

To the reader

This publication was created with the participation of residents of all ages, children, young people, parents, teachers and educational staff, elected officials, and other experts in the municipality of Tuusula. Ten participatory workshops were organised together with Minna Lumme, a doctoral student at Aalto University. This cooperation resulted in a dream of Tuusula as a new kind of learning environment. In our learning Tuusula, people enjoy living, working and learning.

In the future, the entire municipality of Tuusula will form a learning environment. Multipurpose learning environments located in the heart of the population centres offer activities and learning opportunities for residents of all ages. The learning premises make it possible to offer new types of interconnected services. A special resource in our municipality is the valuable cultural and natural environment that provides a starting point for diverse learning and the development of new operating models for learning. Welcome to a planning journey, together

Tiina Simons

Head of Development

'Learning environments reinforce the vitality of the local community, and it is important to consider the needs of different users when planning them. The design focuses on the learning and wellbeing of the children, young people and adults working in the space. The design solutions promote learning, wellbeing and social relationships. Inclusive planning strengthens the commitment to communal development.'

Sandström, N. & Nenonen, S. 2018.

Learning and learning environments are undergoing an unprecedented renewal process. In accordance with the service network reform, the learning environments in the municipality of Tuusula will be reformed 2018 and 2026 to meet the learning and welfare needs of children, young people and adults.

The principles of planning sustainable learning environments of the future are highlighted in the design work. It is important that various stakeholder groups are involved in the planning process. The design of sustainable learning environments takes into account the needs of different users and service providers, such as early childhood education, nonformal adult education, basic education in arts, as well as cultural and youth services.

End users of learning environments include learners, teachers, administration and providers of in-school services, catering, and property maintenance. Parents and other local residents are an important stakeholder group.



The objective is a multi-purpose learning environment that combines the local natural and cultural environment, the proximity of the metropolitan area, the various municipal services, cooperation networks and new learning premises.



According to the planned population data, around 57,000 people will live in Tuusula in 2041. In Tuusula, growth will concentrate in the central areas of the municipality. The objective of steering housing construction and town planning is to ensure the implementation of housing solutions for various demographic groups through different implementation and financing models. The master plan 2040 is currently being prepared and it is used as a guideline for planning. Growth will primarily concentrate in the centre, and in the Rykmentinpuisto and Jokela areas. Growth is also predicted for the Lahela-Vaunukangas and Kellokoski areas. A slight decline is anticipated in the number of children in early education and primary schools, while the number of ageing people increases rapidly.

The Hyrylä area will become denser in structure, and the centre on both sides of the Tuusulanväylä road will be developed. including more commercial services. The recreational use of Lake Tuusulaniärvi and River Tuusulanjoki will be improved. Jokela will be developed based on the idea of a garden town by increasing the use of the local water elements for recreation, and the areas around the station will be developed experientially with local residents. In Kellokoski, the development of the hospital area and the centre will be coordinated and the use of the River Keravanioki for recreation will be increased. The plan is to make Tuusula more self-sufficient in terms of jobs, and in order to promote business growth, new business areas will be planned particularly in southern Tuusula.

Learning in Tuusula

WHERE IN TUUSULA DO THE RESIDENTS WANT TO LEARN?

The inclusive collaborative planning process involved working with local children and young people, teachers, educators and experts to identify different environments in Tuusula that provide learning opportunities. Premises the local residents wish to use for learning:

VARIOUS SERVICE-PROVIDER
PREMISES. THE LIBRARY, MUSEUMS

SPORTS FACILITIES, INDOOR SWIMMING POOL, NEIGHBOURHOOD SPORTS PARKS, SKI TRAILS

CULTURAL ENVIRONMENTS

THE NATURAL ENVIRONMENT

YOUTH CENTRES AND COMMUNITY CENTRES

FARMS

THE GARRISON AREA

METSÄPIRTTI CENTRE AND CAMPFIRE AREAS

PLAYGROUNDS

THE FOREST RESEARCH INSTITUTE

EDUCATIONAL INSTITUTIONS

PREMISES OF THE VOLUNTARY FIRE BRIGADE



'When we define the physical environment and architecture of service buildings in the future, the process should be user-friendly, innovative and interactive and take into account the local area as well as the needs and wishes of the surrounding community'.

Tuusula Service Network Plan 2018



The learning environments of the future will enable general scope of key education, cultural and sports services in Tuusula to be sustainable and economically viable.

