planner

Expert on Early Childhood Development

Dr. Dana Shai
Head of the SEED Center for the Study of Early Emotional Development, The Academic College of Tel Aviv-Yaffo

Academic Consultant

Dr. Emily Silverman
Head of the Urban Clinic, Hebrew University of Jerusalem

Steering Committee

Government Agencies

Genady Kamansky
Steering Committee Chair, former Deputy Director of the Development Administration and Senior Manager of the Mapping and Planning Division, Ministry of Education

Orit Nagar
Acting Steering Committee Chair, Mapping and Planning Division, Ministry of Education

Esti Cohen Liss
Director of the Construction Theory and Engineering Development Division, Ministry of Construction and Housing

Shiri Fundaminsky
Chief Landscape Architect, Ministry of Construction and Housing

Shulamith Gertel
Senior Town Planning Coordinator, Ministry of Construction and Housing

Dr. Shoshy Goldberg
National Head Nurse and Head of the Nursing Administration, Ministry of Health

Deputy Chair of the National Early Childhood Council, Ministry of Education

Noam Hirsh
National Planning and Construction Director, Ministry of Health

Tal Kahane
Head of the Playground Equipment Department, Standards Institution of Israel

Shani Mandel-Laufer
Housing Resource Person, Ministry of Finance

Amir Medina
Daycare Facilities and Family Daycare Division, Ministry of Labor, Welfare and Social Affairs

Yitzhak Moldavsky
Architect, Director of the Urban Planning Department, Ministry of Construction and Housing

Ram Nahari
Deputy Director of the Development Administration and Senior Manager of the Mapping and Planning Division, Ministry of Education

Orna Paz
Director of the Preschool Education Division, Ministry of Education

Topaz Peled-Steinberg
Manager of the Engineering Unit, National Road Safety Authority, Ministry of Transportation

Maya Topol
Planning Bureau Team Leader, Jerusalem District, Planning Administration

Pnina Perl-Kaplan
Head of Environmental Planning, Ministry of Environmental Protection

Vered Solomon
Chief Architect, Ministry of Construction and Housing

Orit Tsabar
Strategic Planning Division, Planning Administration, Ministry of Interior

Noa Zarmon
Special Projects Planning Director, Urban Renewal Authority, Ministry of Construction and Housing

Rotem Zehavi
Director of the Division for Environmental Safety at Schools, Ministry of Education

Rama Zilber
Nursing Director of the Shahar Program, Ministry of Health

Local Authorities

Rinat Azulay-Shabtay
City Architect Division, Municipality of Be'er-Sheva

Daniel Baron
Strategic Planning Unit, Tel Aviv-Yafo Municipality

Udi Carmely
City Engineer, Tel Aviv-Yafo Municipality

Ariel Dimri
Traffic Division, Municipality of Be'er-Sheva

Noga Elboim
Public Buildings Department and Forum 15 Representative, Holon Municipality

Galit Goldberg
formerly at the Community Administration, Tel Aviv-Yafo Municipality

Yael Heyman
City Architect, Beit Shemesh Municipality

Ina Kislenko
City Engineer, Municipality of Elad

Heli Landsman
Urban95 Programme, Tel Aviv-Yafo Municipality

Roy Lavee
former City Architect, Municipality of Be'er-Sheva

Irit Levhar-Gabay
Traffic Division, Tel Aviv-Yafo Municipality

Keren Raz,
Urban95 Programme, Tel Aviv-Yafo Municipality

Bosmat Sfadia Wolf
Manager of the Community Development & Planning Department, Community, Culture and Sports Administration, Tel Aviv-Yafo Municipality

Mariana Siglov-Klein
Planning Policy Department, Municipality of Jerusalem

Rotem Shpigler
Engineering Division, Beit Shemesh Municipality

Dana Tennenbaum
Urban95 Programme, Tel Aviv-Yafo Municipality

Miriam Tzin
Traffic Planning Department, Municipality of Modi'in Illit

Smadar Weiss
Traffic Division, Municipality of Be'er-Sheva

Social Action Organizations

Enaya Banna-Jeries
The Arab Center for Alternative Planning

Ruth Dayan-Madar
Director of the Society Department, Federation of Local Authorities in Israel

Ofir Etgar
Israel Builders Association – CEO of Neve Binyan Ltd.

Ayelet Givati
Head of the Development Department, Beterem Safe Kids Israel

Anat Horowitz Harel
Senior Researcher, Israeli Green Building Council

Michal Menkes
Deputy Director of Education and Society, Federation of Local Authorities in Israel

Yael Mittelman
Director of the National Program for Child Safety, Beterem Safe Kids Israel

Benzi Rakow
Urban Planner, The Haredi Institute for Policy Affairs

Academia

Adva Matar
Chief Researcher of the Between the Drops Project, Bezalel Academy of Arts and Design

Private Consultants

Mustafa Abu Rumi
Public Buildings Architect, Abu Rumi Architects

Yaara Bashan-Haham
Playground Designer

Spokespersons and Contributors to the Steering Committee

Dr. Tamir Balasha
Author of planning guidelines for traffic arrangements in the proximity of educational institutions

Orit Ben Assa
Construction and Development Manager, Education Administration, Tel Aviv-Yafo Municipality

Liyat Esakov Ben-Sheetreet
Architect, Expert on Urban Density

Dr. Tim Gill
Independent scholar, writer and planning consultant on childhood

Dr. Maria Marai
Expert on Early Childhood in the Arab Sector

Orit Muhlbauer
Muhlbauer Architects

XS Architecture Studio

Zarta Architecture Studio

Workshop Participants – Feedback on the Draft Guidelines

Workshop Dealing With the Ultra-Orthodox Community

Prof. Esther Adi-Japha
Faculty of Education, Bar-Ilan University

Odelya Alvili
District Manager of Road Safety in the Ultra-Orthodox Community, Ministry of Education

Avi Ashriel
Landscape Architect

Sharon Band
Town Planner

Ayelet Givati
Head of the Development Department, Beterem Safe Kids Israel

Dan Golan
Ran Wolf Urban Planning & Project Management Ltd., MA student at Bezalel Academy of Arts and Design

Yael Heyman
Architect, the former City Architect of Beit Shemesh and the former City Engineer of Modi'in-Illit

Yonatan Heyman
Community Planner, Romema, Jerusalem

Meir Hirshman
The Haredi Institute for Public Affairs

Genady Kamansky
Planner, the former Deputy Director of the Development Administration, Ministry of Education

Iris Kivity
Principal of Keshet School, Jerusalem

Shira Levi Baldasare
Assistant Chief Engineer, Beit Shemesh Municipality

Tslil Michael
National Road Safety Authority, Ministry of Transportation

Hava Navon
Manager of the Child and Youth Department, Social Services Division, Municipality of Bnei Brak

Topaz Peled-Steinberg
Manager of the Engineering Unit, National Road Safety Authority, Ministry of Transportation

Benzi Rakow
Urban Planner, The Haredi Institute for Policy Affairs

Vered Solomon
Chief Architect, Ministry of Construction and Housing

Alona Tsirulnikov
Researcher and Program Evaluator, The Center for Educational Technology

Workshop Dealing With the Public at Large

Mustafa Abu Rumi
Public Buildings Architect, Abu Rumi Architects

Moshe Ben-David
Architect, Ben-David Cassuto Architecture for Children and Youth

Itay Bershadsky
CEO of the Pashut Gan Preschool Network, HaGanina Ltd.

Sharon Brand Martin
Researcher, The Center for Educational Technology

Tal Evron Carmel
Manager of the Environmental Development Department, Herzliya Municipality

Merav Kaplan
Manager of the Urban Renewal Department, Municipality of Rishon LeZion

Sagit Koren
Landscape Architect, Consultant to the Ramat Gan Municipality

Shani Leiman
Innovation Team Manager, Municipality of Bat Yam

Tali Levy
Director of the Traffic Division, Municipality of Ramat Gan

Nehama Miller
Urban Planner, Planning Division, Municipality of Jerusalem

Yitzhak Moldavsky
Senior Design and Environment Coordinator, Ministry of Construction and Housing

Gavriela Nussbaum
Architect, Gavriela Nussbaum Architects

Noa Peleg
Urban Planner, Municipality of Rishon LeZion

Keren Raz
Urban95 Programme, Tel Aviv-Yafo Municipality

Liat Adi-Robins
Landscape Architect, Haifa Municipality

Reut Saadia
Transportation Planner, Amy-Metom Engineers and Consultants

Moran Shambar
Social Media Director, Urban95 Programme, Bernard van Leer Foundation

Ruti Shpernat Abahel
Transportation and Traffic Consultant and Planner

Hanni Shpitzer Hayat
Urban95 Tel Aviv, Tel Aviv-Yafo Municipality

Mariana Siglov-Klein
Planning Policy Department, Municipality of Jerusalem

Workshop Dealing With the Arab Sector

Michal Bleicher
Architect, Urban Planning Consultant and Head of a Planning Team, National Planning and Building Commission, Ministry of Interior, and Lecturer at Studio 1:1, Technion, Technological Institute of Israel

Yuval Drier Shilo
Planner, National Planning and Building Commission, Ministry of Interior

Liyat Esakov Ben-Sheetreet
Architect, Expert on Urban Density

Rema Hashav
Program Evaluator, Iron Local Commission

Oren Peled
Urban Planner, O. Peled Planning and Consulting

Yodan Rofe
Urban Design, Ben-Gurion University of the Negev

Manar Sarie Weiss
Director of the Urban95 Programme in Tira, Israeli Green Building Council

Yasmin Shbita
Architect, Social Activist and Head of the Placemaking Project in Tira

Alona Tsirulnikov
Researcher and Program Evaluator, The Center for Educational Technology

Yasmin Yotam
Director of the Urban95 National Extension Program, Israeli Green Building Council

About the Guidelines Document

This guidelines document is a product of collaboration between the Israeli Ministry of Education and the Bernard van Leer Foundation's Urban95 initiative, which is an international program aimed at advancing child-friendly and caregiver-friendly cities in Israel and around the world. The document was formulated in line with a shared worldview, according to which the spaces we live in have a critical impact on how our children develop and experience the world. Based on that approach, a city can be a wonderful place to raise children, provided that we address the various challenges posed by living in a diverse and congested urban environment. Therefore, we have to plan and design the entire urban space and not only places intended for children, such as playgrounds or educational institutions, while being mindful of the needs of children and the adults who take care of them.

The main objective of this document is to equip decision-makers, public and private sector professionals, and the general public with the theoretical knowledge and professional tools needed to advance Israeli cities that support and accommodate young children and their caregivers.

The document seeks to:

- Underscore the importance of planning and designing living environments that foster the development and wellbeing of children, with the aim being to reduce disparities in Israeli society.
- Make policy proposals and suggest planning and design tools for improving the quality of public and private spaces used by young children and their caregivers.
- Present examples and case studies from Israel and other parts of the world that can inspire and spark a dialogue.
- Provide metrics that can be used to evaluate programs and interventions.

The document places emphasis on two core issues. Firstly, it puts a spotlight on children in their early years of life, from birth to the age of six.[1] These years are crucial to building a solid foundation for the later stages in life. However, the age group in question is oftentimes 'overlooked' in planning processes. Secondly, the document highlights the diverse needs of children who come from different backgrounds, and in particular from population groups in which families have many children, such as the ultra-Orthodox community and the Arab sector. Calling attention to these issues can help reduce disparities in Israeli society.

The document focuses on innovative guidelines, which supplement the existing ones and help users prepare for current challenges. Because cities that support young children and their caregivers are better for everyone, planning and design guidelines that center on the younger age groups overlap with universal planning principles. Accordingly, in this document we consolidated guidelines unique to young children and their caregivers.

1 The penal code in Israel stipulates that children can be left unsupervised only from the age of six. Having said that, child safety organizations in Israel and in other countries recommend that children have adult supervision until the age of 9. Consequently, this document refers on occasion to the older age group as well.

These guidelines are not a substitute for other important regulations in Israel, such as accessibility and safety directives and standards. Rather, they are meant to add to them or highlight their importance. Similarly, the guidelines concentrate on urban environments that are characterized by high-rise construction in new neighborhoods and ones after urban renewal, density and multistory public buildings, as well as the planning and design of mass transit systems and cycling infrastructure. They expand on the numerous and excellent guidance and design documents that have been published in recent years, which sought to advance sustainable and inclusive urbanism.

Furthermore, the guidelines document relies on a series of six steering committee meetings that were held from 2019 to 2022. The steering committee, chaired by Ministry of Education staff, was comprised of representatives from government ministries, local authorities, social change organizations, and professionals from Israel and overseas. The meetings dealt with the theoretical background and with proposed guidelines for parks, the street space, mobility, public buildings and residential areas. Other issues were also discussed, as were thought-provoking and inspiring case studies. The materials used by the committee were prepared by a team of planners and architects, advised by an expert on early childhood development. A variety of stakeholders were also involved, who contributed their experience and expertise. The work done by the committee was complemented by three focused feedback sessions.

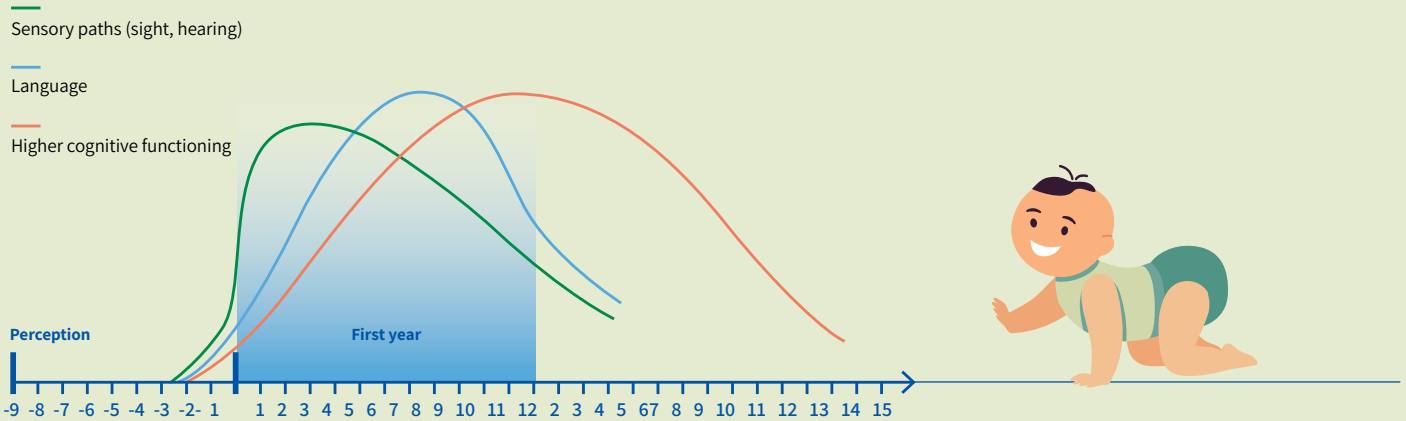
Photograph: Shani Halabi, 2018

Introduction

Why engage in planning for young children and their families?

The first years of a child's life, from birth to the age of six, and especially from birth to age three, have a critical impact on their subsequent development. During those years when they experience the world for the first time, their neurological, biological, cognitive and emotional development is determined. Children of that age are particularly sensitive to external stimuli and social interactions with their environment. It is the time in their lives when the skills they acquire will form the foundation for their future abilities and the opportunities they receive as self-sufficient adults

(Link to the video, Bernard van Leer Foundation YouTube channel)

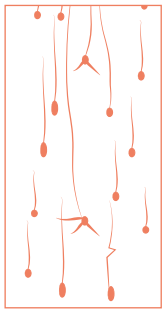


The development of the human brain. The brains of infants create over one million neural connections every second. What they experience in the first years of their lives, and especially from birth to age three, determine to a great degree which of those connections will be strengthened, and by doing so form the foundation for complex brain functioning later in life. They also determine which of those connections will disappear and leave the children developmentally vulnerable. That process builds brain architecture, which shapes important faculties such as hearing and language acquisition. In other words, our brain develops in step with the environment and the input it receives from it.

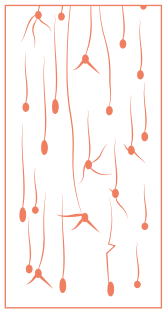
The timing of brain development may be genetic, but early childhood experiences determine whether the connections that are formed will be weak or strong. Neural connections develop different capacities gradually, one after another. Sight and hearing are the first senses that develop, followed by initial linguistic capacities, and then high-order cognitive capacities. Basic neural connections are the foundation for more complex connections. Healthy brain development in the first years of life build a solid foundation for adulthood.

Source: An explanation provided by the Center on the Developing Child, Harvard University

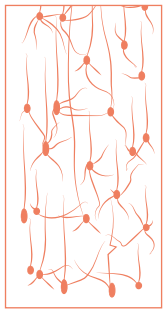
Healthy brain development in the first years of life build a solid foundation for adulthood



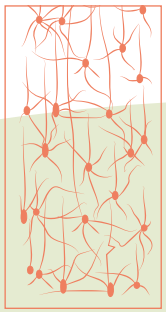
Newborn



1-Month-Old



9-Month-Old



Two-Year-Old

Adult

From the day they come into the world, infants embark on a rapid learning process that shapes their neural connections. That process will continue throughout their lives, similar to the brain activity of an adult. It is an experience-based process: positive experiences will lead to high connectivity in areas that contribute to healthy development. On the other hand, negative experiences could develop high connectivity in areas that foster adverse phenomena, such as tension, anxiety or learning difficulties.

The above image shows the connections formed in the brain from birth to maturity.

Source: J.L. Corel, Cambridge, MA: Harvard University Press, 1975

20
Breaths per minute

40-60
Breaths per minute

Air pollution poses a threat to young children in particular because they breathe more polluted air into their developing respiratory system than do older children and adults. Source: Bernard van Leer Foundation

Many young children experience the city as a series of 'urban islands' that they travel between, mostly when driven in a private car. Quite often, their day is spent going from the day-care center to the mall, from there to the playground, and back home again. The more that city planning supports this type of lifestyle over others, adults who care for young children are forced out of the public space intended solely for adults. They do not feel comfortable walking on busy streets that are not accessible to strollers, they doubt they have enough time to catch the train that leaves from a station without signage, and forgo in advance spending time at cultural venues that lack suitable care, feeding and baby changing facilities.

> To expose young children to a variety of experiences and reinforce the bond they have with their caregivers, we have to

> Create a continuous urban space that acknowledges them and addresses their needs.

Besides wanting to foster the mental wellbeing of young children, it is also important to ensure their physical safety in the public and private space.

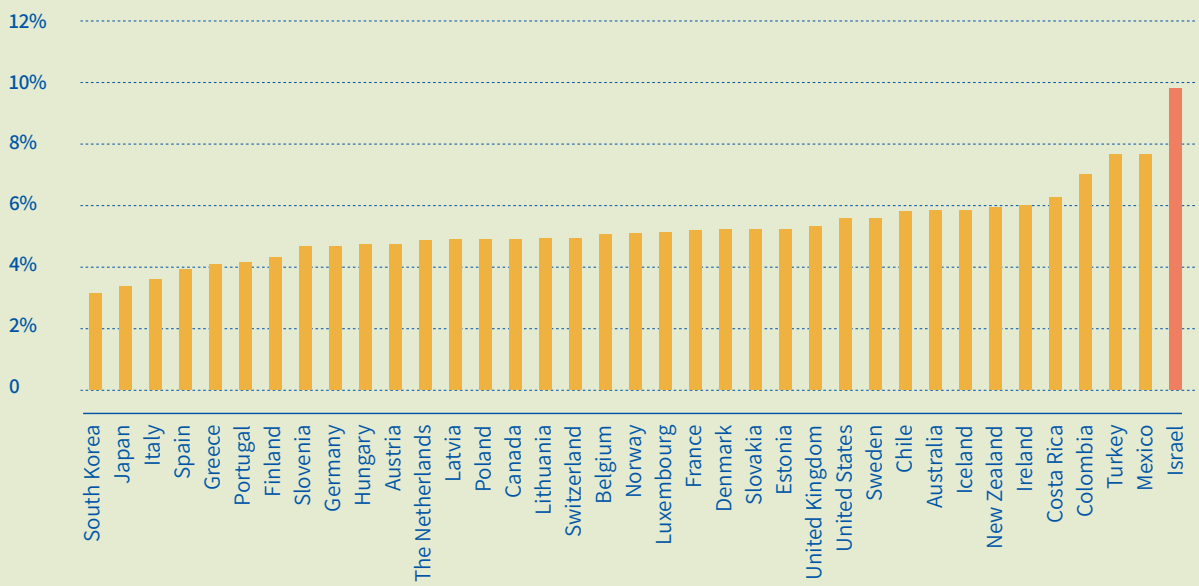
Young children are not 'small adults.' They have traits and abilities unique to their age, which make them more vulnerable to emotionally stressful conditions as well as physical dangers, such as air pollution, noise and traffic accidents. For example, when planning the street space, it is important to understand that until the age of six, children find it difficult to distinguish between their own vantage point and that of others. This means that if they see a car approaching, they will assume that the driver sees them. Therefore, in order to create a safe public space for children, we must try and reduce the volume of vehicular traffic, drive more slowly and create a built-in preference for pedestrians. Similarly, the respiratory system of young children causes them to breathe in more polluted air than do older children and adults. Consequently, a polluted urban environment has a more harmful effect on children in the youngest age group. To create an inviting urban environment for young children and their caregivers, we must change and adapt the spaces we live in

Why engage in planning for young children in Israel?

The family is the foundation of Israeli society, regardless of sector, income or education. In that respect, the planning guidelines in this booklet were not prepared just by a group of professionals, but also by a collection of mothers and fathers, grandfathers and grandmothers, and aunts and uncles. **Israel is a country where over 90% of the population live in urban communities. Around 28% of the population are children under the age of fifteen[2], and nearly 10% of the population are aged birth to four. Consequently, it makes sense that our cities be planned in a way that makes the daily lives of different types of families easier**.

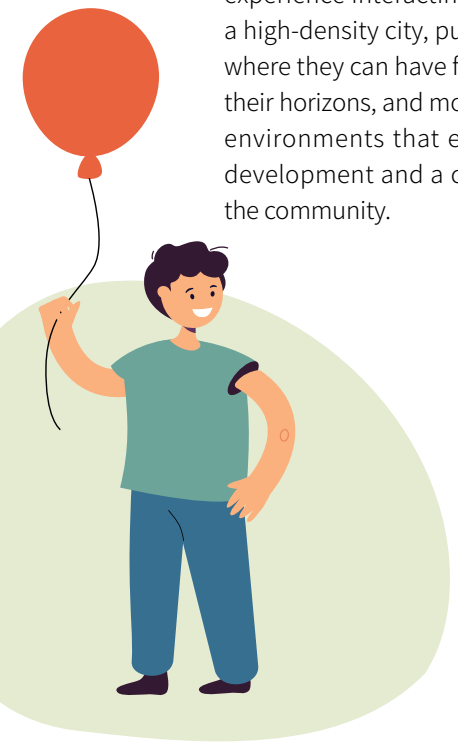
2 In 2020, Israel was ranked second among OECD countries, after South Africa, in terms of the percentage of the population under the age of 15. The OECD average is 18% under the age of 15. Source: OECD

Share of Children Under 4 in the Overall Population in OECD Countries, 2015



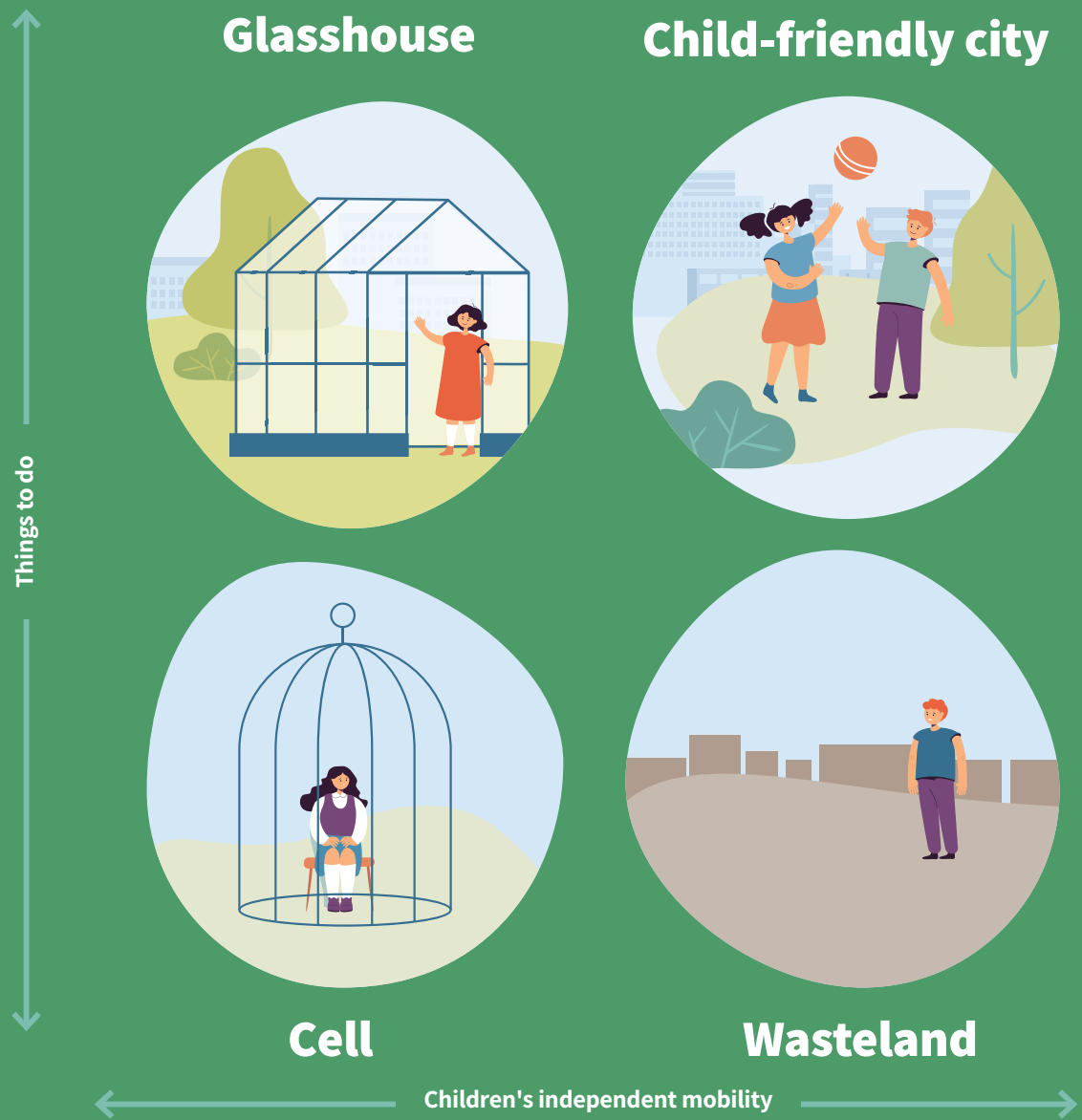
Source: Vaknin, Dana. Early Childhood Education and Care in Israel Compared to the OECD, Taub Center, 2020. Data published by the UN in 2019 (revised)

In Israel, there are guidelines in place which deal with different aspects of the needs of young children and their caregivers, including the distribution of public services and playground safety. Nonetheless, there is a lack of professional knowledge needed for improving and adapting the public space as a whole, and especially in places where we would like to see young children and their caregivers. In those areas, there are streets and mass transit systems that can offer an alternative to private cars, public parks where children can experience interacting with nature in a high-density city, public institutions where they can have fun and broaden their horizons, and modern residential environments that encourage play, development and a connection with the community.



Quite often, the current planning done for children in Israel runs counter to their interests because it adopts ill-advised approaches. For instance, we are used to seeing colorful and noisy playground equipment that attracts the children's attention. But in practice, it creates an experience of sensory overload that is not tailored to their needs. Alternatively, residential complexes for families are frequently designed to prefer the comfort of private cars and elevators, as well as large apartments without common areas in the building. This actually creates spaces that cultivate a sense of alienation and do not encourage optimal physical activity in the form of play and movement.

Photograph: Nadel Roizin, Bernard van Leer Foundation



Gill, Tim, Playing it Safe?, Bernard van Leer Foundation, 2018

Facilitative Safety

A global movement aimed at protecting children against safety hazards was formed at the end of the 20th century. In many countries, including Israel, laws and regulations were passed to ensure that products, equipment and venues are suited to the development of children. The steps that were taken have helped prevent injuries and deaths. In recent years, however, there is a slowly growing recognition that overprotecting children could also hinder their development because it limits their exposure to a variety of activities and challenges. **Consequently, a new approach of 'facilitative safety' emerged not long ago, which combines safety requirements with the need for thoughtful and balanced exposure to a challenging and diverse environment.**

That approach relies on numerous research studies that showed the psychological, physical and social advantages of exposure to controlled risks during play, as opposed to the multiple disadvantages of developing in an environment that lacks sufficient stimuli and challenges. In 2011, the Chair of the British Health and Safety Executive argued that "the creeping culture of risk avoidance and fear of litigation…are jeopardizing the education of children and their preparation for life as adults." In a similar vein, in 2018 the Safety Division at the Israeli Ministry of Education published guidelines for designing natural playgrounds at educational institutions. The document sought to "address an unconscious process that occurred over the years, where the need for 'maximum safety' came at the expense of facilitative safety, resulting in the suppression and waning of the pedagogical principle that underlies learning outside the classroom."

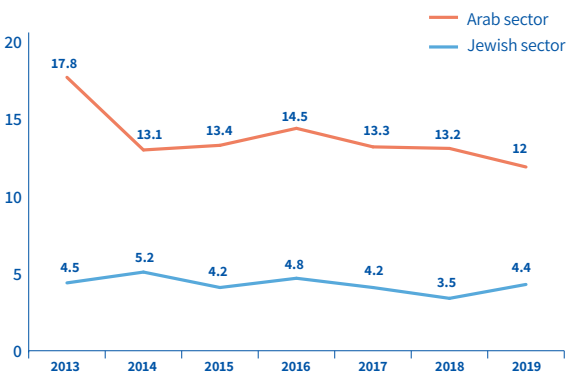
Obviously, this does not mean that we stop ensuring the safety of playground equipment and play settings. But it is important to understand that maintaining children's safety also depends on developing their ability to cope with challenges that characterize a dynamic and unexpected environment. To achieve that, we have to expose them to changing settings that are open to interpretation, such as natural environments - environments that are designed to include vegetation, varying topography, animals and water sources – and enable children of all ages to explore, discover and experiment.

To implement that approach, it is necessary to develop knowledge and enlist the support of professionals, decision-makers, caregivers and parents. We have to offer tools for adequate supervision and for training the children to identify risks and deal with challenges.

To read more about the subject:

Ifat Shpeizman and Yaara Bashan-Haham,https://meyda.education.gov.il/files/bitachon/Hatzer4.pdf"הנחיות לתכנון ולבטיחות של גן המשחקים הטבעי בחצר מוסדות החינוך", (Ministry of Education, 2018)

Tom Gill, Playing it Safe?,(Bernard van Leer Foundation, 2018)



The number of child pedestrians per 100, 000 children who were killed or seriously injured between 2009 and 2019, broken down by sector. In 2019, an unusual incident or serious injury involving a child in the Arab sector was three times more frequent than in the Jewish sector. Source: National Road Safety Authority

Planning for young children in Israel is likely to play an important role in reducing disparities between different population groups. Coupled with other elements, spatial planning in Israel is characterized by a separation between population groups – between Jewish cities and Arab towns, between residential areas populated by ultra-Orthodox Jews and secular Jewish communities, and between high-density urban centers and towns in the social and geographical periphery. Many researchers have found that advancing equal opportunities in Israel requires, among other things, a substantial investment in reducing the existing disparities in early childhood.[3] Together with investments in safety, health, wellbeing and education, physical planning also plays a critical role in creating the infrastructure needed to improve conditions for families. The different living environments of population groups in Israel affect the level of safety, education and wellbeing of the children who grow up in them. A prime example of that is the distressing statistic that Arab children are 2.7 times more likely to be hurt in a traffic accident than Jewish children. Unlike Jewish children, they are most likely to be injured as pedestrians.[4] Additional disparities exist in mobility patterns, access to nature, and the ability to play in the public space. The planning of these environments has a critical impact on the opportunities that will be available to them as adults.

It is important to note that despite the numerous challenges inherent in adapting Israeli cities to the needs of young children, Israel has multiple resources suitable for that purpose. For example: nearly all year long, the Israeli climate enables people to be outdoors; all the groups that comprise Israeli society encourage family time; the public system has experience in designing and constructing public buildings intended for young children, and more. These and other conditions make it possible to utilize the guidelines in order to create quick, effective and meaningful change.

Planning for young children in Israel is likely to play an important role in reducing disparities between different population groups.

3 See, for example, in Manuel Trajtenberg, et al., *Turning the Pyramid Upside Down: Vision and Policy for Early Childhood in Israel*. Samuel Neaman Institute (2019)

4 Osnat Algom-Mizrahi, *Road Safety in Educational Institutions in Israel*. Knesset Research and Information Center (2020)

Photograph: Ram Eisenberg Environmental Design. The Letters Park in Beit Shemesh

Why take action now?

The quickly growing population in Israel, coupled with the shortage of land for construction, is leading us to a future of high-density urban spaces. Israel currently faces two immediate planning challenges – a transport crisis and an affordable housing crisis. Among other things, decisions made by the government are addressing these challenges by developing a mass transit system that includes buses, different kinds of trains and bike paths, and also by planning housing units through urban renewal and new construction. The COVID-19 pandemic, on the one hand, and the numerous security-related incidents, on the other, have highlighted the potential inherent in spaces located close to home, which are considered a major factor in maintaining the physical and mental wellbeing of young children.

To deal with the planning, health and security crises that are expected to affect the lives of our children, we must also prepare for the implications of the climate crisis. Extreme climate events across the globe, such as heat waves and floods, have proven to be especially dangerous to the most vulnerable population groups, including children

The COVID-19 pandemic, on the one hand, and the numerous security-related incidents, on the other, have highlighted the potential inherent in spaces located close to home, which are considered a major factor in maintaining the physical and mental wellbeing of young children

under the age of five.[5] Based on all the aggregate indicators, it appears that today's young children – and surely those of tomorrow – will grow up in urban environments with more chaotic weather and lower environmental quality. **Investing in urban environments that foster a sustainable lifestyle and an emotional and ethical bond with nature and the environment is crucial to improving the future of Israeli children, in general, and children in the social and economic periphery, in particular.**

Despite the declared goals of advancing more sustainable planning that encourages walkability and cycling, in practice the prevalent lifestyle in Israel is not consistent with that vision. **An analysis of the travel patterns of children aged birth to nine in the Tel Aviv metropolitan area indicates that over half of their travel is in private cars. In the past decade, the use of private cars has actually increased considerably.** Between 2013 and 2016, the use of private cars grew by 17%, compared to an increase of 6% in the size of the population. On the other hand, use of public transport constitutes less than 10% of all travel and, together with bicycles, does not serve as an alternative to walking or private vehicle travel for families. In many Arab towns as well, where on average the access to private vehicles is more limited than in the Jewish sector, public transport and bicycles are rarely used by families to get from place to place.[6]

Furthermore, as regards housing, many new neighborhoods create environments that do not accommodate the needs of families. In most cities around the world, high-rise construction is planned in the downtown areas, and it is typically intended for high-income households or households without children. In Israel, on the other hand, most new high-rise residences are built in the outskirts of the cities and cater to middle- or lower-class families. This means that more children are growing up in residential areas where mobility depends on using private cars and the access to natural spaces is limited. They experience the first years of their lives inside the home and the built environment. Additionally, those neighborhoods are more prone to produce noise- and congestion-related hazards. At rush hour, the streets and the exits from parking lots are jammed. And inside the apartment buildings, the burden on the elevator and storage infrastructure leads to crowding and accessibility problems. All these contribute to creating pressures on families and hinder their availability to interact, which is needed to explore the world together in an optimal fashion.

We are currently at a pivotal turning point. The implementation of the

5 Cecilia V. Jones, "Making the Climate Conversation About Children," *Early Childhood Matters.* (2021)

6 *Travel Patterns in the Tel Aviv Metropolitan Area.* Ayalon Highways (2017)

guidelines at this stage could affect the planned increase of 40% in the housing inventory through urban renewal and the building of new neighborhoods.[7] From a transport perspective, the metro infrastructure alone is planned to contain roughly 150 kilometers of routes and include about 110 stops, providing service to approximately two million passengers every day.[8] The residential areas, transport solutions and public institutions that are being planned will determine how Israeli cities evolve in the coming decades. **With proper planning, we can create cities that are good for young children and their caregivers, and also impact the future of Israeli society as a whole.**

A street in Haifa. Photograph: Yossi Zamir

7 *Strategic Plan for 2040 – Housing Chapter*, (Planning Administration)

8 Based on updated information released by NTA, Metro Site

Urban Residential Areas in Israel: Highlights and Features

Old Residential Neighborhoods

The old residential neighborhoods are characterized by a distribution of local services for families (educational institutions, neighborhood clinics, shopping centers), and by narrow sidewalks and streets and a multiplicity of parking lot entrances and exits. Because they developed gradually, the old neighborhoods are for the most part more diverse and contain old trees, different construction styles, topographical differences, etc. The main streets surrounding the neighborhoods are major transportation arteries

Neve Pinchas, Holon

New Residential Neighborhoods

The new residential neighborhoods consist mostly of high-rise construction outside or on the outskirts of major cities. The housing units are intended primarily for middle class and low-income occupants. The public space is private car-oriented, characterized by multiple entrances to parking lots and a separation between residential uses and commercial and public uses.

Eastern Tenements, Rishon Lezion

Arab Towns

Many Arab towns in Israel are characterized by a nucleus of an old village that is surrounded by new construction. The overcrowding, the abundance of private land and the shortage of public land often create a limited and fragmented public space, which prevents access to public services and to a safe and adequate public space.

A local street, Nazareth

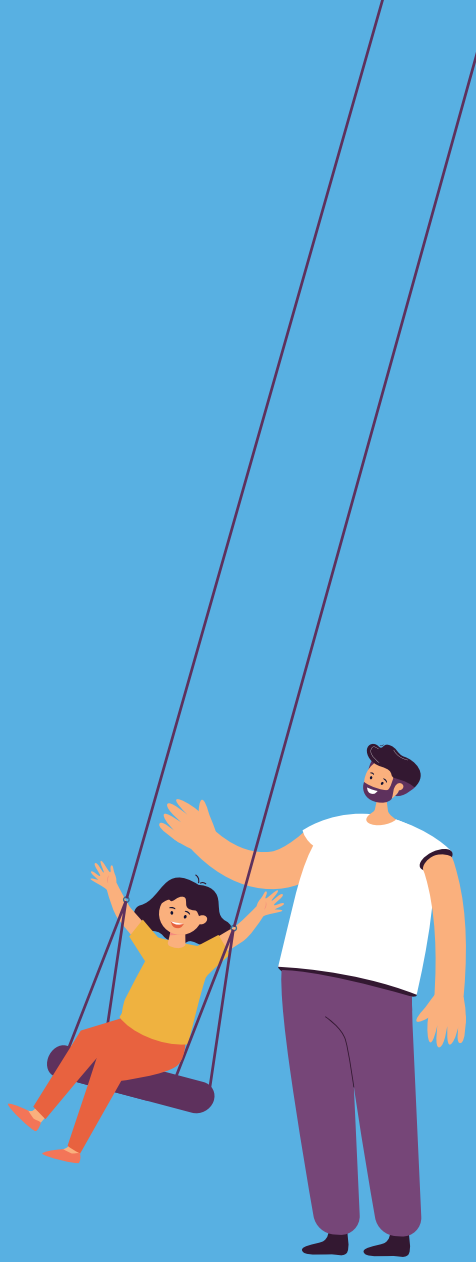
Ultra-Orthodox Neighborhoods and Cities

Ultra-Orthodox communities tend to settle in self-segregated neighborhoods or towns. In 2021, over half of the ultra-Orthodox population was younger than 19.[9] Accordingly, the public space in the residential areas is characterized by activity associated with children of different ages, and the apartment buildings tend to be more high-density. Ultra-Orthodox neighborhoods are built either as part of old residential neighborhoods (like in Bnei Brak, Jerusalem and Haifa) or as new neighborhoods (like in Elad or Beit Shemesh).

Ramot, Jerusalem

9 Gilad Malach and Lee Cahaner, *Annual Statistical Report on Ultra-Orthodox [Haredi] Society in Israel 2021*. Israel Democracy Institute (2021)

What does a city that accommodates young children and their families look like?



The development of young children is shaped by their experiences. Every time they eat something, are cared for by their parents, or play with same-aged children, they learn about themselves, about the world and about others. Most of their experiences are mediated by their connection with the adults who are with them – parents, grandparents, older siblings, paid caregivers, and others. As soon as they step out of their homes into the urban space, the places that we plan and manage teach young children how the world works. Accordingly, the planning and design of residential areas, streets, playgrounds, public institutions, and modes of transportation have a considerable impact on their development, and that development affects the opportunities that will be available to them in the future.

