

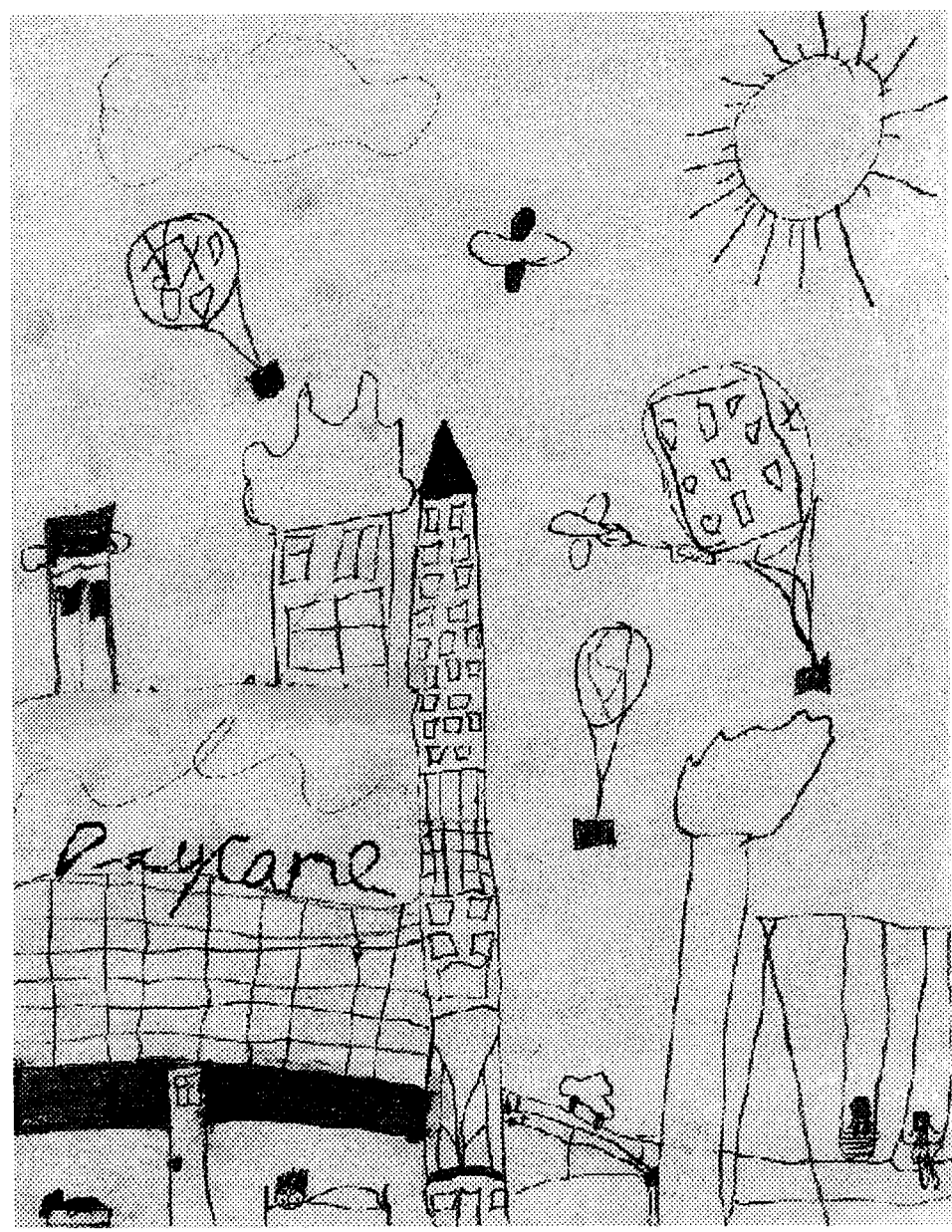


City of Vancouver *Land Use and Development Policies and Guidelines*

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CHILDCARE DESIGN GUIDELINES

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1 Application and Intent

These design guidelines are to be applied where childcare facilities are required as a condition of rezoning and for conditional approval development applications involving child care facilities, except for those in temporary structures. The guidelines are to be used by childcare developers, architects and City staff.