The learning environments of the future will strengthen regional identities. Clear service entities create new opportunities for lifelong learning, and physical and leisure activities for children, young people and adults. The shared and simultaneous use of the premises increases efficiency and makes the material and digital resources more accessible to local residents, while creating a centre of activities for the area and increasing the appeal of the residential area.

The new learning environments comply with the modern concept of learning and the objectives of the new curriculum. The learning environments of the future provide an opportunity for individual learning and growth. They allow for the social dimension of learning and for participation in the growth community. They also make use of the opportunities provided by digitalisation and the surrounding society in learning.

Children and young people must be able to attend a school within a safe travelling distance from their home. When developing the service entity on offer, we look at the learning environment, educational arrangements, optional subjects, morning and afternoon activities and clubs, as well as the support for learning, growth and wellbeing. The goal is efficient use of the premises, along with a diverse and stimulating learning and growth environment.

The new learning environments must be adaptable to various activities. Our aim is to take the concept of multi-purpose to a new level and across sectors. In order to achieve this, we need to develop new kinds of connections between premises and new practices to allow shared use of the premises. We need to create new ways of coordinating the use of the premises in order to ensure the daily use of the premises among the large user community.

We will design the construction solutions and the use and maintenance solutions of the buildings in accordance with the principles of sustainable development and energy efficiency. The building's basic solutions will be based on usability, adaptability and aesthetics.

'Learning environments become integral in developing competences in the area, in communal learning and in innovation.

This becomes stronger as communities commit to it.'

Sandström, N. & Nenonen, S. 2018

FOCAL POINTS IN PLANNING LEARNING ENVIRONMENTS IN TUUSULA

The objective set in the Tuusula Development Plan for Education and Training 2019–2022 is to increase the number of diverse learning and working methods. It includes co-teaching and cooperation between teachers and pupils. The operating culture is developed in order to create an inclusive process, where learning takes place through interaction with peers, teachers and other staff members, outside experts, and various communities in different learning environments.

In Tuusula, we have defined learning environments as premises, locations. communities, practices, tools and supplies that support the development, learning and interaction of children and young people. The concept of learning environment comprises a physical, psychological and social dimension. The premises encourage unhurried activities and promote the opportunity to concentrate. Ergonomics, ecology, comfort, accessibility, the lighting and acoustics of premises, indoor air quality, and cleanliness are key principles in building and developing the learning environment. We will design the premises and furniture in order to organise the diverse activities with consideration to the learning styles of different age groups.

We will design learning environments together with the employees and the children, taking into account the needs of children and young people. Learning environments should promote the children's and young people's creativity, functionality and individuality, communal policies, the ownership of learning, and the skills required in the future. They should have the opportunity to learn and study different phenomena using all the senses and their bodies. Learning environments will provide opportunities for making, moving, playing, relaxing, and recovering. The ideas

and activities of children and young people will be evident in the learning environments.

Learning environments will help to reinforce equality and gender equality. Learning environments will promote linguistic development, language awareness, and cultural diversity in children.

The designs will extend the learning environment beyond the school premises. Surrounding nature, school yards and other built environments will be key learning environments. They provide experiences, materials and diverse opportunities for learning, exploring, playing and relaxing. They will be utilised as locations for sports, experiencing nature, and learning. Their active use as learning locations will be developed together with the children and young people, and with various networks.

SIZE OF PREMISES

The number of pupils in the new learning environments in basic education will be determined at the design stage of each individual site. In terms of spatial entities, we will create classroom areas designed for different age groups. The maximum capacity of each area is 100 pupils, and it will be divided into smaller communal home areas. They will include different working areas and special, communal classroom spaces.

Net usable area in comprehensive schools m²/pupil	9	
Net usable area in day care centres m²/child	8	
Net area in use for children's activities in day care centres m²/child	7.6	

ELEMENTS IN PLANNING

LEARNING ENVIRONMENTS

Working independently	Working in groups	Teacher-guided learning	Digital learning
Learning outdoors	Physical activity	Relaxing Recreation Resting	Playing and games
Aesthetics Inspiration	Opportunity to influence the environment Crafts	Light and lighting	Colours
Acoustics	Ergonomics	Accessibility Inclusion	Safety