> The sustained emotional bond between babies and their primary caregiver is formed during the first year of life, but it continues to evolve and take shape and throughout the child's development.

Attachment Theory

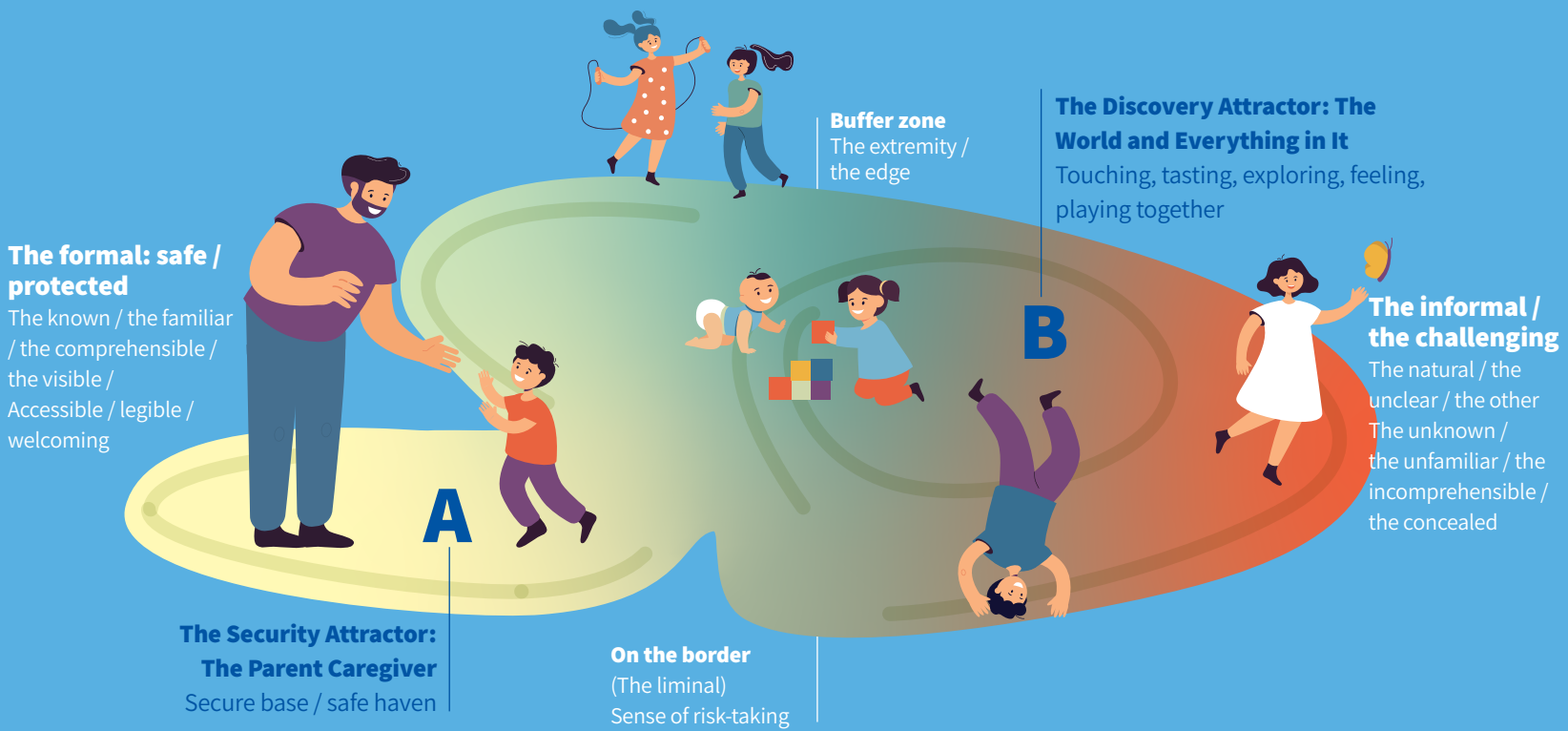
Attachment theory is a psychological theory which over the years has been well substantiated in research, across different cultures and contexts. Attachment refers to the unique and deep emotional bond that infants form with the caregiver who attends to their basic needs: protection, security and comfort. The need for attachment, which is universal and biologically innate, promotes the survival of infants and the entire human race.

Whether positive or negative, an attachment is formed with any permanent caregiver because it is founded on that person being available. In that regard, a mother does not have a special standing, but the 'psychological parent' does – who can be a male parent, grandfather or grandmother, paid

The Circle of Attachment and Exploration Space

The attachment theory model. Young children venture out from the secure base provided by their caregivers to exploration spaces in the outside world. According to attachment theory, the physical space model offers buffer zones and play spaces that are situated between the formal and the informal, and it applies to all sections of a park: play areas, seating areas and areas for stationary activities.

"The Butterfly Effect" – A Diagram of Lorenz's Strange Attractor (A Trajectory Through Phase Space in a Lorenz Attractor, Dan Quinn)
Illustration: Ram Eisenberg Environmental Design



caregiver, or someone else. The attachment figure supports two existential needs that every infant has: exploration and comfort. On the one hand, that figure serves as a 'secure base' from which infants can go out into the world, explore and experiment. On the other hand, the attachment figure serves as a 'safe haven' – an anchor that infants can return to for protection, calming and comfort. When the attachment is secure, there is free and balanced movement between the two functions and the caregiver can be both a 'secure base' as well as a 'safe haven.'

The sustained emotional bond between babies and their primary caregiver is formed during the first year of life, but it continues to evolve and take shape and throughout the child's development.

Bowlby, John. (1969). *Attachment and Loss, Vol. 1 Attachment*. New York: Basic Books

Which principles underlie the planning of environments that accommodate young children and their families?

The bond between children and their caregivers

Numerous research studies indicate that the bond between infants and the individuals who take care of them during their first year of life affects their cognitive, emotional, health, social, language and motor development. Consequently, when engaging in planning tailored to young children, one must remember that they are never alone, and that the person who is with them is an active, essential and integral part of how they experience the world. For that reason, not only should the children be the focus of the plan, but also the bond between them and their caregiver.

The children's perspective

From a very early age, children experience, sense, think about, see and hear the world that surrounds them. It is therefore important to try and plan living environments from their perspective, in a way that will enable them to act in an independent and respectful manner.

The broad perspective

The development experience in early childhood is shaped by a variety of factors. Some are functional – such as a safe and accessible environment – and some are emotional and social – such as a supportive family and social environment or an organizational environment that fosters active caregiving. Hence, we should closely examine the living environment of families in Israel in order to create a comprehensive development shell.

Inclusion and diversity

Knowhow enables us to offer physical and psychological infrastructure that will accommodate the needs of most families and young children in Israel. Nonetheless, it is important to remember that there is a wide variety of children who have different and unique needs.

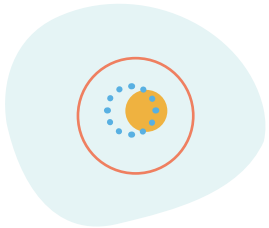
Facilitative safety

The threshold requirement for every environment is that it be a safe place for children. We should aim to plan safe and challenging environments that will enable children to experiment

with developing skills and encourage independence. When caregivers feel that the children under their care are in safe environments and are coping with challenges, they are available to mediate the world for them in a positive and more relaxed manner.

The existing knowledge in this field indicates that the environments of young children in the first years of their lives are mostly limited to their home space. Their environments progressively expand in step with their physical, emotional and cognitive development, as well the degree of their dependence on a caregiver. Just like their point of reference widens beyond the bond with their caregiver figure to their family and the community, they are also gradually exposed to different parts of their environment, ranging from the home space and the building they live in, to the street space and the neighborhood space – up to one kilometer from their home.

Accordingly, this document deals with the different spaces that affect the activities of young children in their immediate surroundings: parks, the street space, public institutions, modes of mobility and residential areas. Emphasis was placed on the main advantages of cities, as opposed to rural areas and suburbs, which is the downtown area that includes main streets, important public buildings and public transport hubs that are connected and can be of great value to children.



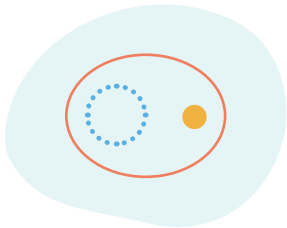
Up the age of one

The kinesphere
(within reaching distance)

At this age, children begin to develop basic gross motor skills, such as lying down, crawling, sitting up, trying to stand up and walking. At the same time, they develop fine motor skills like grabbing and holding things, catching small objects, and mouthing. Babies at this age are primarily interested in their caregiver figure and their own bodies.

The child's space and the caregiver's space overlap.

Planning should offer a primary, restricted space that is conducive to the interactions between the twosome, either on a bench next to which a stroller can be parked, or on a blanket spread out on the ground. At this stage, it is important that the space be flat so the child can move around safely while being closely supervised.



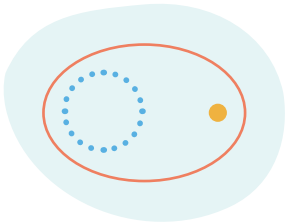
Up to the age of three

Circle of proximity
(in immediate proximity)

For the most part, children of these ages develop gross motor skills, such as walking, running, jumping, and going up and down stairs. At the same time, they develop fine motor skills like building models and threading beads. Toddlers look at the world around them that extends beyond the caregiver figure. They are engaged in construction games and ones that involve shapes and colors, as well as self-discovery ("me," "mine").

The space is characterized by activities suited to a group, and emphasis is placed on accompanying abilities acquired at this age. This accompaniment includes the caregiver holding the child's hand when trying to walk, climb or slide. Additionally, spatial planning that incorporates the presence of an adult is also important for enabling a constant dialog between the adult and the toddler, which in turn means that communication and conversation skills improve.

Planning should offer a space that enables toddlers to explore, yet remain close to their caregivers. That way it will be possible to assist them at any given moment.



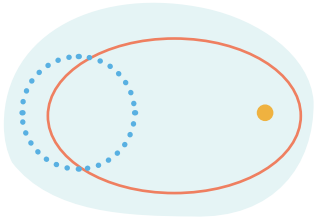
Up to the age of six

The exploration space
(within sight or earshot)

For the most part, children of these ages develop skills that enable them to move around freely in their immediate surroundings. The real world and the imaginary world are often incorporated in role playing (“make-believe” games).

The space is likely to host activities suited to a group of children doing something together.

Planning should offer a space rich in diverse stimuli, such as an activity courtyard, lawn, accessible landscaped area, and different kinds of paths. All these should be in a space that is within sight, enabling the children to move away from their caregivers but maintain eye contact with them.



Up to the age of nine

The exploration space
(within sight or shouting distance)

For the most part, children of these ages feel more self-confident and want to explore the world, even if they are not near the caregiver figure.

The space should be able to host a large group of children and their caregivers, and expose the children to the diversity of the community they live in.

Planning should offer a variety of stimuli, both in the form of physical activity, as well as ones that develop the children’s imagination. The space should be as flexible as possible, while ensuring the safety of the children.

Play

> Maria Montessori said that "play is the work of the child."

Maria Montessori said that "play is the work of the child." Since then, many research studies have confirmed the importance that play has in early childhood for the development of various skills and its role in producing creative, self-sufficient and accomplished adults who contribute to society.

Play is any act – and especially any unstructured act – that encourages using one's imagination and sensory exploration and through movement, touch and creativity. The act of play is so vital to development that it was defined as a fundamental need for children of any age, protected under Article 31 of the United Nations Convention on the Rights of the Child.

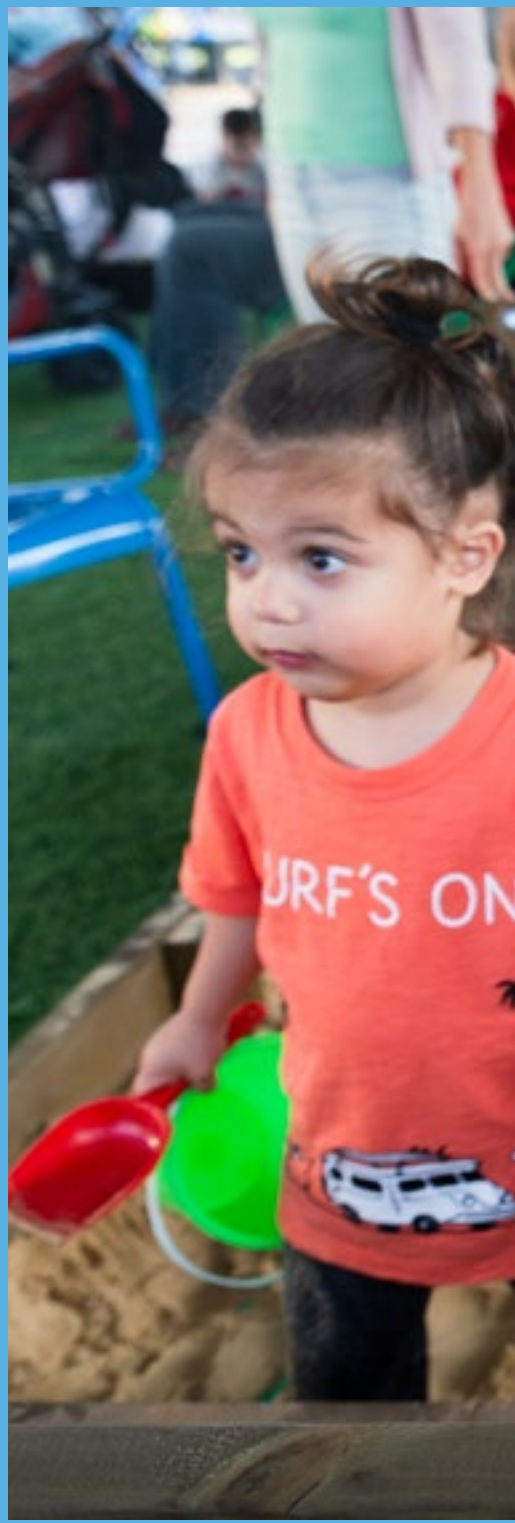
Play is not necessarily having fun. Through play, children learn abstraction, representation, productivity, the ability to create change and control, meaning, problem solving, empathy and social flexibility. All these will help them later in life to become functioning adults who enjoy mental and physical wellbeing, who are capable of finding pleasure that is consistent with the demands of the outside world and society.

According to the psychological theory put forward by Winnicott, play occurs in the space found between the caregiver figure and the world. In that space, a place is formed where children learn to trust the caregiver figure while developing as individuals. That ability becomes an essential component of a person's mental wellbeing.

Winnicott, Donald Woods.*Playing and Reality*. Psychology Press, 1991

The Montessori Method, Montessori, M., Hunt, J. M., & Valsiner, J. Routledge, 2017

The United Nations Convention on the Rights of the Child, Ministry of Education website



Playing in a sandbox in Tel Aviv-Yafo | Photograph: Barak Brinker

Case Study: The "Zeira" Project in Beit Shemesh

Beit Shemesh is Israel's youngest city. One-fifth of its residents are under the age of three and it is growing at a rate of 5% a year. The average family in Beit Shemesh has seven children. Because most of the ultra-Orthodox residents do not own a car, there is preference for recreational activities close to home. Additionally, owing to the wide range of ages of the children, a great deal of creativity is needed in order to find ways to occupy them and offer developmental activities. The public space has considerable potential for reinforcing motor, language and social skills, but not all the parents are aware of those options.

In view of the above, the local Urban95 staff in Beit Shemesh initiated "Zeira" – a series of sessions offering experience-filled content, intended for young children and their mothers in the public space close to home in two Beit Shemesh neighborhoods. The objectives of the sessions, which began in December 2021, are as follows:

Strengthening the parent–child bond

Raising more awareness about the importance of the bond that parents have with their children and its impact on language development, intelligence and communication skills. Encouraging them to play together

Developing motor and sensory skills

Activities such as mobile sandboxes, soap bubbles, walking in nature near home

Training aimed at language enrichment

And demonstrating didactic principles while working with the children on the ground

Strengthening community ties and building trust – between the residents and the Municipality and the project

Around 300 children have attended the activities, and for most of them it was the first time they ever took part in an enrichment activity. The same holds true for most of the mothers, who reported that they gained a lot from the program. The sessions were sector- and gender-segregated, including mandatory registration in advance (due to the large number of children), separate activities for mothers and fathers, and branding and marketing that was in line with the language and values of the ultra-Orthodox population in Beit Shemesh.

Urban95's national project, supported by and run in collaboration with the Bernard van Leer Foundation and led by the Israeli Green Building Council, is part of Urban95's global strategy. It seeks to advance the planning, design and management of vibrant and healthy cities that meet the needs of young children and their families in Israel's social and geographical periphery. Since 2021, the Urban95 initiative has been implemented in Tira and Beit Shemesh, and a third city will soon be added. Six additional cities will join the project at the beginning of 2023.

Written by Anat Horowitz Harel, Director of the Public Space and Urbanism Department, the Israeli Green Building Council

Courtesy of the Israeli Green Building Council. Photograph: Maayan Cohen

The Mental Wellbeing of the Caregiver Figure

The scientific literature indicates that a caregiver's mental and emotional well-being has considerable impact on the bond he/she forms with the infant, and as a consequence also on the caregiver's ability to offer a solid foundation for the child's development in his or her first years of life.

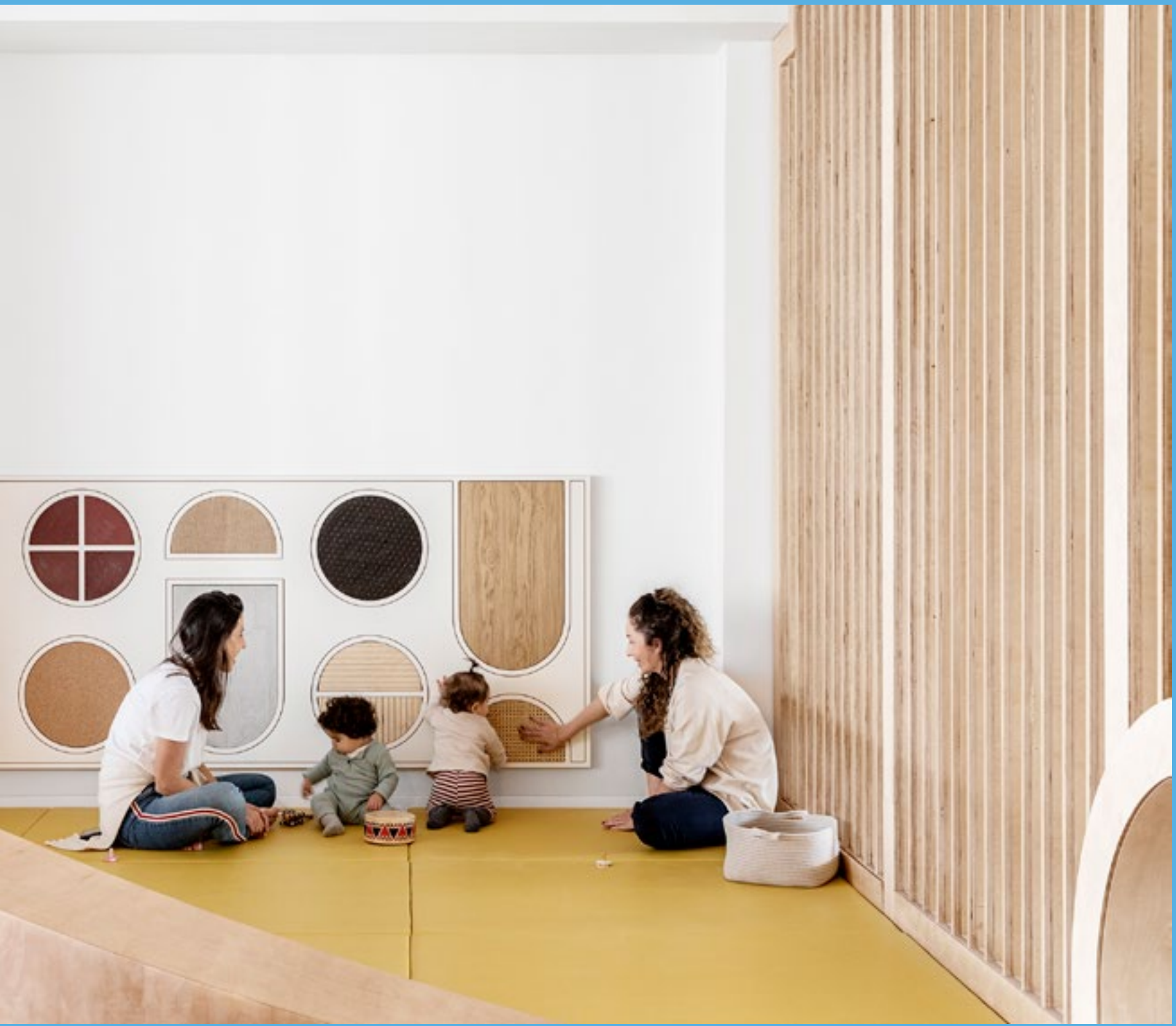
A caregiver who receives social and emotional support, and not only functional support, tends to be less depressed and feels more capable of adopting his/her role in the child's development. Those factors will enable the caregiver to be more accessible, hear and see the needs of the infant or toddler, and be more present, tolerant, fun-loving and positive.

Accordingly, thinking about children means meeting the needs of their caregivers, including when the caregivers are paid for their services. Investing in creating an inclusive social shell, and physical planning that addresses the needs of caregivers, will improve the quality of care, promote the children's development and foster the wellbeing of their surroundings.

A.M. Albanese, G.R. Russo, and P.A. Geller, "The Role of Parental Self-Efficacy in Parent and Child Well-Being: A Systematic Review of Associated Outcomes," *Child: Care, Health and Development*, Vol 45, No. 3 (2019), 333-363.

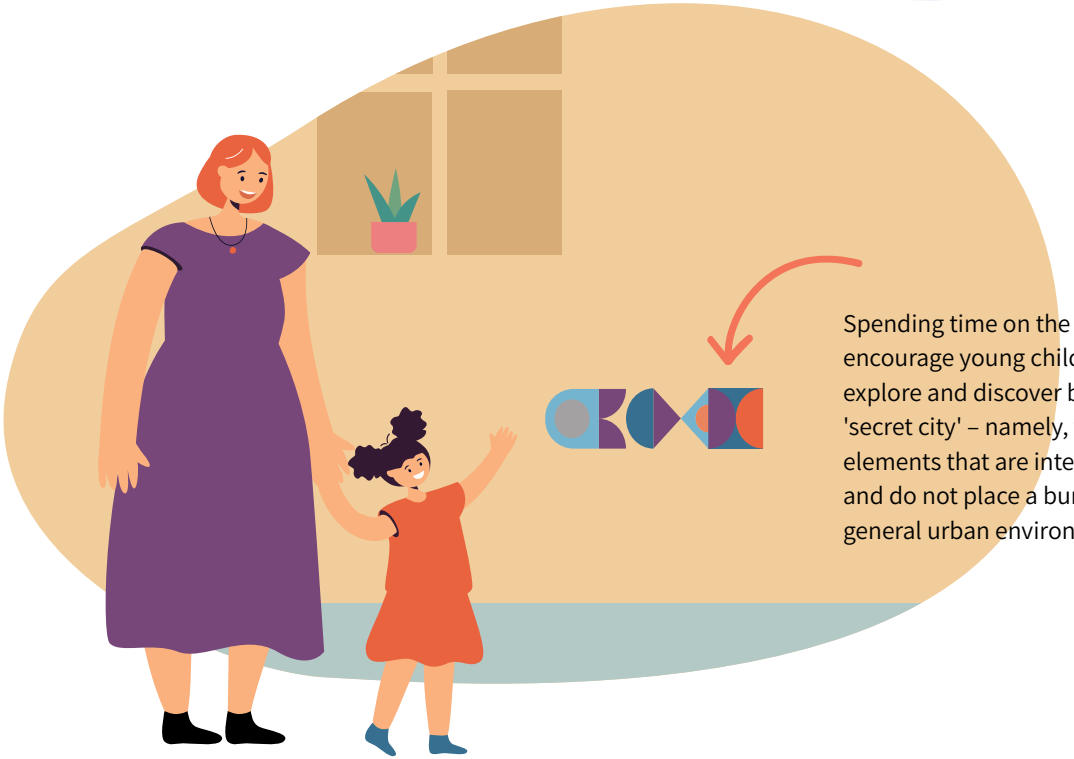
M. I. Armstrong., S. Birnie-Lefcovitch and M.T. Ungar, "Pathways Between Social Support, Family Well Being, Quality of Parenting, and Child Resilience: What We Know." *Journal of Child and Family Studies*, Vol. 14, No. 2 (2005), 269-281.

Parparim Center, Tel Aviv Port
Design: Steinberg // Fisher Architects,
Photograph: Itay Benit



What are the needs of young children and their caregivers in a city?

The exploration and development process is shaped by moving between the security anchor, the safe and familiar space, and the discovery anchor where new, mysterious and exciting things are uncovered. An interim space, such as a wayside, enables young children to explore and venture out, while maintaining a sense of protective safety.



Spending time on the street can encourage young children to play, explore and discover by creating a 'secret city' – namely, visual or auditory elements that are intended for children and do not place a burden on the general urban environment.

Caregivers who are relaxed will manage to enjoy the public space together with the young children under their care. Whether intentionally or incidentally, they will also convey to them that the world is a friendly and pleasant place. An accessible and safe space, which offers protection against hazards, is crucial to fostering the bond between young children and their caregivers.

Children in high-density built environments are less exposed to the diversity and dynamic facets that nature has to offer. To experience the world, children need to touch things and be exposed to soil, trees, water and animals on a daily basis.

In the first years of their lives, children experience play that is mediated by their caregiver figure. A space that enables caregivers to take an active part in play, and not only be bystanders, will foster the bond between them and the children and increase the advantages of the games and learning experiences.

Adapting the public space in a way that also caters to young children enables them to develop a sense of self-efficacy and independence, in addition to assuming responsibility for their actions in public.

Movement and physical activity encourage young children to cope with challenges and difficulties, overcome them and become stronger. They also develop the child's imagination and sense of self-efficacy. Learning by means of physical stimuli facilitates a profound, meaningful and long-term experience.

Caregivers who find it difficult to locate and reach a destination due to unclear signage or inadequate accessibility will be less available to mediate the journey to the children in a positive manner. If the journey is especially challenging, the caregivers will prefer to travel by private car if able to do so.

Young children find it hard to grasp concepts such as transience, purpose or destination. Therefore, every waiting space, including bus stops and train stations, should offer young children and their caregivers a convenient and interesting experience. It is also important to offer a space where they can get organized and prepare for their next activity.

Caregivers who feel comfortable going from place to place with infants and toddlers, and know they will be able to care for them conveniently in the public space, will enjoy a sense of emotional support and connection with the community. It is necessary to design spaces that accommodate care-related needs, such as facilities for rinsing off, nursing, feeding, diapering and comforting children.

Unfamiliar and noisy spaces are likely to increase young children's anxiety levels, neediness and agitation. Use of soft colors, soothing sounds and natural elements will help make the space more inviting to children who have diverse sensitivity thresholds.

At which stages should planning for young children and their families be done?

Every parent is familiar with the proverb: "it takes a village to raise a child." Just like in a private household, the management of the public space needs professionals from different disciplines, such as education, culture, social services, public health, transport, planning and community services, to mobilize together, alongside residents who make use of the space. At present, the areas of responsibility are divided among different national and local government agencies. When it comes to education and culture, children are a distinct target audience. But when it comes to planning and construction, children – and in particular young children – are often forgotten and not taken into consideration. To create urban spaces that are good for young children and their caregivers, some rethinking is required that invites planners, designers and architects to become ambassadors of the issue in projects and programs.

Coupled with the organizational groundwork that needs to be done, mobilizing the public and achieving collaboration between the authorities and users are no less important when adopting the guidelines. Eliminating parking spaces and changing traffic arrangements are likely to face opposition from owners of cars and businesses if there is no public information campaign that outlines the benefits of traffic calming for their children. Parents who do not believe in the importance of getting 'dirty' during play will avoid making use of playgrounds where the activities involve sand, water and nature and will prefer synthetic play environments. Therapists and teaching professionals will be reluctant to assume responsibility for play that includes a controlled risk if they do not receive proper training and backing. Consequently, when engaging in planning tailored to children, communication and joint work are especially important, as is the continued monitoring of the implementation. That way it will be possible to ascertain that the resources have been invested wisely and are enhancing the lives of the users of the space. At the planning stages, one can utilize a variety of tools, including participatory planning, observations, interviews, surveys and shared workshops. For example, when designing and establishing a public park, joint planting days with the community can be initiated, so its members will be involved in the proposals for developing the garden. At the monitoring and tracking stages, it is advisable to review the criteria suggested throughout the guidelines booklet.

A walking experiment for caregivers of young children, held as part of a workshop for Tel Aviv-Yafo Municipality employees

Photograph: Barak Brinker

Case Study: Tel Aviv-Yafo Adopts a Municipal Strategy for Early Childhood Development

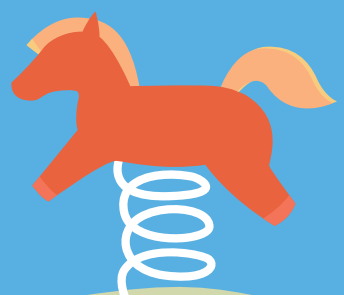
In 2017, Tel Aviv-Yafo was one of the first cities to enter into a strategic partnership with the Bernard van Leer Foundation's global Urban95 initiative.

The partnership grew out of research on the rising cost of living in the city, which found that the cost of childcare and early childhood services is a significant component of the expenditures of many Tel Aviv-Yafo households. At present, the partnership is conducting research on topics important to children and families; it has impact on the budget used to invest in public spaces; it runs pilot programs dealing with the management of daycare centers, the design of play spaces, and cycling and walking solutions for families; and is a partner in developing a municipal application for parents of young children.

In 2019, the issue of early childhood took root as a high priority issue at the Municipality. That same year, the advancement of young children appeared in the work plans of six departments: Community, Social Services, Gardens and Parks, Transportation, Education, and Planning and Digital Services. In the previous year, a deputy mayor in charge of early childhood matters was appointed for the first time, and new positions were created at community centers and in the Early Childhood Advancement Department. Over 150 municipal employees attended seminars on the topic, and 13,000 parents took part in workshops dealing with child development. That change has had, and will continue to have, a considerable impact on planning in the city.

Tel Aviv-Yafo, on the Bernard van Leer Foundation website

Gordon Laforge, *City Hall Embraces Early Childhood Development: Reaching an Underserved Population in Tel Aviv-Yafo 2016-2019*, Princeton University, 2019



Case Study: A Community Orchard in the "Hamam" Public Park, Tira

The city of Tira suffers from an acute shortage of open public spaces, and the city's residents yearn for an urban space where parents and children can spend time and move about safely. To address the residents' sense of insecurity, the Urban95 initiative in the city decided to prioritize an investment in open public spaces located near public institutions that can accommodate family activities. For that purpose, an open public space was chosen next to a municipal kindergarten managed by Salwa Iraqi, which is also close to other kindergartens. The path that leads to the kindergarten and the adjacent open public space is frequently blocked by trash bins belonging to the nearby grocery store, other discarded waste, or cars that park there illegally.

Thanks to collaboration between the Municipality of Tira and the Southern Triangle Regional Association for Environmental Infrastructure, the area was cleaned up and the drainage, electricity and water infrastructure was upgraded. Studio 1:1 at the Technion's Faculty of Architecture and Town Planning, headed by Arch. Michal Bleicher and Arch. Dan Price, undertook to design and establish the park together with their students. Netafim, a global leader in irrigation solutions, donated the irrigation systems, and Treellion, a nonprofit organization, conducted tours of the area for children. The construction was funded by all of the above organizations, as well as donations received from a number of companies and many volunteers. The construction was completed in August 2022.

The planning process included three public participation sessions attended by residents of the neighborhood, educators and municipal personnel, whose aim was to identify the needs and desires of the community. After presenting design alternatives for the orchard at those sessions, the one that most residents preferred was chosen. It was translated into a project that was eventually carried out.

One of the goals of the orchard is to enable the neighborhood's residents to build a community that will use it for recreational and educational purposes. Accordingly, the educational institutions located near the orchard will be 'adopting' it and will take part in its maintenance and the activities held there, which are meant to supplement the formal school curriculum. For example, the irrigation system in the orchard relies on traditional farming methods. The latter include a system of terraces that channel water sources without any investment of energy, adapted to the local topography. In the park, a small system demonstrates

those principles and the children can experiment with the traditional irrigation system on their own. Furthermore, a 'sensory path' was designed in the park, along which there is a row of fruit trees and herb beds that the children will take care of.

Urban95's national initiative, supported by and run together with the Bernard van Leer Foundation, and led by the Israeli Green Building Council, is part of Urban95's global strategy. It seeks to advance the planning, design and management of vibrant and healthy cities that meet the needs of young children and their families in cities in Israel's social and geographical periphery. Since 2021, the Urban95 initiative has been in operation in Tira and Beit Shemesh, and a third city will soon be added. Six more cities are scheduled to join the initiative at the beginning of 2023.

Written by Anat Horowitz Harel, Director of the Public Space and Urbanism Department, the Israeli Green Building Council

Photograph: Municipality of Tira Spokesman

Incorporating Elements for Young Children and Their Caregivers in the Different Planning Stages

This booklet offers tools intended for planners and decision-makers, suitable for the different planning stages. These tools will be implemented most effectively if an overall understanding and consensus are reached among all the involved parties. That way, the elected officials, planners, architects, designers, engineers and other professionals who take part in making and implementing the decisions will affect the nature of the plans and projects. They need to collaborate with colleagues from related fields, and should work to budget and implement the tools in the short and long term.

Comprehensive Planning

What is included?

Components: plans made at the comprehensive planning stage include city master plans, neighborhood statutory plans, and policy documents

This is the stage where the parameters of the plan and its content are determined. The latter include the public and commercial land uses, the street network and the green frame, the number and type of housing units, and directives or guidelines regarding the development stages. When used correctly, these plans will form the proper foundation for the implementation stage.

Who is involved?

The comprehensive planning stage primarily involves the local authority that commissioned the project, the authorities that oversee it through building plan inspectors, a multidisciplinary planning team that includes planners, architects and various consultants, as well as social activists and the general public who are welcome to express their opinion and have an impact. Therefore, as early as this planning stage, it is essential to achieve a broad consensus regarding the goals that contribute to young children and their families.

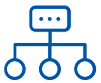
Design Stage

Components: urban design plans, detailed programs, architectural plans and development plans

This is the stage where the buildings are located on the site, different spaces undergo interior design, the outdoor spaces are designed, and the public space is characterized.

This stage is particularly crucial in all that concerns planning for young children and their caregivers. That is because it contains details that affect the experience of young children, such as the height of elements adapted to their size, fabrics and colors that can stimulate them to play, and more.

The design stage consists primarily of a dialog between those who commissioned the work (planning and public works departments at local authorities, general contractors, etc.) and the architects and landscape architects. This mostly refers to the implementation of norms and standards by the local authority or private stakeholders. Involving children and their caregivers at the design stage can help ensure that their needs are incorporated in the design of the space.



Management and Operation

Components: work procedures, operations contracts

This is the stage where the planning is completed and the management of the construction or the regular operations begin. Quite often, this stage has significant implications for the daily experiences of young children and their caregivers, and in practice dictates what their environment will look like. For instance, prolonged construction works are likely to prevent children from having walking and cycling access. On the other hand, installing a sandbox in the public space could turn it into an inviting and pleasant public space.

The management and operations stage is for the most part carried out by the public works departments at the local authority or by teams of private managers. Involving children and their caregivers in the design process can help mitigate conflicts that may emerge in provisional operation situations (for instance, when developing a street or renovating a building), and when devising solutions that are customized to their needs, such as temporary parks or spaces for group activities.

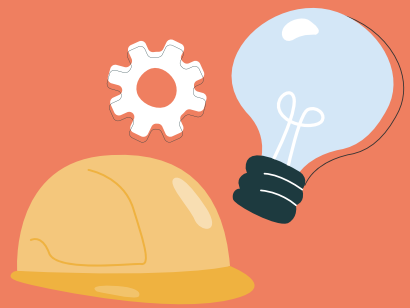
Monitoring and Making Adjustments

Components: handling inquiries from the public and from the people entrusted with setting up and operating the facilities and services

This is the stage where the physical infrastructure is already in place and is managed. It is important to assess whether the objective has been achieved and which adjustments are required. For example, are more families using public transport because the central bus station was renovated? Are children using the equipment we installed in the park? Monitoring and readjustments enable the local authorities, the operators and the public to ascertain that the goals of the investment have been attained.

The monitoring stage can be carried out by the local authorities, the operators or the public itself. The aim is to highlight successes, difficulties or failures and make suggestions for improvement. For the most part, the adjustments will be made by those doing the work and the operators, or by the users.

Comprehensive Planning



The conditions and qualities of the layout of the area are determined at the comprehensive planning stage. For instance, the amount of time that will be needed to take the children to the park or the daycare center will be determined at this stage. Also, whether we will be able to get there on foot, by bicycle or by bus, or will we have to buckle the kids into a car seat and drive them there. Another question is whether the local authority will be able to provide suitable services enabling us to clean off and diaper our children when we go to a city park. And even whether the contractor will be able to build common areas in the apartment building we live in. For planners who prepare and review plans, this is the stage where we examine the distribution of the uses, the network of roads and the network frame, building rights, and regulations pertaining to the location of the buildings. As we will see in the Space Design stage, the comprehensive planning stage is of great importance for creating the conditions for high-quality and detailed planning.

What does a plan that is good for young children and their caregivers look like?

A plan that creates a good urban environment for young children and their caregivers should include three main elements:

Land use distribution

High urban density and the distribution of various land uses in a residential area will create a diverse environment with an abundance of destinations for children and their caregivers. Incorporating heritage and nature-related assets will result in meaningful environments that are easily integrated into daily life.

Defining the street network and the green network

Defining a well-connected, accessible and continuous network of streets and paths will facilitate convenient and safe passage for young children who are walking, cycling, and using public transport. Characterizing the green network will make it possible to expose children to environmental and landscape assets that can enrich their day.

Buildings

Building codes should, for example, allow the following: adding facilities in public spaces that can be used to care for children of all ages, creating first-rate public institutions also in high-density buildings with mixed uses, designing common areas in apartment buildings where tenants can look after their children and spend time, and locating the buildings in a way that encourages community interactions and pleasant and safe surroundings.

An Urban95 event on Rabin Square. Photograph: Barak Brinker

Land use distribution

During the planning stage of a new or refurbished complex, it is possible to determine or influence the distribution of the land uses. A mix of uses will encourage caregivers to choose walking or cycling over using a private car. It will also encourage people to spend more time in the public space. A survey of nature- and heritage-related assets at the planning stage and their inclusion in the plan will affect the access that young children have to them during the course of a normal day.