The intent of the guidelines is to create safe and secure urban childcare facilities that provide a range of opportunities for the social, intellectual and physical development of children.

Site selection, site planning, and indoor and outdoor design considerations are addressed.

2 Regulations and Standards

In addition to these guidelines, other approvals and permits are required for the design, construction and occupancy of childcare facilities. The "Child Care Regulation" pursuant to the Community Care Facility Act provides minimum operational and design requirements for Child Care Facilities. Approving agency is the Vancouver Community Care Facilities Licensing Office of the Health Department which must approve all childcare facility plans and should be consulted in the earliest planning phase. They will be responsible for evaluating childcare facility applications against these Guidelines and will assist in interpreting the guidelines for each situation.

Development, Building and Occupancy Permits are required for all new childcare facilities. For detailed information concerning these permits and other relevant codes and requirements, contact the City of Vancouver Development Permit Group of the Planning Department or the Permits and Licenses Department.

3 Definitions

For the purpose of these guidelines, the following definitions apply:

Infant: A child under 18 months of age.

Toddler: A child between 18 and 36 months of age.

Preschooler: A child between 2½ and 5 years of age.

Group: A group of children having its own room or rooms which are fully furnished and equipped.

Facility: A building or portion of a building which houses one or more groups.

Group Daycare: A year-round full-day service typically opening between 7:00 and 8:00 a.m. and closing between 5:30 and 6:00 p.m.

Preschool: A part-day service for children 3-5 years old. Children attend either morning or afternoon sessions of 2 to 3 hours each session. Most preschools operate September to June.

4 General Design Considerations

4.1 Site Selection, Orientation and Access

4.1.1 Adjacent Uses

Where possible, childcare facilities should be sited in relationship to other community facilities such as community centres, schools, libraries, museums, and parks. Childcare facilities should be located in proximity to compatible, safe and environmentally appropriate land uses and away from noisy, dirty or noxious areas. Residential developments and community facilities are the most desirable sites, although sites in mixed-use and commercial developments can also be considered.

The facility should be within .8 km of a park or playground to supplement the outdoor play area.

The impact of inappropriate adjacent uses such as commercial loading or service areas, large parking lots, major mechanical plants, building exhaust fans, electrical substations and major above-grade electrical lines, transformers or other noisy, noxious or dangerous uses should be avoided or mitigated.

4.1.2 Relationship to Grade

Whenever childcare facilities are located above grade concerns about emergency evacuation of the children and the safety and security of the outdoor play area must be addressed. These concerns increase with height above grade. Locations below grade are unacceptable due to requirements for natural light and outdoor areas.

4.1.3 Relationship of Indoor and Outdoor Spaces

Outdoor space should be at the same level as the indoor space (plus or minus .5 m) and contiguous with it. The two areas should be planned together. Ramps for wheeled equipment should be provided when a level change exists. The area should be protected against flooding.

A strong visual connection should exist between the indoor and outdoor activity areas.

4.1.4 Orientation

The availability of natural light is important to the creation of a suitable childcare space.

The facility should be oriented so that outdoor play areas receive a minimum of three hours of direct sunlight per day at the winter solstice. Two hours of sunlight should occur during the typical playtimes of 9:30 a.m. - 11:30 a.m. or 1:30 p.m. - 4:00 p.m. This is particularly important for infant and toddler programmes due to the limited mobility of the children.

Indoor and outdoor spaces should allow for inter-related indoor and outdoor activities and free movement by children. The facility should be oriented to facilitate the surveillance of outdoor play areas from the primary indoor activity area.

4.1.5 Pedestrian Access

Childcare facilities should be within .4 km of public transit. In new residential areas, facilities should be sited within .8 km of family units. Where the childcare facility is located within a mixed use or commercial development, access from the street or drop-off area should be as direct and simple as possible.