Early childhood education and care

GENERAL

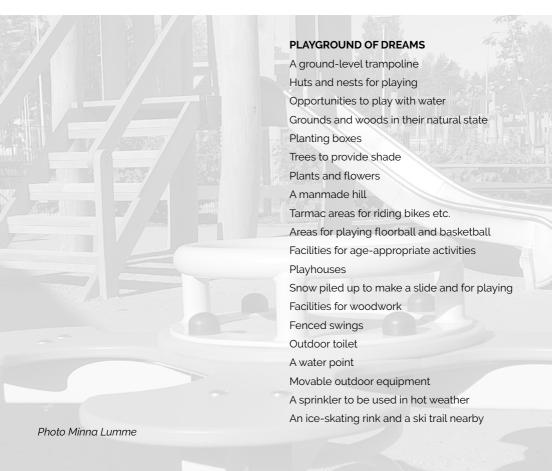
Early childhood education and care is a combination of education, teaching and care with a focus on pedagogy. The design of premises for early childhood education and care follows the general principles of designing a good learning environment. The premises, equipment and materials should allow children to play, interact, explore, and work with art. Furniture solutions should respect the needs of the children as the users of the premises. The premises should be adaptable using modifiable furniture and other equipment. There should be mobile equipment, such as carts, for learning science and art, and for moving supplies. The walls and ceilings should be utilised for hanging things. There should be plenty of storage space. The design principles used to design work areas in schools should be utilised when designing staff work and rest areas. When working with young children, the emphasis is on functionality and ergonomics in the activity areas. The following areas are particularly important in terms of functionality: the entrance, toilets, washrooms and rest areas, as well as a stimulating playground.

ENTRANCE. REST AREAS AND TOILETS

It is important that the entrance and mud rooms are functional. In the design, it is important to remember that lobby areas are also used for play and activities. Rest areas should not be placed next to areas of noisy activities or along the sunny wall of the building. Separate or communal rest areas will be designed for children under 5. Older children will be provided with lighter resting facilities, such as mattresses and beanbags. In rest areas, enough space should be left between cupboard beds. There should also be a reading light and an armchair for reading stories. Areas reserved for caring for children under 2 will be fitted with adult-size furniture. In addition, adequate storage space should be reserved for children's personal supplies.

'Children grow, develop and learn in interaction with other people and the surrounding environment. Children are active operators, and they are curious by nature. Their learning process is a combination of knowledge, skills, action, emotions, sensory perceptions, emotional experiences, and thinking. Playing, moving, exploring, carrying out different tasks, expressing themselves, and working with art are important for children. Children learn best when they feel good and safe.'

Tuusula Early Childhood Education and Care Plan



Basic education

GENERAL

Learning environments in basic education consist of public, semi-public and private premises suitable for different users. Open spaces should be divided by creating smaller spaces within the larger space. Public premises will house areas that are in shared use with the residents. Semi-public premises will house areas that are in communal use within a school. Private premises will consist of the pupils' home areas. The learning environments should be coherent entities in terms of functionality and social interaction. The premises should be adaptable with the use of movable furniture and carefully designed openable walls.

Aesthetics. The premises should be identifiable, and attention should be paid to the colours, materials and attraction of the space. The users wish to see impressive everyday solutions and details that bring happiness and beauty, as well as art and house plants. The building should have gallery areas for exhibiting the pupils' works and art created by the residents and local artists.

Acoustics and lighting. The design should pay special attention to the design of acoustics. Attention should also be paid to the design of lighting and the use of natural light. The users wish to be able to sense the changing seasons through views of the outside and surrounding nature.

Materials and furniture. The users wish to see soft materials indoors, especially wood. The materials must be easy to maintain. In relation to the number of users, there should be an adequate amount of ergonomically designed furniture. In order to make the acquisition of furniture more flexible, new procurement solutions should be introduced.

Digital facilities. Cooperation with various actors will be improved in order to develop different forms of learning online. The level of equipment and devices required will be defined at the design phase of each site.



HOME AREAS IN PRE-PRIMARY AND PRIMARY EDUCATION

Pre-primary education allows pupils to experiment, learn and get excited about new things. Child-oriented learning, play, and interaction that promotes linguistic development create a foundation beginning basic education. When we place pre-primary education physically close to primary education, we provide opportunities for natural cooperation in organising the morning and afternoon care of children in both groups. The entity of premises comprises adaptable areas, dedicated areas for individual and group work, a diverse learning area, and play facilities. Nearby, are areas reserved for adults for preparing tasks and break times.