Distributing activity areas and open spaces in an accessible and compact manner

Ideally, destinations that young children and their caregivers go to daily should be close to home. In practice, many residential areas are planned in a way that requires a lot of travel every time the residents leave their homes. Every caregiver knows that getting around with young children is complicated and demanding: infants need convenient places to be fed, rest or have their diaper changed, whereas young children are sensitive to their surroundings and their behavior can be unpredictable and challenging. Therefore, an environment with daily destinations that can be reached on foot or a short bike ride is the key to an active and diverse lifestyle in a child's first years. Consequently, when planning a residential neighborhood, it is advisable to:

- **Ensure that daily activity areas are distributed in a way that makes them less than a 15-minute walk from the residential neighborhoods.** Based on the average walking distances of caregivers accompanying young

Adult

Walking of a mobile adult in average shape

80m/min
1,200 meters

Caregiver With a Stroller

Walking leisurely with a stroller

40m/min
600 meters

Caregiver With a Toddler Under the Age of Two

Walking while holding the hand of a toddler

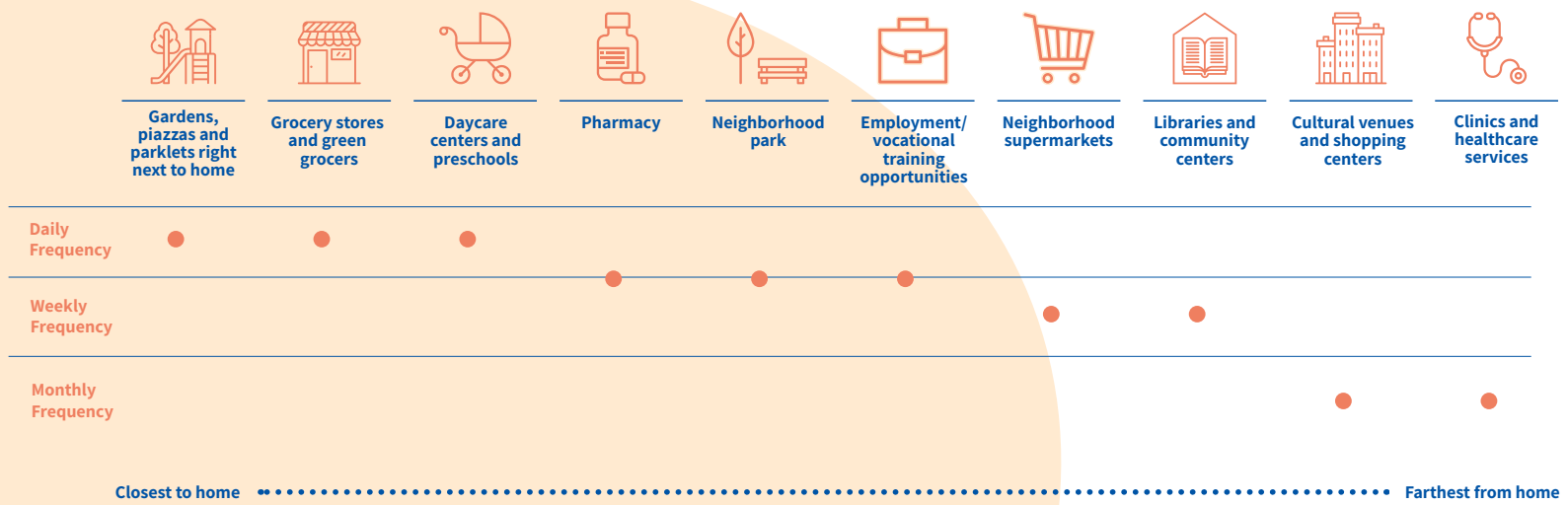
30m/min
450 meters

Caregiver With a Young Child Under the Age of Five

Walking with a mobile young child who is attentive to environmental stimuli

20m/min
300 meters

A graph that illustrates the relationship between the destinations frequented by young children and their caregivers and their distance from home
Access and Babies, Toddlers, and Their Caregivers, ITDP & the Bernard van Leer Foundation, 2022



children, it makes sense to define a walking distance of 300 meters between most of the residential lots and the lots intended for other uses..

- **Plan residential density that justifies the allocation of land for daycare centers, preschools and kindergartens close to home.** Prefer a building density of at least 24 housing units/per net dunam (0.25 acre/0.10 hectare) for apartment buildings in residential areas characterized by average households, and 10 housing units/per net dunam (0.25 acre/0.10 hectare) in residential areas characterized by larger than average households. This will create the conditions for locating daycare centers, preschools and kindergartens that are within a walking distance of 150 meters.[1]
- **Plan maximum access to public early childhood institutions.** To encourage walking and cycling, a distribution of public spaces used by young children, for example in the middle of a residential area, should be preferred over a concentration of campuses located in the outskirts of the area. This is especially true for daycare centers, preschools and kindergartens, community centers, religious institutions, and healthcare services for young children.
- **Plan more public daycare centers in residential neighborhoods.** At present, about one-quarter of Israeli children aged birth to three are served by accredited public daycare centers.[2] Adopting the accepted standards, according to which the plans should aim to serve 50% of the children aged birth to three, will make it possible to increase the supply of daycare centers in the vicinity of residential areas.[3]
- **Plan appealing integrative areas for use by children and adults.** Planning areas that are of interest to children and their caregivers will encourage them to spend more and improved time there. Among other things, incorporate shops and eateries that have restrooms near the neighborhood park, or add pocket parks along a mixed-use main street.[4]
- **Plan a variety of destinations and open spaces for play near home.** To encourage young children and their caregivers to spend time in the public space, the green network can be characterized in a way that includes different levels of public spaces that are within walking distance from the residential lots. Additionally, preference should be given to pocket parks or shared yards that are easily accessed by a number of buildings.

1 The calculated residential density relies on an estimated average of 3.2 persons per household in the general population and an average of 5.5 persons per household in the ultra-Orthodox population, with each age group by year of birth comprising 2.2% of the general population and 3% of the ultra-Orthodox population.

2 Maria Rabinowitz, *Daycare Centers for Toddlers Up to the Age of Three: Background and Data*. Knesset Research and Information Center, 2021

3 In this manual, we refer to standards for allocating land for daycare centers and kindergartens in accordance with the *Manual for Allocating Land for Public Needs*, Israel Planning Administration, 2016.

4 See in *Basic Principles for Public Transport- and Sustainable Mobility-Oriented Planning*. Ministry of Transportation, Israel Planning Administration, Israel Land Authority, and Ministry of Housing, 2021.

Top diagram: the distribution of 'brown" land (public buildings) in various plans. The equal distribution of public areas among all sections of the neighborhood facilitates increased access on foot or by bicycle to daycare centers, preschools, kindergartens and other services.

Bottom diagram: The concentration of public areas in the outskirts of neighborhoods makes it difficult to reach them on foot or by bicycle.

Ashtori HaFarhi Square in Tel Aviv-Yafo. Photograph: Barak Brinker

Tel Aviv | Neve Avivim

About 15% aged 0-9

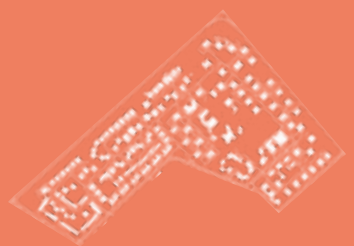
Net residential density

13 housing units

per dunam (0.25 acre/0.10 hectare)

Average no. of children per dunam

5



Photograph: Yad2 website

Yavne | Neot Rabin

About 31% aged 0-9

Net residential density

14 housing units

per dunam (0.25 acre/0.10 hectare)

Average no. of children per dunam

16

Photograph: My Yavne Portal

Beit Shemesh | Knei Bosem

About 53% aged 0-9

Net residential density:

16 housing units

per dunam (0.25 acre/0.10 hectare)

Average no. of children per dunam

68

Photograph: Berger Development. Residences. Properties

A New Metric: Planning Child Density Per Dunam (0.25 Acre/0.10 Hectare)

At the comprehensive planning stage, professionals characterize the composition of the existing and anticipated population. Based on that characterization, they calculate the required supply of services and their distribution throughout the space. For that purpose, planners make use of metrics, such as the number of housing units per dunam (0.25 acre/0.10 hectare), to assess residential density. They also utilize a metric that measures m^2 of open space per person in order to assess the number of open spaces required to meet the needs of the anticipated population. **We suggest making use of a new metric – a metric that measures child density per dunam (0.25 acre/0.10 hectare) – to illustrate their percentage of the population already in the comprehensive planning stage. Thus, in addition to meeting the needs of the general population, it will be possible to place special emphasis on the needs of large families where necessary.**

In Israel, there are substantial differences between cities. In Rishon LeZion, a typical middle-class city, around 14% of the population is comprised of children under the age of 9. In Rahat, on the other hand, nearly one-third of the population belongs to that age group, and in Modi'in Illit, over 40%. In 2019, almost every other resident of Modi'in Illit was a young child.

To demonstrate the use of the metric, we chose to compare three neighborhoods that are have similar building densities, but different child densities. Knei Bosem in Beit Shemesh, with its ultra-Orthodox population, and Neot Rabin in Yavne, with its secular and traditional population, are both new neighborhoods characterized by similar types of construction. Neve Avivim in north Tel Aviv is an old neighborhood whose population is mostly secular. Data about the percentage of children aged 0-9 and the size of the households relied on figures published by the Central Bureau of Statistics.

Based on the metric, one can easily see the considerable difference between the neighborhoods in terms of child density. In Neve Avivim, there are 5 children per dunam (0.25 acre/0.10 hectare), as opposed to 16 in Neot Rabin and 68 in Knei Bosem.

The metric enables planners and architects to factor in pressure on infrastructure intended for young children. For example, entranceways to daycare facilities should be large enough for dropping off and picking up the children who attend them, but also for a number of siblings in strollers who come there with their caregivers.

The metric can also be used to assess where to create infrastructure for children to play and spend time, which is easily accessible to people who are walking, cycling or using public transport in areas with a large number of children.

Computing the metric is easy:

Housing units per dunam (0.25 acre/0.10 hectare)	X	Average household	X	% aged 0-9	=	Average no. of children per dunam (0.25 acre/0.10 hectare)
20		3		10%		6

Policy Tools: Planning That Factors in the Need for Continuity Among Children Aged Birth to Six

The accumulated knowledge points to the importance of emotional continuity for young children. When services that children use are provided in familiar surroundings and are jointly managed, and the professionals are acquainted with the children and track their development, one can see improved efficiency in the provision of the services, and also in how the professionals, the children and their caregivers feel.

That said, due to organizational and budgetary constraints, the education, healthcare and social services systems are typically not designed to work together. When an attempt is made to create educational continuity during early childhood, in most cases it is done by physically locating daycare centers, kindergartens and schools on the same campus. However, physical proximity alone does not necessarily create management continuity. Furthermore, other essential complementary services, such as clinics, family health facilities, child development centers, and additional support services run by other agencies, are usually planned and operate separate from them.

A systemic approach, whose implementation reflects the importance of maintaining continuity for children aged birth to six, should also aspire to create physical proximity and joint management.

The preferred options for achieving that target are locating the services within walking distance from each other and managing them through system-wide coordination. An alternative is to plan an early childhood campus that contains all the relevant services on the premises, jointly run.

Because operating the two models is complicated, the advantages and disadvantages of each option should be weighed. If, for instance, we concentrate the services on a single campus, we need to examine whether it will be accessible by public transport for families that do not own a car and for families whose financial resources are limited. If we choose to link institutions that are dispersed in a residential neighborhood, we have to ensure the physical access between them and assess which complementary management tools are needed to ensure the continuity of the services.

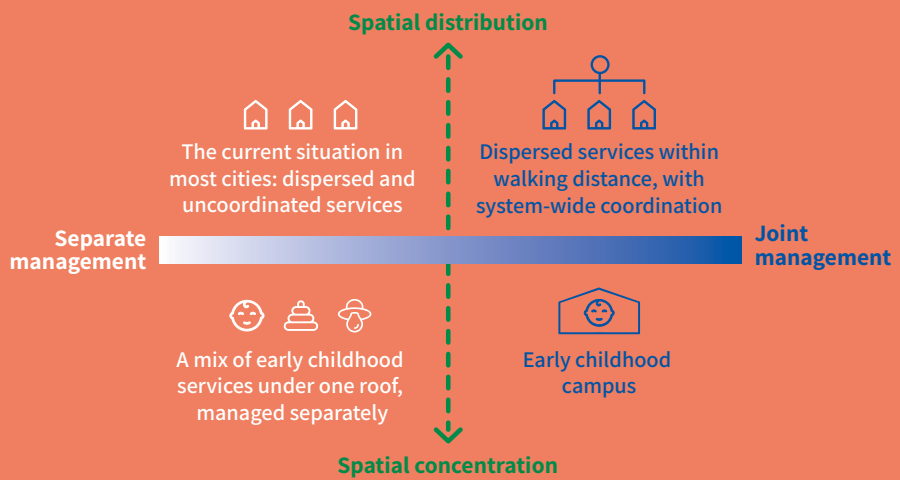


Illustration: options that address the need for continuity among young children and their families, based on spatial distribution and joint management.

The Eucalyptus preschool and kindergarten campus in Ganei Tikva, which was designed around a landmark tree. Design: XS Studio for Compact Design, Architects Rony Avitzour and Ofer Rossmann, together with Prof. Itzik Hirsch. Photograph: Tal Nisim

The Green Network

Characterizing the green network at the comprehensive planning stage will make it possible to design quiet and safe public spaces and include nature- and heritage-related assets, and by doing so offer functional and accessible destinations that are meaningful to young children and their caregivers: for example, including old trees in the plan will help introduce children to positive values, such as health, curiosity and a sense of belonging and identity. Those sites are particularly important in intensive urban compounds, where there are few open spaces relative to the number of children, or whose public buildings are designed with outdoor built spaces, such as roofs and balconies. In those cases, highlighting the merits of the existing spaces and making them accessible can enrich the daily lives of young children. It is therefore advisable to:

- **Map the nature-related assets and include them in the urban environment.** This can be achieved by conducting a preliminary survey of the planned space and mapping its nature-, landscape- and heritage-related assets, and especially old trees. Furthermore, incorporate those assets in the green fame, in the extensive sections of the planned parks or in the yards of public buildings. That way, their value will be conserved.[5]
- **Plan activity areas for young children in peaceful settings.** To enable young children to spend quality time in outdoor spaces, plan noise levels that are expected to be less than 45 decibels, occurring either naturally or after taking steps to mitigate the noise. In intensive residential areas where we want to maintain maximum accessibility, even in their noisier sections, it is advisable to locate the activity areas for young children in quieter sections of the public space, or provide elements that can replace annoying noises with pleasant sounds, such as flowing water or the rustle of tree leaves.
- **Design accessible and easily visible sites:** the widespread use of parks and their users' sense of security depends on their degree of accessibility and visibility. A visible and accessible park should also be well-maintained. Accordingly, plan parks and playgrounds that are near busy streets, while making it easy to reach them and have a view of their more remote sections. Cultural differences between different population groups and their attitude towards visibility should also be taken into account. For example, in the ultra-Orthodox community, being able to view all sections of a park is particularly important due to modesty considerations. And in the Arab sector, special importance is attached to assuming ownership for the park and its maintenance and cultivation. A park that has 'owners' who maintain it will be perceived as a safe place and draw users.
- **Incorporate nature- and heritage-related assets in venues that cater to young children.** Lots intended for public buildings that cater to young children and their caregivers should preferably be located adjacent to or overlap with nature and heritage sites. This is especially true for high-density public buildings, where the outdoor spaces on the lot are limited or nonexistent, such as a multistoried daycare and kindergarten campus. In the case of urban renewal, it is advisable to conserve the nature- and heritage-related assets on the redesigned lots and incorporate them in the identity of the refurbished institutions.
- **Maintain a sense of the 'wild' in urban settings.** In plans relating to a large area, such as a city quarter or town, set aside a section that does not contain developed elements, such as paths, walls, etc., which will enable children to experience a sense of the wild. If the area contains natural elements like trees, rocks or other natural features not found in the built environment, it is important to conserve them. If those types of elements do not exist, they can be added after consulting with ecology experts.

5 See also the *Manual for Allocating Land for Public Needs*, Israel Planning Administration, 2016

Areas with vegetation that convey a sense of the wild at Kiryat Sefer Park in Tel Aviv. Design: Ram Eisenberg Environmental Design. Photograph: Gavrieli-Segal

Mobility

For young children and their caregivers, the network of streets and pathways is vital to safe and pleasant walking and enables caregivers to mediate the world to the children in a relaxed and optimum manner. The connectivity and profile of the network of streets and pathways can be defined at the planning stage of a new or refurbished complex, in addition to the road cross-sections and traffic calming measures. Extra attention should be paid to improving connectivity due to the slow and fragmented walking pace of young children and their caregivers, as well as their unique need to make use of strollers and different kinds of nonmotorized vehicles, such as push cars, hand scooters and bicycles. The streets have to facilitate maximum accessibility, and in particular continuous walking and cycling, coupled with access to public transport..

Convenient walking with young children should not exceed a distance of 300 meters, and should occur in spaces that offer protection against the harmful effects of the sun, noise and air pollution

Adding pathways and shortcuts through 'brown' lots can improve walking and cycling accessibility.

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Designing the network of streets and pathways in a way that encourages walking and cycling

As noted above, shorter walking distances are especially important to young children and their caregivers, whose walking tends to be slow, fragmented and meandering, while multiple stops on the way. To encourage caregivers to choose walking over private cars, include tools in the plans which ensure that the network of streets and pathways will be pedestrian- and cyclist-oriented. Furthermore, as many connections and intersections as possible should be planned. Convenient walking with young children should not exceed a distance of 300 meters, and should occur in spaces that offer protection against the harmful effects of the sun, noise and air pollution. For that purpose, it is advisable to:

- **Plan new spaces where the defined length of a city block does not exceed 100 meters.** Doing so will create numerous intersections that improve the connectivity of the walking network.[6]
- **Integrate as many pedestrian pathways as possible.** This can be achieved by providing an easement on every lot intended for a public building, which will make it easier for pedestrians to get from one street to another via the lot. Other steps can include extending cul-de-sacs that are more than 100 meters long by adding a pathway for pedestrians and cyclists, and proposing land expropriations that will complete the walking network to enable people to cut through privately-owned lots if needed.
- **Design safe pathways that cut through public areas in the middle of residential blocks.** Adding paths that cut through residential blocks is quite advantageous because it creates continuous mobility without having to cross roads. Those pathways can also be used for play and spending time outdoors.
- **Add stairs and safe pathways to shorten the time it takes to reach destinations.** Advance planning of pathways and stairs can offer pedestrians helpful shortcuts, especially in hilly terrain. However, because they tend to be hidden from view and are less busy than

6 The document *Principles for Planning That is Public Transport- and Sustainable Mobility-Oriented* (2021) recommends a block length of 60 to 120 meters.

main streets, steps should be taken to improve the quality of their safety and maintenance. That can be achieved by establishing straight and wide pathways that enable eye contact and are within earshot all along the shortcut, embedding and installing elements such as posts and street furniture that do not obstruct the vision of young children, adding lighting, and connecting the pathways to a large number of activity areas will encourage their widespread use throughout the day.

- **Include the locations of the entrances to the open areas in the walking network plan for the neighborhood.** Alternatives for connecting the open areas to the street network should be examined at the comprehensive planning stage. That way the main thoroughfares will be accessible to strollers, and shorter and accessible links with activity areas for young children will be defined, including educational, healthcare and community institutions.

Planning accessibility and continuous walking

Young children and their caregivers often get around using strollers or various wheeled toys (such as push cars). Streets and waiting areas that are especially noisy and congested are not conducive for spending time or for getting from place to place.[7] Therefore, in areas populated by large families or in the vicinity of venues that cater to young children, it is advisable to:

- **Define sidewalks** and paths whose dimensions and slopes facilitate getting from place to place with young children. For that purpose, the width of sidewalks should enable convenient passage of a family (between 2.4 and 4.8 meters) and slopes should accommodate strollers – up to 5% lengthwise and up to 2% widthwise. Furthermore, refrain from approving changes to the slope along the pedestrian zone, such as slopes for vehicles crossing the zone in order to enter a parking lot. Where it is not possible to offer a sufficiently wide or accessible pedestrian zone, it is advisable to offer paths in parks, pathways on privately-owned properties, etc.
- **Create convenient and accessible public transport waiting areas**. Accordingly, on streets intended for public transport, it is necessary to define sidewalks that are wide enough for bus stops that can conveniently accommodate a number of strollers waiting there at the same time. Allocating an adequate space will make it possible to enlarge the bus shelters, plant shade trees, and install different kinds of seating, trash bins and street lights. In order to provide wide sidewalks, bus bulbs should be preferred.

7 In the guidelines pertaining to urban street planning, emphasis is placed on the need to create a continuous, convenient and safe pedestrian zone, one that is devoid of obstacles and detours and complies with the provisions of the Israeli accessibility standard (Israel Standard 1918 – Accessibility of the Built Environment). According to the *Manual for Designing Public Gardens* (2012), noise exceeding 65 decibels should be reduced using acoustic walls, dirt mounds or a living fence. That guideline is not, however, currently set forth in any binding standard.

Planning safe streets and places to walk

To encourage walking and cycling with young children, it is important to create safe and secure places to walk. A narrow sidewalk that causes caregivers to fear cyclists, noisy streets that are car-centric, and bus stops that offer no protection against the scorching sun or rain – will prevent caregivers from choosing alternatives to private cars. Safe places to walk are especially important in and around venues that cater to children on a daily basis, such as community centers or educational institutions. To ensure a safe and pleasant space for walking or cycling, it is advisable to:

- **Reduce the speed limit and volume of traffic in residential areas.** In areas that primarily serve young children and their families, plan the local streets and the collector roads that are characterized by high-rise construction and moderate traffic, and make them part of a traffic-calmed area where the speed limit does not exceed 30 km/h or 10 km/h. This can be achieved by changing the street cross-section and implementing traffic-calming measures.

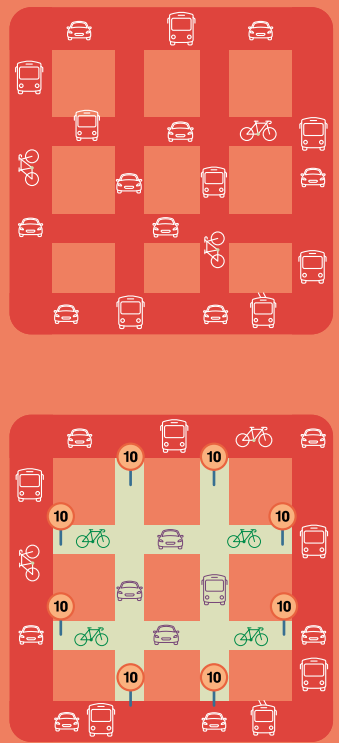
> Safe places to walk are especially important in and around venues that cater to children on a daily basis, such as community centers or educational institutions

A Comprehensive Approach to Reducing Speed Limits in Residential Areas: The Superblock Model, Barcelona

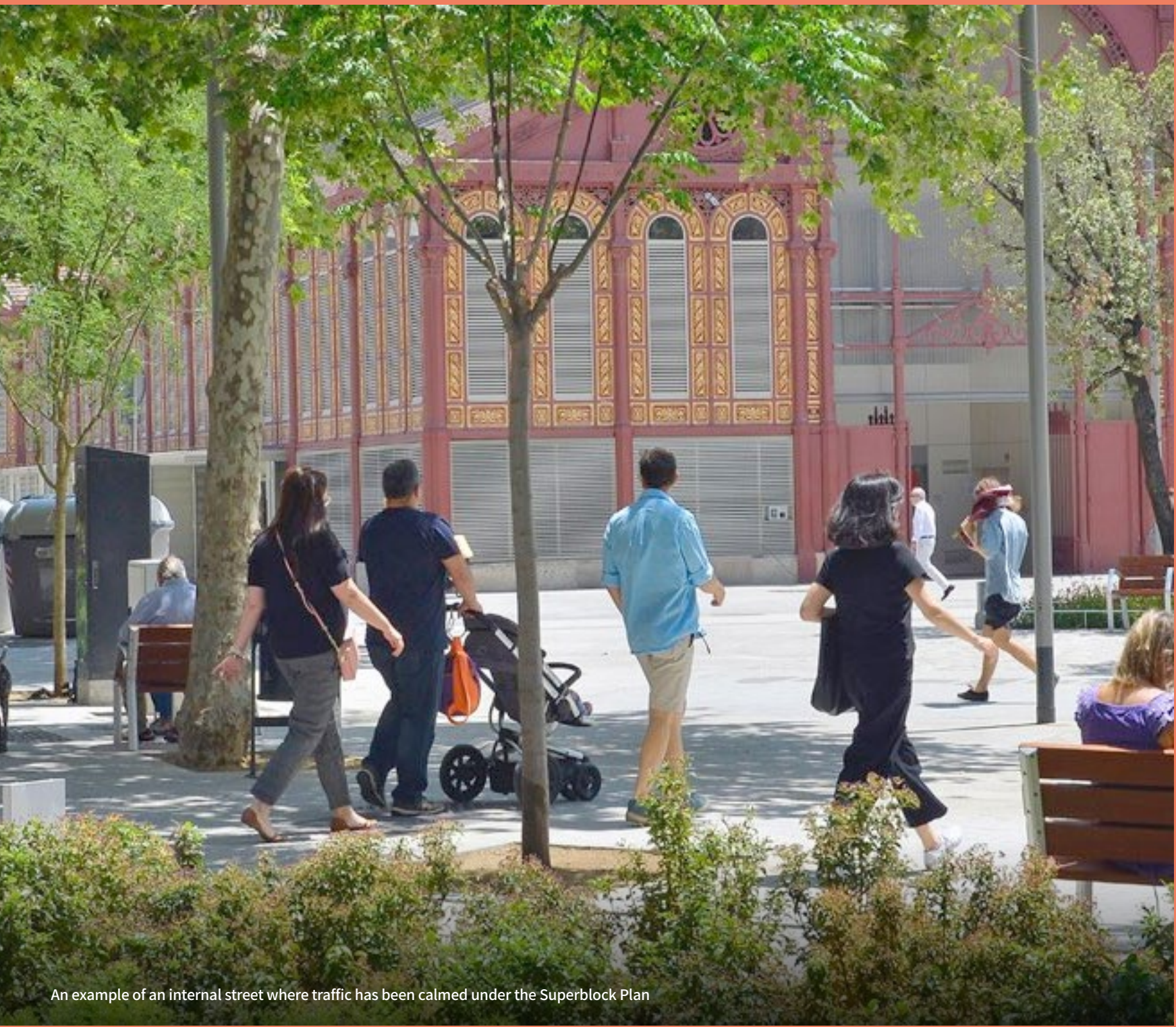
The city of Barcelona in Spain has devised one of the most well-known plans for reducing speed limits (10 km/h) and traffic volumes in residential areas. Besides creating safer spaces for young children and their caregivers, the plan aims to reduce air pollution in the city, offer solutions to traffic congestion, and create additional open areas. The plan also encourages community involvement in the urban space and creates more active public spaces. The plan is an outcome of a number of municipal strategies. Among other things, it derives from the 2013-2018 Municipal Mobility Plan, the city's climate commitment, and the municipal biological diversity plan.

In the initial stage, the municipal team identified which streets are suited to intervention and the implementation of temporary and permanent changes. The long-term implementation began after an assessment period and included the formation of five types of public spaces: spaces for stationary activities, for sports, for culture, for communities, and for play. To accommodate those spaces, parking spaces and traffic lanes were converted into pedestrian only zones or pedestrian-priority streets. At the same time, vehicular traffic, including buses and bus stops, were rerouted to streets on the perimeter of the superblock. Every cluster of residential buildings undergoes planning, design and assessment by residents and stakeholders through workshops, gatherings or committees.

The interventions incorporate innovative design tools – for instance, sidewalks within residential blocks have been paved or painted to highlight crossings and make them accessible to the vision impaired, playground equipment for children has been installed in the middle of the street and not along the curb, planter boxes have been installed and trees have been planted to enhance the sense of an open space and create shade, more seating has been added to encourage spending time and socializing outdoors, and trash bins have been reinstalled to prevent hazards.



Above: users of the space (buses, private vehicles, cyclists and pedestrians), based on the accessibility suited to them on the streets inside and outside the block. The text and the images rely on a case study that appeared in *Designing Streets for Kids*, NACTO, 2020



An example of an internal street where traffic has been calmed under the Superblock Plan

- **Calm the traffic around activity areas intended for young children.** In key and important venues that cater to young children, such as daycare, preschool and kindergarten campuses, or large community centers, it is advisable to plan a 200-meter radius surrounding the venue, consistent with the guidance pertaining to planning 'school zones.'[8] A car-free zone can be defined at least 20 meters from the campus in either direction, and a traffic calming zone can be defined at least 200 meters from the campus in either direction. The traffic calming zone should be defined using a combination of measures specified in the Space Design chapter – The Street Space. In areas where it is not possible to prevent the entry of motor vehicles, adjustments can be made to the street cross-section in order to calm the traffic and give priority to pedestrians and cyclists.
- **Minimize the interface between bike paths and places where young children are active.** Despite the importance of an interface between the network of open spaces and the network of bike paths, it is advisable to consider their integration with caution in order to prevent a situation where cyclists pose a threat to the free movement of young children. This is particularly true in pocket parks and recreational areas intended for toddlers. If a decision is made to plan a bicycle crossing in an open area, regulations can be established for separating bicycle traffic from foot traffic and recreational areas for toddlers.
- **Limit the entry of motor vehicles into the pedestrian space.** So young children and their caregivers can use the street safely, an attempt should be made to avoid situations where motor vehicles can encroach on a sidewalk. To achieve that, when planning residential and commercial areas, preference should be given to concentrations of parking spaces, while limiting the number of entrances to and exits from parking lots. Additionally, consider concentrating the supply of parking spaces in a complex or neighborhood in a main parking garage. That will enable utilization of the above-ground areas for walking and for spending time outdoors in a safe and pleasant manner

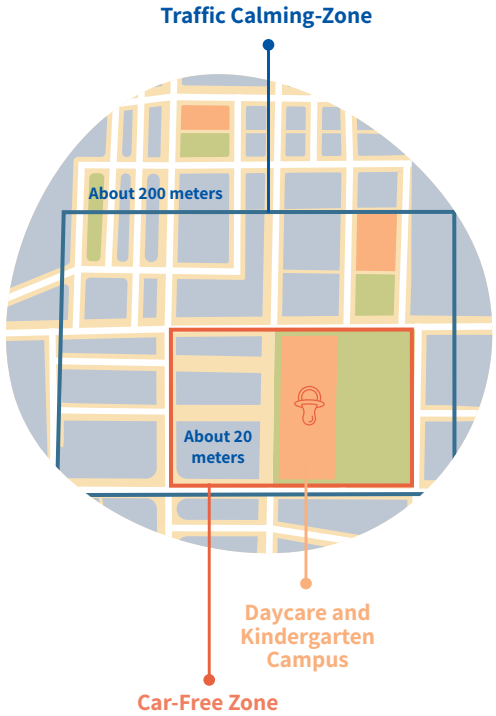


Illustration: traffic policy near an early childhood campus, based on 'school zone' guidelines.

8 See *Guidelines for Planning Traffic Arrangements Near Educational Institutions*, Israel Ministry of Transportation, 2019

Buildings

The granting of building rights and the location of the buildings on a lot are determined at the planning stage of a new or refurbished complex. For young children and their caregivers, it is advisable to define building rights tailored to their needs, such as buildings and facilities where care-related essentials can be provided in the public space (for cleaning off, diapering and nursing the children), as well as common and storage areas in apartment buildings and public institutions. The current and welcome trend of incorporating public early childhood services in private properties should also be examined. This will ensure that the needs of the children and their caregivers are also met in complex urban settings. Finally, determining the location of the buildings with the younger age groups in mind will ensure that the buildings themselves foster a sense of familiarity and security in a residential area, and not create safety hazards or exposure to noise and air pollution.

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A Network of Paths and Passageways in a Residential Block and Neighborhood That Include Safe Play Areas in the Immediate Vicinity of Home

1 | The path is visible from the balconies

2 | Shade trees

3 | Seating all along the path

4 | Use of natural materials

5 | The path width changes to create play areas

6 | The path is visible from the balconies

Allocating care-related buildings and facilities

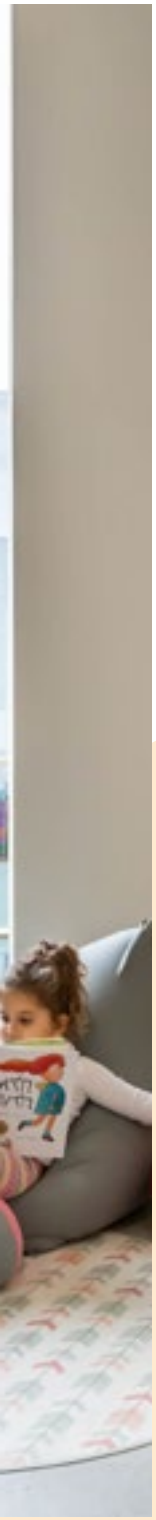
Built areas where young children can be cared for should be allocated, as should spaces for storing strollers and other equipment vital to accessibility and to improving and extending the time young children and their caregivers spend in the public space. The intention is to parks, main streets, mass transit stations, public buildings or the vicinity of apartment buildings. When establishing construction guidelines, it is advisable to:

- **Grant building rights for constructing care-related facilities in centrally located sites.** To ensure that restrooms, baby changing stations and lactation spaces can be built, it is important to define suitable building rights in the plan. In publicly-owned areas, like parks, streets or public transport terminals, priority should be given to locating the care-related facilities in hubs that are accessible to a large number of users,[9] and also in places that are not likely to be replaced by business establishments. Additionally, consider making the provision of building rights for commercial purposes contingent on allocating and operating care-related facilities open to the public.
- **Locate the restrooms near play and exploration areas.** In public buildings and open areas, care-related and changing facilities should be located near nature spots or those in which the activities generally involve getting dirty. Doing so will encourage the caregivers to allow the children to explore and experiment. Those areas should, for example, be close to spaces that include animals, sandboxes, water activities, untamed nature, etc.

Public restrooms for children in a public park in the capital city of Andora. Photograph: Gavrieli-Segal

9 The guidelines that appear in the *Manual for Designing Public Gardens* define that public restrooms should be built in parks that are larger than 8 dunams (2 acres / 0. 8 hectares) and be maintained by the local authority, 2012.

"Pashutgan" – a preschool located in the Midtown Tower in Tel Aviv. Photograph: Hila Ido



Incorporating early childhood services in private properties

The current trend in Israeli cities is to incorporate public spaces in buildings intended for residential and commercial use. In those cases, services like daycare centers, preschools, kindergartens, clinics and community centers are integrated into multistory buildings designed for a variety of purposes, such as residences or business establishments. A mix of uses makes it possible to create compact spaces that are more conducive to walking and cycling. Nonetheless, it is important to ensure that the needs of children are also addressed in these environments, which are characterized by high-rise construction. To create optimal environments for young children that are integrated into mixed-use spaces, it is advisable to:

- **Plan a suitable inventory of private properties that meet the needs of young children.** Based on the accepted standards in urban areas, around one-third of the supply of daycare centers and some of the preschools and kindergartens should be planned in private properties, such as residences or commercial buildings.[10] It is important to plan an adequate number of private properties in advance which can accommodate the required care-related facilities. The plans for those properties should include appropriate indoor and outdoor areas, with maximum access to the ground floor and open spaces, but far from hazardous uses and negative environmental impacts (for example – trash collection sites or places where there are strong winds or little sun, etc.).
- **Plan a convenient and simple street wayfinding interface.** To make it easy for young children to orient themselves, and to create pleasant waiting areas and pathways, a plan which allocates public spaces for young children on privately-owned lots should also stipulate that the entrance be located in an accessible and clearly visible spot in the public space, in addition to ensuring a convenient entranceway that is wide enough to accommodate users with strollers. Furthermore, the physical design should underscore the public nature of the use. Next to early childhood services, it is recommended that there be a mandatory allocation of adequate spaces where pedestrians can wait, passengers can be dropped off and picked up, and cyclists can park their bicycles.
- **Plan to include nature in the activities held at daycare centers, preschools and kindergartens.** One of the key issues associated with building multistory daycare centers, preschools and kindergartens is where to locate the outdoor area. The two main approaches are to establish a yard on a rooftop balcony next to a classroom, or to designate part of the open area on the ground floor for use as a yard by the classrooms situated on the upper floors. For a daycare center located above the ground floor, the common practice is to designate the roof of the floor below it as an outdoor area. When alternative outdoor areas have been allocated instead of a yard on the ground floor, Space Design guidelines should be used to address the developmental needs of children in high-rise construction settings. In those cases, it is even more important to locate the facility next to a fully accessible public park or nearby nature site. That way, the needs that young children have for physical interaction with nature can be met.

10 *Manual for Allocating Land for Public Needs*, Israel Planning Administration, 2016

Planning common areas in apartment buildings

Residential environments that include common areas support children and their caregivers in two main ways. Firstly, they encourage the forging of personal ties and a sense of community in high-density residential areas, which otherwise could lead to alienation and detachment. Secondly, common areas typically offer families access to services and spaces which they would be unable to pay for and maintain on their own, such as a space where children can do arts & crafts, or a place to store equipment that takes up a lot of room. Having shared storage solutions in a building makes it possible to build smaller and less expensive apartments, while enabling families with children to conveniently access strollers, toys, bicycles and other essential gear. To enjoy the benefits of high-quality common areas that accommodate family households, it is advisable to:

- **Allocate a special space that residents can use as a common room.** Designating a space for this purpose will encourage its establishment because it will not 'compete' with other vital spaces in the building. When allocating the space for a common room, the following factors should be taken into consideration:
  - In buildings with 12 stories or less, it is preferable to allocate the space on the ground floor so there is easy access to the outdoor areas.
  - Planning common room infrastructure in advance will enable children to spend time and play there. That infrastructure includes a sink, a space where dirt can be rinsed off following a messy activity, noise reducers, and planter boxes where natural vegetation can be grown.
- **Allocate easily accessible storage units.** Modern apartment buildings are generally designed with private storage units (a minimum of 4 m^2). Nonetheless, in apartment buildings intended for families, it is advisable to add accessible shared storage areas that can conveniently accommodate bicycles (of a number of children) and double strollers. To the extent possible, allocate the storage areas on the ground floor so there is easy access to the street.
- **Make use of the roof of the building.** An apartment building roof has considerable potential as it can offer children a pleasant environment which, on the one hand, exposes them to vegetation and fresh air and, on the other hand, is distant enough from the apartments so noisy and messy activities can be held there. In new construction, roofs are designed to include infrastructure, technical equipment and solar panels for heating water and generating electricity. At the planning stage, guidelines can be established for creating a technical floor in order to free the roof space for activities defined in the planning implementation stage.

Rooftop gardens. Photograph: Shutter Snap

Activity in the immediate vicinity of an apartment building, where the yard is visible from the apartments. Ganei Shapira project in Tel Aviv. Photograph: Roman Grinstein

Designing safe surroundings

Deciding on the preferred location of the buildings at the comprehensive planning stages can help mitigate problems arising from noise, air pollution and through traffic. For that reason, it is advisable to:

- **Limit the above-ground parking areas.** Parking areas on a lot are not safe for young children, neither in the above-ground parking lots where cars may be moving (and children often play there as well), nor on the entrance and exit ramps where visibility could be limited. Furthermore, the above-ground parking areas come at the expense of natural public spaces, where children could play safely and engage in stationary activities close to home or to a public institution. At the preliminary planning stages, the recommendation is to limit the number of parking spaces in favor of public transport and cycling infrastructure, and replace them with underground parking. When designing underground parking lots, the recommendation is to concentrate the entrances and exits in a location shared by a number of buildings.
- **Distance services for young children from major thoroughfares.** Situating entrances in close proximity to a main road is likely to create safety hazards and compromise the design of safe and tranquil spaces where children can be dropped off at and picked up from public buildings. Close proximity to a main road is also likely to produce noise and air pollution hazards. Alternatively, institutions such as daycare centers and family clinics should be accessible from local streets, enabling children and their caregivers to reach them in a safe and stress-free manner.[11]
- **Plan buildings where common outdoor play areas are visible from the apartments.** Having eye contact between the apartments and the common areas surrounding the building increases young children's sense of security and belonging. **For families with many children, in which older siblings (aged 12 and older) often look after their younger brothers and sisters, maintaining eye contact with adults can offer an additional tier of security to their wellbeing.12 To that end, the land surrounding the building should in advance be designed as shaded and protected spaces suitable for play. Those spaces can be used exclusively for play, or have dynamic uses by converting parking areas into play areas depending on the hour of the day.**

11 For more on the subject: Dvora Fried and Michal Bleikoff, *Planning Children's Day Care Centers in Israel in a Changing Reality*, The Urban Clinic, 2019

12 For more on the subject: *Siblings Looking After Siblings: How to Do it Right*, Beterem Safe Kids Israel website

Comprehensive Planning Metrics

The purpose of the metrics is to examine to what degree the plans conform to the recommendations pertaining to optimal planning for young children and their caregivers. The metrics relate to the Comprehensive Planning chapter and to various topics which appear in that chapter. There are metrics that evaluate how land uses have been distributed, how the green network has been designed, etc. As regards each metric, the following table contains its objective, the criterion used to measure whether the objective has been achieved in the plan, the value it offers children and their caregivers and, in certain cases, an illustration as well. The metric itself defines three performance indicators that rate the degree to which the plan suits the needs of young children and their caregivers: 1. Robust; 2. Functional; 3. Disappointing.

Objective	Criterion	Value for Children and Their Caregivers	Performance Indicator	Illustration
Access to daycare centers, preschools and kindergartens	The distribution of daycare centers, preschools and kindergartens close to home	Daycare centers, preschools and kindergartens are important infrastructure for integrating parents into the workforce and for reducing disparities among young children from disadvantaged backgrounds. To open daycare centers, preschools and kindergartens that are no more than 300 meters from home, sufficient public land has to be provided for that purpose, in addition to private properties that meet the threshold criteria[1], such as suitable outdoor spaces.	Robust: a plan that allocates a suitable public / private property within a walking distance of up to about 300 meters, which can serve roughly 50% of the infants and toddlers aged birth to 3 Functional: a plan that allocates a suitable public / private property within a walking distance of up to about 300 meters, which can serve roughly 25% of the infants and toddlers aged birth to 3 Disappointing: a plan that allocates a suitable public / private property within a walking distance of up to about 300 meters that serves fewer than 25% of the infants and toddlers aged birth to 3	According to Ministry of Economy data, around 25% of Israeli infants and toddlers aged birth to 3 currently attend accredited facilities. Even though they comprise slightly more than one-quarter of the population, Arab toddlers are underrepresented at accredited facilities and account for only about 5.4%.