Pedestrian access should be safe, secure and accessible to the disabled. This also facilitates access by strollers and bikes.

4.1.6 Vehicular Access and Parking

Safe vehicular access should be provided to the childcare facility.

Adequate short-term drop-off parking for parents and staff parking should be provided on the building site. One drop-off stall should be provided for every eight full-time equivalent childcare spaces. Drop-off parking should be located as close as possible to the daycare's entry and in no case more than 100 m from the entry. Drop-off parking spots should be full size; small car only spaces are not acceptable because they do not allow for easy loading and unloading of children into car seats, etc.

Where childcare facilities are located in a school, drop-off parking may be combined with that of the school provided that the needs of both are adequately met.

For security reasons, a minimum of two on-site parking spaces should be provided for each childcare facility for staff; one for the first staff to arrive in the morning and one for the last staff to leave in the afternoon.

Secure bicycle parking should be provided, in accordance with the City's "Bicycle Parking Guidelines".

4.2 Safety, Health, and Security

4.2.1 Surveillance

Childcare facilities should be located and designed to ensure that the facility, the outdoor space and pedestrian and vehicular approaches are defensible spaces and can be readily seen from the childcare and surrounding uses. The entire facility and especially its entries should be visible to many people and adjacent to actively used public circulation routes. Entries and routes should be well lit. The main entry should be immediately recognizable as a childcare with effective signage and domestic scale design elements.

4.2.2 Environmental Quality

The facility should have its own heating, ventilation and air conditioning system separate from the rest of the building. This is important from an air quality control point of view.

All major indoor activity spaces used by children should have a direct source of natural light from a minimum of 10 percent of the wall area of the room. These major spaces should have a balanced distribution of windows. Natural light is also preferred for staff offices and rooms. Support areas such as washrooms, kitchens and storage rooms do not require natural light.

The outdoor play area should be protected from noise, dirt, wind, pollution, and noxious smells. Exhaust vents from building or parking garages and other hazardous elements should not be located adjacent to outdoor play areas.

4.2.3 Privacy and Ownership

The outdoor play area should be developed as a fenced private space. If the space is shared during times the childcare facility is not in operation, issues of joint management, maintenance, liability, supervision and financial support should be resolved. In such circumstances, it is important that the play equipment be designed to withstand abuse and that secure storage is provided for all movable equipment.

4.2.4 Fences and Boundaries

All fences should be designed to be unclimbable. Roof top or above grade play spaces should provide perimeter safety rails and fences with vision panels to discourage climbing for views over.

4.3 Facility Size

Be aware that group size and child to staff ratios are specified in Provincial regulations. These should be confirmed with Community Care Facilities (CCF) Licensing of the Vancouver Health Department.

Sufficient space is essential to quality childcare. The following space requirements are based on research and experience with custom designed childcare facilities in high density urban settings. Designers and planners should note that these requirements are higher than the provincial Community Care Facility minimums.

Maximum group sizes have been used to develop the following area recommendations. The maximum group size is also the optimal group size in terms of economic viability. Facilities proposing to accommodate fewer children per group than the maximum should first consult with CCF Licensing staff. Minimum indoor and outdoor areas are listed in Table 1 on the following page. (All areas are shown in square metres).

Table 1 Recommended Indoor and Outdoor Space: Individual Age Groups

Group	Minimum Net Activity Area (m²)*	Gross Indoor Area (m²)	Covered Outdoor (m²)	Outdoor (m²)	Total Outdoor (m²)
Group Daycare, Infant (12 spaces)	82	182	22	63	85
Group Daycare, Toddler (12 spaces)	82	182	33	137	130-170
Group Daycare, Preschooler (25 spaces)	128	247	45	320	265-350
Preschool (20 spaces)	78	153	33	107	140

* The Recommended Gross Indoor Area is exclusive of stairwells and elevator shafts and lobbies.