It is possible to place age-appropriate facilities designed for artistic and practical subjects in the home areas. It is also possible to connect them to the school's communal areas designed for artistic and practical subjects. Furniture in the premises should be designed to include light work areas suitable for communal work with art and for performing arts. The premises for pre-primary education will be designed as a small community with safe access to designated sections of the playground. In addition, the premises should have easy access to the school library facilities.

Learning means doing things alone and with others, thinking, planning and exploring, and an all-round assessment of these processes. Learning is diverse and topic-, time- and place-specific.

HOME AREAS OF OLDER PUPILS

The home areas are for learning wider contents in accordance with the curriculum. They will be complemented by areas designed for teaching artistic and practical subjects. Facilities suitable for communal, open working and group work will be placed in the home areas. The home areas may be entirely or partly connected to the central areas of the home areas. Glass walls or other structures could be used for this. Ageappropriate interior design solutions make the premises suitable for the children and young people to spend time together. Spaces suitable for meetings will be designed for the area. There will also be a workspace for teachers to enable them to carry out preparatory and administrative tasks and to take short breaks.

Lab facilities for exploring phenomena in environmental and natural sciences and other, better equipped facilities for artistic and practical subjects will be designed in a manner that allows all pupils in years 3-9 have the opportunity to use them and located in a way that enables use as maker spaces both during and outside school hours.

The premises will be equipped with furniture suitable for teacher-led, group and individual work. The selected furniture is ergonomic and adequate for the requirements. The premises will be fitted with interactive presentation technology, mobile technology and a charging point.

Premises designed for pupils with special support needs will not be separate areas, rather, parts of the communal teaching premises will be reserved for smaller groups. The overall design of the school is based on accessibility and inclusion. If pupils with a considerable number of assistive devices or special furniture will be placed in the school, this need for additional space will be considered at the design stage.

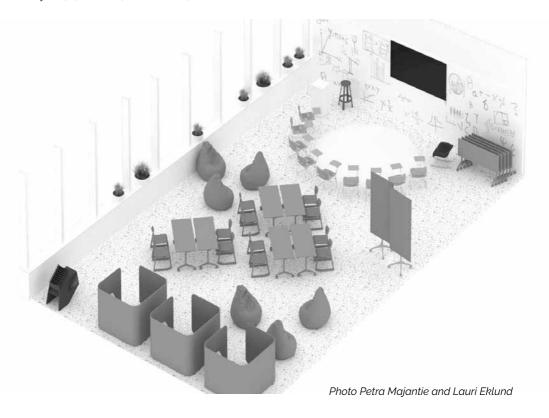
ADAPTABLE CLASSROOM

An adaptable classroom can be used for teaching different subjects, both with children and young people. It is a multi-purpose learning space that creates opportunities for both interactive and independent work. The space includes different group areas for working. It is important that the furniture used is adaptable, stackable, movable and suitable for many uses. Folding tables will also serve as dividers and flip chart surfaces. It is important that the furniture can be reorganised easily and guickly.

Different seating alternatives should be provided in order to ensure that different users can find ergonomic working positions. This will also bring variation to the everyday work. The premises must be fitted with appropriate number of workstations and adequate furniture. If the pupils are not provided with their own desks, adequate storage facilities must be provided for storing personal belongings and equipment.

The new kind of versatile teacher furniture will allow teachers to work and interact in the classroom in a new manner. New surfaces in the classroom can help improve acoustics in the classroom. This can be achieved by using self-assembled floor mats, a variety of curtain solutions and wall-mounted seat cushions, for example.

Majantie, P., Lehtonen, S. and Lumme, M. 2018.





SPECIAL TEACHING FACILITIES FOR NATURAL SCIENCES

In natural sciences and mathematics, learning is based on investigative learning and the use of related materials, technology and specialised tools. The premises will be fitted with special equipment and working environments used to teach robotics, programming, and new technologies, such as equipment that utilises virtual and augmented reality.

ARTISTIC AND PRACTICAL SUBJECTS

Learning premises for artistic and practical subjects will be designed to be suitable for learning the contents specified in the basic education curriculum for these subjects. The premises will serve residents of all ages as communal maker spaces and their location will enable easy access also in the evenings. The size of the premises will be designed to be adequate in relation to the total number of pupils in the school.

The premises will be designed to include adjoining areas that are suitable for communal planning and working. For safety reasons, some equipment may be placed in lockable areas, enabling users to use the rest of the working area for working independently. The design will take into account the need for adequate storage room for materials, unfinished work, and protective clothing. In addition, the premises should be fitted with facilities for using information and communication technology, for example in media-related tasks.