1 Based on the *Manual for Allocating Land for Public Needs*

Objective	Criterion	Value for Children and Their Caregivers	Performance Indicator	Illustration
Spending an increased amount of time in the public space	Distributing integrated hubs that appeal to children and adults alike	The distribution of commercial and service hubs near daycare centers, preschools and kindergartens, as well as public parks, can increase the amount of quality time that children and their caregivers spend in the public space. It will also expose them to enriching experi-ences outside the home.	Robust: most of the commercial or service hubs, daycare centers, preschools kindergartens and parks are located near each other Functional: some of the commercial or service hubs, daycare centers, preschools, kindergartens and parks are located near each other Disappointing: the commercial or service hubs, daycare centers, preschools, kindergartens and parks are not located near each other	

Objective	Criterion	Value for Children and Their Caregivers	Performance Indicator	Illustration
Access to peaceful spaces	Creating peaceful spaces for children and their caregivers	In busy urban areas, the challenge is to create peaceful and intimate spaces where young children and their caregivers can spend time. The distribution of sites for young children and their caregivers in peaceful and serene settings, such as pocket parks or parks, will encourage the children to engage in positive activities in the public space.	Robust: over 50% of the parks are expected to have a noise level of less than 45 decibels Functional; over 25% of the parks are expected to have a noise level of less than 45 decibels Disappointing; fewer than 25% of the parks are expected to have a noise level of less than 45 decibels	For children to hear a whisper (30 decibels) or the tweet of a bird (40 decibels), they have to be in an environment where the noise level is less than 45 decibels. Spending more than 8 hours in an environment whose noise level exceeds 85 decibels (the noise generated by a large truck traveling a speed of 65 kph) could harm the hearing of both children and adults.
Access to nature	Conserving natural spaces, especially in places intended for children	In busy urban areas, conserving or cultivating sites that offer original natural phenomena, especially in areas intended for children, enables them to explore inanimate objects, flora and fauna, the changes that occur in the different seasons of the year, and more.	Robust: most of the public parks and most the yards at daycare centers, preschools and kindergartens, offer original natural phenomena Functional: some of the public parks and some of the yards at daycare centers, preschools and kindergartens, offer original natural phenomena Disappointing: there are no original natural phenomena in the public parks and at the daycare centers, preschools and kindergartens	

Objective	Criterion	Value for Children and Their Caregivers	Performance Indicator	Illustration
Continuous walking	Shortening the length of a block or the distance between two cross-walks	Shorter walking distances are important to young children and their caregivers, who typically walk slowly. Their walking also tends to be fragmented and meandering, rather than continuous, and with multiple stops on the way. To encourage caregivers to choose walking over riding in a private car, it is advisable to plan pleasant, safe and fast continuous walking options. A block or the distance between two crosswalks should therefore be short.	Robust: a block length that does not exceed 100 meters Functional: a block length that does not exceed 200 meters Disappointing: a block length that exceeds 200 meters[2]	A caregiver and 4-year-old child need around 3 minutes to walk a distance of 100 meters in order to cross an intersection. [3]
Walking accessibility	Defining sidewalk widths	To get around, caregivers and children often require a wider sidewalk because they walk in groups or use strollers or other auxiliary means. The need for wider sidewalks increases the more congested the urban environment is, or the more it caters to many children.	Robust: sidewalks are wider than 3 meters Functional: sidewalks are 3 meters in width Disappointing: sidewalks are less than 3 meters in width[4]	A family comprised of two adults and two toddlers walking next to each other require about a space of about 3 meters for walking[5]

2 Based on the document *Criteria for Submitting Plans to Planning Institutions – Public Transport- and Sustainable Transportation-Oriented Planning*, Israel Planning Administration, Ministry of Transportation, Israel Land Authority, Ministry of Construction and Housing, 2019.

3 *Access and Babies, Toddlers, and Their Caregivers.* Institute for Transportation and Development Policy (ITDP), 2022

4 Sidewalk dimensions based on Ministry of Transportation criteria.

5 *Designing Streets for Kids*, Global Designing Cities Initiative, 2020

Objective	Criterion	Value for Children and Their Caregivers	Performance Indicator	Illustration
Walking safety	Traffic calming	Reducing vehicular traffic is a critical tool for making the street safer, cleaner, quieter and more inviting for young children and their caregivers. Turning local streets into traffic-calmed streets is achieved by implementing measures such as lane narrowing, raised intersections, bends in the road, special paving, and more.[6]	Robust: a planned traffic-calmed street where the maximum speed limit is 10 kph Functional: a planned traffic-calmed street where the maximum speed limit is 30 kph Disappointing: no traffic calming	An attentive driver requires about 45 seconds to react to an obstacle on the road. At a speed of 50 kph, that means that the vehicle will come to a full stop after 24 meters. At a speed of 30 kph – after around 12 meters. And at a speed of 10 kph – after around 3 meters. [7]

6 *Neighborhood 360 – Metrics for Planning and Developing Residential Environments*, Ministry of Construction and Housing and the Israel Green Building Council, 2021.
7 *Stopping Distance Calculator* – Created by Bogna Szyk, (https://www.omnicalculator.com/physics/stopping-distance)

Mevo HaShemesh Garden-Letters Park, Beit Shemesh. Design and photograph: Ram Eisenberg Environmental Design

Objective	Criterion	Value for Children and Their Caregivers	Performance Indicator	Illustration
Access to care-related facilities in public spaces	Allocating care-related facilities in the public space and on lots intended for public buildings	Areas intended for care purposes and the wellbeing of children and families – public restrooms, as well as baby changing stations, lactation spaces and storage facilities in open public spaces and in public buildings, will make enable children and their caregivers to spend more time and quality time in those spaces. A combination of building rights and construction guidelines for the above-cited types of facilities will facilitate their establishment.	Robust: a plan that allocates land or defines mechanisms for building care-related facilities in most hubs in the public space and in key public institutions Functional: a plan that grants rights for building care-related facilities in part of the public space or in some key public institutions Disappointing: a plan that does not include care-related facilities in the public space or in key public institution	Cities around the world are providing restrooms in public parks to enable families to wash their hands, change diapers, freshen up, and more. It is customary to compare the quality of the distribution based on the number of facilities per 100,000 residents. In New York, there are about 16 public facilities per 100,000 residents, and in Tel Aviv there are 21 per 100,00 residents.[8] On the other hand, in the city of Nazareth, there are only three restrooms accessible to the public.[9] The quality of the facilities is also measured by their accessibility, cleanliness, and maintenance.

8 *Discomfort Stations: The Conditions and Availability of NYC Parks Bathrooms*, New York City Comptroller Scott M. Stringer, 2019.
9 *Public Restroom Facilities in Local Authorities – Construction, Accessibility and Maintenance*, Report of the State Comptroller, 2017.

Objective	Criterion	Value for Children and Their Caregivers	Performance Indicator	Illustration
Access to public services	Establishing public services on privately-owned lots	Establishing pubic services intended for children (such as daycare centers, preschools, kindergartens, health clinics, etc.) in private properties – e.g., in apartment buildings or office complexes – can result in greater flexibility in the distribution of those services. It is necessary to put construction guidelines in place that enable the provision of public services for young children in private properties, while granting added building rights for those uses. Furthermore, the conditions for establishing them should be defined – e.g., minimum size, outdoor areas in close proximity, air and light conditions, the prevention of environmental hazards, appearance, and more. Those guidelines should ensure that the public services will be healthier and more inviting for young children and their caregivers.	Robust: a plan that includes guidelines which facilitate incorporating public services for young children in private properties and stipulates detailed conditions for establishing them Functional: a plan that facilitates public uses for young children in private properties and stipulates basic conditions for incorporating them in those properties (e.g., minimum size, outdoor areas) Disappointing: a plan that makes no reference to incorporating uses for young children in private properties	In Israel, infants and toddlers aged birth to 3 spend between 30 to 40 hours a week in early childhood programs. When coupled with the high attendance rate (56%) in those programs, Israeli children spend a lot of time at early childhood facilities. That explains why proper planning of the public services in private properties is so important. [10]

10 *Early Childhood in Israel – Findings from Selected Research Studies*, Taub Center, 2021.

Objective	Criterion	Value for Children and Their Caregivers	Performance Indicator	Illustration
Access to common areas in apartment buildings	Establishing common areas for children and their caregivers in different sections of an apartment building	Apartment buildings can offer spaces for joint activities of children and their caregivers, such as a garden on the ground floor, a common room for residents, the roof of the building, etc. Those spaces can also accommodate noisy activities or ones that involve getting dirty. The construction plan should define guidelines that facilitate the establishment of those spaces, and special building rights should be granted for them.	Robust: the plan includes an option to establish at least two spaces for joint activities of children and their caregivers in the apartment building, in the yard or on the roof, including the provision of special building rights for this purpose Functional: the plan includes a one space for joint activities of children and their caregivers, including the provision of special building rights for this purpose Disappointing: the plan does not include an option to establish spaces for joint activities of children and their caregivers	

Objective	Criterion	Value for Children and Their Caregivers	Performance Indicator	Illustration
Easy access to storage space in apartment buildings for items frequently used	Establishing easily accessible spaces in apartment buildings for storing frequently used items	Children and their caregivers need accessible storage spaces for baby strollers, bicycles and other items that are frequently used. Because storage units in the basement are not accessible, they should be located on the ground floor or on every floor outside the apartments. Special building rights should be granted for those spaces.	Robust: the plan makes it possible to establish shared storage spaces on the ground floor and on the floors where the apartments are located, and also grants building rights for that purpose Functional: the plan makes it possible establish shared storage spaces on the ground floor or on the floors where the apartments are located, and also grants added building rights for that purpose Disappointing: the plan does not allow for the establishment of shared storage spaces on the ground floor or on the floors where the apartments are located	

Space Design

At the space design stage, architects, engineers and designers are engaged in situating the components of the buildings and the open spaces, and in choosing materials, equipment, colors and vegetation and incorporating them in the different spaces. This stage is especially critical to young children as the above choices have a direct impact on how they will experience the spaces they spend time in. Because children pay attention to small details that are close to them and within reach, the use of assorted and composite colors and textures will offer them an enriching experience that speaks to all their senses. Additionally, the types of vegetation that are chosen will determine the quality of the shade and provide new colors and aromas, while attracting different kinds of birds, butterflies and insects.

Professionals face a variety of decisions regarding each of the aforementioned elements. Some of those decisions are made in accordance with rules set in advance by the authorities, as in the case of plans that guide the design of public buildings such as daycare centers, preschools and kindergartens. Other decisions are affected by public opinion and market demand, like playground equipment in parks and gardens and the specifications of the apartment buildings. The aim of this chapter is to highlight which choices contribute to the development of young children and the wellbeing of their caregivers. In many instances, these choices are not necessarily more costly or complex than the ones currently made. However, being aware of their importance is crucial to creating environments that are friendly to young children and their caregivers.

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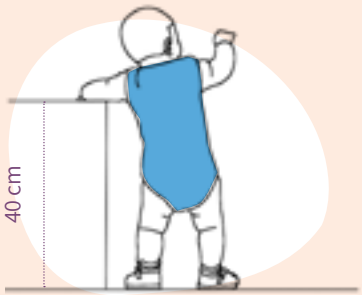
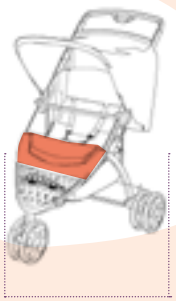
Issues of importance to young children and their caregivers that affect design decisions

Eye height of a seated toddler

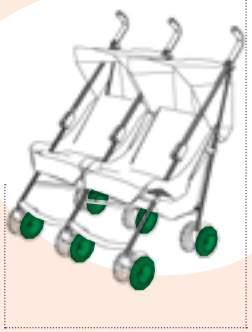
Height of handrails used by toddlers[1]



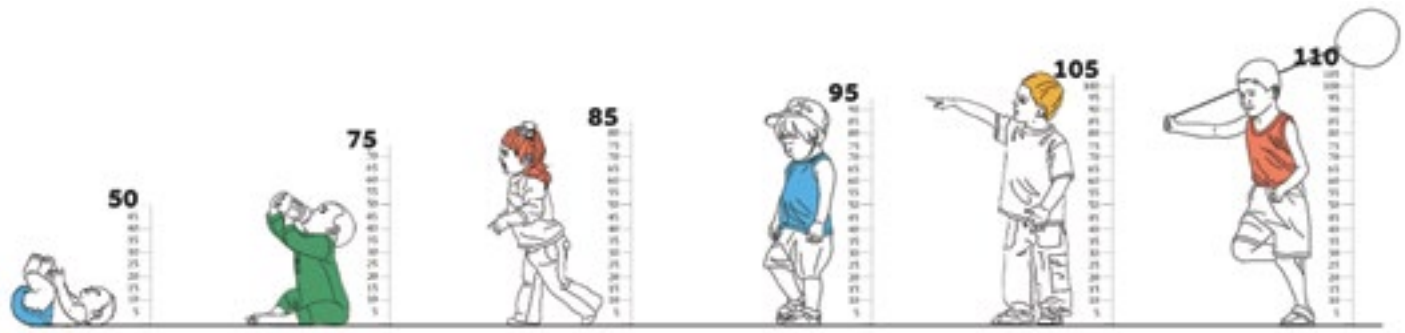
Baby stroller width



Double stroller width



The average height of young children aged birth to five (50% percentile)[2]



Required sidewalk width for a family to walk together

2.4 meters

Required sidewalk width for a large family to walk together

4.8 meters (Israel Standard 1918)

1 NACTO, Istanbul95 Studies: *Playground Ideas for 0-3 Years* (2019)

2 *Growth Curves*, Ministry of Health

Places for getting organized, feeding, diapering and nursing

To enable caregivers to spend time with young children throughout the city, they need access to places where they can care for them in a pleasant, clean and safe setting. A caregiver who knows that it is hard to find a place with shaded seating will be reluctant to take a baby out for a walk in the summer. A nanny who is not certain that there will be a place for a toddler to go to the bathroom will avoid taking long rides on public transportation.

Therefore, when planning streets, parks and public buildings, it is important to consider in advance where basic care facilities can be located, while taking into account their long-term maintenance requirements.

It is advisable to locate the facilities in spaces where no other alternative exists (e.g., in commercial establishments or public institutions) and where a great deal of traffic of young children is expected. Locating different kinds of care facilities next to each other (for example, lactation spaces and baby changing stations) will make it possible to save on space and maintenance needs.

Public restrooms

Planning public restrooms in the public space makes it much easier to spend time outdoors. Combining baby changing stations and lactation spaces will enhance the caregiver's own comfort. Toilets, sinks and hand dryers customized to the height of young children will help develop their sense of independence and ownership, and will help caregivers who are responsible for a number of children. Amenities such as a variety of racks and hooks and places to sit can greatly benefit caregivers, who typically carry around a lot of gear with them.

Baby changing stations

Because diapers are often changed by adults in a standing position, a surface about 80 centimeters in height is recommended. Locating the changing station in a space whose lighting is not overly bright will prevent glare, whereas adding banners and similar elements will distract the children in a safe and pleasant manner. Thermal insulation and wear-resistant materials should be chosen. It is advisable to install trash bins and a faucet for washing hands nearby. If the changing station is installed outdoors, it should have a suitable shade solution, and lids should be provided for the trash bins to keep animals from rummaging through them.

Lactation spaces

If not installed within a public restroom, a lactation space should offer the woman privacy, but still enable her to maintain eye contact with her surroundings, especially if she is caring for more than one child. To that end, the lower section of the space should extend to the floor, while another section can include an aperture through which the seated woman can look out. If the lactation space is installed outdoors, suitable shade should be provided using a canopy or vegetation.

Rinse-off stations and drinking fountains

Public water stations can be used both for drinking water on hot summer days and for rinsing off children and their gear. Accordingly, the water stations should include a standard faucet (as opposed to one used to refill bottles) and supply water at room temperature (and not only coolers).

Seating

It is advisable to install seating in spaces where adults care for young children, making it more convenient to spend time there for the duration of the provided care. A variety of seating options and accessibility levels will make it possible to accommodate children who are at different stages of development. When designing the seating, consideration should be given to the availability of natural shade or shade structures.

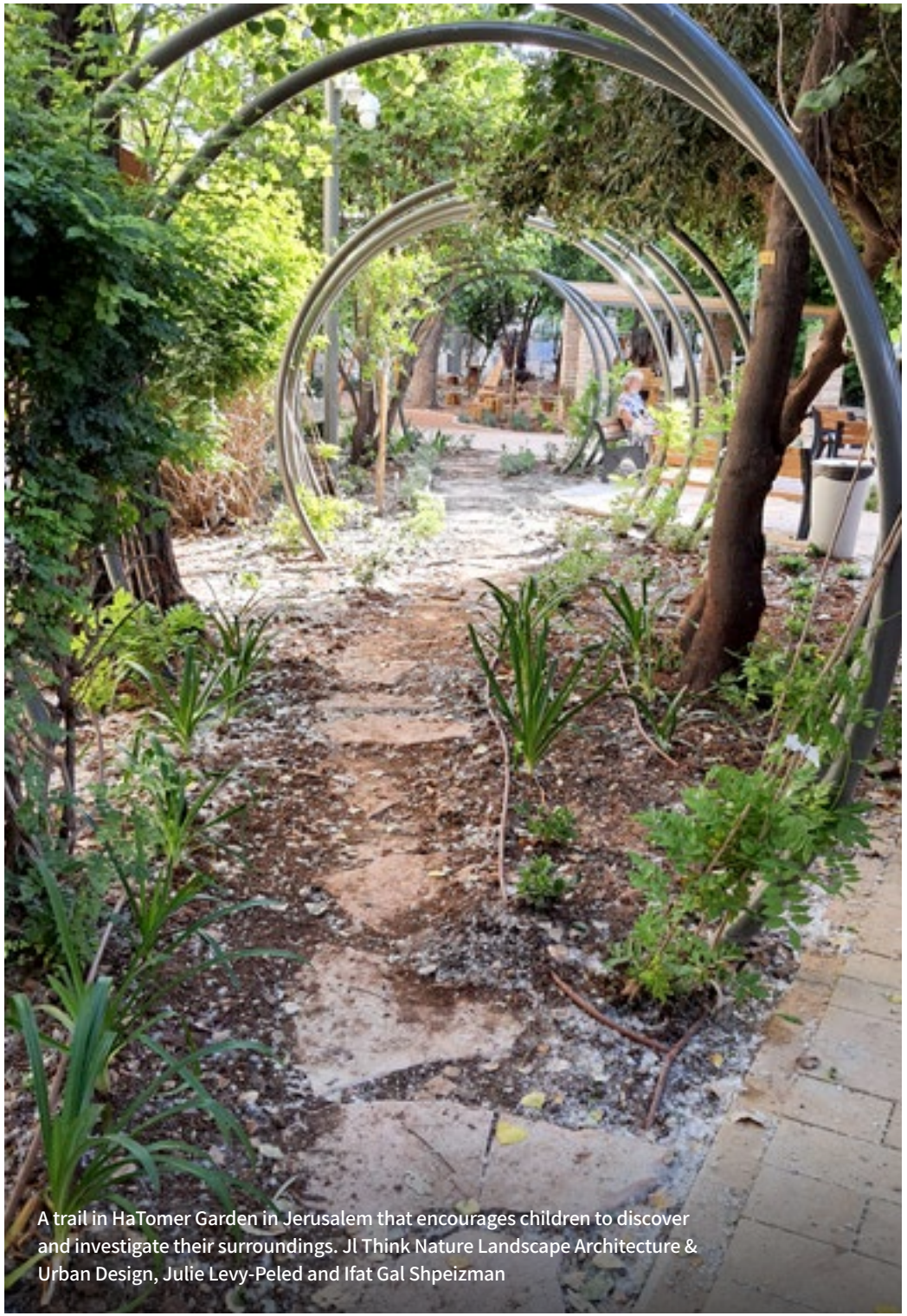
A drinking fountain also suitable for children. Photograph and design: Shaham Arica

Parks and Gardens

Today, parks and gardens are the main destinations in our cities that are intended primarily for young children and their caregivers. In a congested city, places where children can move around freely and play, make noise, get dirty, explore and discover the world of flora and fauna are rare to come by. In Israel, considerable efforts have been made to establish standards, guidelines and metrics aimed at improving parks and gardens and ensuring their availability in residential areas. Those guidelines deal with important issues, such as making parks and gardens accessible to a variety of population groups, safety, and conserving heritage and nature. The guidelines presented here adopt the existing ones and add the child development aspect to them in order to answer the question: **what do parks and gardens look like when designed from the vantage point of young children and their caregivers?**

Attachment theory, which was discussed at length in the introduction chapter, presented the discovery and security circle as an organizing model. According to that approach, children will always shift between a discovery anchor – the desire to explore and discover the world – and the need for a safe and familiar anchor which they can go back to and organize their feelings. To address the range of developmental needs, park and garden design should go back and forth between those two extremes: between formal spaces for movement, play and stationary activities, and informal spaces for movement, play and stationary activities. Special attention should be paid to the space where the transition between them occurs, which is an important activity space.

Shmuel Garden in Haifa. Photograph: Yaron Zelnik, REED Ram Eisenberg Environmental Design. On the right, there is a formal recreational area that includes playground equipment, a surface made of artificial materials, and a wide and paved path. On the left, there is an informal recreational area that includes a trail, vegetation and natural soil. Young children are frequently drawn to the edges that separate what is familiar and safe from what is unknown and pique their curiosity, both of which are vital to their development.



A trail in HaTomer Garden in Jerusalem that encourages children to discover and investigate their surroundings. Jl Think Nature Landscape Architecture & Urban Design, Julie Levy-Peled and Ifat Gal Shpeizman

The design of the formal recreational areas in park and gardens, those which contain structured play equipment, is specified in Israeli standards. Consequently, the guidelines presented here add some features in an attempt to improve them. Those features suggest suitable physical dimensions and criteria, ways to reduce distractions, tools for reinforcing the bond between the caregivers and the children, and more. On the other hand, the design of the informal areas in parks and gardens, where the children come into contact with flora and fauna, is missing almost entirely from the existing guidelines. And that is despite the fact that those areas are no less, and perhaps even more, vital to creating challenging and interesting spaces for young children. We have therefore assigned more weight in this guidelines document to the informal elements at all the planning stages of parks and gardens. We suggest making use of elements that will create spaces which foster exploration, unmediated interactions, and new and unexpected experiences. **One of the major innovations found in this manual is the guideline pertaining to pocket gardens. In an increasingly congested urban environment, it is highly important that the design of pocket gardens, as small as they may be, contain natural, unstructured**

areas that can provide children with exploration opportunities. Trails, tree trunks, edges and sets of steps – all offer young children a variety of development and play options in a way that is even better than the largest piece of play equipment.

According to attachment theory, young children can engage in exploration only in the serene, safe and comforting presence of their caregiver figure. In other words, the caregiver has a key role to play in all the spaces of a park or garden, formal and informal alike. For that reason, we highlight the bond between the caregiver and the toddler – and the importance of the caregiver for the child's ability to function, be inquisitive, and engage in activities. Additional emphasis is placed on designing the vicinity of the edges that separate the formal and informal recreational areas. **It is common to see boys walking along the edges of a park or garden, or girls skipping between the border of one type of material and the border of another –** that is the intermediate space, and spending time there develops the child's conceptualization and creative abilities. Therefore, the spaces along the edges, such as the edges of paths, the borders of recreational areas and the edges of a park or garden, have received special attention in this chapter. Another important factor has to do with the perception range and scale: children are very sensitive to the immediate, nearby and touchable space, and observe the distant landscape to a lesser degree. Incorporating easily identifiable elements from the immediate surroundings, such as small and attention-getting items, rich textures and diverse materials, create anchors and a sense of familiarity for the child in the space, enhancing its play and exploration potential.

The guidelines in this chapter are divided into the main uses made by young children and their caregivers in a park or garden: stationary activities for the purpose of rest and care, and the other of play, exposure to animals and nature, and movement. With regard to each use category, the guidelines suggest elements for both the formal and the informal recreational areas in the park or garden

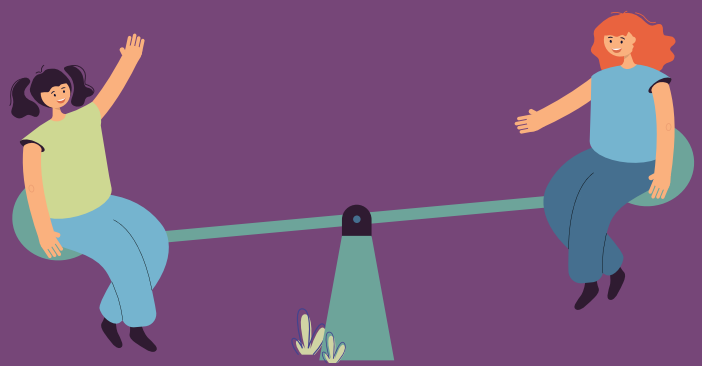
A sculpture installed in a park in Canada, which incorporates local architectural history, including easily identifiable elements from the immediate surroundings, such as stones, pieces of metal, and more. Stephen Brathwaite, Strathcona's Folly, Ottawa, Canada
Photograph: Ram Eisenberg
Environmental Design

A Multiage Garden

Parks and gardens are popular destinations for families with children of all ages. Even though they offer numerous activities appropriate for a variety of age groups, not all the activities are suited to all the children. Consequently, it is very important to address different opportunities and challenges when planning the distribution of uses in a park or garden. For example, it is important to separate recreational areas for toddlers from recreational areas for older and more independent children. Additionally, because many families in Israel have several children, it is quite common to see caregivers in a park or garden with children of different ages who are playing right next to each other. Therefore, it is important to design activities that can suit different age groups playing together.

Diverse activities should be allowed, including different types of games tailored to stages of development. Additionally, because children tend to play in all the sections of a park or garden, elements that encourage children of different ages to explore and play should also be available outside the formal play areas. For example, play opportunities can be offered also when walking on paths or roaming around nature spots, where play items can be placed in small niches in the wall, or tactile elements can be in the form of a relief on the paved paths.

Children engaged in activities generate interest and a sense of wellbeing among all the users of a park or garden. For example, installing plaza-like areas or bleacher seating, which offer a view of the spots where the children are playing, can contribute to the park or garden's pleasant and communal character. Senior citizens take a particular interest in children's activities, and interactions between them is important both to the seniors and the children. Interactions in a park or garden can be encouraged by incorporating elements adapted to the needs of different age groups, including those of the seniors. That can be achieved, for instance, by situating services such as cafes or kiosks, *pétanque* courts or fitness equipment near the children's recreational areas in a park or garden, from which they are easily visible.



Mevo HaShemesh Garden-Letters Park, Beit Shemesh. Design and photograph: Ram Eisenberg Environmental Design

Designing spaces for stationary activities, play, care and exposure to nature

Seating

Spaces for stationary activities in a park or garden should include seating customized to children and their caregivers. A variety of seating options suited to different situations, especially ones adjacent to play areas, will foster interactions between the children and the caregivers and boost the children's confidence to try out new things. When designing seating, special attention should be paid to climatic-environmental comfort, the availability of shade, and the use of cooling and noise reduction elements.[3] In spaces for stationary activities shared by infants and toddlers, it is important to enable quiet conversations or even whispering. That will encourage the children to experiment with their voices and words. Those spaces should be located in the least noisy sections of the park or garden, in an area where the noise level does not exceed 40 decibels. In cases of loud environmental noise, it can be mitigated using 'positive noise' such as flowing water or the rustle of tree leaves.

When designing formal seating, the following should be taken into account:

- Use accessible benches (Israel Standard 1918) that are also appropriate for both young children and senior citizens. Installing them near recreational areas for young children will encourage intergenerational ties. Additionally, the standard stipulates the inclusion of an open area next to the bench, which can easily accommodate a

Customized furniture and use of easily identifiable elements from the immediate surroundings at Gan HaYovel in Herzliya. Design and photograph: Ram Eisenberg Environmental Design

A pedestal table in Kiryat Sefer Park in Tel Aviv offers an informal seating option. Design and photograph: Ram Eisenberg Environmental Design

3 References to this issue can be found in the *Manual for Designing Public Gardens* (2012) and *Neighborhood 360* (2019). To assess the effectiveness of the shade measures, it is advisable to adopt the definitions set forth in the *planning and construction regulations pertaining to playground shade solutions* (2019), while determining that 10:00, 13:00 and 15:00 on June 21st will be the times when the shade in spaces for stationary activities is examined.

baby stroller, as well as a handrail that helps toddlers develop their sitting capabilities.

- Incorporate furniture customized to the height of children: benches that are 30-35 centimeters high, and customized drinking fountains that are 65-80 centimeters high. This will contribute to the children's independence and make it easier for caregivers who are supervising a number of children at the same time. Furthermore, situate the customized furniture next to the play areas or to standard-size furniture.
- Add small and tactile easily identifiable elements from the immediate surroundings, such as a relief with carved out shapes that interest children – e.g., of animals or flowers – and are within arm's reach of the space designated for stationary activities.

Informal seating

All park and garden users, and children in particular, make use of informal elements to sit on. Designing and situating those elements near recreational areas in a park or garden will ensure an abundance of seating options, in addition to facilitating flexibility in the way that children and their caregivers make use of the park or garden. When designing informal seating, the following possibilities should be considered:

Gonenim Park in Jerusalem, BO Landscape Architecture. Photograph: Yoav Peled

Boulders

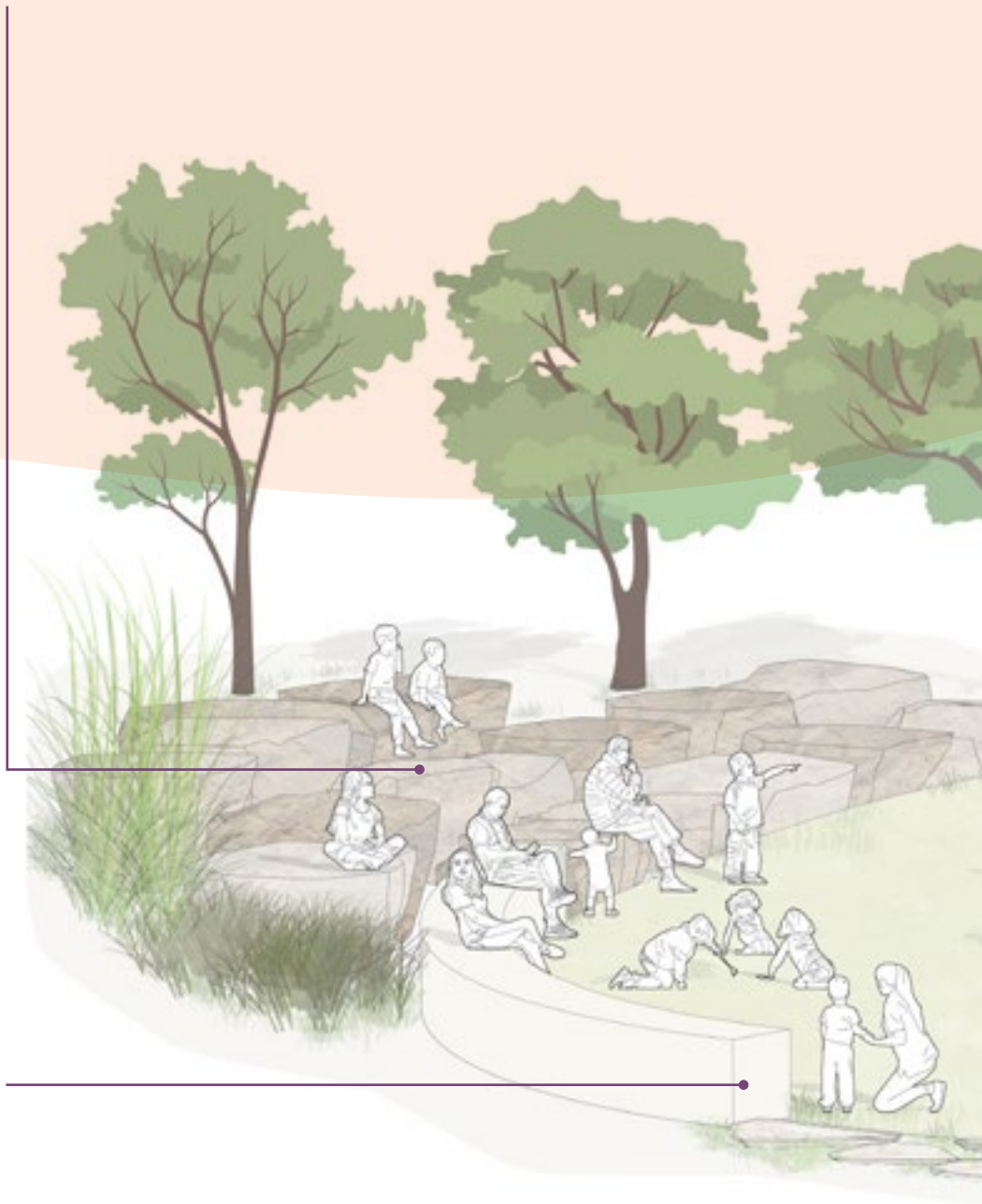
Because boulders and rockeries are appealing seating options, prudent use should be made of them. Since they are often used as partitions, situating them in areas that pose a risk to children, for instance next to a bike path, should be avoided.

- Heights suited to children who are sitting, standing or walking, and are accompanied by a caregiver, are advisable (35-40 centimeters). Additionally, the height of the wall should be modified so that it facilitates a variety of experiences for adult and child users.
- Changing the width of the wall will enable a variety of uses, ranging from standard sitting that is comfortable if the width exceeds 65 centimeters, to kneeling or lying down, which are comfortable if the width is up to 120 centimeters.

Seating Walls

Low walls that a number of people can sit on at the same time can also serve as partitions between different sections of the park or garden (see also: *Informal Movement – Partitioning and Fencing*).

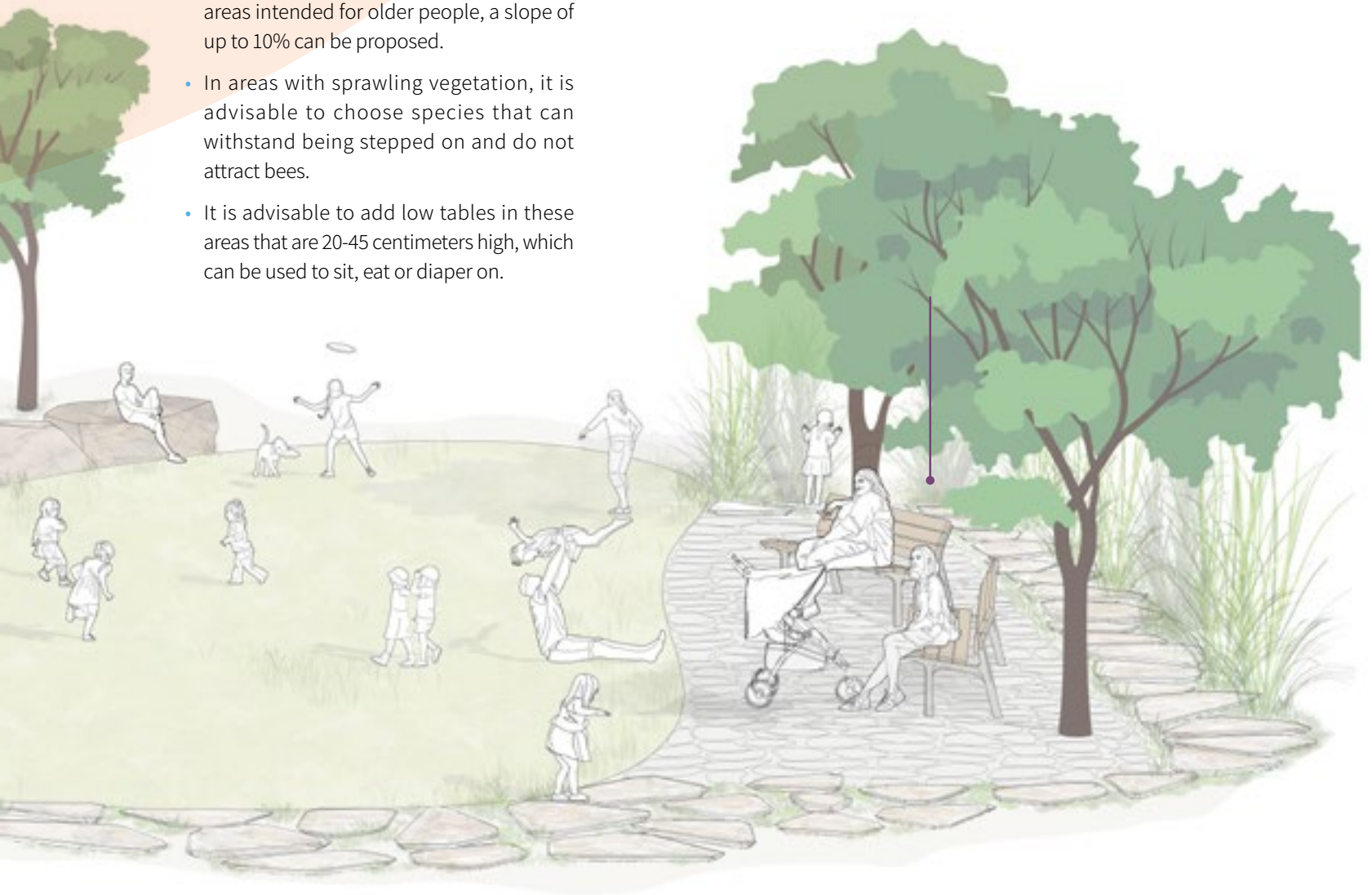
- It is advisable to incorporate boulders starting at a height of about 20 centimeters and up to a height of 55 centimeters.
- Diversifying the stone material and finishing can encourage children to explore and touch, while creating a pleasant surface to sit on.



Ground

Sitting on lawns, sprawling vegetation and bare soil offer children a multisensory experience and expose them to nature.

- In activity areas intended for a group of people to sit on, it is advisable to design the tiers on a moderate slope (up to 3%). In areas intended for older people, a slope of up to 10% can be proposed.
- In areas with sprawling vegetation, it is advisable to choose species that can withstand being stepped on and do not attract bees.
- It is advisable to add low tables in these areas that are 20-45 centimeters high, which can be used to sit, eat or diaper on.



Play

For children, every site and every activity in a park or garden can be play. Our design objective should be to encourage all types of play activity throughout the park or garden. Caregivers play an important role in promoting play by conveying confidence, playing together with the children, and setting an example – as seen in their own enjoyment of play. To address the adults' needs, the proposed guidelines deal with the location of the equipment and its dimensions, the level of comfort, etc.

It is customary to divide play into main categories that meet the child's developmental needs,[4] which require suitable spaces in the park or garden. Including elements that are appropriate for play at different ages is therefore suggested:

> For children, every site and every activity in a park or garden can be play

Types of play

Motor

Play that develops the child's motor skills and incorporates swinging, hanging, sliding, climbing and crawling activities

Aims

- Enabling the child to become familiar with his/her body and its boundaries, capabilities and limitations; learning about the surroundings and the world and how "I" fit into them
- Facilitating the development of coordination and gross and fine motor skills

Examples

Playground equipment, sports field or climbing wall

Make-believe, Imaginative

Play that develops the child's cognitive and social skills, in which the children use their imagination, arrange or build things, and participate in group games or in pretend play that includes items from the adult world

Aims

- Enabling the child to express his/her feelings and thoughts and process them through play; practicing on parts of personality and reinforcing them
- Developing language and interpersonal skills
- Developing the child's imagination and creativity

Examples

Junkyard, kitchenette, play hours, treehouse, toy train, easily identifiable elements from the immediate surroundings

4 Read more in *Guidelines Document – The Natural Playground* (2019).

Sensory

Play that involves the child's different senses, where the focus is on direct contact with natural materials and textures; sensory (and motor) play consists of physical manipulation and observation of objects, including holding, mouthing, knocking and rubbing things

Aims

- Exploring the physical world and learning how it works
- Building a foundation for acquiring language

Examples

Vegetable garden, sandbox, water element, soil, stones

Top photo: A children's playground area that incorporates natural materials and monochromatic colors in Ariel Sharon Park. Photograph: Gavrieli-Segal | Bottom photo: Use of loose surface materials in a play area for toddlers Photograph: Gavrieli-Segal

Formal play areas are characterized by clear and distinct elements, intended for children's play and usually tailored to different ages groups.[5] **When designing play areas, it is advisable to make note of the following**:

The existing standards allow use of diverse materials for playground equipment, shade solutions and safety padding. In practice, most the materials currently in use are synthetic, such as plastic and metals**. It is advisable to incorporate natural and/or loose materials (like wood, sand or gravel) that have more positive play and developmental qualities.**[6]

- Oftentimes, formal play areas make use of bright colors and a combination of multiple colors that are distinct from the rest of the park or garden's surroundings. In terms of their development, children do not need that those different colors, and research studies have shown that they create sensory overload. It is advisable to prefer neutral, monochromatic or soft colors for most of the areas where the playground equipment is installed. Strong colors should be reserved for highlighting special elements or safety regulations.[7]
- It is advisable to install comfortable and shaded seating for caregivers that is close to the play areas, especially ones intended for children under the age of 6. In those areas, the children have to be closely supervised by the caregivers, and the presence of the adults is vital to play quality. If possible, install equipment that requires the caregivers to be actively involved.
- The existing guidelines recommend installing playground equipment for two different age groups: equipment for children aged birth to 5, and equipment for children aged 5 to 12. If possible, try and subdivide the equipment into four groups: equipment for children aged birth to 3, children aged 3 to 6, children aged 6 to 9, and children older than 9. That division corresponds better to the children's stages of development and levels of independence.[8] It is especially important to separate infants and toddlers (under the age of 3) from the other children because they need more supervision and protection.
- It is advisable to design distinct play areas for children of different ages that are within eyesight and hearing range of each other. That will enable caregivers of children of different ages to spend time in a safe and pleasant space intended for stationary activities.
- In small parks or gardens or ones that have multiple users, it is preferable to choose a piece of playground equipment that can accommodate a number of children engaged in diverse activities at the same time, as opposed to installing several pieces of equipment that each of which offers a single activity for a limited number of users.
- Installing equipment in pocket gardens that can include children with a physical disability (mobility, vision, etc.), or creating a section

5 All the sections of Israel Standard 1498 specify guidelines for designing play areas, with the focus being on child safety. This document provides detailed recommendations that are meant to supplement the guidelines in Standard 1948 from the standpoint of the children and their caregivers.