Note: Childcare facilities constructed as a condition of development should meet the **minimum net activity areas** set out in Table 1 **and** provide the support spaces as described in section 5.5 of these guidelines. Total net area for support spaces ranges from 40 m² to 62 m² per licensed group (see Appendix A for details). A net to gross ratio of 1 to 1.3 should be allowed at the initial planning stage, although an efficiency factor of 80 percent to 85 percent should be the goal (e.g. net activity area + net support area x 1.3 = gross area recommended for planning purposes).

As indicated in Table 1, the outdoor space requirement may be reduced by up to 25% for toddler and preschooler group daycares, if an appropriate park or playground is within .5 km walking distance and available for regular use (see ranges noted above).

4.3.1 Shared Facility
Most new childcare facilities should house two or more groups, each with different age ranges. This facilitates a sequenced graduation of children among a population of friends and enhances economic viability.

Table 2 Recommended Indoor and Outdoor Space: Shared Facilities

Typical Combined Groups	Number of Spaces	Minimum Net Activity Area (m²)	Gross Indoor Area (See Note for Table 1) (m²)	Covered Outdoor (m²)	Total Outdoor (m²)
Group Daycare (Infant & Toddler)	24	164	336-364	55	215-255
Group Daycare (Toddler & Preschooler)	37	210	401-429	78	390-520
Group Daycare (Infant, Toddler & Preschooler)	49	292	555-611	100	475-605
Group Daycare (Infant, Toddler, Preschooler & Preschool)	69	370	764	133	615-745

The design of the shared facility should encourage cross-daycare contact and opportunities to share materials and equipment. No reduction of indoor activity space should occur as a result of sharing

a facility. However, if facility design permits, support spaces such as laundry rooms, parents' rooms and staff washrooms may be shared by two groups or three groups with a commensurate reduction in area (see ranges indicated in Table 2). When four or more groups are aggregated, support spaces may be shared but no reduction in total area should occur. Aggregating four or more groups creates additional space requirements for reception, circulation, garbage collection, central storage and janitorial functions. Space gained from sharing office, washroom and parent rooms should be devoted to the above noted spaces.

As noted in Table 2, outdoor areas may be reduced in shared situations by up to 25 percent subject to the following:

- a covered outdoor area is provided adjacent to each group;
- the outdoor area is shared by three or more groups;
- each group retains control of an outdoor enclave for individual use; and
- an appropriate playground or park within a .5 km walking distance is available for regular use.

5 Internal Design of Facility

Comfortable surroundings reduce anxiety, promote understanding and enable children to engage in genuine exploratory and discovery behaviours.

5.1 Program Spaces

Provision of an adequate number of activity settings is a key determinant of the quality of the childcare program. Activity settings are those areas in which activities or programs directly involving the children take place. Activity settings should be designed to accommodate a variety of discrete activities. The following table lists the recommended minimum number of activity settings by age group.

Table 3 Activity Settings

<u>Category</u>	<u># of Settings</u>	<u>Activities</u>
Group Daycare - Infant	7	Art - Sensory Dramatic play Manipulative Toy
Group Daycare - Toddler	2	Quiet Reading Settings
	2	Climbing & Crawling
	8	Art Water, Sand, Sensory Reading Dramatic Play Blocks Puzzles and Manipulative Toys Gross Motor, Movement Quiet Retreat for 1-2 children
Group Daycare - Pre-school and Preschools	12	Art Water Sand/Texture Dramatic Play Science Puzzles and Games Manipulative Toys Blocks Gross Motor, Circle Reading Wheeled and Construction Toys Quiet Retreat for 1-2 children

Most childcare facilities accommodate activity settings in the following discrete spaces: the Activity Room, the Gross Motor/Nap Room, and the Quiet Room.

Large settings such as dramatic play and large blocks, can be represented in planning by a 3.0 m diameter circle. Small settings for intense activities such as puzzles can be represented by a 2.0 m diameter circle (size varies by age group and activity). Movement activities require a dedicated area which should include convenient storage for wheeled toys, large blocks, musical instruments, and climbing equipment.