USE OF LOBBIES AND CONNECTING AREAS FOR LEISURE AND LEARNING

The use of lobbies and connecting areas for learning and leisure is internationally acknowledged, and the design of these areas has evolved in recent years. Connecting areas provide a variety of spots for learning and encounters.

It is possible to use furniture in lobbies and connecting areas to create spaces for independent study and group work. From the perspective of children and young people, it might be a good idea to furnish these areas as lounges with facilities for different activities and spending time together. Children, young people and adults also wished for a connection with nature indoors. House plants can be used to make the areas more comfortable. If shoes are left by the entrance and indoor shoes worn, the connecting areas will be more comfortable. This effect can be reinforced with the use of wall-to-wall carpets, rugs that define the lobby area, and acoustic elements placed on the walls. Booths can be used to provide structure and calm in large areas, and they also function as acoustic elements. It is possible to place groups of tables in the area for members of the school community. Shelves and curtains can also be used as dividers.

Majantie, P., Lehtonen, S. and Lumme, M. 2018.



Photo Petra Majantie and Lauri Eklund

STAFF OFFICE AND BREAK ROOMS

People working in the building can use separate workstations for independent work. Teamwork and meetings can take place in the areas of the building designed for group work, using appropriate equipment. Supportive coordination is used to promote the appropriate use of the premises. An area will be reserved for staff members for recovery and recreation. Spaces suitable for confidential discussions and meetings will also be provided, in relation to the size of the school community. The communal break room should be in a central location in the building. When designing the restaurant premises, it is possible to also consider using the restaurant as a café. It is possible to place smaller work and break spaces close to the teaching premises.



RESTAURANT FACILITIES

If the building houses both school and day care facilities, they will share catering services. School restaurant facilities can be designed to be suitable for also catering for local senior citizens or young children and their parents on family leave.

School restaurant facilities will be designed as a versatile space that can be used for studying and working outside dining hours. The design of the school kitchen will comply with the current municipal service model for catering. If the school's kitchen is a meal distribution kitchen, it must be equipped with a sufficient number of food preparation dishes and equipment for preparing morning and afternoon snacks. Food is served on self-service counters and their number and placement is designed to make the service flow without long queues of diners. The diners return the dishes directly to the dishwashing station. It should be possible to close off the service counters when the space is used for other purposes. It is possible to place a teaching kitchen or a small kitchen to enable the use of the dining area as a small café or serving area.

When designing the area, special attention should be paid to acoustics and making the dining area comfortable. The furniture in the area should be designed so that it allows diners of different ages to have a pleasant meal. Table groups, booths and lighting solutions, as well as dividing solutions will help create an unhurried and peaceful atmosphere. This promotes recovery and enhances community spirit.

If the building also houses day-care facilities, children aged 3-5 will dine in their own dining rooms in the day care centre. Separate dining areas will be designed in the home areas for children under 3. Their food will be delivered from the main kitchen. Children in pre-primary education will dine in the school restaurant.



YOUTH FACILITIES

Designs for the school will include premises intended for leisure use by young people and the student union. These premises may be separate areas or facilities appropriately located adjacent to the home areas of older pupils and the special classrooms. The size of the premises is determined based on the number of young people living in the area and of pupils in the school. Other users can use the premises when young people are not using them. Due to the nature of the premises, a separate entrance is required. When designing the location of the entrance, parking facilities for mopeds and bikes should also be considered.

The premises will be equipped with a lounge and an open kitchen to provide the opportunity to run a small café, and to cook and serve meals. Users of the premises should be able to relax, play games, engage in activities and use the media. Access from the premises to the areas for artistic and practical subjects should be easy so that these facilities can be used during evenings and weekends. Staff working in the premises must be provided with a small office space and a break room.

LIBRARY FACILITIES

Library facilities will be designed as part of the existing entity of library services, comprising the electronic library materials, databases, books, magazines and music. The library premises will consist mainly of customer and lounge areas intended for local residents. The opening hours will be agreed on case by case. The premises will provide local residents a non-commercial meeting place. The premises will be equipped with a variety of reading and study stations and a wireless internet connection. Users can use their own smart devices and those provided by the library. The premises must be equipped with charging and printing points. In addition, general lighting in the premises should be pleasant, with appropriate lighting at the workstations.