6 Details regarding the installation and maintenance of these materials appear in the *Manual for Developing, Maintaining and Upgrading Municipal Gardens and Parks Based on Environmental and Sustainable Principles* (2015).

7 For more reading: Tatiana Wafnik, *Playground Colors as a Distraction Factor*, Technion-Israel Institute of Technology.

8 Refer to the guidelines in the *Manual for Designing Public Gardens* (2012). Israel Standard 1498 defines children aged birth to 3 as a distinct group and suggests that special playground equipment be installed for them.

Left: A 'scientific' piece of play equipment in Austria, which enables toddlers to explore physical phenomena on their own through various activities. Photograph: Gavrieli-Segal | Right: A child playing in a structure made of natural materials. Photograph: Orit Mamrod

in parks where all the equipment can also be used by children with a disability, will facilitate interaction between children from different backgrounds. It is important to offer accessible seating areas that are comfortable for caregivers to use, which will enable them to spend a long time there and be actively involved.[9]

- At present, it is customary to include interactive elements in parks and gardens that incorporate technology- and science-related components, sound stimulation and music. Even though those elements are expensive to install and maintain, local authorities invest in them so they can provide the best service to their residents. However, their contribution to child development has not yet been proven. On the other hand, based on what we know today, children lose interest quite quickly in play equipment that offers a single and repetitive activity. Therefore, when choosing equipment of that kind, a number of factors should be taken into consideration: it is advisable to choose play equipment that offers various types of activities, with preference for activities that a number of children can do together; it is advisable to choose equipment whose operating mechanism is comprehensible and adapted to young children, which is made of simple materials that maintenance crews are familiar with; it is particularly important to pay attention to the diversity of materials used in the equipment, and if easily identifiable elements from the immediate surroundings can be incorporated in it, making it special; lastly, it is advisable to prefer play equipment that comes into contact with natural and dynamic elements which encourage independent exploration, such as activities that involve playing with sand, are next to water elements, etc.

9 Israel Standard 1498 defines how playgrounds should be accessible, including the minimum number of pieces of equipment that have to be linked with an accessible path. It also defines what a "preferred element" is that contributes to the accessibility of the equipment.

Managing Risks When Designing Parks and Gardens

Informal recreational areas enable children to play in complex natural environments. By doing so, they encourage diverse forms of play that could expose children to dangers which do not exist when using artificial play equipment.

In view of the importance of those informal areas for child development (see Safety vs. Development, p. 27), **it is advisable to assess the risks at the outset of the design process**. Assessing the risks will make it possible to eliminate unreasonable risks or offer tools for mitigating them, without limiting play options. For example, a decision can be made that height differences are essential despite the risk of falling, but also that the ground should be covered with soft surfaces to reduce the likelihood of a serious injury.

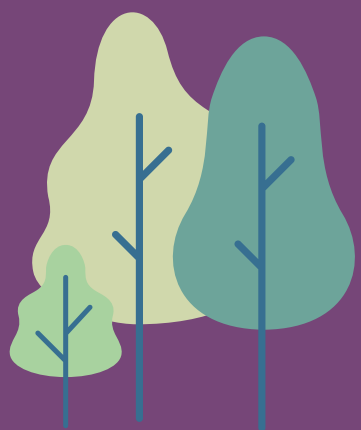
Similarly, **harmful impacts of vegetation should be managed**. Certain plants (such as oleanders or castor beans) can cause poisoning, infections or sores. Planting them should be avoided, and uprooting them in areas where children play should also be considered. On the other hand, although some local species that are prevalent in Israel, such as oaks and cypresses, may cause allergies among some children, it would not be right to restrict their use. In those cases, one should examine alternatives to planting them in areas that could pose a risk to children, like in the vicinity of formal play equipment or in places where children frequently play and are especially vulnerable. But it is not advisable to refrain from planting them, and certainly not to uproot them if they have already been planted there.

It is particularly important to involve the public, and mainly maintenance crews, families and healthcare professionals, in the early planning and design stages. Enlisting their support, holding public information campaigns, and collaborating with them will help avoid conflicts that could lead to a waste of resources, such as unnecessary fencing around slopes and water elements, using pesticides, and temporary closures of paths.

For further reading:

Risk management methodologies and guidelines are included in the document *Planning and Safety Guidelines for Natural Playgrounds (2018) and in Playing it Safe?* (2018), a paper by Tim Gill.

A list of harmful plants can be found on the *Beterem Safe Kids Israel* website.



Involving Adults in the Use of Playground Equipment

The primary considerations that guide the current design of formal play areas are the children's interest, size and safety. However, if more attention will be paid to adapting the playground equipment to the requirements of the caregivers and to meeting their desire and need to spend time there and take part in the activities, the use of the equipment will be more frequent and more effective. The following suggestions necessitate making adjustments to the playground equipment approved by the Standards Institution of Israel (Israel Standard 1948).

Adapting the dimensions of the equipment

Install wide swing seats and playground equipment that adults can go inside of, and make other adjustments, such as pivots connected to the swings. These will enable caregivers to spend time at the playground and take part in the activities together with the children.

Adding elements that foster the child-caregiver bond

Add elements that foster the bond between caregivers and toddlers during play, such as a horizontal opening at the hand and eye level of an adult (120-170 centimeters in height), or peepholes, will enable caregivers to supervise the children at all times.

Adding seating and rest elements

Meet the needs of the adults by adding, for example, handles, chairs with back support, seating nooks, hooks on the equipment for hanging up jackets and hats, and shade within the play area. Those elements will enable caregivers to spend more time with the children within the play area.

Remaining attentive and avoiding distractions

Prepare written guidelines regarding different play options, and ask caregivers to not to use their cellphones during play (e.g., use the time to charge the phone). This will encourage caregivers to participate in play without being distracted.

Playground equipment in Austria that requires caregiver involvement. Photograph: Gavrieli-Segal

Designing informal play areas

Informal play areas are all the areas that are not within the domain of the formal playground equipment. Children truly enjoy playing with 'real' things. Just like they prefer playing with a real phone over a toy phone, they also prefer climbing real stairs over stairs that are part of playground equipment. Consequently, the informal play areas of a park or garden have tremendous play value, and they are likely to be anywhere in the park or garden. Those areas facilitate play that is open to the children's interpretation and exploration, and in particular socio-dramatic and sensory play. **When designing informal play areas, it is advisable to focus on the following:**

Incorporate a variety of features in the park/garden design, like height and slope differences, diverse materials and textures, protrusions and recesses, mobile elements such as parts that can be easily assembled and moved, and natural elements, which will offer an exciting multisensory experience that promotes child development.

Height and slope differences

Graduated height differences and different land slopes invite children to engage in a variety of motor activities, including sitting, standing, climbing, jumping or sliding. The design of every playground should offer a climbing space, even if it is flat. Height differences can be incorporated in numerous elements, such as hills, or in built elements, like bleachers or stages.

Height differences that do not exceed 40 centimeters are ideal for toddlers. Adapting a variety of height differences to different stages of child development is recommended.

Textures and materials

Because children take an interest in their immediate surroundings, it is very important to offer them contact with a variety of materials: soft and hard, durable and loose, rough and smooth, and wet and dry. Different types of finishing can also be important, especially on uniform surfaces like flooring. A rough texture that contains protrusions and recesses can be held onto by children while climbing.

Elements that children can hold onto and conform to safety standards can also be incorporated in low walls.

When designing such places, emphasis should be placed on draining the recesses and on ensuring the durability of areas whose maintenance quality is below par.

Movable elements

Simple parts that children can easily move, assemble and dismantle enable them to experiment, explore and develop independent thinking. They are also part of the 'junkyard' educational approach developed by the Israeli researcher and educator, Malka Haas.

For the toddlers' benefit, it is important to include an area that contains movable materials that can be piled up, such as sand and pebbles.

Natural elements

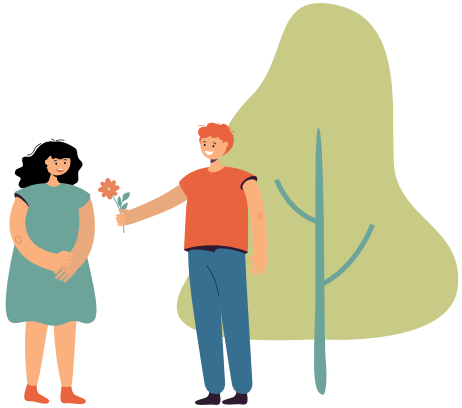
Natural elements such as vegetation, soil and fauna, enable children to explore and experience the surprises and changes found in nature. Flower beds are especially important because they have the potential to become an engaging place for play. Bushes that children can sit under or hide between, combined with aromatic plants, invite children to discover the world.

The *Guidelines for Designing Natural Playgrounds* (2019), published by the Israel Ministry of Education, should be carefully reviewed.

Water elements

A water element in a park or garden is one of the most appealing things that exist, in addition to being a necessity in our arid country. Even though a water element can solely be for decorative purposes, it is highly recommended to allow children to come into contact with water, whether by means of fountains or simpler devices such as time delay faucets or pumps. These elements enable children to come into contact and play with water as well as sand.

Solutions that make use of water drawn from the city water system, while releasing the excess water for irrigating the vegetation, conserve water, are inexpensive to install, and are easy to maintain.



Design the exposure to nature. Multisensory exposure to nature is one of the main reasons for having parks and gardens in a city. Parks and gardens enable children to interact with nature, and the exploration component of those interactions is significant. Nature contains complexity and processes that cannot be replicated even in the most detailed plan. An astute design will underscore the experience-related wealth that facilitates this complexity and will enhance it by designing the hard elements in a park or garden. For example:

- Incorporate seasonal vegetation that allows children to experience plants that blossom and bear fruits, deciduous trees, dry vegetation, and more.
- Plant trees of different ages. The recommendation is to plant mature trees next to standard size trees, in addition to sowing seeds and using the cuttings of young plants that will develop over time.
- Use stabilized tree stumps as sculptural and play elements, and also in seating nooks and spaces intended for stationary activities.
- Use large quantities of vegetation that make it possible to offer exploration and peek-a-boo areas that are fun for children, while ensuring that eye contact between the children and their caregivers is maintained.
- Choose aromatic and edible species that have unique and pleasant textures or respond to touch. Doing so can spark interest and interaction. They can also be planted next to standard playground equipment.[10]
- If there are mature trees in the park or garden that have low-hanging branches, they can be designed for climbing purposes by raising the canopy to enable only low-height climbing. To ensure the health of those trees, they should be examined by an agronomist, who should also offer solutions for how to stabilize them and remove safety hazards if needed.[11]
- The implementation of simple measures, some of which do not involve landscaping costs, can enhance the children's exploration experience and increase the play value of the soil and rockery in a park or garden. For example, placing bare soil (which has not been sprayed for pests) near play areas and spaces for stationary activities will offer children a space to move around in and explore, play with stones, and find ants. Covering certain surfaces (e.g., a path for walking barefoot) will invite sensory experimentation[12], and existing clusters of rocks or ones combined with new boulders will encourage climbing and sitting.

10 There are numerous manuals that provide guidelines for choosing suitable plant species. Herbs can offer aromas, citrus trees can offer edible fruit, sage has a special texture, different types of grains can be pleasant to touch, and plants such as mimosa pudica (sensitive plant) respond to touch.

11 The document *Assessing Risks Posed by Trees*, published by KKL-JNF (2011), describes a risk assessment approach in detail, whose implementation is recommended when designing trees that children can climb on.

12 For extensive details on the subject, see *Guidelines for Designing Natural Playgrounds* (2019).

- Incorporating water in parks and gardens adds considerable sensory value that encourages play and exploration, and also contributes to cooling. Parks and gardens should have water elements that do not pose a danger, as well as waterfalls that foster sensory sensitivity. In parks and gardens with ecological value, it is advisable to conserve or create a seasonal winter pool that attracts animals and offers an educational experience. Placing vegetation or playground equipment near a water element will enhance the children's exploration experience, and combining water with sand and mud will encourage play and independent exploration.[13]

13 When installing water elements, safety and maintenance factors should be taken into account. Israel Standard 2142 does not stipulate that a fence must be built around a water element as long as depth markers are installed in a way that reduces the danger of drowning. *The Manual for Developing, Maintaining and Upgrading Municipal Gardens and Parks Based on Environmental and Sustainable Principles* specifies how to prevent leaks, excess use, etc. A circular published by the Ministry of Health in 2012 specifies how water should be treated in order to comply with the appropriate standards.

The Bird Garden in Pardes Hanna. Design and photograph: Jl Think Nature Landscape Architecture & Urban Design, Julie Levy-Peled and Ifat Gal Shpeizman




Exposing children to nature and the wild in parks and gardens can be achieved in a number of ways, including by enabling them to climb trees, by putting tree logs in place and by planting vegetation. Photographs: Yaron Zelnik, Ram Eisenberg Environmental Design and Gavrieli-Segal

- **The presence of animals in a park or garden allows children to interact with dynamic, changing and complex creatures of nature that spark their curiosity**. Contact with animals helps children develop empathy and a sense of caring for others and those who are different from them. They also draw important lessons about the seasons of the year and the behavior of nature. Every city should have at least one public petting zoo. The inclusion of elements in a park or garden that attract animals that move from place to place (like birds, butterflies, insects, arthropods or small mammals), slow-moving animals (like fish, snails and lizards), and urban animals, such as pigeons and ravens, cats and dogs, is also worth considering. A plan of this kind requires advance assessments of possible conflicts, risk and hazard mitigation and the required maintenance.[14]

> Every city should have at least one public petting zoo.

14 The *Manual for Developing, Maintaining and Upgrading Municipal Gardens and Parks Based on Environmental and Sustainable Principles* (2015) and *Neighborhood 360* (2019) deal with the planning and management involved in making animals an integral part of parks and gardens. The decision to include animals whose habitats (such as ecological pools and untamed environments) require ongoing maintenance and care or ecological consulting services should be made after ensuring that a detailed management and maintenance plan is in place.

Children walking down an informal trail at Mevo HaShemesh Garden ("Letters Hill") in Beit Shemesh, which leads to a wide main path suitable for families with a number of children. Design and photograph: Ram Eisenberg Environmental Design

Designing the mobility network: paths, steps, edges and trails

Paths are internal routes that meet the design requirements stipulated in the Accessibility Standard (Israel Standard 1918). The standard deals with the safety, convenience and access of all users. But it does not address the cognitive dimension of mobility for children, for whom using a network of paths in a park or garden can be considered play and exploration in and of itself. This includes stopping and spending time on or near the paths. The network of paths in a park or garden should facilitate and foster diverse mobility situations. Paths can be designed according to a particular hierarchy: main paths, secondary paths, trails, bike paths and steps – with each type of path having specific features customized to children and their caregivers. Additionally, as will be described in detail in the following section, informal mobility networks can also be designed in gardens.

Because children need dynamic and diverse stimuli, the design of a path should also change every 15 to 30 meters. This can be achieved by using different shapes, dimensions, materials, colors and textures, in addition to incorporating elements that offer a variety of activity options. The edges of a path are also of great interest to children by virtue of being an intermediate space. Therefore, it is important to devote special design attention to them.

When designing a network of paths, it is advisable to:

- **Offer various types of paths**: a park or garden that serves a neighborhood or a larger community should include at least two tiers of formal paths, and at least one tier of an informal path. The greater the variety of paths in a park or garden, the better it will be. In especially small parks and gardens (less than 2 dunams/0.50 acres/0.20 hectares), or in parks and gardens with an average slope exceeding 10%, the highest tier path can be a secondary path.
- **Design main and secondary paths, with an emphasis on shapes, dimensions and materials appropriate for children.**

Main paths

Main paths constitute the frame of a park or garden and link its major recreational areas through a continuous and clearly-marked route.

Shape

Main paths are fairly straight, wide and open and enable eye contact from a distance, without visual obstructions such as tall vegetation or poles. Places to sit and rest should be available on a main path by creating wider sections all along it.

Dimensions

Main paths are used by families and groups on foot and should be wide enough for groups walking in the opposite direction to pass by one another. Therefore, they should be between 3.5-6 meters or wider.[15] In areas frequented by many children, the recommended width is 4 meters. That way one family can stop while another continues walking.

Materials

According to the Accessibility Standard, which stipulates stable, hard, fixed and uniform surfaces, a main path that is also used by children with push cars, on skates, etc., should be made of a material that is not rough or coarse.

Design

Diverse surface coverings or a combination of elements embedded in a surface covering, such as drawings, inlays, or color or material variations, make a space more inviting for children and facilitate wayfinding. Even minor modifications like changes in direction on the surface covering and varied textures on concrete finishing, whose budgetary implications are negligible, contribute to the sense of diversity. When deciding on surface coverings and finishes, the Accessibility Standard should be taken into consideration.

Edges

The edge of a main path should be made of a material that makes it distinct from its surroundings. Special attention should be paid to edges and to turning them into a play opportunity, for example by using wide curbstones and by changing heights and materials.

15 The Accessibility Standard defines minimum dimensions for an "accessible path" (Israel Standard 1918, Section I). The *Manual for Designing Public Parks and Gardens* (2012) recommends a minimum width of 4 meters for a main path. Because parks and gardens must also comply with requirements governing access roads for emergency vehicles or maintenance vehicles, main paths can also be used for that purpose. Therefore, they should be 3.5-4 meters wide, and not less than 2.5 meters wide.

Secondary paths

Secondary paths link the main paths in a park or garden with its recreational areas using the shortest and most intuitive route, or paths on the edges of the park or garden.

Shape

Secondary paths have short or winding sections between elements, as well as diagonal or curving sections. All along the secondary paths, the preference should be for low vegetation from a child's perspective (30-40 centimeters high), and in any event no higher than one meter so the caregiver can have a clear view.

Dimensions

Secondary paths are suitable for people walking in pairs and should be wide enough for two pairs of people to walk in opposite direction at the same time. Therefore, their recommended width is 3 meters, and no less than 1.3 meters for a foothold and to accommodate shoulder width.

Materials

According to the Accessibility Standard, as set forth in the 'design' section

Design

As long as the directives set forth in the standard are adhered to, secondary paths can be made more interesting by blurring the distinction between the path and its surroundings, achieved by using loose finishing materials or by introducing vegetation elements near the path.

Edges

Where possible, interesting edges will add value to a park or garden. The edges do not have to be continuous.

Trails

Trails are narrow, informal paths that make it easier to move around within a park or garden and between their different sections, usually in the form of shortcuts. Trails are engaging footpaths that offer children an exploration experience and enable them to make use of hidden nature spots there.

Shape

Trails are usually formed naturally by simply walking on them. Room should be set aside for trails by leaving a space between the plants in areas with an abundance of vegetation. Trails are especially pleasant between tall bushes, and trees create an opportunity for informal placemaking in a park or garden.

Dimensions

Trails are suitable for people walking on their own or people walking in single file. Therefore, 40 centimeters is wide enough for a foothold and about 60 centimeters to accommodate shoulder width.

Materials

Because trails are not required to meet any accessibility standard, they can be made of natural, soft or loose materials like dirt, pruned branches, gravel or stepping stones.

Design

It should be as simple as possible. Forest steps or other climbing elements can be incorporated in trails.

No edges

Some points to consider when designing a network of paths:

- **Steps**: steps can shorten the distance and walking time between areas with considerable height differences. Detailed guidelines for designing steps in a park or garden appear in the Accessibility Standard (Israel Standard 1948). But steps are also a play element that children are particularly fond of because, among other things, they contain height differences that enable them to jump, climb, and engage in many other exploration and play activities. For that reason, this document highlights their design aspects:
  - The sense of play can be enhanced by using certain materials and colors, incorporating drawings, and including informal games that involve different heights.
  - Wherever a handrail or handhold is required, and apart from the standard handrails, it is also advisable to install a handhold intended for young children that is 40 centimeters high.[16]
- **Bike paths**: bike paths within the domain of a park or garden are typically intended for two-wheel traffic passing through them. They are usually connected with a neighborhood or city network of bike paths or with a local network for leisure cycling. In any event, bicycles can pose a threat to pedestrians, and especially to toddlers. It is important to separate the bike paths from the other mobility networks and activities in order to ensure the unrestricted and safe passage of children and their caregivers throughout the park or garden. Accordingly, it is advisable to:
  - Separate and physically distance bike paths from pedestrian paths by means of a safe strip 3 meters in width, while keeping the points of interface between them to a minimum. The separation can include low vegetation up to 50 centimeters in height, which enables visibility but does not encourage people to pass through it. At the necessary points of interface, the design should include traffic calming measures (speed humps, textured pavements) and pedestrian alerts.[17]
  - Distance the bike paths from areas frequented by toddlers, playground equipment and trails. Where possible, bike paths in parks or gardens should be situated at least 15 meters from the aforementioned areas, or use should be made of demarcation and fencing solutions that incorporate vegetation or hard elements.

Clockwise:

A bike path separated from a main path by a strip of low vegetation, enabling young children and their caregivers to move about calmly. Wadi Kofer Park, Ramat Gan: Design and photograph: Ram Eisenberg Environmental Design

A child turning off a main path to a secondary path diagonal to it. Photograph: Yaron Zelnik, Ram Eisenberg Environmental Design

Designing details on a main path that contribute to a sense of diversity and interest from the vantage point of children: a familiar element from the immediate surroundings in the form of shapes of leaves embedded in the concrete at Wadi Kofer in Ramat Gan. Design and photograph: Ram Eisenberg Environmental Design

A variety of standard surface coverings installed at the ecological lake in Petach Tikva Design: Mayslits Kassif Architects. Photograph: Ram Eisenberg Environmental Design)

16 In addition to the handrail guidelines set forth in the Accessibility Standard and to Israel Standard 1142 – Guardrails and Handrails.

17 Pedestrians should be cautioned using visual and textural contrasts, as defined in the Accessibility Standard, Israel Standard 1498.

Edges that children are fond of. On the left:: a parent holding the hand of a child walking along an edge that was raised 43 centimeters above the main path. On the right: play activity on path edges. Photograph: Yaron Zelnik, Ram Eisenberg Environmental Design

- **Edges**: when walking along a network of paths and among exploration areas, children frequently show interest in the spaces located in between them. The edges serve as an intermediate space, and it is common to see children walking on them.[18]

To customize the edges for use by young children, it is advisable to:

- Make the edges distinct by using different materials or colors.
- Raise the edges in order to enable children and the adults accompanying them to walk comfortably. To that end, choose a height that does not exceed the maximum height stipulated in the Height Differences Safety Standard.

18 Technical specifications for designing edges can be found in the Accessibility Standard (Israel Standard 1918, Section II). Obviously, those specifications do not relate to the interest that children show in those edges. The present guidelines can be useful for designing the edges as an intermediate space located between the path and its surrounding area.

- As for trails, it is advisable to:
  - Design them in a curved shape that branches out. Because it is important that children also feel safe when enjoying this experience, short and multiple edges should be preferred over long and single edges.
  - Design them in varying widths, from 30 to 80 centimeters, which are customized to the size of children.
  - Plant vegetation that is 1 to 2 meters high that can provide some seclusion. It is advisable to create spots that deviate from these dimensions where children can hide and peek out of.
  - Use materials that have an interesting texture, such as wood pulp, pebbles, gravel or compacted soil. Unlike paths, it is not necessary to separate trails from their surroundings using a defined edge.
  - Situate them in a way that will draw the children's attention to natural elements in the park or garden, such as a stately tree or an interesting cluster of rocks, and make the children want to touch them.

Trails intended for young children. On the left: a trail made of bamboo stalks and logs, designed around an impressive tree in HaYovel Garden (Flowers Hill) in Herzliya. Design and photograph: Ram Eisenberg Environmental Design. On the right: a trail in Gan Shmuel in Haifa that is surrounded by vegetation reaching up to 2 meters in height. Design and photograph: Yaron Zelnik, Ram Eisenberg Environmental Design

Demarcating and Fencing Off Recreational Areas for Children

Children and their caregivers usually walk around the entire space of a park or garden while engaged in different activities, and sometimes unintentionally. To highlight special recreational areas or put safety measures in place, it is advisable to make use of demarcation and fencing solutions. In most cases, if the risks are assessed during the early planning stages when the variety of park and garden uses are defined, fencing may be avoidable**. When defining those areas, the following factors should be considered:**

1 | An area without demarcation and fencing

Areas intended for comparable uses (e.g., play areas for children of similar ages), or areas intended for complementary uses (e.g., play areas next to spaces for stationary activities) do not require demarcation or fencing. Making them continuous will result in improved eye contact and encourage caregiver involvement in the children's activities.

Areas intended for comparable uses or areas intended for complementary uses do not require demarcation or fencing.

2 | A demarcated area without fencing

Areas that may create a conflict, but not a risk, require demarcation without fencing. Examples of that are play areas for different age groups, or intensive activity areas next to spaces intended for relaxing stationary activities (like a grove).

It is advisable to demarcate an area using design and functional elements, such as seating walls, low rockery (less 40 centimeters high), or vegetation. The demarcation can be elevated based on the anticipated risk level. The network of paths and trails can also be used for demarcation purposes by directing pedestrian traffic to a safe alternative. Use can be made of trails to link distinct areas.

3 | A demarcated and fenced off area

Areas in which a conflict is likely to create a risk for children require both demarcation and fencing. Examples of that are areas

with dangerous height differences or playground equipment that needs to be fenced in, such as swings. Areas next to paths used by fast-moving traffic like bikes also require a fencing solution.

Fencing should be installed according to the existing safety standards.[19] However, if fencing is necessary, it can be utilized as a design element by making use of materials like wood or stone, or an interesting type of metal. Safety fencing can also be concealed by integrating it into the vegetation.

19 Fencing solutions should adhere to the standards pertaining to fencing for playground equipment (Israel Standard 1498) and height differences (Israel Standard 2142).


1


2


3

The Street

For many years, streets were the playgrounds of Israeli children. As the use of private cars increased, large sections of the streets were converted into parking spaces for cars at the expense of wider sidewalks. Once planning practices began allotting more space for private cars, our streets became noisier, more polluted and less safe for children. At the same time, the new car-centric neighborhoods rendered many streets uninviting for pedestrians, resulting in isolated and deserted streets where walking has meant being exposed to the blazing sun. The streets also became more dangerous for our children: traffic accidents are the leading cause of death among children in Israel. In the past decade, over half of the children under the age of 14 who were killed in traffic accidents were pedestrians.[1] Even though the problem crosses all geographical regions and population groups, the danger is particularly acute in areas where large families reside, such as ultra-Orthodox neighborhoods, and in areas where public infrastructure is run-down, like in Arab towns.

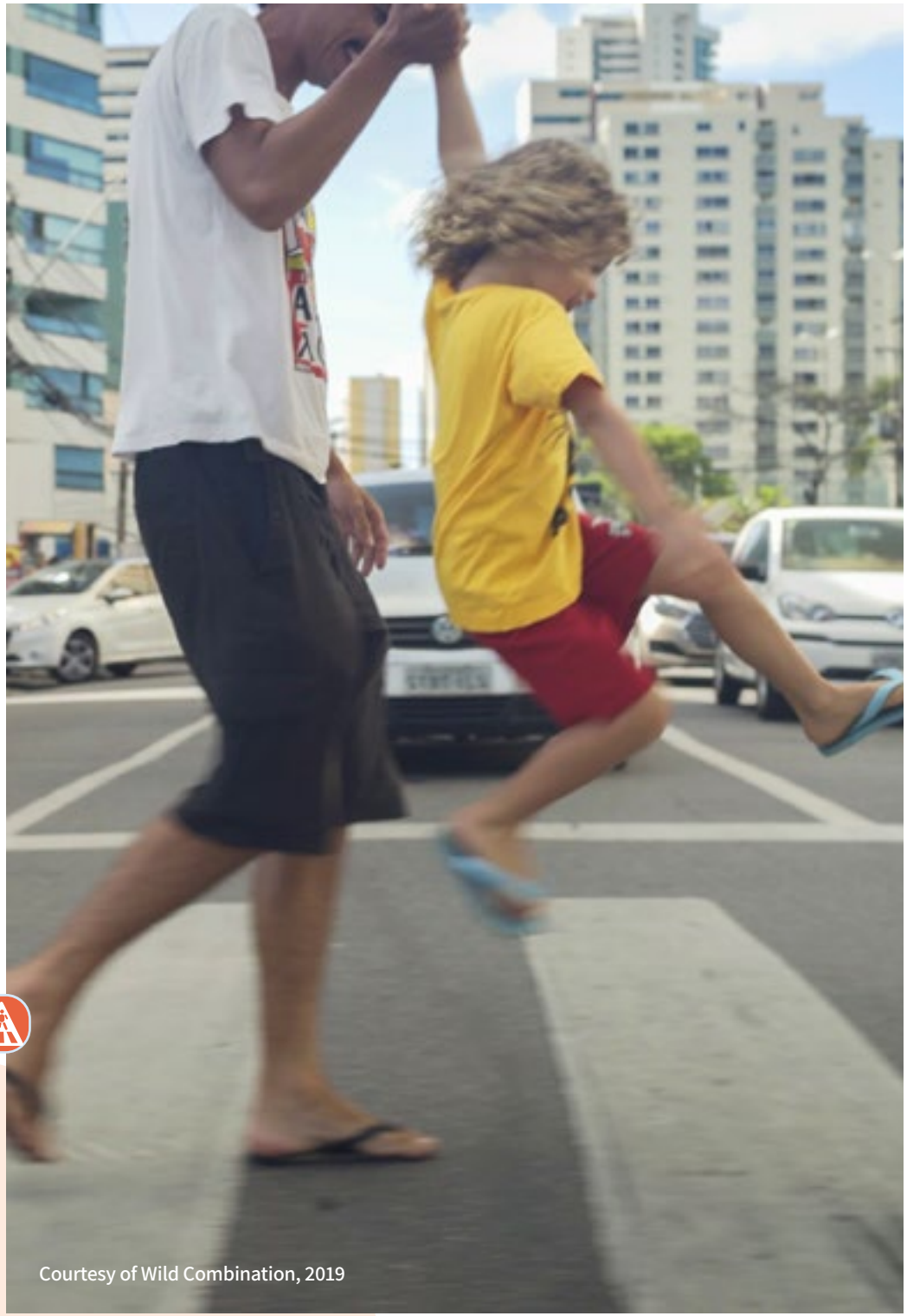
In recent years, Israel joined many countries around the world in an attempt to restore the streets to pedestrians, cyclists and users of public transport.[2] Current guidance documents encourage walking and cycling over traveling in private cars and propose designs that improve road safety as well as accessibility for various population groups. They also make a legitimate connection between the incentive to create better streets and environmental objectives and preparedness for the climate crisis, in addition to offering tools for mitigating the harmful effects of motorized traffic. The present guidelines document relies on the extensive scientific and professional knowledge that has been amassed on the subject, and assigns critical importance to the bond between young children and their adult caregivers as a foundation for emotional, cognitive and physical development in the first years of life. Accordingly, walking and cycling should play a key role in the design of our streets. Unlike traveling in private

1 *Report on Child Casualties in Traffic Accidents*. Or Yarok Association for Safer Driving in Israel (January 2021).

2 As regards Israel, see for example *Guidelines for Designing Urban Streets*, the Ministry of Transportation and Ministry of Housing and Construction 2009-2014, and *Guidelines for Public Transport- and Sustainable Mobility-Oriented Planning*, Israel Planning Administration (2019) The American organization NACTO, which has devoted considerable efforts to changing the perception of street design, recently published the booklet *Designing Streets for Kids* (2020), which offers guidelines for designing streets for young children and their caregivers. It was a major inspiration for the Israeli guidelines booklet.

cars, caregivers who are walking with toddlers can easily stop, calm them down and care for their needs, or enhance the walking experience with a song or game. For children, walking is an exciting opportunity to discover the community they live in, partake in physical activity, and share experiences with their caregivers. To benefit all of them, the design of the street space should undergo change.

The following guidelines are divided into two sections: the first section deals with the walking space and includes recommendations on how to design the sidewalk area, paths and step streets to ensure convenient and safe mobility for pedestrians, as well as a space for stationary activities that restores the role of the streets as a pleasant and inviting place. The second section deals with the pavement area which is intended for vehicles, and underscores traffic calming measures that can be implemented in order to create safer streets for pedestrians, and in particular young children.



Courtesy of Wild Combination, 2019

Designing the mobility-related and stationary activity spaces on streets, crossings and public steps

Children and their caregivers typically use sidewalks, crossings and public steps to reach their different destinations, or simply to roam around. In the early years of life, most mobility takes place in the vicinity of the child's home, on the way to a nearby park or garden or grocery store. As time passes, that domain grows and includes busier venues and hubs when the children accompany their caregivers who are running errands. The width and slope of the sidewalks should be defined at the comprehensive planning stage in order to create continuous, accessible and convenient walking spaces for young children and their caregivers. For the most part, children walk at a slower pace than able-bodied adults. At the space design stage, it is advisable to focus on the types of materials that are used, the design of the elements, and the interface with vehicles entering a parking lot.

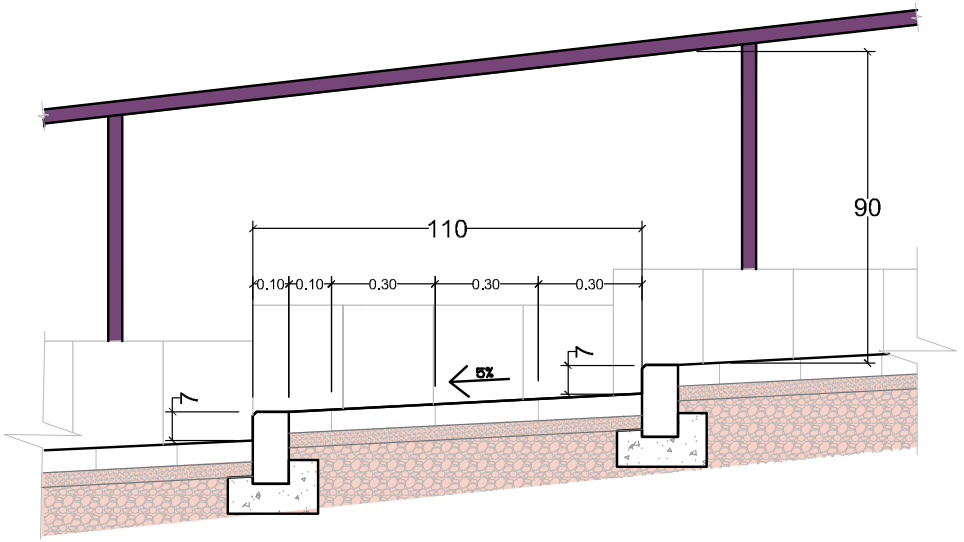
When planning street traffic, it is advisable to:

- **Design wide and continuous sidewalks that are safe for young children and their caregivers, especially near facilities and venues that cater to young children**.
  - A pedestrian through zone that is 2.4 to 4.8 meters wide and has moderate slopes (up to 5% lengthwise and up to 2% widthwise) will improve the access for caregivers and young children.[3]
  - Create a street furniture zone where elements that could obstruct pedestrian mobility (like trash bins or bus stops) can be concentrated. In these zones, the amenities should be designed in a way that does not endanger inquisitive children. For example, barrier posts whose upper section is narrow or round (for instance, in the shape of a chess piece) will prevent children from climbing on them right next to the road.
  - Next to public institutions where considerable traffic of young children is expected, it is advisable to install a guardrail which will prevent them from running out into the road. It will also prevent cars from parking on the sidewalk.
- **Use anti-slip materials that are suitable for strollers and push cars.** To encourage the use of strollers and different types of toy cars, use can be made of uniform and stable materials, such as asphalt, poured concrete, and concrete surfacing with

3 Israel Standard 1918 defines accessible road guidelines in terms of slopes and dimensions. The document *Guidelines for Designing Urban Streets* recommends a minimum sidewalk width for streets based on pedestrian traffic. Even though a minimum width of 1.3 meters can accommodate a double stroller, in this document we recommend a larger minimum width that will be convenient and safe for young children.

minimal tile spacers. If stones are used (interlocking pavers or natural), an attempt should be made to avoid rough processing, such as toubzeh or rough chiseled taltish, while making sure that anti-slip materials are in place.[4]

- **Design accessible crosswalks**. Safe passage between sidewalks and intersections is critical to the mobility of young children. Lowering the curbstones or raising the pavement at the entrance to intersections or traffic islands makes it much easier for caregivers with strollers and for toddlers who are using all kinds of toy cars. 5 It is advisable to ascertain that these measures are being implemented continuously near venues that cater to young children or



Gently sloping steps (known as mule ramps) that can accommodate strollers and overcome height differences. Each step is 7 centimeters high and complies with the Accessibility Standard. HaHaskala Boulevard Park, Tel Aviv-Yafo. Design: Ram Eisenberg Environmental Design

4 Israel Standard 1918 specifies the different types of processing. Israel Standard 2279 specifies the anti-slip materials.

5 Israel Standard 1918 contains specifications concerning the curbstones, slopes and dimensions.

along the route where their activities take place.

- **Priority should be given to pedestrians when vehicles enter or exit a parking lot**. The height and unpredictable behavior of toddlers makes the interface between pedestrians and vehicles entering and exiting a parking lot especially vulnerable and dangerous. Every such interface can be designed in a way that makes it clear that the vehicles are the ones that are crossing the pedestrian domain, and not the other way around. Consequently, the burden of caution is on the motorists. The continuous nature and width of the pedestrian through zone must be maintained, and the slope should affect only the curb and the street furniture zone.[6]
- **Implement safety measures in urban environments and in high-rise apartment buildings.** In new residential areas, the sheer volume of construction has created multiple entrances and exits to and from parking garages. As opposed to downtown districts where the abundance of pedestrian traffic is a deterrent, in residential areas the light pedestrian traffic causes motorists to let their guard down and become inattentive. In those areas, it is advisable to implement mandatory deterrence measures, such as increasing the drivers' field of vision and adding panoramic mirrors, installing speed humps at the exits from parking lots, and installing highly visible crosswalk markings on the sidewalk itself. The need for signage, lights or warning bells should be weighed based on the assessed risk.

Step streets shorten the walking time between two given points, especially in hilly areas where height differences are substantial. Having said that, caregivers with strollers and baby sling carriers, or toddlers with toy cars, may find that step streets are inconvenient or restrict their mobility. Consequently, it is advisable to:

- **Provide step streets as well as regular streets.** Step streets can be an excellent addition, but should not be relied on as the sole option. Accordingly, longer, but more accessible, crossings should also be available.
- **Design step streets that are accessible to strollers**. In cases of moderate height differences, step heights that are lower than ten centimeters can provide a solution that also accommodates strollers. In places where the height differences preclude any alternative, an element can be added that makes going up and down the steps with a stroller more convenient, similar to ramps intended for bicycle users.

6 More details and dimensions can be found in the *Guidelines for Designing Urban Streets* (2020).

An escalator next to a staircase in Barcelona. Photograph: Gavrieli-Segal

- **Add public elevators or escalators**. Elevators or escalators open to the public can offer pedestrians an important and accessible shortcut. Where possible, elevators can be a main or complementary option for caregivers with strollers, while putting a long-term maintenance mechanism in place.