Activity settings are defined by the following: physical location, visible boundaries, work and sitting surfaces, materials storage and display, a mood or personality. Activity settings should be delineated by a combination of fixed and movable elements. Fixed elements include changes in level, ceiling height, materials, room corners, partial walls, special windows. Movable elements include movable and hung partitions, bookcases, storage units and furniture. Where changes in level are employed ramps should be used.

Activity settings should include places to observe, to play alone, to play alongside, and to play together. Retreat points should be provided adjacent to activity areas and should be visually monitorable by staff in the main activity area.

The Gross Motor/Nap Room and the Quiet Room should be designed to open up to the Activity Room to enable shared use and to enhance flexibility.

5.2 The Activity Room

This should be the largest of the program spaces. It should include a mixture of open spaces and smaller alcove-type spaces and be designed to accommodate a variety of activity settings. The design should emphasize flexibility by utilizing movable elements to define spaces.

An irregular square with alcoves and nooks is recommended. Avoid long narrow rooms. The plan should direct children from one activity to the next and delineate, protect and support activities in each setting.

Zone the activity settings such that noisy and quiet, intense and calm and messy (or wet) and tidy activities are separated. These zones should be shown on submitted plans.

The messy/wet zone will be used for art activities and eating and should be located adjacent to the kitchen and to the outdoor play area so that on sunny days doors can be open and activities can flow between indoor and outdoor areas. There should be enough space for art/eating tables, easels, water and texture tables, and adequate storage. Enough space is required to seat all children at once for snacks and meals.

An art sink with clay trap, at least 1.0 m of counter space and closed cupboards above and below should be provided.

The Activity Room should have waterproof flooring throughout except in Infant Group Childcare where much of the space should be carpeted. Area rugs can be used to give warmth and character.

Circulation within an activity room should be clear and straightforward, but not overly simplified and uninteresting. The optimum circulation path is highly visible and snakes through a childcare, overlooking each activity. "Shopping" among activities is itself an activity. Circulation paths should respect the boundaries of activity areas by meandering around but not passing through activity settings. Allow sufficient space for children engaged in activities to play uninterrupted by others passing by them.

5.3 Gross Motor/Nap Room

An enclosed Gross Motor/Nap Room should be provided which can be opened up to the Activity Room to promote shared use. When used as a gross motor room it can be the setting for noisy,

boisterous, physical activities such as climbing or group games or larger scale, intense, small group activities such as large blocks, music and noise makers. It also can accommodate large scale group activities such as singing, and circle time. It should be sized to accommodate 12 children sleeping on mats.

As a nap room it should allow children to sleep without being disturbed by activities around them.

The room should be located away from outdoor play areas.

One corner should be designed for large block play with child accessible storage for the blocks. Another corner can be for music with both higher adult only storage for a tape player and instruments, and child accessible storage for instruments. Larger physical play equipment can be moved into the room from storage.

Ideally, facilities for infants and young toddlers should provide two smaller rooms for napping so that fussy infants do not disturb sleeping infants. Again, these rooms can accommodate more than one activity and should both open up to the primary activity space.

5.4 The Quiet Room

A Quiet Room should be provided for toddler and preschool groups.

The Quiet Room should be a separate room with a door, which can be used for quiet activities involving one staff and up to 3 children. There should be enough space for a small table, chairs and some storage.

A quiet room fulfills a number of other useful functions: a space where children can be quiet and escape briefly from the hubbub of the activity room, a room for the use of professionals working with children on a one-to-one basis, and a place where sick children can rest while waiting for parents to pick them up.

5.5 Support Spaces

5.5.1 Kitchen

A kitchen should be provided for the preparation and clean-up of snacks and lunches. Two groups could share one kitchen if it is located to be readily accessible to both.

Kitchens may be located in an alcove within the primary activity space but separated from the Activity Room by a child-height counter. This permits children to be included in the kitchen activities without bringing them into the kitchen itself with its safety concerns. It also allows staff to supervise activities in the Activity Room while in the kitchen. An open kitchenette (along a wall) is not permissible.