It is possible to design the library premises into zones in order to cater for those popping in, those looking for a lounge area for leisure, and those willing to concentrate on their work alone or in a group. It is also possible to place the library premises in the building in a manner that enables users to access the premises independently and potentially operate a self-service library. Self-service library hours require an efficient control and locking system. Group work areas can be shared with the school. Library premises will be placed within easy access from the pupils' home areas. It is possible to place school study areas in the vicinity of the library.

SPORTS FACILITIES

In addition to education purposes, sports halls designed for large schools will serve the local community in the evenings. The size of the sports hall will be determined in relation to the local needs for sports services. The sports hall can be equipped with a spectator seating solution appropriate for the number of users. It is possible to place a combined functional space and gym in the vicinity of the sports hall. It is possible to design a stage that can be used for school celebrations. This stage can be placed in the sports hall or in the school lobby or restaurant facilities.

PREMISES FOR SCHOOL WELFARE SERVICES AND CHILD WELFARE CLINICS

The buildings will house school welfare and healthcare services, and child welfare clinics if required. These services will form a communal entity of services. The size of the premises will be determined by the current manner of organising the services. The aim is to provide low-threshold services at local schools. To make the services available to all users, the premises must be accessible from both inside and outside the building. The premises should have a calm waiting area suitable for children and young people. If the premises will also house a child welfare clinic, the needs of parents and young children should be considered in the design.

OUTDOOR AREAS

The outdoor areas should provide stimulation and opportunities for recreation, playing together, playing games, and for relaxing. Users wish to have different sections and relaxing areas in the yard, as well as movable equipment for playing and games at different times of year. They wish for a variety of semifinished structures and elements that allow children and teenagers to play, build their own spaces and grow plants. In addition to industrial solutions, the users wish for new ways of using plants, natural materials and landscaping in the design of the outdoor areas. Users wish to have municipal neighbourhood sports parks nearby, and they hope that the outdoor areas be designed in a way that creates a safe recreation area for local residents to use outside school and day care hours.

TRAFFIC AND PARKING

Maintenance and transport routes will be designed in a way that keeps traffic away from the yards and playgrounds. Access routes must be safe and functional in all seasons. The design must ensure access for rescue vehicles. Dropping off and collecting children from day care and school must be safe. Safe parking facilities for staff and pupils must be provided in less central areas in terms of the use of the facility. There must be charging points for electric cars in the carpark. Shortterm parking should be available for those using other services in the building. Appropriate reception and storage facilities must be provided for food and supply deliveries. There must be an unobstructed loading area at the entrance. Delivery vehicles must be provided easy access to the reception area while ensuring the safety of others.

Key regulations and guidelines

General regulations and guidelines related to construction

Land Use and Building Act 5.2.1999/132

Land Use and Building Decree 10.9.1999/895

The National Building Code of Finland

RT File 94-11254 Professional Kitchens, 28.2.2017

RT File 12-11055 Square Areas in Buildings, 1.12.2011

RT File 91-11250 Hygiene Indoors. Premises Design, 23.2.2017

Targeted regulations and guidelines

Schools:

RT File 96-10938 School Building, General Design, 17.10.2008

RT File 96-10939 School Building, Premises Design, 17.10.2008

RT File 96-10983 School Building, Renovation Planning, 28.1.2010

RT File 97-11146 Indoor Sports Facilities. Sports Halls and Multi-purpose Facilities, 26.3.2014

RT File 47-10951 School Building, Furniture, 19.2.2009

Teaching premises planning guides published by the Finnish National Agency for Education

Machinery and equipment in technical work teaching facilities in comprehensive

schools, Regional State Administrative Agencies (AVI) 24.11.2016

Space requirement indicators in basic and pre-primary education,

the Finnish National Agency for Education 2012

Day care centres:

RT File 96-11003 Design of Day Care Centres, 5.8.2010

RT File 89-10966 Outdoor Playgrounds

Establishment of a Day Care Facility, Keski-Uusimaa Environment Centre 2017

Upcoming Guidelines (in the spring 2019):

RT File Basic Education Premises, Starting Points for Building Project Preparation*)

RT File Basic Education Premises, Primary Design Data

RT File Basic Education Premises, Interior Design

RT File Basic Education Premises, Premises Design

RT File Day Care and Basic Education Facilities, Safety Design *)

RT File Day Care and Basic Education Facilities, Design of Outdoor Areas *)

*) where applicable, may also be used for the preparation of day-care centre projects

Sources

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Sandström, N., Nenonen, S. 2018. Sustainable Education Design -

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