When streets are interesting, convenient and safe, young children and their caregivers can enjoy the time they spend walking on them. Streets can be excellent places for young children to become acquainted with the area they live in and with members of the community, acquire motor skills such as cycling or crossing a street safely, stretch their legs and take a break from being indoors, and discover vegetation or new sites. With the proper design, streets can meet two vital needs that children have in their first years of life: streets can help children develop a sense of independence, ownership and identification with a new space found outside their family circle, and at the same time teach them the meaning of accepting responsibility and compliance with rules and public norms, and give them a sense of belonging to society. To create an environment that invites children to be a part of it, certain adjustments need to be made to the size of the children and their language, without placing a burden on the street and changing its character as a space intended for a wide range of users.

Safe passage between sidewalks and intersections is critical to the mobility of young children.

The 'Secret' City

A 'secret' city is an organizing concept that can be used to design elements for children in public spaces that are intended not only for them, like streets, public transport terminals, libraries or community centers.

Children will benefit from a place that includes elements tailored to their size and language, such as colorful signs, handles and peepholes, and drawings and inlays that are not high up and may even be on the floor or the sidewalk. For the space as a whole, that means minor and negligible additions. On the other hand, flashy interventions that take control of the space, like large sculptures or an excess of colors, will make the space 'childish' and keep adults away from it.

A 'secret' city that caters to children without alienating the other users will enable children to be charmed by the city, while adapting themselves to the existing rules and norms. That way children will feel that they are welcome and important in the public space intended for the community at large.

A colorful surface at the Diamond Exchange district in Ramat Gan. Photograph: Ram Eisenberg Environmental Design

An example of signage on HaHaskala Boulevard in Tel Aviv, whose upper section is intended for adults and whose lower section is intended for children.

Designing the frontage zone

Young children experience the frontage zone of a street from their vantage point. While walking along the street, they gather experiences and gain knowledge that enrich their day and encourage conversations with their caregivers. When walking on the street with their caregivers, they pass by interesting and exciting sites, such as fences around parks and gardens, shop windows, signs and billboards. They also pass by facades that are boring and repetitive, like retaining walls or privacy fences. With the help of a few interventions, the space can be adapted to children without taking it over as a whole, and create an interesting and enriching urban environment. To that end, it is advisable to:

- **Install signage that makes use of accessible images and texts**. Privately-owned or public buildings that can offer heritage value to the general public can also offer a lot to young children and their caregivers. Signage or works of arts that provide information about the buildings can be installed along the side of the street. To avoid visual overload, the design of the signage should be defined in a clear municipal policy.
- **Prefer living fences over artificial fences**. When it is necessary to block a path leading from the street to a park or a privately-owned lot, a living fence is the best option. From the vantage point of children, a living fence can offer a display of leaves or blossoms and encourage them to

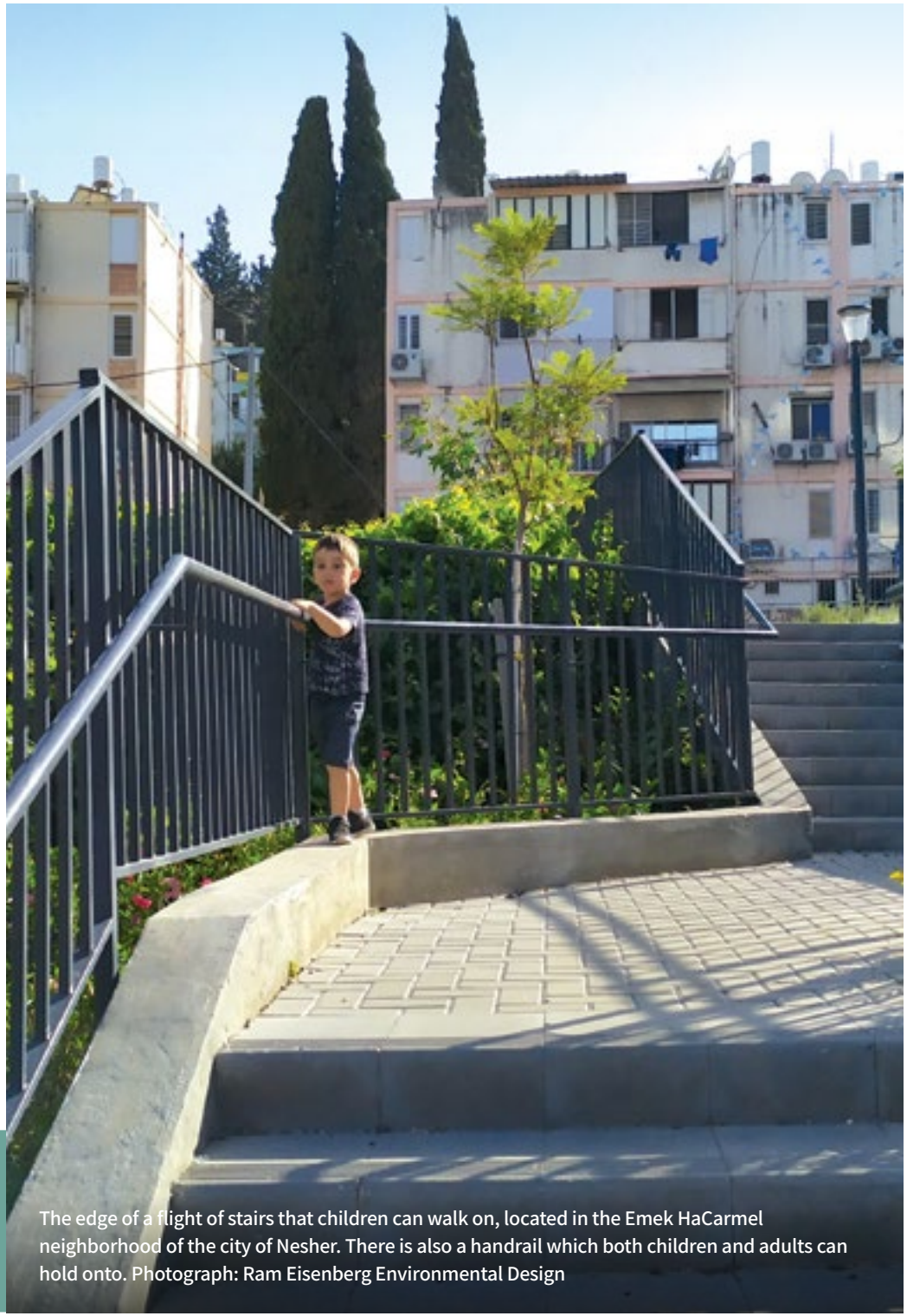
explore the vegetation by touching, smelling or looking at it, without the fence compromising walking quality.

- **Propose changes to the texture or form of the frontage zone**. Using soft elements like mosaics, frescoes or colors, or changing the processing of the wall stones so they are at the children's eye level, can offer them a diverse and interesting experience without placing a burden on the rest of the users. When possible, it is advisable to link the change in texture or form with the character of the building or the street in order to mediate the different uses to the children. For instance, images of barber tools can be inlaid next to a barber shop.
- **Add play-related elements to the frontage zone**. In the case of a public building or facility that requires regular upkeep and management, adding various elements should be considered. Those elements can be climbing rocks, a limestone wall that the children can draw on, or three-dimensional games that will make the buildings stand out and give them a presence in the public space.

Top photo: a green wall that faces Pilon Street at the Tel Aviv-Yafo Municipality's Engineering Administration. It highlights the public use for pedestrians (Photo-graph: Ram Eisenberg Environmental Design) | Bottom photo: a toddler walking next to a graphite wall

Designing the pedestrian through zone

To offer young children and their caregivers a pleasant walking experience, the pedestrian through zone should, first and foremost, be continuous, easily accessible and obstruction-free. Furthermore, different types of interventions can be suggested that do not adversely affect the functioning of the pedestrian through zone and its role as a walkway, but add interest and opportunities for play and exploration at the eye level of the children, such as a 'secret' city that is not visible to the adults. To achieve that, visual or material-related modifications can be made to the surface. Changing the directions or patterns of the paving stones can create a wide array of play and discovery opportunities for young children even with a very limited budget. Because the surprise factor is a significant part of the resulting experience, repetitive and permanent changes should be avoided.



The edge of a flight of stairs that children can walk on, located in the Emek HaCarmel neighborhood of the city of Nesher. There is also a handrail which both children and adults can hold onto. Photograph: Ram Eisenberg Environmental Design

Designing Steps to Encourage Play and Stationary Activities

In hilly towns and neighborhoods, steps are quite beneficial for shortening the walking time between two given points. Additionally, the fondness that young children have for steps can make them an enjoyable space for stationary activities and play. With the proper design, the height differences, the observation points and the visibility of the steps can be maximized to create an experience shared by young children and their caregivers. The important role that steps play in many neighborhoods can turn them into a landmark and an element that strengthen the users' connection with the surrounding area and the community. To achieve that, it is advisable to:

Choosing unusual materials and colors or incorporating works of art can turn steps into landmarks and gathering places for young children and their caregivers. Furthermore, their important status will draw additional users and make them appealing places for play.

The interface between the steps and the space adjacent to them has natural appeal to children. To draw children to play on the edges of the steps, install low handrails, use varying textures, offer special observation points, etc.

Coupled with the standard solution, it is possible to enhance steps with play-related elements like slides, ramps or climbing walls. To avoid placing a burden on the public space, it is advisable to prefer central locations near places frequented by young children and their caregivers, such as parks and community centers.

A drawing on steps that increases their visual appeal and turns them into a landmark. Spinoza Steps, Haifa. Drawing and photograph: Tatiana Belokonenko

The edge of a staircase that children can walk on, HaHaskala Boulevard in Tel Aviv. Design and photograph: Ram Eisenberg Environmental Design

A slide next to a public flight of stairs at a metro station in Berlin. Source: The "Fast Lane' project created by Volkswagen

Designing the recreational zone and street furniture zone

The recreational zone and street furniture zone are sections of the sidewalk that are intended for fixed furniture and above-ground infrastructure, freeing the sidewalk for convenient, continuous and safe walking. When planned properly, those amenities can enrich the walking experience for young children and their caregivers. Therefore, it is advisable to:

- **Plant trees and vegetation for an agreeable and interesting walking experience.** Planting trees with a leaf canopy will produce spaces that are comfortable and pleasant even on very hot summer days and will help reduce pollutants.[7] A leaf canopy, which together with the buildings produces shade that covers 60% of the open public space, is the preferred solution. The choice of vegetation should create a diverse sensory experience for the children. Assuming that they do not compromise safety or street maintenance, trees that blossom

Impressive displays of gardening and vegetation, such as these wildflowers planted in tree pits on Kaplan Street in Tel Aviv. Design and photograph: Liav Shalem, Landscape Architecture and Ecological Consulting

7 Guidelines issued by the Ministry of Agriculture in *Factors to Consider When Reviewing Plans That Interface With the Forest Commissioner* stress the importance of continuous shade and canopies of mature trees that produce continuous shady areas along the pedestrian through zone. It is advisable to choose trees in accordance with the *Guidelines for Designing Urban Streets – Trees and Plants* (2014).

or have impressive roots will bring children into contact with urban nature and increase their wayfinding skills and sense of independence. Tree pits can be used for planting seasonal vegetation, like geophytes that bloom in certain seasons, or squills or anemones. Planting trees with edible fruits or herbs can arouse the senses of taste and smell, and vegetation with leaves of different colors and shapes or a unique texture will draw children to touch them. Furthermore, trees that attract nesting birds (like star jasmine), or at a minimum do not ward them off, will fill the air with lovely sounds of chirping birds.[8] Vegetation that attracts different kinds of small animals, such as butterflies, can lead to interactions between children and urban nature.

- **Choose various types of street furniture**. Shaded and well-maintained seating is required by children and their caregivers for resting, nursing and feeding

On the left: street furniture that children and caregivers can sit on, located near a busy intersection and street retail, the Shapira neighborhood in Tel Aviv. Photograph: Gavrieli-Segal. On the right: benches in a street furniture zone that were custom designed for the Mercaz HaCarmel neighborhood in Haifa, which give children a view of interesting spots on the street. Design: Greenstein – Har-Gil Landscape Architecture. Photograph: Ram Eisenberg Environmental Design

8 It is worth reviewing the information about toxic or dangerous plants that is provided, for example, on the *Beterem Safe Kids Israel website*. The Israeli Center for Yardbirds publishes lists of tree species that attract nesting birds.

purposes, or for getting organized before traveling or joining an activity. Seating with diverse dimensions and accessibility levels will generally be more comfortable for caregivers of children of different ages who are at different stages of development. To that end, use can be made of furniture featured in catalogs, or custom pieces can be designed for the specific location. On the one hand, confining the street furniture to the street furniture zone will facilitate uninterrupted pedestrian traffic on the sidewalk. On the other hand, it is likely to be noisy or dangerous for children due to its proximity to the pavement. It is therefore advisable to create a buffer using large amounts of vegetation.

- **Characterize the street furniture zone**. The Accessibility Standard stipulates the design of a visual and textural contrast along the edges of a street furniture zone. That regulation can be utilized to characterize the street furniture zone in a way that develops wayfinding abilities among young children at the height of the surface accessible to them. For instance, use can be made of a particular color or pattern to indicate proximity to educational institutions or to major medical facilities, which will replace the standard solutions that exist in most cities.
- **Incorporate easily identifiable elements from immediate surroundings in the space**, especially where children and caregivers tend to stop and engage in stationary activities. Those elements can be integrated into the paving materials or street furniture and serve as a unique feature of the specific location, which helps children 'read' the space and contributes to its play value.
- **Make use of play-facilitating elements**. Designing public elements in the street furniture that incorporate height differences and are made of materials that encourage touch and exploration, in addition to soil and vegetation or special lighting in the evening hours, are likely to draw young children to play there without taking control of the space. Those elements will also enable caregivers to spend time comfortably near the children. It is worth staying away from standard play equipment that requires fencing and compromises the flexibility of the public space.[9]

An example of how the frontage zone can be used to create cl
located along the Seine River in Paris. Photograph: Gavrieli-Se

9 Israel Standard 1298 requires fencing up to a distance of 15 meters from the location of the equipment to the adjacent pavement.

imbing and wall games for young children,
egal

Designing spaces for safe mobility

Vehicles traveling at a high speed are the main reason why streets are not safe or pleasant for young children and their caregivers. Vehicles traveling at a high speed create noisy, polluted and dangerous streets. Even though they produce less noise and pollution, bicycles can also pose a danger to children on streets. **To create safe and pleasant streets, every urban street that allows vehicular and bike traffic should, first and foremost, be required to implement traffic calming measures**. To achieve that, it is advisable to:

- **Prefer plans that include two-way streets**. Preference for two-way streets means wider lanes compared to one-way streets, but also shorter travel times and distances, which helps calm the traffic.
- **Put traffic calming measures in place**. Physical calming measures such as speed humps, localized lane narrowing, traffic diverters, use of special materials and planted vegetation can undermine the motorists' confidence and impact travel speed. Those measures should be implemented together with other measures that widen and improve the state of the pedestrian zone.[10]

Designing compact and safe intersections

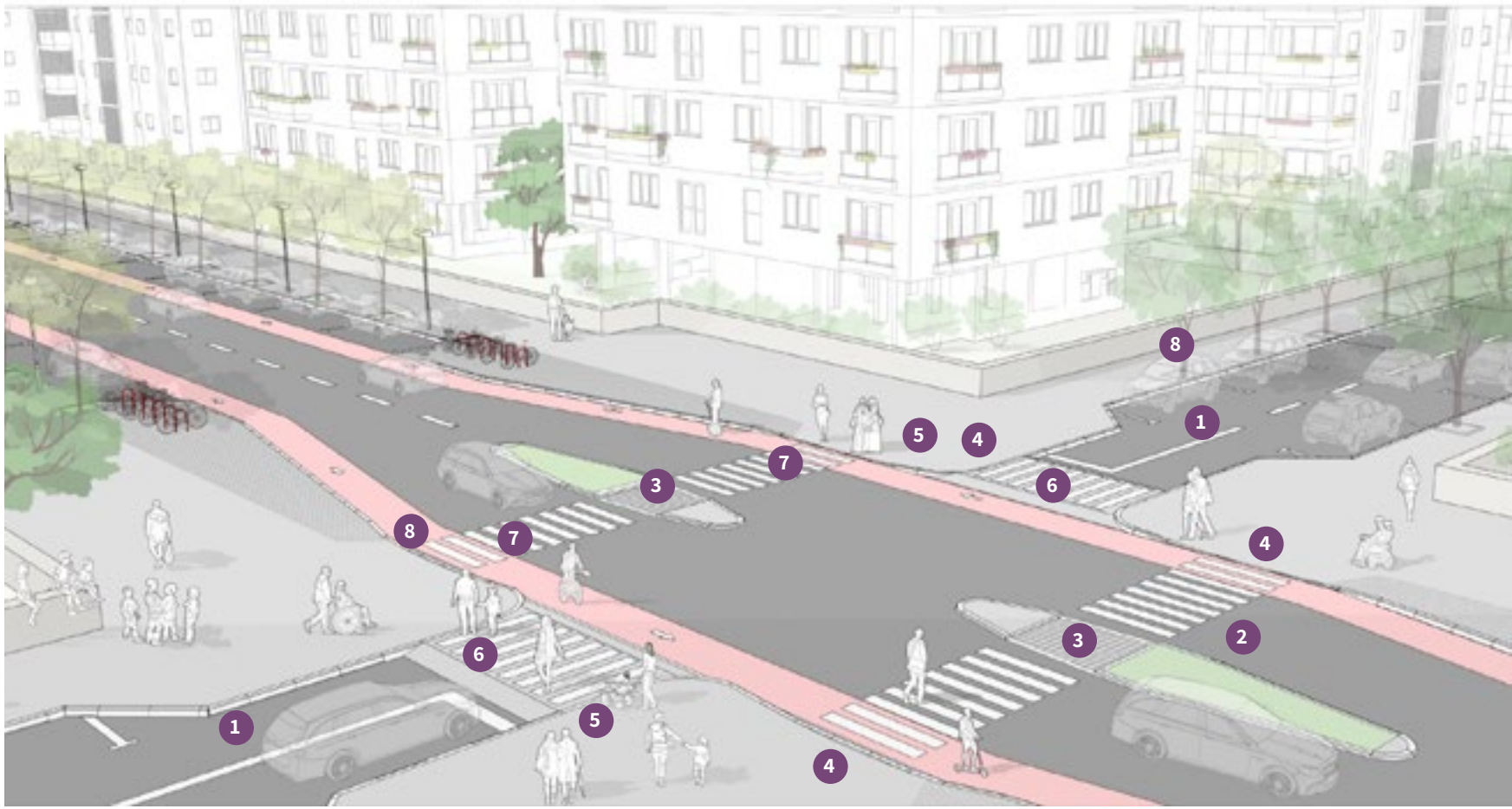
Intersections are a congested and confusing space, intended for a variety of users going in different directions. For young children and their caregivers, crossing an intersection can be a daunting task because young children walk slowly and their behavior cannot be predicted, and of all places in an area where speed and assessing risks is essential. Therefore, when designing intersections, it is advisable to[11]:

- **Add multiple street-height crosswalks**. In places with insufficient crosswalk markings, young children and their caregivers are forced to cross the road in dangerous spots. Above-ground or below-ground solutions, such as overpasses or underpasses, can require pedestrians to walk up a long and difficult set of stairs or use public elevators that may be run-down or even scary. Consequently, especially when designing local streets with high traffic volumes, it is important to design multiple and diverse street-height crossing options every 50 to 100 meters.
- **Raise the crosswalks.** A raised crosswalk is particularly beneficial to the safety of young children because it also draws attention to their low height. For caregivers walking with strollers or toy cars, it offers a continuity and accessibility advantage. A raised crosswalk also prevents vehicles from easily turning to the right in a way that endangers the pedestrians on the crosswalk.
- **Enlarge the area of street corners and their visibility range.** A street corner is the area on the edges of an intersection intended for pedestrians. Decreasing the radius of the street corner to 1.5 meters and widening the sidewalk area so it reaches the parking line can benefit young children for two main reasons: firstly, because they increase the pedestrian domain and create a space where caregivers with young children can conveniently prepare to cross the street; secondly, because they limit the space available to vehicular traffic and direct the motorists' attention to pedestrians.

10 The document *Guidelines for Designing Urban Streets – Pedestrian Traffic*, Ministry of Transportation and Ministry of Housing, State of Israel (2020) provides detailed guidelines for improving the visibility and safety of intersections in a city.

11 *Guidelines for Designing Traffic Calming Areas*, Ministry of Transportation, State of Israel (2002).

An intersection between a 50 kph street and a traffic-calmed street



1 | A traffic-calmed street

2 | A 50 kph street

3 | A traffic island to shorten crosswalks

4 | A slope in the sidewalk up to the height of the pavement

5 | A wider sidewalk to decrease the pavement in the vicinity of crosswalks

6 | A raised pavement to the height of the sidewalk

7 | Crosswalks as a continuation of the pedestrian through zone

8 | Shade trees

Mobility

When caregivers want to reach destinations far from home, oftentimes public transport is the weak link on the route. Consequently, a growing number of caregivers – if they have a driver's license and can afford to do so – prefer traveling in a private car.

For many of them, walking to and waiting at a transit stop can be an inconvenient and complicated experience. Stops located near busy streets can be noisy and stressful places for caregivers of inquisitive toddlers, and multistory terminals and stations can create a confusing, stressful and inaccessible experience for adults laden with strollers or shopping bags from their errands, who are rushing to reach their destination. The on-board train or bus travel experience can also deter caregivers with young children. For example, riding in a fast-moving and crowded bus can create safety concerns if the bus stops abruptly or makes a sudden turn. And pregnant women or caregivers of toddlers cannot always rely on having a place to sit or rest during long trips.

The numerous difficulties associated with making public transit accessible to families cause them to prefer private cars, despite their many drawbacks. Apart from being noisier, more polluting and more dangerous than walking and cycling – with traffic accidents being a

leading cause of death among children in Israel – the car ride itself is a missed opportunity for quality time with the caregiver figure. On the other hand, traveling with children on a bus or train is an excellent opportunity for learning and acquiring shared experiences, teaching children independence and wayfinding, and engaging in active play.

The present chapter divides the mobility guidelines into two sections. The first section deals with public transit stops and terminals, with a focus on mobility and the time spent at them. The second section deals with guidelines for improving the vehicles themselves.

Photograph: Oded Antman, Bernard van Leer Foundation

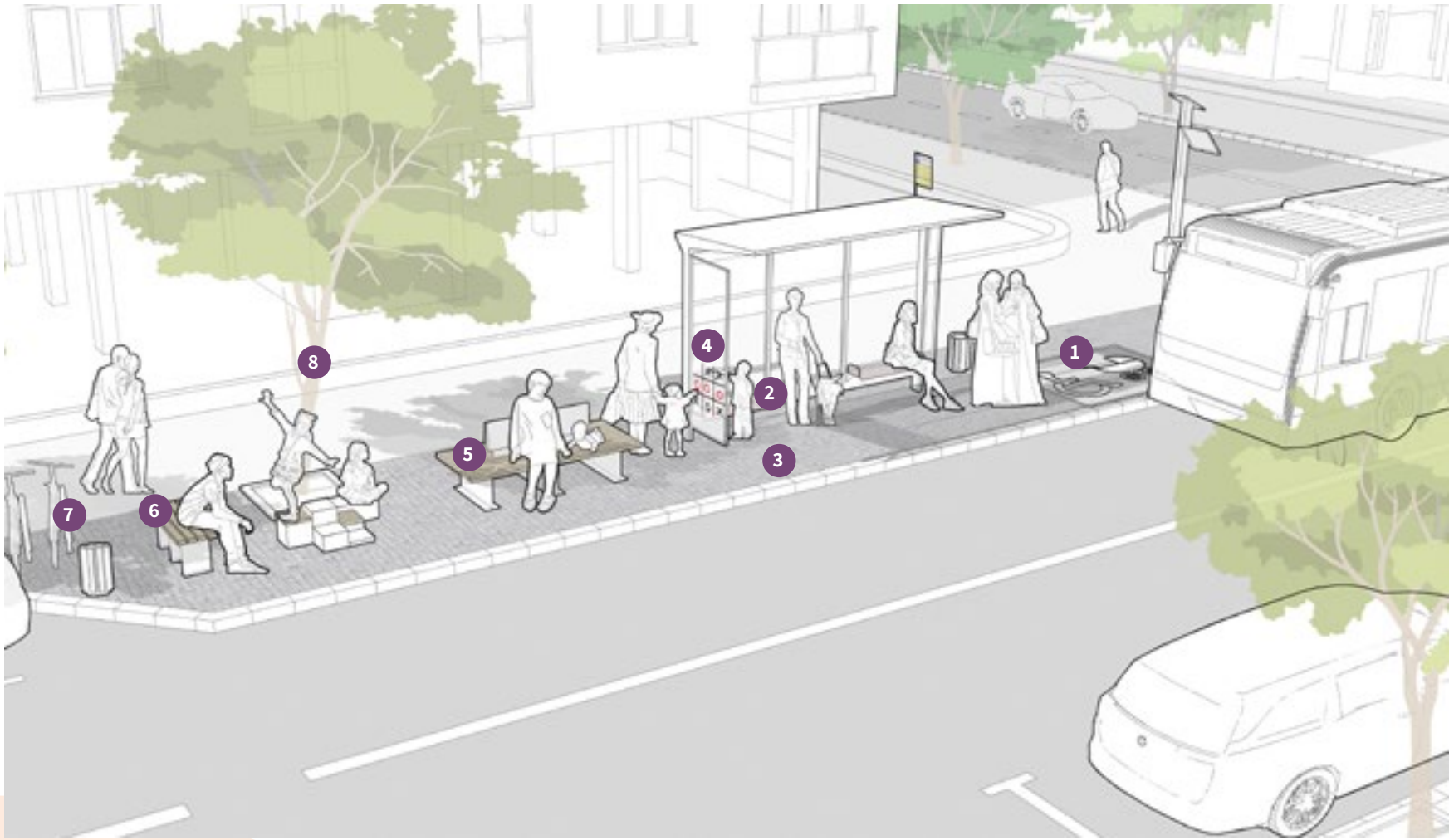
Designing public transit stops, terminals and transfer points

Waiting areas that cater to young children can contribute greatly to motivating families to use public transport. Sheltered areas that are convenient to use and easy to find, even when caregivers are stressed and in a rush, will increase their attentiveness to the children's needs. Interesting surroundings that appeal to the children can encourage a sense of independence as well as shared play and exploration. When designing the immediate vicinity of a transit stop, it is advisable to:

- **Ensure that users can look out of and be seen when waiting at transit stops**. Street furniture and furnishings, bus shelter ads and low-growing shrubs can conceal the passengers who are sitting there[12]. This could prevent caregivers of young children from waiting in a relaxed manner and being attentive to the children. Therefore, when designing the area around a transit stop, obstacles should be removed from the road so the drivers' field of vision and that of the passengers will be clear of obstructions.
- **Design a waiting area that is accessible to families with strollers**. Accessible transit stops already offer a sheltered waiting area for people in wheelchairs, whose dimensions are similar to that of a stroller (80-120 centimeters). In areas frequented by young children, and especially in residential areas populated by large families, a large space should be planned in advance which can comfortably accommodate a number of caregivers with strollers. To achieve that, it is worth considering the installation of folding seats that can be converted into a space suitable for strollers.
- **Install different types of seating and waiting areas in and around public transit stops**. A variety of seating options will enable caregivers of young children to get organized before boarding, in addition to offering them quiet spaces shielded from pollution and weather hazards. At large stops with a lot of places to sit, adding seating scaled to the size of young children should be considered, which will offer them with a sense of independence and belonging. On streets where the pedestrian space can accommodate it, the recommendation is to install diverse street furniture near the transit stop that can supplement the standard seating options.
- **Enlarge the waiting area using bus bulbs. If the immediate vicinity of transit stops is designed using bus bulbs**, in a manner that widens the sidewalk at the expense of the pavement and enables the bus to get closer to the stop, it will be easier to board the bus with strollers. There will also be more room for young children and their caregivers to wait in. In areas populated by large families, such as ultra-Orthodox neighborhoods, a bus bulb frees up more space for passengers waiting with strollers.
- **Emphasize the importance of the 'boarding readiness zone' for disabled passengers**. Boarding readiness zones, which are currently used to indicate where the bus stops so passengers in wheelchairs can board and alight, can help make travel more accessible to caregivers with strollers. The function of the boarding readiness zones should be emphasized and an icon should be added to clarify that function.

12 Road Sign 505 requires bus drivers to stop when they see passengers waiting at a stop. *The Guidelines for Accessible Bus Stops* (2008) stipulate that advertisements have to be placed on the upper section of the transit shelter for the benefit of the vision impaired.

A bus stop customized to the needs of young children and their caregivers



1 | Mark the boarding/alighting zone for persons with disabilities and passengers with baby strollers

2 | Seats whose height is suited to sitting with children

3 | Tactile paving surfaces on the entire bus stop waiting area to create a distinct space

4 | Games for children on the walls of the bus stop

5 | Deep levels that enable infants to crawl, diaper changing and sitting in all directions

6 | Seating tailored to children

7 | Bike parking racks near the bus stop

8 | Shade trees

- **Add exploration and play opportunities**. In key locations that attract many young children, exploration and play opportunities should be added in a way that caters to them, but does not interfere with the regular operation of the transit stop. For example, it is advisable to include play opportunities on the sidewalk adjacent to the stop, without however creating obstacles or any noise or color overload. In local hubs, playthings and easily identifiable elements from the immediate surroundings can be incorporated in the side panel of the shelter, suited to the height and size of children. That way they will remain protected within the confines of the shelter, close to their caregivers. To capture their interest, it is possible to include elements that can be replaced from time to time at a low cost.

As the transit network becomes richer and more complex, the greater the importance of transfer points. At transfer points, caregivers of young children are likely to transfer from a heavy rail to a light rail or a bus, from a subway to an elevated train, or from one bus line to another. Navigating a complex or unfamiliar space can, of course, be a daunting experience, especially for caregivers of toddlers with unanticipated needs, or when laden with heavy gear and strollers. When designing transfer points, it is advisable to:

- **Design a clear, accessible, and comprehensible decision-making zone**. A zone that includes maps of the transit stations, the walking distances, and the location of elevators or accessible escalators and care-related facilities (public restrooms, water fountains and places to rest) can help ease the stress and uncertainty faced by caregivers of young children. Adding child-height maps and signage, coupled with the use of drawings and icons, can give children a sense of responsibility and orientation. The decision-making zone can also serve as a landmark should one of the family members get lost.
- **Create continuous walkways**. When designing transfer points that include crosswalks, particular attention should be paid to creating continuous and safe transfers, including raised crosswalks, right of way to pedestrians, and accessibility measures suitable for strollers and toy cars, as described in the street space section. If transfer points have enough available space, it is advisable to designate a special lane for persons with disabilities, passengers with heavy baggage, and families. That will help them reach their intended destinations quickly even in busy areas.
- **Designate priority lanes at security checkpoints**. To avoid delays and dependence on station personnel, design priority lanes that are at least 80 centimeters wide and can accommodate passengers with strollers or passengers in wheelchairs. Those lanes, which should be available at every entrance, should be highlighted using easily clear and suitable signage.

Designing public transport vehicles

Riding on a bus or train can be a great experience for young children and their caregivers. Watching the passing landscape together, looking at the other passengers, and learning how public transport works in the city are likely to be enjoyable and engaging if the bus or train is designed as it should be. Some of the principles that help shape a positive travel experience have for many years been an integral part of the regulations governing equal rights for persons with disabilities. Apart from implementing those regulations, it is advisable to highlight certain aspects that have bearing on young children and their caregivers:

- **Add symbols and accessibility aids**. To raise awareness among all

passengers of the needs of young children and their caregivers, and coupled with the standard accessibility symbols, there should also be symbols for caregivers of toddlers, whether or not they are in a stroller or a carrier. Special seating should also be reserved for them. Furthermore, the installation of handrails customized to the height of toddlers will help them reach their seat on their own and sit down safely.

- **Allot dedicated docking and store places** Allot designated docking spaces for strollers, while inconveniencing passengers standing in the aisle as little as possible. That can make getting around with strollers in the city much easier and underscore that public transport is also intended for families. If possible, offer a nearby space where caregivers can store or hang baby carriers, bags or gear they are laden with. In trains, it is advisable to install them in the space adjacent to the entrance and exit doors, which will make it easier for caregivers to get organized when boarding or alighting.
- **Encourage exploration and play when using public transport**. The time spent on a bus or train can itself be an excellent opportunity for toddlers and their caregivers to learn and play together. To achieve that, it is advisable to incorporate a variety of elements, depending on the type and size of the transport vehicle. Designed elements such as child-height wallcoverings or posters, which invite joint activities or explain how the vehicle works and describe the area surrounding the route, are likely to capture the interest of many children and create a sense of belonging without disturbing the other passengers.

Transport for North South Wales, Australia

Public buildings

Public institutions are special places in a city for young children and their caregivers. As opposed to streets, parks, residences or public transport vehicles, daycare centers, preschools, kindergartens and well-baby clinics are institutions that cater specifically to young children. Accordingly, they are designed, first and foremost, with them in mind.

For young children, attending an early childhood institution is an important part of their daily routine. In Israel, 50% of the children aged birth to three attend childcare facilities for a fee. Around half of them, approximately 150,000 toddlers, attend public daycare centers. On average, Israel allocates fewer buildings than needed for this purpose compared to the average allocation in developed countries. Consequently, the buildings are subject to more wear and tear. Although we are unable to provide a budgetary solution that could increase the supply of buildings earmarked for daycare centers and meet the needs of a growing number of children in Israeli cities, the aim of these detailed guidelines is to design higher quality environments that accommodate young children despite the existing limited allocations. Implementing many of the guidelines does not necessarily mean investing more money. Rather, what we need are flexible thinking and a reassessment of the environments that we offer children in the most critical years of their development.

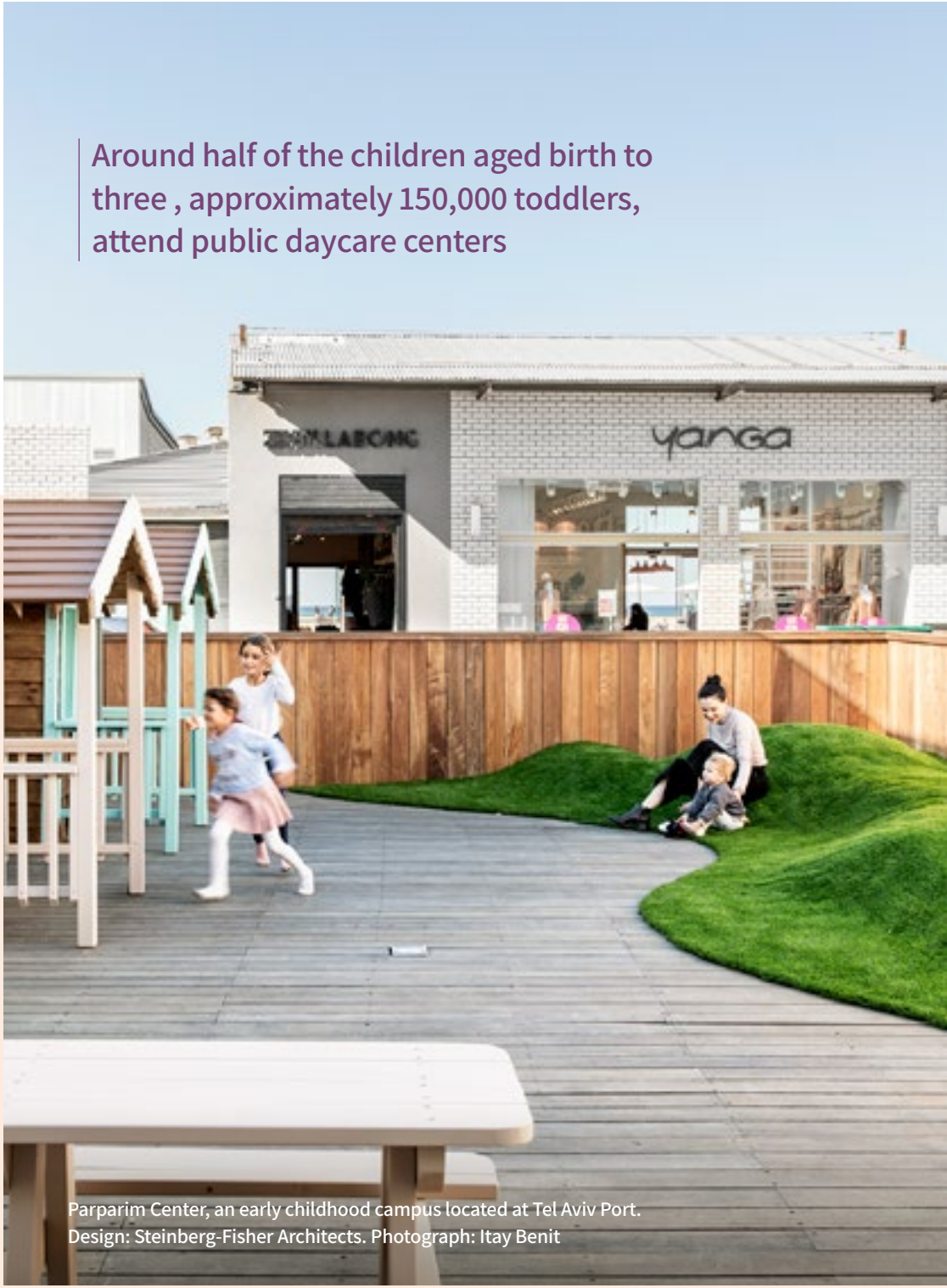
The rise in the number of new daycare centers built in Israel also increased the opportunities that architects and designers have to influence the environments of young children. In congested and mixed-use urban settings, a growing number of daycare centers, preschools and kindergartens have been opened in multistory buildings that provide additional services. That being the case, advance planning that ensures that the children's needs are being met in these complex designs is even more important. The detailed guidelines offer ways to encourage wayfinding, independence and a sense of belonging, while maintaining the children's connection with nature and with environments open to interpretation, even in a busy urban setting. In areas populated by ultra-Orthodox communities comprised of large families, and also in Arab towns characterized by a hilly topography, the importance of accessibility only increases, as do design details that improve convenience and access.

In addition to daycare centers, preschools and kindergartens, the design

of venues popular with families also requires special attention. Community centers, places of worship, public libraries and different kinds of health-care facilities are destinations typically frequented by families. Important and high-quality public institutions that accommodate young children and their caregivers, especially in congested cities, can contribute greatly to the sense of a supportive, diverse and enriching community.

The present chapter divides the guidelines pertaining to public buildings into two sections. In the first section, we will deal with institutions whose main target population are the children themselves: daycare centers, preschools, kindergartens and well-baby clinics. By their very nature, those public institutions are subject to regulations and standards that stipulate the design of the buildings and what they contain. In the second section, we will deal with the potential for adapting venues popular with families to young children and their caregivers.