If there is a shared kitchen, infant programs should have separate 1/2 size fridges and small microwave ovens properly mounted at counter height.

5.5.2 Cubby Area

A separate cubby area should be provided for each group. This area should be directly accessible to the washroom and to the outdoor covered play area. One cubby for each child should be provided. Daycares with part-time children should include extra cubbies. There should be sufficient open floor space for a group of eight children with one staff to get dressed for winter conditions separated from the activities of the other children.

The cubby area is best located immediately inside the entry used by children when using the outdoor play yard. This arrangement ensures that wet and muddy outer clothes and boots are not brought into the activity areas of the childcare. If possible, parents of infants and toddlers should enter through the cubby area so that shoes can be removed before entering areas where children are playing on the floor.

5.5.3 Storage

Storage is a key factor in providing good childcare. Three categories of storage should be provided for each childcare group:

- 1) active storage - accessible to children from activity setting;
- 2) semi-active storage shelves and cabinets accessible to staff above or near activity settings; and
- 3) a storage room for longer-term storage and larger equipment.

Storage includes open and closed, fixed and movable, and multi-use and specialized storage elements.

Dedicated built-in storage for sleeping mats adjacent the sleeping area, personal storage for children and staff, a variety of wall cabinets and shelves, floor units and open visible storage should be provided. Infant and toddler daycares should provide storage space for parent-owned strollers and for car seats left for a return trip in another vehicle.

The storage room for longer-term storage may be shared by the groups within the facility.

All storage should be designed to address seismic safety concerns by ensuring that tall, heavy cupboards and other furniture items are fixed to the wall.

5.5.4 Children's Washrooms and Diapering Area

For programs including children under 36 months and/or special needs children, a dedicated diaper changing area should be provided. It should be located near and have visual access to the main activity area and be close to the laundry. It should be separated from activity areas by a dutch door or other partition 750 mm to 900 mm high to protect children from potential harm.

When designing the diaper changing area keep in mind that children cannot be left unattended for even a moment. Everything the caregiver might need to complete the change should be within reach.

The diaper changing area should include:

- a changing surface approximately 800 mm high and 600 mm deep by any length sufficient to conduct diapering and dressing routines for two children simultaneously;
- an adjacent sink large and deep enough to bathe and wash off children, outfitted with elbow faucet handles to prevent contact with contaminated hands, and equipped with a hand-held shower attachment;
- space for several large, lined containers with lids for soiled diapers within arm's reach of the caregiver but out of reach of the child;
- shelves or drawers for storing all supplies: wipes, clean diapers, salves, towels, etc. within easy reach of the caregiver but out of reach of the child;
- enough shelf space for storage of children's individual supplies;
- hooks or shelves for mobiles and small toys and a mirror along or behind the changing surface;
- adequate ventilation to remove odours without drafts and sufficient heat to allow for children's comfort during changing and bathing;
- a nearby toilet for dumping and flushing away faeces; and
- room for 3 to 4 potties.

Toddler and preschool facilities should provide a children's washroom for each group immediately accessible from the cubby and activity areas. Staff should be able to visually supervise the entrance to the washroom from the main activity area.

In infant and toddler programs the children's toilets should be unscreened. For preschool groups there should be one partially screened toilet. The number of fixtures must conform to the CCFL regulations. Do not provide a urinal.

5.5.5 **Staff/Handicapped Accessible Washroom**
One individual staff/handicapped washroom with one toilet and a sink for each facility should be provided. (One toilet room is sufficient for up to 25 staff.) Provision of an accessible shower within the staff washroom is a desirable feature, for both staff and care of the handicapped. This washroom should be large enough to permit assisted toileting and special physical care of handicapped children. One staff washroom may be shared by two or more groups.

5.5.6 **Parents' Room**
A small separate room should be provided for parents as a resource room for reading, staff/parent conferences, or breast feeding. It should be private from the program areas and separate from the staff office. One parent room may be shared by two or more groups.