> Around half of the children aged birth to three , approximately 150,000 toddlers, attend public daycare centers



Parparim Center, an early childhood campus located at Tel Aviv Port. Design: Steinberg-Fisher Architects. Photograph: Itay Benit

Venues intended for young children

Daycare centers, preschools and kindergartens

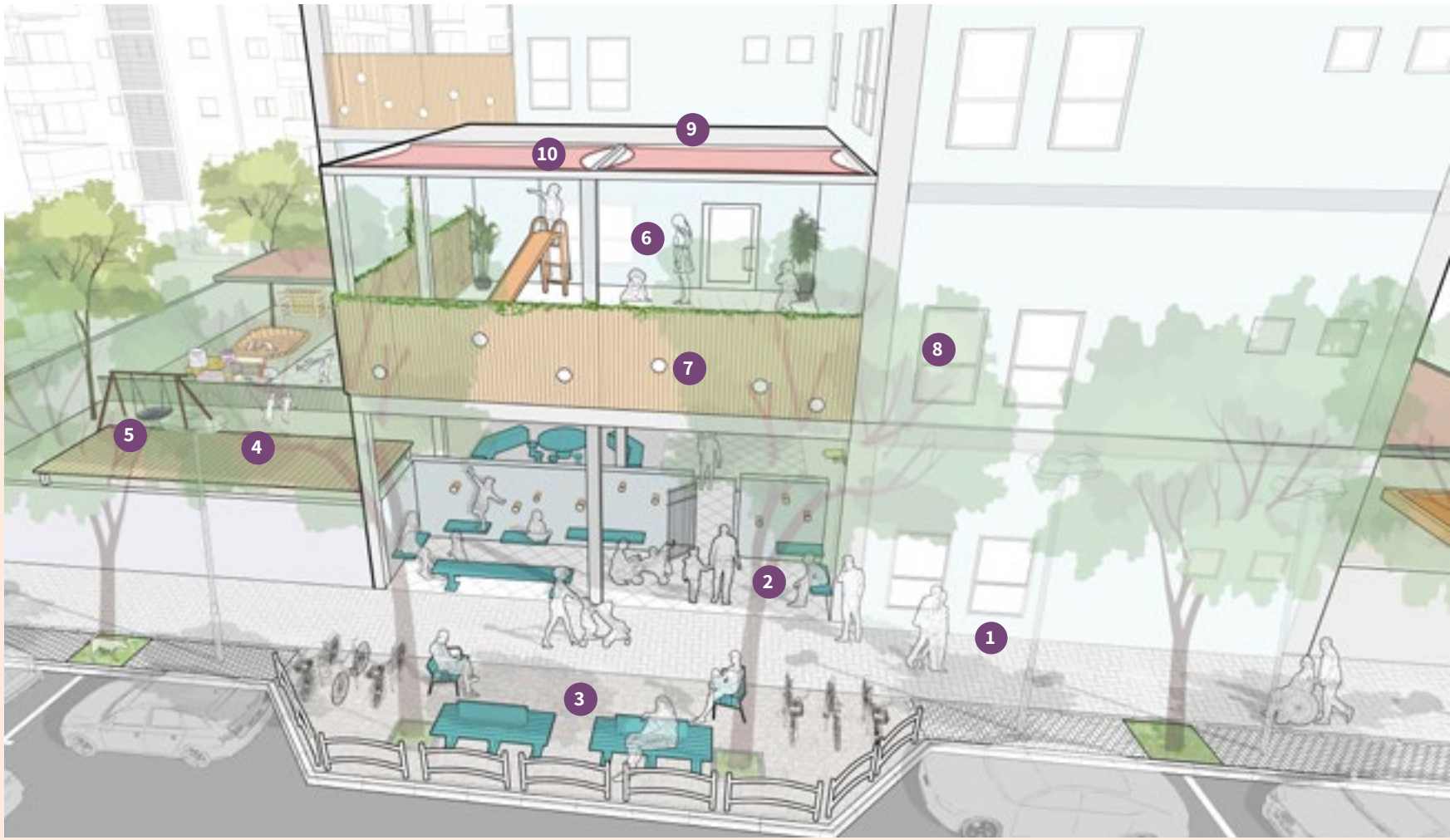
Public daycare centers, preschools and kindergartens in Israel are designed according to plans made by the Ministry of Education, Ministry of Economy and local authorities. Public bodies such as local authorities, or religious institutions, nonprofit organizations or privately-owned companies carry out those plans. As expected, detailed plans contain more specifications than the guidelines in this document. Nonetheless, the following chapters provide a set of guidelines and key points that architects and designers can utilize in order to better address the needs of young children when making those plans. To make it easier for readers to navigate through them, the guidelines are broken down into the different spaces found in daycare centers, preschools and kindergartens: the entranceway and interface with the street, the exterior vestibule, the lobby and classrooms, the indoor activity spaces, and the covered and uncovered exterior spaces, which can be a yard, balcony or roof of the building.

Designing the entranceway and interface with the street

The interface with the street includes the front of the building that faces the street, the public space adjacent to the main gate and the gate itself. For children and their caregivers, that space is an initial transition point between activity in the family unit and participation in an activity in the public space. It is therefore important that the building façade have a distinct identity that will encourage wayfinding and welcome the children. It is no less important that the space in question be convenient and accessible for the caregivers, who often find themselves responsible for a few children of different ages and with diverse needs. Additionally, public buildings are also very important to all street users. An inviting and attractive façade, which gives young children a significant place in the community without placing a burden on the other users, can enhance the public space experience for the entire community. To achieve that, it is advisable to:

- **Designate a special area for waiting and getting organized**. When deciding on the location of the building on the lot, it is possible to widen the sidewalk or situate the front gate away from the street in order to create a space where caregivers can wait or get organized when dropping the children off for the day or picking them up. That space should be covered for sunny and rainy days and include street furniture that is customized to young children and their caregivers, such as multiple seating areas suited to a variety of users, and wide benches that children can crawl and stand on. To create a safe space, a barrier can be installed nearby to prevent the children from running out into the road. This matter is especially important in environments that have to accommodate large families and multiple strollers.

An entranceway to a daycare, preschool and kindergarten facility



1 | A building not set back from the street

2 | A covered entranceway with seating

3 | A wider sidewalk across from the entranceway, with places to sit and bike parking racks

4 | A space for parking strollers and bikes throughout the day

5 | A yard used by the daycare, preschool and kindergartens classes during the day, but that also enables caregivers and children to spend time there before and after the day starts

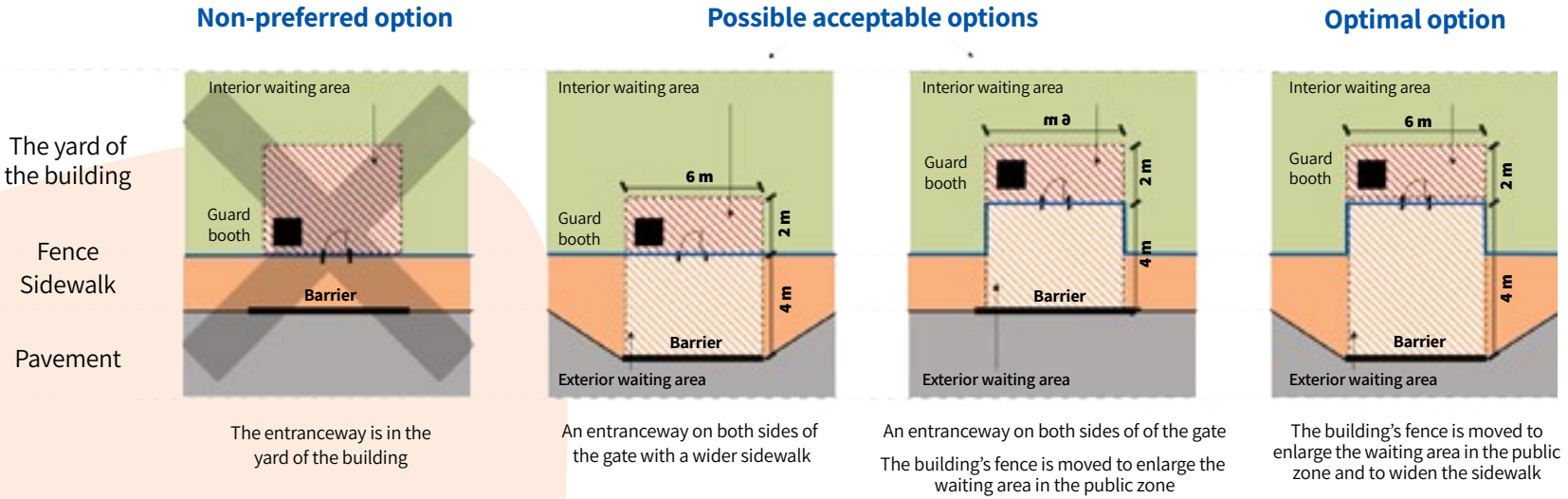
6 | An above-ground balcony used by a kindergarten class as a yard

7 | Child-height 'peepholes' on the railing

8 | Windows through which children can look outside

9 | A partially covered balcony

10 | A shade element above the balcony



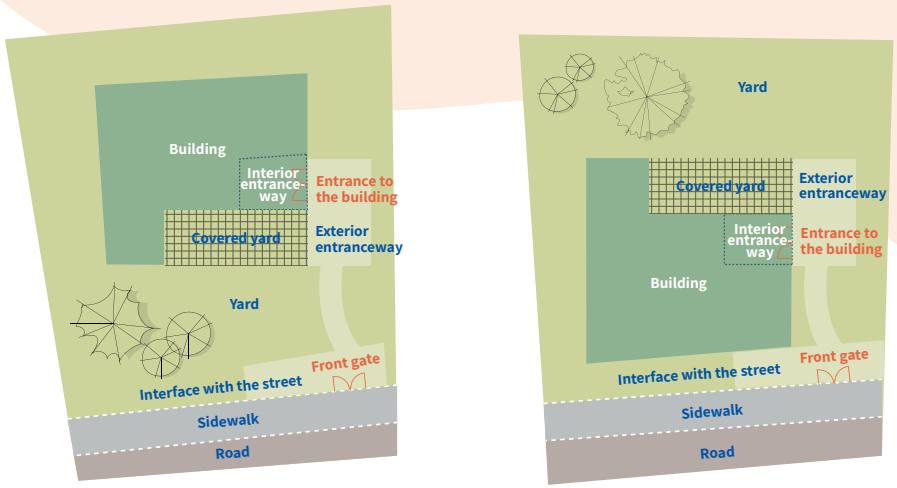
Diagrams that illustrate alternative entranceway designs for public buildings

- **Allocate parking spots for bicycles and strollers**. Many caregivers who walk or cycle to the facility are likely to go inside for a parting 'ceremony' or to speak with the staff. To enable them to do that conveniently without making use of a private car, accessible, covered and convenient spots should be allocated for parking bicycles and strollers. If possible, those spots should be covered and sheltered. This matter is especially important in environments characterized that have to accommodate large families and multiple strollers.
- **Encourage identity and belonging in the entrance area**. The gates at public institutions in Israel are typically manned by security guards who greet the children and their caregivers. Their booths are usually temporary structures which are not properly utilized. A guard booth can be designed as an integral part of the entranceway space that offers a view of the people arriving and assists them when needed. Elements that highlight its function, such as notice boards and displays of the work done by the children, can be added to it.

Designing the interior spaces

Because the entranceway to a daycare center, preschool or kindergarten is usually the place where the children part from their caregivers, it has considerable meaning for young children. Some of the children are glad to come there and pass through the entranceway quickly, while for others the parting moments are difficult and require a space where they and their caregivers can spend some extra time together. A space that gives children the feeling that they are the ones who are saying goodbye to their caregivers is likely to boost their sense of self-confidence and independence.

The entranceway to the building serves as an extension of the getting organized process, as well as a gathering place from which the children go into their respective classrooms. It is also a space where various activities are held during the day. With proper planning, the classrooms, faculty rooms and storage areas can offer young children a supportive and challenging experience. To achieve that, it is advisable to:



Options for including the yard of the facility in the arrival/parting experience of the caregivers and children

> Because the entranceway to a daycare center, preschool or kindergarten is usually the place where the children part from their caregivers, it has considerable meaning for young children.

- **Design a sheltered and convenient space for getting organized**. The exterior vestibule area can be designed in a way that enables a number of caregivers and children to stand or sit there comfortably at the same time. To that end, it is worth adding suitable seating furniture that is sheltered from the rain and sun. Within the lobby and interior vestibules, it is advisable to offer diverse seating areas for children and their caregivers.
- **Design a transition space that encourages communication and belonging**. To foster a sense of belonging and independence, child-height shelves and drawers can be installed in the exterior and interior vestibules where the children, together with their caregivers, can store items brought from home. A special space for displaying the work done by the children at the daycare center, preschool or kindergarten is likely to spark a discussion with their caregivers when they are dropped off or picked up. Designing the location of the building in a way that enables the children to have a view of the yard when walking from the street to their classroom will encourage them to share experiences from their outdoor activities.
- **Create a special passageway for the children**. A transparent door or child-height window will enable the children to look into the building before actually going inside, preparing them for the transition.

A raised 'hugging window' will enable children to part from their caregivers at heart-to-heart height and create an opening through which they can look out into the yard after entering the building.

Incorporating a separate, child-height front door will encourage them to make the transition independently. If a raised door is installed (a 'hugging window'), it will enable the children to receive a goodbye hug from their caregivers at heart-to-heart height and part from them independently.

- **Design dynamic spaces**. Using lightweight elements and movable partitions and seating will make it possible to change the layout of the space and tailor it to individual or group activities based on the diverse needs of the children. Simple designs will enable the children to adapt the space on their own, based on their individual preferences, and create unconventional options, like hiding places or seats that require a bit of climbing. That way they can test their physical abilities, such as balance.
- **Offer spaces for one-on-one activities**. When designing the building, it is important to offer quiet areas where members of the staff can work with individual children or small groups. The space can be temporary and separated by a partition, or situated in a different room. At campuses that house kindergartens, preschools and daycare centers, a common room can be designed. Another idea is that the space double for a staff room and a place to hold one-on-one activities, depending on the hours of use.
- **Maximize smart storage solutions**. Advance planning of storage solutions can increase the space available for the children's activities, make play and enrichment accessories accessible throughout the day, and encourage the children to be independent by adapting some of the storage solutions to their height and size. Some of the spaces included in the existing plans are intended for closed storage areas. In practice, this means that entire spaces are 'off limits' for children's activities, and in cases that are particularly worrisome, the protected space in the building (e.g., bomb shelter) is converted into a storeroom. To design the storage solutions efficiently, it is advisable to:
  - Prefer storage solutions along the hallways over closed rooms.
  - Design storage areas for items used by children, which are adapted to their height and size and can be accessed by them. And design storage areas for items used by adults that are far from the children's reach.
  - Design storage solutions in all parts of the building: in the vestibules, in the classrooms and in the exterior spaces.
  - Assess the needed storage areas and design special niches in advance.

Above: Adult-height and child-height storage spaces at Levinstein Kindergartens, Ganei Tikva. Architecture: Studio XS for Compact Design, Architects: Rony Avitzour and Ofer Rossmann, together with Prof. Itzik Hirsch. Photograph: Tal Nissim

Below: Lightweight partitions that diversify the activity area, and child-height storage spaces that encourage independent play and belonging at Levinstein Kindergartens, Ganei Tikva. Architecture: Studio XS for Compact Design, Architects: Rony Avitzour and Ofer Rossmann, together with Prof. Itzik Hirsch. Photograph: Tal Nissim

Service areas

For young children, service areas such as kitchenettes, stairwells and lavatories can be exciting spaces where they learn how to be independent and cope with risks in a controlled environment. However, the design of those spaces has implications for the degree of supervision and cleaning needed during the day. For that reason, any changes that are made require close cooperation with the staff. Using suitable dimensions and situating service areas in the right locations can create spaces that are enriching and help young children acquire life skills. To achieve that, it is advisable to:

- **Design safe and appealing stairwells**. Because children enjoy playing in places characterized by different heights, the growing number of daycare centers, preschools and kindergartens that are being opened in multistory buildings can address that preference. Alongside the spaces required for safe mobility in the passageways, elements for stationary activities and play can also be added, such as rocks to climb on, slides, or walls that can be colored on and then erased. The design of child-height alcoves along the stairs can create alternative play and rest spaces. Windows that are at the children's eye level, or transparent walls along the stairwells, can be of additional interest to children.
- **Design lavatories that encourage independence and getting dirty**. When designing lavatories at daycare centers, preschools and kindergartens, it is important to enable the children to be as independent as possible. At the same time, the work and supervisory role of the staff members should be facilitated, while preventing unnecessary dirt and hazards. Locating the lavatories next to the yard and the main space will reduce the amount of dirt brought into the building following outdoor activities, which makes daily operations more difficult.

On the left: a kitchen designed in the main space of a kindergarten in Nir-Am, enabling the staff to maintain eye contact with the children in the building and in the yard. Architecture: Zarta Studio, Landscape architecture: Heli Ellul. Photograph: Yarden Baide

On the right: a kitchenette customized to children that allows messy independent activities, situated close to an activity corner for individual children. Eucalyptus Kindergarten, Ganei Tikva. Design: Studio XS for Compact Design, Architects: Rony Avitzour and Ofer Rossmann, together with Prof. Itzik Hirsch. Photograph: Tal Nissim

- **Allow the children to be involved in preparing and cooking the food served at the facility**. According to the plans for daycare centers, preschools and kindergartens, every institution is supposed to have a kitchen or kitchenette where the staff can prepare food for the children. Involving young children in the nutrition process according to their ability, while maintaining eye contact with the kitchen, or by designing utensils whose dimensions enable the children to take part in preparing and serving the food, encourages independence and personal skills and helps the children develop a stronger bond with the activity and their peers. Accordingly, it is advisable to design an interface between the classrooms and the kitchens using interior child-height windows and/or interior serving counters that enable the staff and children to have eye contact with each other. In kitchenettes, there can be a movable partition that gives the children limited access and ensures their safety and that of the staff, in addition to installing child-height furniture and fixtures, such as adjustable stools, sinks, faucets, etc.

A covered yard

At most kindergartens, preschools and daycare centers, it is common practice to divide the land on which the institution is situated into an interior zone and an exterior zone. It is, however, very important to allocate some space in the exterior zone for a covered yard, which will make it possible to combine the advantages of exposure to nature and the open air with the convenience and relative cleanliness of the interior zone. A covered yard is suitable for diverse activities, ranging from story hours and rhythm classes to messy activities like arts & crafts or cooking. When designing a covered yard, it is advisable to:

- **Allocate a space where groups can gather**. The covered area and floor should be at least 4 meters wide. If there is insufficient room in the yard, the space in question can be inside the building as long as one of its sides faces the yard. In any event, the design should enable separation of the covered section from the uncovered section in order to increase the staff's ability to supervise the activities.
- **Be prepared for messy and wet activities**. Choose flooring made of non-absorbent materials (like concrete, terrazzo or stone) that dirt can be rinsed off and children can walk on barefoot. The overhead covering should offer shelter against rain and direct sunlight, with a 1% to 2% slope for drainage far away from the building. The installation of a faucet and sink in or near the covered yard will enable a variety of play and arts & crafts activities.
- **Design an alternative for locations situated along Israel's borders**. In areas where civil defense regulations are in place, the option of installing wide windows that expose the children playing indoors to what is happening outdoors is very limited. In those areas, a covered yard can be a convenient activity space, which also exposes the children to sunlight and fresh air.

Covered yards at preschools and kindergartens in communities located along the Gaza Strip. Architecture: Zarta Studio, Landscape architecture: Heli Ellul. Photograph: Yarden Baider

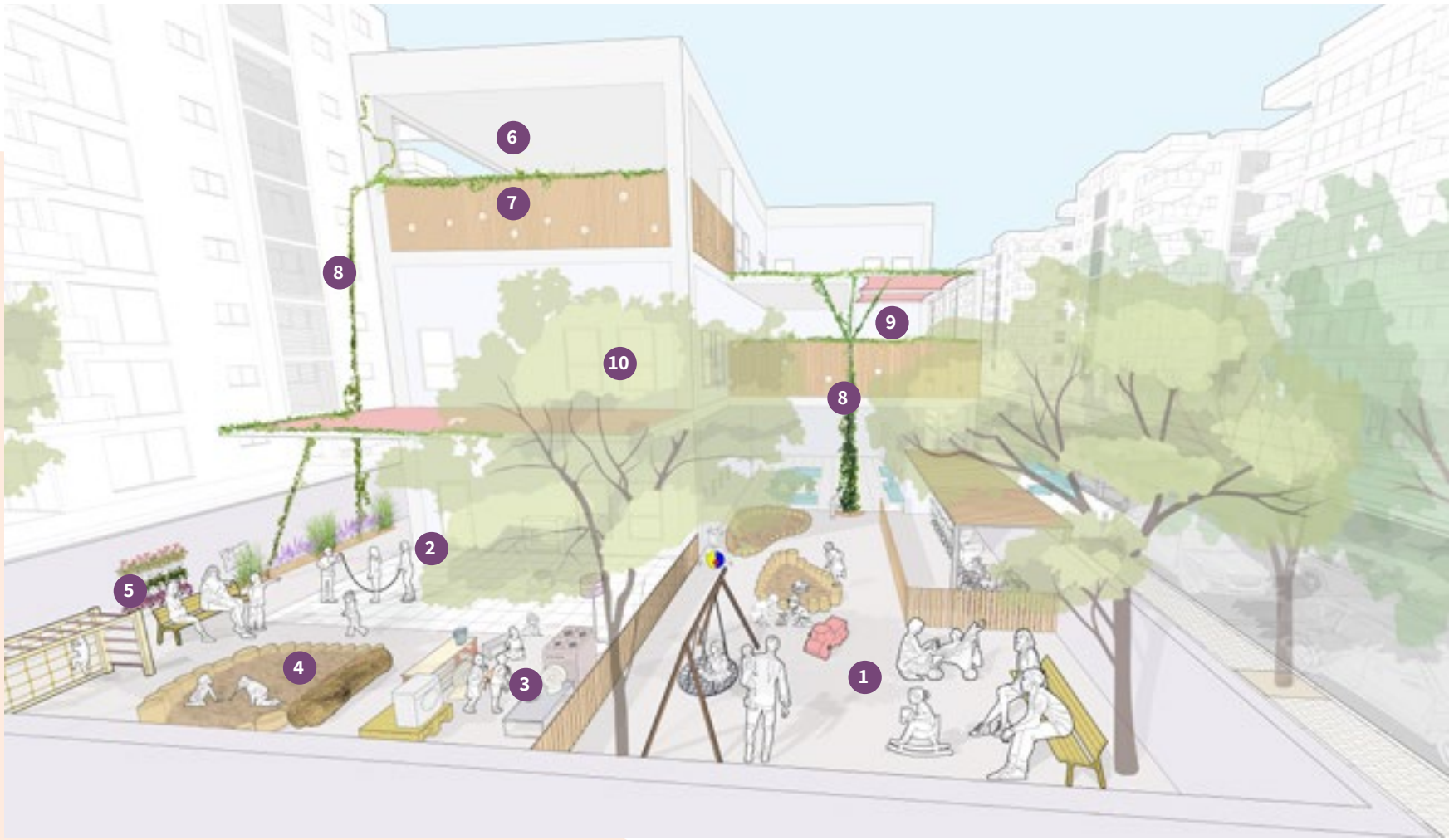
The exterior zones

The exterior zones at daycare centers, preschools and kindergartens are spaces where children can spend time, dream, play, explore and discover the world. A first-rate yard should contain a variety of spaces that challenge and excite the children and can be easily supervised and maintained by the staff. The yard should be designed as a series of spaces (some large, while others may be quite small and accommodate only one child), made of different textures, colors and materials. The more congested the land is on which the daycare centers, preschools and kindergartens are located and has mixed uses, the greater the importance of finding spaces that expose the children to fresh air and nature and enable them to play freely.[13] When designing the yard, it is advisable to highlight the following elements:

- **Incorporate a variety of materials and textures**. Hard materials, such as flooring, and soft materials, such as safety mats, can be incorporated in the design. Special emphasis should be placed on loose materials like sand and soil. That way the entire exterior zone be conducive to play and exploration.
- **Utilize the walls of the yard**. The walls of the yard can be used for various activities, such as growing plants, drawing, or hanging and storing items. The heights of the walls can be divided into sections in a way that makes the lower section accessible to the children and fosters their independence, and the upper section accessible to the adults. Furthermore, partitions up to a height of one meter can be designed using vegetation, a fence or low play equipment. That way the children can be divided into smaller groups for certain activities, supervised by the staff.
- **Create a shaded space**. When designing the shade for a yard, it is important to consider its amount and quality. Ideally, a number of shade sources should be combined, such as roofs, pergolas and trees, and the yard should face north. The shaded area should cover at least one half of the minimum size of a yard, equivalent to about 2.5 m2 per child. The measurement should be made based on the shade cast on the ground.
- **Design the yard for a variety of activities**. Besides encouraging activities, a first-rate yard will offer spaces for investigation and exploration, diverse physical activities, opportunities for using one's imagination, and contact with flora and fauna.

13 The *Manual for Allocating Land for Public Uses* (2016) provides planning guidelines regarding the yard area according to the ages of the children. The current document suggests adding more elements to those detailed designs.

Yards and balconies in a daycare, preschool and kindergarten facility



1 | A yard used by the daycare, preschool and kindergarten classes during opening hours, but which can also be used by the caregivers and children before the day starts and after it ends

2 | A tiled yard beneath a partial wall

3 | A junkyard that encourages play and imagination

4 | A combination of natural play materials

5 | Games and plants hung on the wall

6 | A balcony that serves as a yard for a preschool/kindergarten class located above the ground floor

7 | Child-height peeping holes along the railing

8 | Climbing plants that reach the top floors

9 | A balcony used as a yard for a daycare center located on the second floor

10 | Shade trees

A Tree for Every Kindergarten!

Similar to parks and gardens, trees offer huge value to young children. Being exposed to nature provides them with a multisensory experience: the shade of the trees makes for a pleasant space to spend time and play; different kinds of animals, such as birds and ants, are attracted to trees and their fruits and are a source of enjoyment and interest; displays of blossoms and foliage teach children about the seasons and the cyclical nature of the year; and roots and thick tree trunks offer a diverse and interesting play experience. A tree at a daycare center, preschool or kindergarten can give children the foundation for loving and appreciating nature. It is therefore recommended that the yard of every kindergarten, preschool or daycare center have at least one tree. It is worth noting that even in multistory facilities where some of the classrooms do not have direct access to a yard with soil, planting a tree in the front of the building can offer a green landscape that extends as high as four stories. In any event, it is important to choose the right trees, ones that will not cause injuries, allergies or toxicity.

Schoolyard at HaGome Elementary School, Kfar Blum. Design and photograph: Jl Think Nature Landscape Architecture & Urban Design, Julie Levy-Peled and Ifat Gal Shpeizman

Investigation and exploration

Spaces where children engage in messy activities using a variety of materials.

- Include a sandbox that can accommodate at least 25% of the children who attend the kindergarten.
- Design a space for a permanent or temporary wading pool with a drain.
- Reserve an area with natural land that contains bare soil, pebbles, leaves and ants.

Physical activities

Spaces where children can expend energy and develop motor skills

- Choose equipment that children can play with on their own without being assisted by an adult. Preferably, choose equipment that integrates natural materials.[14]
- Create different height levels on the lot in order to broaden the range of informal play options.
- Add architectural elements that invite play, such as steps or edges of paths.

Using one's imagination

Spaces that children can hide in, go into and make believe, often by playing with real objects[15]

- Integrate niches, recesses, shelves and protrusions into the walls where children can place things and engage in pretend play.
- Provide a 'junkyard' area containing objects from the adult world.
- Install playground equipment that the children go into, like a small house, boat or tractor.
- Install benches under low bushes that the children can sit on.

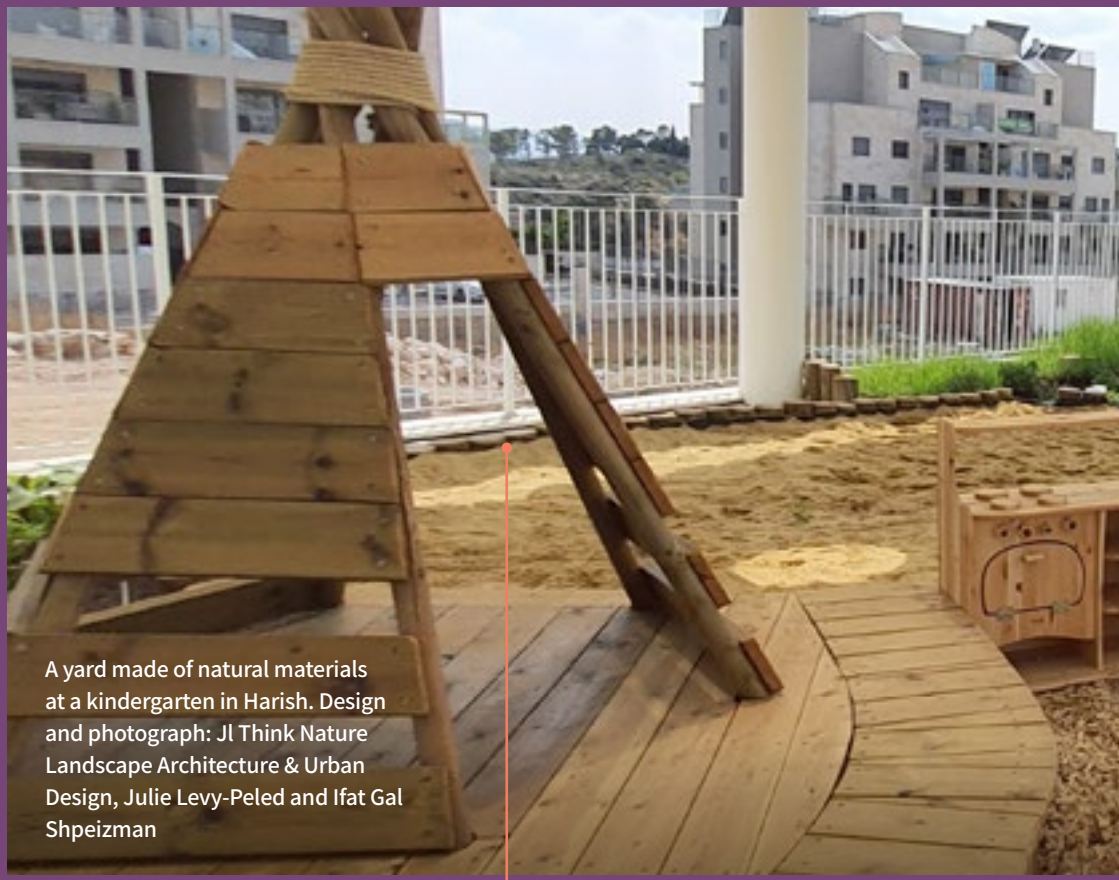
Contact with nature

A space that enables children to touch, activate and do things in nature

- Allocate a separate exterior space for gardening purposes, including a faucet and irrigation equipment, but only if the staff is able to manage it. Aromatic herbs and/or edible vegetables can, for instance, be grown in the garden.
- A vertical garden on the fence surrounding the yard will offer a green and impressive display, where plants that are within the reach of the children are separated from ones which are not.
- Glass containers (like a vivarium) used to display animals, such as fish or ants, can be incorporated.
- It is advisable to add shade trees or pergolas with climbing plants in areas where fallen leaves can be swept

14 Additional details can be found in *Design and Safety Guidelines for a Natural Playground in the Yard of Educational Institutions*, Ministry of Education (2018).

15 For guidelines and details, see Malka Haas and Tzila Gavish, *Mommy Look, It's Real*, Hakibbutz Hameuchad (2008).



A yard made of natural materials at a kindergarten in Harish. Design and photograph: Jl Think Nature Landscape Architecture & Urban Design, Julie Levy-Peled and Ifat Gal Shpeizman

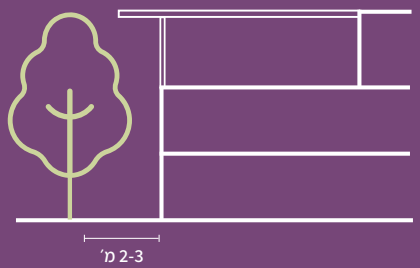
Exterior Spaces on Balconies and Roofs

In recent years, a growing number of daycare centers, preschools and kindergartens have been opened in multistory buildings that provide an array of public services, or have been combined with commercial uses such as retail establishments or privately-owned residences. With proper planning, even exterior spaces that are not on the ground floor, such as roofs or balconies, can create an experience that exposes the children to flora and fauna, while striking a balance between the children's need to play and experiment and the staff's need for convenience and cleanliness. To achieve that, the following elements should be considered:

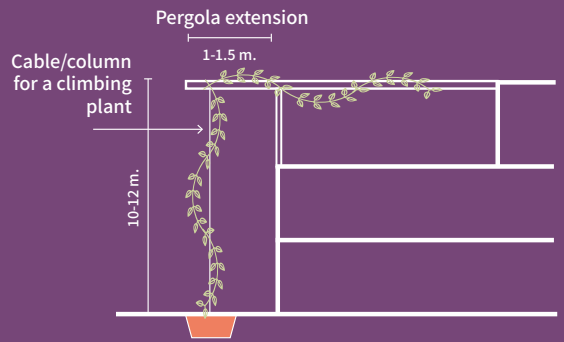
Sandbox

The installation of a sandbox on a regular roof creates operational problems because sand accumulates around the box and has to be cleaned daily. It is therefore advisable to install a covered sandbox – which can double for a small stage when not in use and is uncovered only in a controlled manner. When preparing the plan for the building, the sandbox should be designed like a sunken pit, which will prevent the sand from accumulating around it and enable its cover to be used as a platform when closed.

Vegetation elements suitable for creating a green landscape experience in multistory buildings. Ram Eisenberg Environmental Design



Columnar tree | See Trees Recommended for Planting in Private Yards (Ministry of Agriculture)



Suitable climbing plants:
Wisteria | Flame vine | Vine creeper | Blue trumpet vine

A climbing plant with roots in a proper soil habitat next to the building can reach a height of up to 10 meters within a relatively short time. Wrap-around, woody and long-lasting climbing plants are especially suited to this purpose.[16]

Rooftop garden

Cultivating a hydroponic garden on a roof is costly and requires professional maintenance. Therefore, when designing a rooftop garden, one has to ascertain that the needed maintenance is available. It is also advisable to incorporate additional and simpler solutions like plants on shelves of different heights, including heights that children are unable to reach.

Green landscape

Despite the difficulty inherent in creating a rooftop garden 'like one in the yard,' excellent alternatives to yards at daycare care centers, preschools and kindergartens can be designed, which will offer exposure to and contact with nature. Planting an Italian cypress with non-invasive roots next to a building that does not exceed four stories is also likely to add a green landscape to the balcony or roof.

16 Wisterias, flame vines, trumpet creepers, blue trumpet vines and other plants can suit this purpose. When planting trees, it is important to avoid trees that produce or attract hazards, such as toxins, pollen allergies, thorns or bees, or trees with invasive roots. The information can be obtained from different manuals.

The Between the Drops Project – Renewed Thinking About Well-Baby Family Health Clinics

The The Between the Drops project seeks to establish a connection between the well-baby clinics in Israel and their physical surroundings, the design and urban space they provide, and the design values that convey architectural-urban professional knowhow. The project has broadened the scope of the Ministry of Health's plan for well-baby clinics in a way that underscores their role as a place that fosters development, interaction and an optimal urban environment for children and their caregivers. The following question has guided the project:

How can the well-baby clinics be redesigned using design and planning tools that range from urban scale to individual scale, and do so in a way that makes them an active environment that fosters toddler-caregiver interaction and early childhood health and development, while boosting the standing of the well-baby clinics as an inviting urban and community institution?

Well-baby clinics have an impressive and unique tradition in Israel. They extend child-rearing support and assistance, whose aim is to promote healthy children and equal opportunities for normative development and growth. The clinics also provide information to families and caregivers, who play a critical role in successful child-rearing. As part of the efforts made by the Ministry of Health to bring about a revolution in early childhood care, the Between the Drops project adds another tier to the thinking about the physical space of the well-baby clinics and their surroundings. Mindful architecture and in-depth urban thinking have the power to turn the well-baby clinics into a space where the counseling and care services are more sensitive and better tailored to both uses and users.

The project's main product is a hands-on manual that contains design principles for well-baby clinics. Those principles are founded on the overall plan, the entries submitted to an international design competition, and workshops organized by Between the Drops. The manual offers ideas and tools that can be implemented and adapted to the buildings that already house clinics and those which will house new ones, including specific design elements or pieces of furniture for the buildings or their surroundings. The manual also deals with the expected impacts on the space as a whole. For example, the waiting area can be a space where young children of different ages can interact, explore and play, in addition to resting following a therapy session. Other suggestions include offering places where caregivers can store their belongings during the therapy sessions. Furthermore, the design should factor in the social sensitivities associated with coming to a clinic for therapy, as well as the need for a family-friendly environment. To improve accessibility, the clinics should offer convenient connections with public transport, as well as safe and shaded paths leading to the buildings. Finally, the clinics should address the needs of the caregivers, including the need for privacy and a place to hold a quiet conversation.

Written by: Adva Matar – Between the Drops project manager and chief researcher, Bezalel Academy of Arts and Design

The main product of the project is a hands-on manual that contains design principles for well-baby clinics

Images: The Between the Drops Project, Bezalel Academy of Arts and Design

The manual, released in 2023, is intended for municipal agencies, local authorities and well-baby clinics. Their feedback will be used to improve future editions of the manual. The project is a joint undertaking of the Bezalel Academy of Arts and Design, the Ministry of Health and the Bernard van Leer Foundation.

The Between the Drops project team:

Prof. Arch. Els Verbakel - Head of the Department of Architecture and the Program in Urban Design, Bezalel Academy of Arts and Design, the project leader

Arch. Adva Matar – chief researcher and project coordinator, Bezalel Academy of Arts and Design

Arch. Daphne Dagan, Arch. Yossi Hayu, Arch. Lior Orgad – project managers, Bezalel Academy of Arts and Design

Daniella Ben-Attar – Head of the Bernard van Leer Foundation in Israel

Michal Warnick – Program Coordinator, Bernard van Leer Foundation

Multidisciplinary team – Ministry of Health

Venues that draw families

In a congested city, going to the public library, the community center or religious institutions are among the favorite activities of young children and their families. For the children, those visits are an opportunity to be introduced to new knowledge and experiences, while feeling that they are part of the community in a safe and friendly setting. For the adult caregivers, the visits are a form of affordable recreation that is likely to offer content which is appealing and relevant to them and the children. In institutions such as medical centers or City Hall, if parents feel that their children are also welcome there, it can greatly ease their efforts to strike a balance between daily errands and the need to supervise their children and offer them an enriching and interesting experience. Unlike daycare centers, preschools, kindergartens and well-baby clinics, most public buildings do not cater exclusively to children. Therefore, when designing buildings that serve the public, it is advisable to keep the following elements in mind:

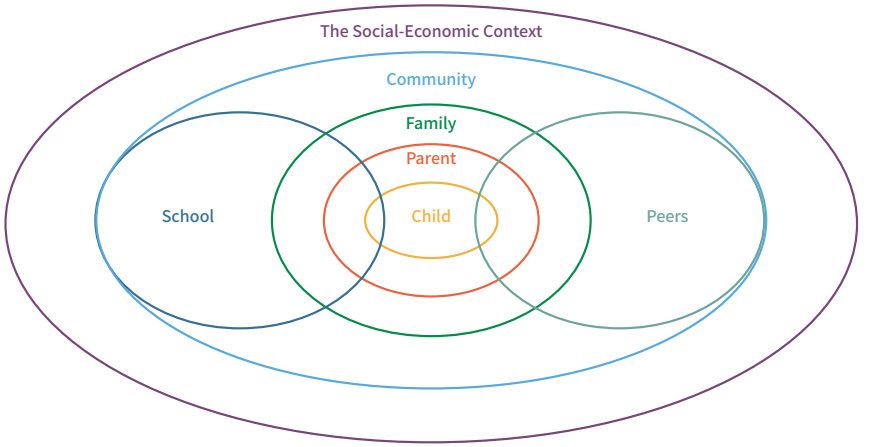
- **Child-height wayfinding in their language**. Child-height signage that speaks their language should be installed in public buildings, enabling the children to navigate the space. Fittings such as handles and buttons within their reach should also be installed, as well as hooks and places to store various items. In facilities that have reception areas, an open counter or a child-height counter can make the children feel that are taking part, in addition to other child-height elements. In especially large institutions, like museums, community centers or main public libraries, it is worth deciding on a 'meeting place' near the entrance, where children who get lost can be reunited with their caregivers. It should have clear signage and offer comfortable seating and access to water. That way both the children and the caregivers will easily identify it as soon as they enter the building, while offering safe and comfortable waiting area.
- **Allocate special spaces for young children and their caregivers**. In venues that cater to diverse users, special spaces where caregivers and the children under their care can spend time comfortably are like to make waiting times much more tolerable. Alternatively, those spaces can offer a respite from the surrounding activities. When designing customized spaces, thought should be given to offering activities suited to children of different ages and stages of development (ranging from infants to toddlers or even older children), in addition to various seating options for use by children and caregivers alike. It is important to clarify that areas intended for children should avoid sensory overload, including the use of screens, bright colors and loud music. Sensory overload can make it difficult for sensitive children and create an unpleasant experience for the caregivers.
- **Integrate the children's activities into the world of the adults**. Apart from the special spaces they can provide, public buildings also offer an opportunity to incorporate the perspective of children in the world of the adults in a friendly and pleasant setting, without unduly inconveniencing the other users. For example, enabling the children to have a view of the adult activities from their height on the different floors of the building, including explanations about the importance and functions of the building using wayfinding aids such as elements from the immediate surroundings, or installing signage, seating nooks, handles or other child-height accessories, can contribute to the children's sense of independence and belonging to the space and make the job of their caregivers easier.

A child-customized observation balcony on the second-floor ward of the Helmsley Pediatric Heart Institute in the Sylvan Adams Children's Hospital, located at the Edith Wolfson Medical Center. It overlooks the lobby, which contains a variety of seating options that enable children to play without encroaching on the public space. Interior design: Gavrieli, Herszage & Sternberg Architects, 2012. Photograph: Shai Epstein

Residential Environments

Residential environments are the primary place where young children and their caregivers spend their day. Unlike the previous chapters that dealt with all facets of the public space, apartments and apartment buildings deal with private and common spaces. When designed properly, those environments are likely to offer a safe, relaxed and enriching experience, where children can experiment, explore and experience interactions with the community for the first time, in addition to gaining a sense of belonging and responsibility. Furthermore, the development of young children depends on the community setting they grow up in – whether the home of their nuclear family, the apartment building and its vicinity, or the surrounding society as a whole. To foster their development, we should devote thought to the children's ability to move around the spaces with a certain degree of independence, to creating a space that can be easily and conveniently managed, organized and maintained, and to options for experiencing nature in a way that blends in with their daily routine.

Photograph: Gavrieli-Segal



Bronfenbrenner's ecological theory offers a model which posits that children's development always occurs within the interpersonal and social context they are found in. Based on that approach, children develop out of social settings, including their home and family environment and the outside community. Consequently, it is important that planning and design processes factor in all the circles of influence and their reciprocal relationships. When designing residential environments, we should look at the design of the entire space, ranging from the individual apartment to the immediate surroundings of the building.

U. Bronfenbrenner, & P.A. Morris, "The Bioecological Model of Human Development," in R.M. Lerner & W. Damon (eds.) *Handbook of Child Psychology: Theoretical Models of Human Development* (2007).

What will the new environments now being designed in Israel look like for young children? In the coming years, the State of Israel is expected to approve the construction of new apartments whose number will equal approximately 40% of the current supply. According to the planning policies, more children who live in metropolitan areas are likely to grow up in high-rise apartment buildings on the outskirts of the cities or in congested urban areas along the route of the light rails. In other places around the world, high-rise construction is intended primarily for wealthy households or households with few children. In Israel that is not the case, and high-rise construction is expected to cater to the middle and lower classes, and mostly to families with more than two children. Without proper planning, this situation is likely to create crowded and noisy environments where children's needs for play and exploration areas are passed over in favor of parking and logistical solutions.

The present chapter divides the residential environment guidelines into two sections. In the first section, we will deal with the design of apartment buildings and their surroundings. In the second section, we will discuss guidelines pertaining to the design of the apartments themselves.

Apartment buildings and their surroundings

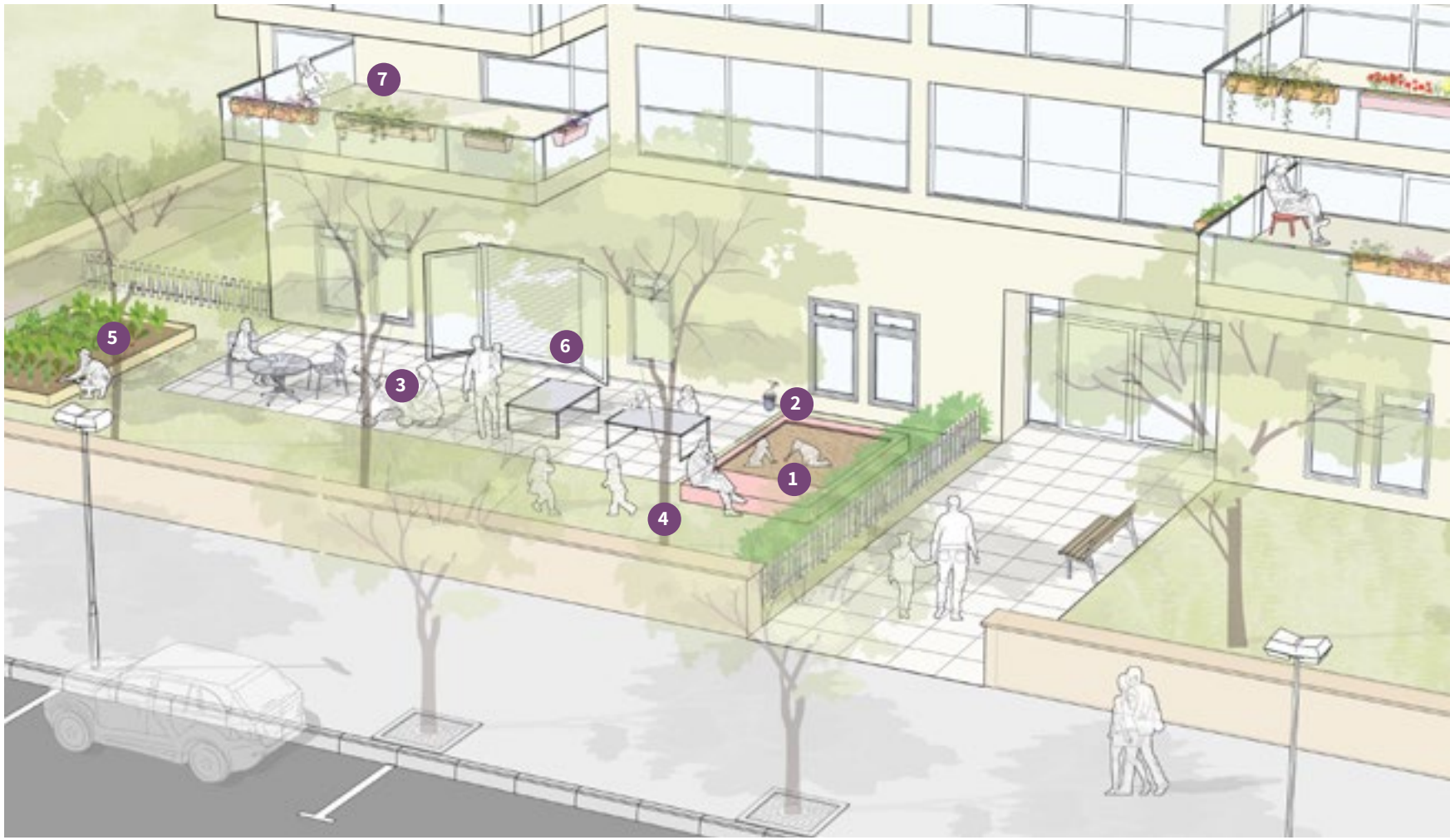
Most new residential neighborhoods in Israel include high-rise apartment buildings with 50 or more units. At present, most planning resources are devoted to the engineering complexity of those buildings, the economic sense of their construction, and the designed look of the buildings. Because the bulk of the apartments are intended for young families, it is necessary to assess the needs of the children and their caregivers.

This includes creating easily implementable opportunities for play and contact with nature, storage solutions, and common spaces where safe and pleasant time can be spent in the immediate social environment. To achieve those things, it is advisable to:

- **Allocate common spaces in the building**.
- When designing complex and larger high-rise apartment buildings, common spaces should be established within the confines of the building itself, either in the yard or on the roof. For families to use them, their design should be able to accommodate groups and messy activities, such as arts & crafts or playing with sand or water, as well as nature-related activities, like gardening or composting.

Photograph: Oded Antman, Bernard van Leer Foundation

A shared yard of an apartment building for young children and their caregivers



1 | Sandbox

2 | Faucet for washing hands and tools and playing

3 | A tiled entranceway for use on rainy days

4 | Trees planted along the edge of the lot that does not overlap with an underground parking garage

5 | A garden for growing seasonal vegetables

6 | A link with the residents' common room and the yard

7 | A view of the shared yard from the apartment balconies

The area adjacent to the ground floor of the building can serve as a covered space near home where children can play and have contact with nature. Photograph: Merav Battat. Source: "Opportunity Spaces in the Days of COVID-19"; an article published in the magazine *Sfat Rehov*

Suggestions for creating common spaces:

- **Design play and gathering areas in the yards of the buildings**. A common space in the yard suitable for play or community gardening is a recommended option. For that purpose:
- Consider scaling down the sizes of the lobby, parking lot, garden apartments or outdoor areas that fill decorative purposes in order to free up space for community activities. It is important that the common spaces not be close to potentially dangerous areas (e.g., parking garage entrances or exits) or ones that generate noise or other nuisances (e.g., mechanical rooms).
- Install elements that encourage contact with nature, such as weather vanes, wading pools or bare soil. It is advisable to choose aromatic plants (like herbs) or ones that attract animals but do not become nuisances.
- Design a shaded space by utilizing the shadow cast by the building, an overhead covering or natural shade.
- **Incorporate play-related elements in the lobby and stairwells**. At present, stairwells and lobbies are mostly used as passageways, and their design is subject to safety and fire regulations as well as engineering constraints. Having said that, in areas populated by a large number of families, stairwells are often a daily substitute for crowded elevators. Using the suggested tools can help convert them into inviting spaces for stationary activities and play. This is especially true given the fondness that many children have for height differences. It is therefore advisable to:
- Install a low handrail in addition to the standard stairwell handrail that will encourage children to try going up and down the stairs on their own[17]. When possible, child-height

17 The minimum handrail height is 1.05 meters on a flat surface and 0.9 meters from the pitch line of the stairs. Handrails adapted to children should be around 0.7 meters high.

A shared yard in the Maccabi-Jaffa urban renewal project in Tel Aviv-Yafo, which offers the tenants of the surrounding buildings a safe and accessible space (simulation). Source: Muhlbauer Architects

handles and switches should also be installed because they too can contribute to greater independence on the part of the children in the space.

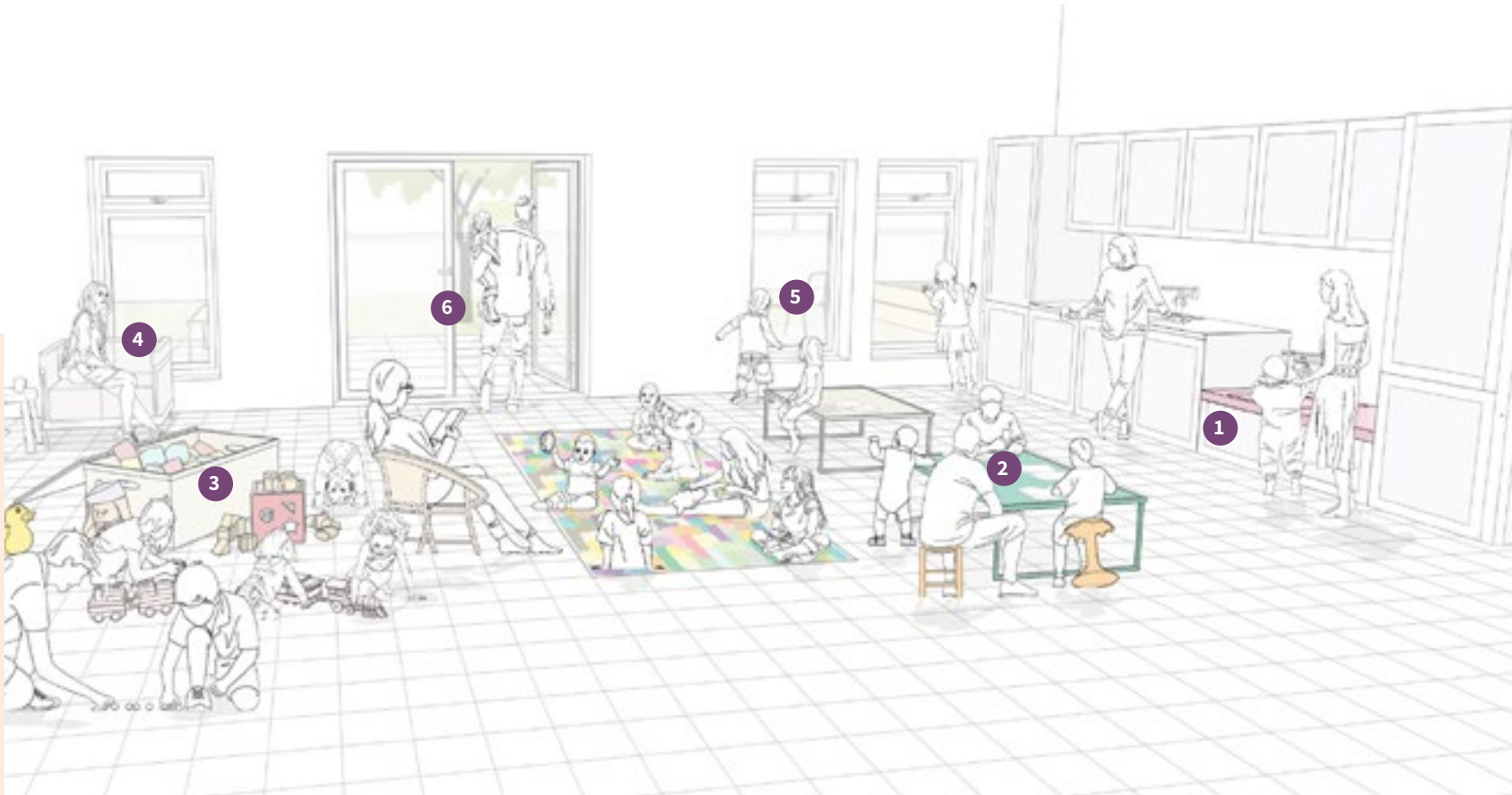
- Make use of openings to allow air and natural light into the stairwell. These should be in addition to cozy and inviting electrical lighting, coupled with the lighting solutions stipulated in the fire and safety regulations.
- Prefer stairwell and lobby designs that will appeal to children, such as transparent walls or child-height interesting textures.
- When possible, incorporate elements that encourage residents to sit and spend time in the lobby and stairwell. Additionally, make use of height differences as well as materials that are resistant to wear and tear and light dirt.
- **Design common rooms for residents which can be used by the children who live in the building for their activities**. As many apartment buildings already include common rooms, designing them with children in mind should factor in infrastructure for messy activities, which generally are not welcome in the apartments and in the other parts of the building. Consequently, the design of those rooms should include diverse and durable seating areas and noise insulation, faucets and sinks for cleaning and filling wading pools, and vegetation that will make the spaces inviting and comfortable for joint activities. It should be noted that in buildings designed for population groups whose cultural norms do not approve of closed spaces which cannot be observed from the outside (like the ultra-Orthodox community), the size of the lobby can be enlarged to accommodate a wide range of activities.
- **Use the roof of the building for family activities**. In many apartment buildings, the roofs are used to store mechanical and maintenance equipment. With proper planning in advance, the roofs can be utilized as a shared and inviting space, while taking advantage of the temperate Israeli climate most months of the year. To achieve that, it is advisable to

remove the equipment from the roof and create a mechanical penthouse on top of the roof and/or consolidate some of the equipment, such as air conditioning units and industrial blowers, in vertical cabinets, and prepare suitable infrastructure that will allow use of the roof throughout the day. That infrastructure can include, for example, canopies, gardening corners, faucets for cleaning and/or filling wading pools, and more.

- **Install elements that enhance the independent activities of children who live in the building**. Getting around and being active in an apartment building can turn mobility in the common spaces into a natural extension of the comfort of home. In large and intricately designed apartment buildings, this can enhance the children's independence and their sense of belonging to the immediate community. To that end, it is advisable to install multiple light switches, elevator buttons, handles and peepholes adapted to the height of young children, which can easily be operated by them. Adding anti-slip and anti-fall surfaces will give caregivers the confidence they need to allow the children to move around the building. Creating easily identifiable building facades with unique colors, textures or designs will improve the children's ability to recognize their own apartment building and those of their neighbors.
- **Limit the amount of land designated for private cars.** In most new neighborhoods, the immediate area surrounding the apartment buildings is dominated by plans for private cars, witnessed in two ways: land is allotted for large parking lots, or the access to the street is dotted with parking lot entrances and exits. In both cases, the result is a dangerous environment for children, which precludes the possibility of creating spaces where children can play freely, explore and interact with the surrounding community. Due to the numerous advantages inherent in using public transport, cycling or walking, it is advisable to limit the number of parking spots and maximize the access to modes of mobility other than cars. This can be achieved by adding more bike racks and giving priority to pedestrian and cyclist traffic. However, in many areas where commuters still rely on private cars, it is worth implementing measures to reduce the friction between the public space and vehicles, for instance by cutting back the supply of parking spots and concentrating the cars in a main parking lot with a limited number of entrances and exits, and by putting measures in place that increase the visibility and priority of pedestrians.
- **Create accessible storage solutions** Families with many children, which is commonplace in Israel, require large and easily accessible storage solutions for their daily use. The ground floor of an apartment building should therefore be equipped to accommodate strollers and bicycles in shared storage spaces. When designing storage areas for individual apartments, the dimensions of double strollers (which are too big for standard elevators and take up a lot of room in the apartments) should be taken into account. There should also be a solution for bicycles that are a mode of mobility used by parents and children alike. With that in mind, the recommended storage area should be at least 6 m2[18].

18 The currently designed storage areas for individual apartments are 4 m2 and are located in an underground section of the building.

A residents' common room suited to the needs of young children and their caregivers



1 | Service areas adapted to children and to their independent play

2 | Furniture tailored to young children

3 | A toy chest with toys suitable for young children

4 | Seating for caregivers next to the children's play area

5 | Windows whose height enables young children to look outside

6 | An exit to the building's shared yard

The apartment

In many instances, young children often spend the first years of their life in the home space, which is familiar and safe. When they become toddlers, they gradually transition from the family nest to the surrounding community and society as a whole. Even though activities in the public space, parks and gardens are vital to a child's physical, social and emotional development, emphasis should also be placed on designing apartments that enable children to experience, explore and discover the world in the private space as well.

With proper planning, modern-day apartments, which are generally designed in more complex environments and with lower standards, can facilitate activities important to young children, such as messy play, physical and motor activities, and exposure to flora and fauna. Preliminary planning for the trend of working from home, which is a response to various threats as well as technological advances, is likely to increase the potential for strengthening the bond between children and their caregiver figures. It will also enhance the privacy of all members of the household and facilitate self-expression. In high-rise and densely populated buildings that are home to many families, designing apartments that accommodate young children can mean a healthier and more agreeable lifestyle for everyone involved. To achieve that, it is advisable to:

- **Create opportunities for exposure to the environment, natural light and fresh air**. Windows play a dual role because they allow air and natural light to come inside, while also exposing the children to their surroundings and the outside community. When designing windows, the following should be factored in:
  - Designing windows next to the ceiling will offer a view of the sky, and designing windows whose sill is lower than 60 centimeters, fixed and secure will prevent children

from falling and enable them to look out of the windows.

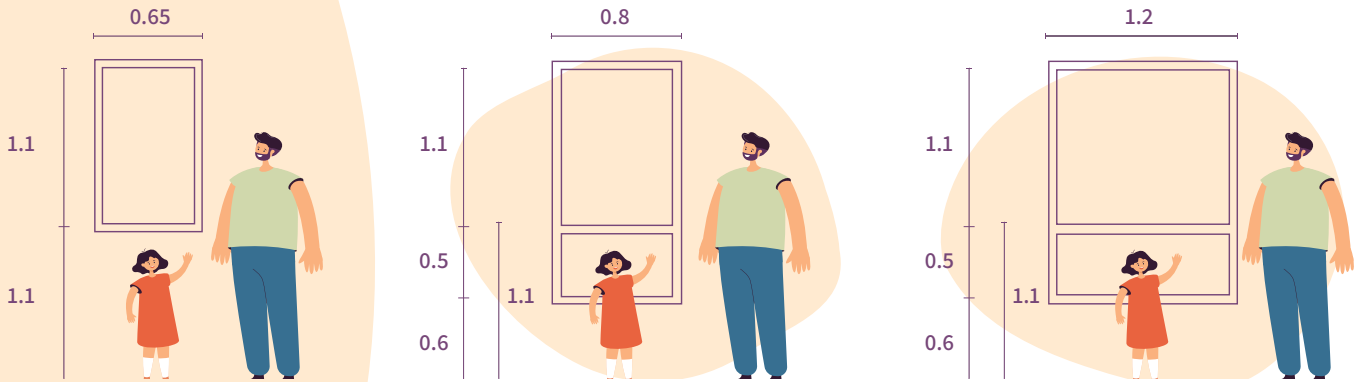
- Designing windows whose width and height are proportional to the size of the room will improve air and light penetration. In a room up to 12 m^2, it is advisable to install at least 1.2 m^2 of window space. In the living room, it is advisable to install at least 2.4 m2 of window space.

- **Design balconies adapted to outdoor activities**

  Urban renewal standards stipulate that the buildings be designed with balconies which do not exceed 14 m2. Nonetheless, in view of the mild climate in Israel, it is worth enlarging the exterior spaces of the apartments, while putting in place infrastructure for gardening and for activities in which children get wet and dirty. When designing the balconies, it is advisable to:

  - Ensure that there is room for an average size table that can seat four people without creating a safety hazard of children falling due to the proximity to the guardrails[19].
  - Create infrastructure that accommodates gardening, including a connection to water and electricity supply sources for irrigation purposes. A drainage solution should also be designed, in addition to a customized plan for a green wall and shade.
  - Ascertain that the load-rating capacity meets the required standards and can bear weights like those resulting from adding a large quantity of soil to the garden or installing an inflatable pool.
  - If possible, install a sink on the balcony that can be used to rinse off children after messy play outdoors.

A door with a toddler-height window enables them to become acquainted with their surroundings. Photograph: Gavrieli-Segal



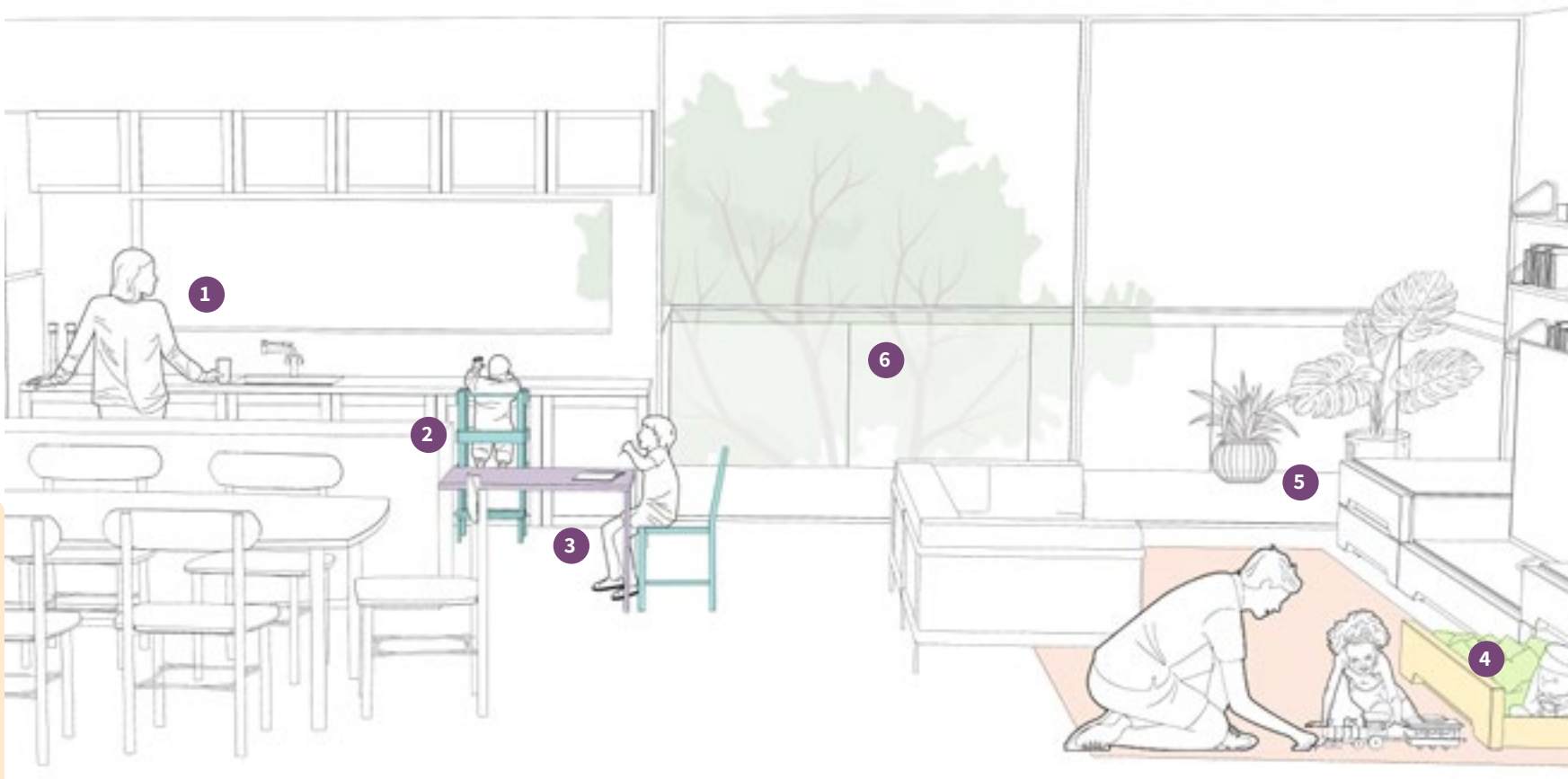
Recommended dimensions for windows. On the left: a standard window which young children are unable to look out of. In the middle: an elongated window that children can look out of thanks to a low and secure sill. On the right: a wide window that children can look out of.

19 An average size table should be around 1.2 meters long and 0.8 meters wide.

Photograph: Gavrieli-Segal

- **Install elements that contribute to children's independence**
  The home space is the first place that can be adapted to foster the independence of young children, while making the work of their caregivers easier and adding considerable enjoyment to the children themselves. When designing all the spaces in the apartment, it is advisable to:
  - Install child-height handles, peepholes, light switches, sinks, toilets and surfaces in the spaces intended for children, or where they do not create a safety hazard.
  - Enable eye contact between the different spaces in the apartment (for example, between the kitchen and the living room). That will encourage young children to move around confidently and try out their skills, while facilitating parental supervision. However, it should be noted that in certain population groups, such as ultra-Orthodox families, the above guideline contradicts their cultural need to create a separation between the kitchen and other parts of the home.
  - Take advantage of height differences in the apartment (e.g., stairs and alcoves) in order to create small spaces where young children can spend time.
  - Create storage areas that are low enough for children to access their belongings on their own.
  - Install child-height surfaces in work areas in the home, such as the kitchen and the service balcony.
  - **Prefer modular spaces**. Because the needs of young children change over the years, an ideal apartment should enable parents to modify the living space. For example, they should be able to convert a bedroom or play area shared by more than one child into separate spaces when they reach adolescence.
  - **Create convenient conditions in the entrance area**. Design a space where clothes and shoes worn outdoors can be taken off before entering the rest of the apartment. Install a closet for this purpose that children can access, and use anti-slip, washable and durable flooring.

An in-apartment space customized to young children



1 | An open space that enables eye contact with the children

2 | A step stool for kids that enables them to reach countertops

3 | Furniture adapted to the height of the children

4 | Storage cabinets low enough for children to access

5 | Vegetation on the balcony

6 | A place that offers a view of the surroundings

Child Safety at Home

Most accidents involving children occur at home, where they are supposed to be the safest and most protected. Because the current safety regulations deal primarily with adult behavior and needs, they are not suitable for addressing the hazards faced by children. The Beterem Safe Kids Israel organization and the Standards Institution of Israel jointly initiated the issue of a home safety standard (Israel Standard 6250), which defines child safety criteria at the different stages of home construction and renovation.

Among other things, Standard 6250 contains instructions regarding the installation of doors and windows with anti-slam mechanisms, the installation of bars or other window guards, and the installation of guardrails on balconies that are at least 130 centimeters high.

The use of technologies such as temperature control devices that limit the heat of the water to 50 degrees Celsius, the installation of multiple electrical outlets to eliminate the need for extension cords, and the installation of electrical safety switches can also prevent accidents. The installation of at least two smoke detectors in the cooking area and in the children's bedrooms, coupled with a preference for space heaters that have an enclosed heating element, are likely to enhance fire safety.

Installing a pool in an apartment may be an appealing prospect for families with young children on hot summer days. But to prevent children from drowning, the standard recommends that it be fully fenced in by an automated gate.

Photogrph: Terry Jaskiw

Space Design Metrics

The following metrics can be used to assess whether the designs conform to the recommendations set forth in the Space Design chapter. The metrics are categorized according to the topics covered in the chapter: parks and gardens, streets, mobility, etc. For each metric, the table includes its objective, the criterion used to measure whether the objective has been achieved in the design, and the value it offers young children and their caregivers. The metric itself divides the state of the design into three performance indicators: 1. Robust; 2. Functional; 3. Disappointing.

Objective	Criterion	Value for Children and Their Caregivers	Performance Indicator
Improved public transit waiting areas for children and their caregivers	Design of public transit stops with elements that create an experience, a place to play and comfortable waiting conditions	Waiting areas that appeal to young children can greatly contribute to encouraging families to use public transport. This can be achieved by creating safe, user-friendly and interesting environments that cater to children. The following means can be useful: ensuring that the transit stops offer an easily visible and wide view of their surroundings, making the stops accessible to baby strollers, installing different types of seating, adding discovery and exploration opportunities, and more.	Robust: the transit stops offer access to baby strollers, a variety of places to sit, and discovery and exploration opportunities Functional: the transit stop includes only one element defined as ‘robust’ Disappointing: the transit stop includes none of the elements defined as 'robust'
Accessibility and convenience, in addition to discovery and play opportunities while riding on a public bus or train	Creation of accessible and convenient surroundings, as well as exploration and play opportunities on public buses and trains	Riding on a bus or train can be an excellent experience for young children and their caregivers if those modes of transport are accessible and convenient for all users and offer exploration and play opportunities. For example: icons and access solutions that are customized to the height of young children, special spaces that accommodate baby strollers, devices that facilitate play.	Robust: public buses and trains provide icons and access that are customized to the height of young children, there are special spaces that accommodate baby strollers, and there are devices that facilitate exploration and play Functional: public buses and trains provide at least one of the elements cited under the robust rating Disappointing: none of the elements cited under the robust rating are available

Objective	Criterion	Value for Children and Their Caregivers	Performance Indicator
Access to nature	Inclusion of informal spaces in parks and gardens	Informal spaces include natural elements like inanimate objects, flora and fauna. For example: height and incline differences, a variety of textures and materials, movable elements, water and 'unprocessed' elements. The inclusion of informal spaces in the development of parks and gardens offer children a discovery and investigation space, as well as an opportunity to be in direct contact with nature.	Robust: the park/garden offers a wealth of opportunities for spontaneous play and contact with nature Functional: at least one element encourages spontaneous play and contact with nature Disappointing: the entire park or garden is intended for structured play and does not include any natural elements
Caregiver involvement in the children's play	Installation of playground equipment that encourages caregiver involvement in the children's play	Playground equipment that invites caregivers to take part in the activities fosters the bond between the children and their caregivers. That bond is the foundation for the children's personal development.	Robust: the play area includes at least two pieces of equipment that enable active play on the part of the caregivers Functional: the play area includes one piece of equipment that enables active play on the part of the caregivers Disappointing: the play area does not include any equipment that enables active play on the part of the caregivers

Objective	Criterion	Value for Children and Their Caregivers	Performance Indicator
Safety that precludes the need for fencing	Avoidance of safety-related conflicts that make fencing necessary	A park or garden divided into areas intended for play and traffic mitigates risks and minimizes the need for fences – making it possible to create a space where children are free to move about and explore the world.	Robust: there is no need for fencing that restricts the movement of children Functional: there is a need for fencing in specific sections Disappointing: many areas in the park or garden require fending to prevent harm to the children
Comfortable and diverse types of seating	Provision of a variety of comfortable places to sit	Diverse places to sit, such as different types of benches and chairs, coupled with the development of natural landscapes where people can sit (for example: tiered seating), as well as comfortable seating conditions (shade, water fountains, etc.), encourage adults, children and their caregivers to spend more time in the public space, and draw a wider variety of users, including individuals, couples or groups.	Robust: the park or garden provides different types of benches and chairs to sit on, coupled with the development of natural landscapes where people can sit comfortably Functional: the park or garden provides different types and sizes of furniture on which individuals, couples and groups can sit on comfortably Disappointing: the park or garden provides only one type of seating furniture

Objective	Criterion	Value for Children and Their Caregivers	Performance Indicator
Safety in the vicinity of early childhood facilities	Enforcement of restrictions on vehicular traffic in the vicinity of early childhood facilities, and implementation of traffic calming measures on the surrounding streets	A space that is pedestrian-friendly after closing off the section of the street adjacent to an early childhood facility, either permanently or when children arrive or leave, creates a serene and inviting place for the caregivers to drop off or pick up the children; a traffic-calmed zone on the surrounding streets influences the motorists' behavior and causes them to slow down because they feel that the nearby space is not completely predictable.	Robust: the plan defines a vehicle-free zone next to early childhood facilities as well as a traffic-calming measures in the surrounding area Functional: arrangements are in place that widen the pedestrian entrance to early childhood facilities, and traffic calming measures are implemented in dangerous areas Disappointing: there are no traffic calming measures in place near early childhood facilities
Safety in the vicinity of parking lots	Enforcement of restrictions on the number of parking lot/parking garage entrances and exits, and design of the interface with the street in a way that increases safety	Young children are especially at risk of being struck by a vehicle entering or exiting a parking lot/parking garage because of their height and also due to the complicated, and often unforeseen, issues that can arise when walking with children; limiting the number of parking lot/parking garage entrances and exits and designing the surrounding area in a way that warns of possible danger are likely to help reduce accidents.	Robust: the number of parking lot/parking garage entrances and exits on all sections of the street is limited, and the design of the surrounding area warns of the possible dangers Functional: the design of the surrounding area warns of possible dangers Disappointing: no measures have been implemented to limit the number of parking lot/parking garage entrances and exits, and the design does not warn of possible dangers

Objective	Criterion	Value for Children and Their Caregivers	Performance Indicator
Experiences and enriching learning opportunities while walking	Design of the frontage zone with elements that create experiences or enriching learning opportunities	Children are able to gather experiences and knowledge from the frontage zone of the street (fences, the building facades, etc.) owing to the installation of signage that makes use of accessible images and texts, living fences, and changes in textures or in the shape of the frontage zone, or to the addition of game-related activities along the frontage zone.	Robust: the frontage zone that runs along every row of buildings includes at least two sections that offer children experiences or enriching learning opportunities Functional: the frontage zone that runs along every row of buildings includes at least one section that offers children experiences or enriching learning opportunities Disappointing: the frontage zone that runs along the row of buildings does not include any section that offers children experiences or enriching learning opportunities

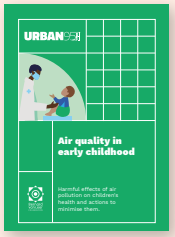
Objective	Criterion	Value for Children and Their Caregivers	Performance Indicator
Pleasant entranceways to daycare centers, preschools and kindergartens	Accessibility, convenience, and easily identifiable elements in the entranceways to public buildings intended for young children	For children and their caregivers, the entranceway to a daycare center, preschool or kindergarten is an initial transition point between activity in the family unit and participation in an activity in the public space. The entranceways should incorporate the following principles: a space for waiting and getting organized, parking spots for bicycles and baby strollers, and elements that create a sense of identity and belonging.	Robust: There is a space for waiting and getting organized at the entranceway to daycare centers, preschools and kindergartens, there are parking spots for bicycles and baby strollers, and elements that create a sense of identity and belonging are in place Functional: At least one of the elements cited under the robust rating is found in the entranceways to the daycare centers, preschools and kindergartens Disappointing: none of the elements cited under the robust rating are found in the entranceways to the daycare centers, preschools and kindergartens
Exposure to open spaces and nature in indoor conditions	Construction of a covered yard that offers the comfort and cleanliness of the indoor area	The inclusion of a covered yard in the exterior zone is very important, especially if it combines the advantages of exposure to nature and fresh air with the relative comfort and cleanliness of the indoor areas. When designing the covered yard, it is advisable to allocate a space where groups can gather and provide the conditions for 'getting dirty' and 'getting wet' activities.	Robust: there is a covered yard with a space for groups to gather and conditions for 'getting dirty' and 'getting wet' activities Functional: there is a covered yard that has one of the elements cited under the robust rating Disappointing: there is no covered yard

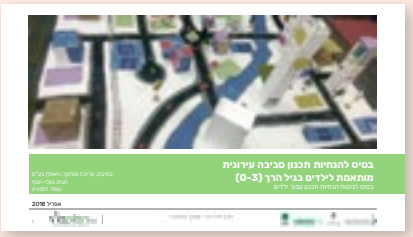
Objective	Criterion	Value for Children and Their Caregivers	Performance Indicator
An exterior zone where children can spend time, dream, play, and investigate and explore the world	Exterior zones with a number of spaces that have diverse features	A high-quality yard that includes diverse spaces challenge and excite the children and are easy for the staff to supervise and maintain. It is advisable to design the yard as a set of spaces of various sizes and with different textures, colors and materials. Emphasis should be placed on the following elements: the use of diverse materials and textures, the utilization of the sides of the yard, the inclusion of a shaded space and spaces that encourage exploration, inquisitiveness and imagination, the ability to hold diverse physical activities, and contact with flora and fauna.	Robust: there is an exterior zone which offers a variety of materials and textures, the side panels are utilized, there is a shaded space and spaces that encourage exploration, inquisitiveness and imagination, and diverse physical activities and contact with flora and fauna are possible Functional: there is an exterior zone that includes two of the elements cited under the robust rating Disappointing: the exterior zone does not include any of the elements cited under the robust rating
Exposure to knowledge and experiences in public buildings, which offer a sense of belonging to the community	Appealing public buildings that young children can relate to	Going to a public library, community center or religious institution are popular activities among young children and their families. Those public buildings should offer a universal experience that suits all their users. Therefore, the following should be taken into account when designing them: child-height and child-language wayfinding, the allocation of special spaces for young children and their caregivers, and the integration of activities intended for children in spaces also used by adults.	Robust: a child-height and child-language wayfinding system is in place, there are special spaces for young children and their caregivers, and the activities intended for children are integrated in spaces used by adults Functional: at least one of the elements cited under the robust rating is in place Disappointing: none of the elements cited under the robust rating are in place

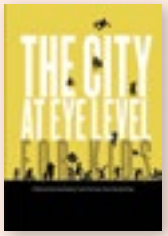
Objective	Criterion	Value for Children and Their Caregivers	Performance Indicator
A place in the immediate social setting to spend safe and pleasant time, play, and be exposed to nature	An apartment building with common rooms and spaces	The design of densely populated apartment buildings necessitates an assessment of the needs of young children and their families. It is advisable to create common spaces inside the building itself, in the yard or on the roof. Common rooms inside the buildings should include infrastructure for messy activities, work surfaces and different types of seating, infrastructure for growing plants, etc. Elements that encourage contact with nature, such as weather vanes, wading pools or gardening corners, should be installed in the yards or on the roofs. A shaded area should be designed in the yards and on the roofs.	Robust: there is a common room inside the building that includes infrastructure for messy activities, work surfaces and different types of seating, as well as a common space in the yard or on the roof that contains weather vanes, wading pools, gardening corners and a shaded area Functional: there is one common space inside the building, in the yard or on the roof that contains the elements cited under the robust rating Disappointing: there are no common spaces in the building
Access to storage areas for items used on a daily basis	An apartment building with large and easily accessible storage areas	Families with many children, which is commonplace in Israel, require large and easily accessible storage solutions for their daily use. It is advisable to design a shared storage area for baby strollers and for the bicycles used by the children and their parents, preferably located on the ground floor.	Robust: the building has storage areas both for baby strollers and bicycles on the ground floor Functional: the building has storage areas for baby strollers or bicycles on the ground floor Disappointing: the building has no storage areas for baby strollers or bicycles on the ground floor

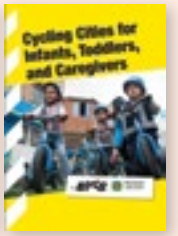
Objective	Criterion	Value for Children and Their Caregivers	Performance Indicator
A space in the apartment where children can spend time, engage in activities and be exposed to nature	Balconies suited to various activities	In view of the mild climate in Israel, it is advisable to enlarge the exterior spaces of the apartments and install infrastructure that facilitates spending time there and engaging in activities such as gardening. For example: balconies that are large enough to accommodate an average size table that can seat four people without creating a safety hazard of children falling due to the proximity to the guardrails, balconies that can bear weights like those resulting from adding a large quantity of soil to the garden or installing an inflatable pool, balconies with gardening infrastructure, including a connection to water and electricity supply sources for irrigation purposes, a drainage solution, a customized plan for a green wall and shade, and a sink that can be used to rinse off children after messy play outdoors.	Robust: the balconies can accommodate a table that seats four, they can bear weights like those resulting from adding soil to the garden or installing an inflatable pool, they have gardening infrastructure and a sink that can be used to rinse off children Functional: the balconies meet two of the conditions cited under the robust rating Disappointing: the balconies meet none of the conditions cited under the robust rating
Exposure to the environment, natural light and fresh air	Windows customized to the height of children	Windows play a dual role because they allow air and natural light to come inside, while also exposing children to their surroundings and to the community. For example: windows that are designed with sills that are lower than 60 centimeters and are fixed and secure will prevent children from falling, but still enable them to look outside. Windows installed next to the ceiling will offer children a view of the sky.	Robust: every space in the apartment includes a window whose sill is lower than 60 centimeters or a window installed next to the ceiling Functional: the living room or the children's bedrooms have a window with a low sill Disappointing: there are no windows with a low sill

Urban95's Activities in Israel and Worldwide









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הקליניקה העירונית
THE URBAN CLINIC

האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

SEED CENTER
מרכז זרעית לב' אביב-יפו

Robert Ishaq, Ph.D.

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