5.5.7 **Staff Offices**
Staff offices should be provided for administrative activities, private interviews and meetings, and as a refuge during staff breaks. The offices should be accessible to each group and be within hearing range of the primary activity area(s). There should be visual supervision of the primary activity areas from the office by means of a window or door.

A single staff office may be shared by two or more groups if it is easily accessible to each group and within hearing range in case of emergency. If a single office is shared by two or more groups a staff lounge should also be provided.

5.5.8 **Laundry/Janitorial Area**
A lockable laundry should be provided which is not accessible. A washer, dryer and folding counter should be provided. One laundry area may be shared by two or more groups.

A lockable laundry area with a floor sink, storage shelves and impervious wall coverings should be provided within the childcare facility, where appropriate, or immediately adjacent to it.

5.5.9 **Shared Support Spaces**
Where four or more groups are located together, additional shared support spaces should be provided. Support spaces should provide for central bulk storage, garbage collection, reception and janitorial functions. See section 4.3.1 for further information.

5.6 Entry/Exit Security

The entry should be designed to facilitate supervision and security and to provide a welcoming reception. There should be only one entry door with additional locked or alarmed doors as required by regulations for emergency egress only. Multiple entries can pose circulation and security problems. It should not be necessary to enter one group's space to access another group.

Ideally, for security and programming reasons, the entry should be directly from the covered outdoor play space.

Entry can be problematic for facilities located above or below the grade. Care should be taken with design to ensure that potential security problems are recognized and avoided.

If the entry is through a hallway or stairway and not directly from the outdoors, the route should provide views to the outdoors, community spaces, or into the childcare. Long, dark or harshly lit institutional corridors should be avoided.

The preferred entry sequence is via the cubby area and from there to the primary activity space. This arrangement minimizes tracking wet and dirt into the childcare. This is particularly important in infant programs where children spend much of their time on the floor.

5.7 Circulation

Use of corridors within daycares should be avoided as they block visual communication for both children and staff. Corridors in existing daycares tend to be considered wasted space. Most support spaces should open directly into activity areas.

Corridors may be necessary in facilities where three or more groups are located. In these circumstances long, harshly lit institutional hallways should be avoided. Partial walls to delineate a circulation path may be necessary.

Access should be provided to all childcare groups within a facility to permit visiting of siblings, occasional use of each other's program spaces, staff sharing and support.

6 Outdoor Design Considerations

A high quality and sufficiently large outdoor play area is necessary to provide opportunities for adventure, challenge and wonder in as natural an environment as possible. All children spend some time outdoors every day regardless of the weather. The more time children spend out of doors the lower the incidence rate of sickness.

The outdoor play space should have a favourable microclimate (i.e. wind protection and direct sunlight), have a rich range of materials and settings including contact with the living natural world, and be safe and secure.

The outdoor play space should include a covered area and an uncovered area to accommodate the various outdoor activities. Between 1/3 and 1/2 of the outdoor area should be clear space for group activities and physical movement.

Since open areas can be taken over by riding toys unless other opportunities are provided, a paved path or route for wheeled toys should wind around other activity areas.

Children should be free to move from activity to activity outdoors as they are indoors without disrupting activities in activity zones.

The grade of the outdoor area should be similar to the grade outside its fence or higher than the grade outside its fence. A situation where the grade of the outdoor area is lower than its surroundings is both problematic from a security standpoint and unpleasant for aesthetic reasons.

6.1 Environment

The outdoor space should be acoustically buffered from traffic and parking and other disruptive noises, fumes and odours. Particular attention should be given to the building's mechanical equipment and vents.

Wind effects are one of the major drawbacks to use of above grade roof or deck areas for outdoor play. These impacts can usually be mitigated through design techniques such as fences, screens and deflectors. Vegetation and play equipment should be selected and installed to be wind-resistant.

If the outdoor play space is located on a roof, the play space should be free of skylights, roof vents and/or other mechanical equipment. The roof structure must be designed to carry the weight of landscaping and play equipment. Large play equipment and planters or massed plantings may have to be specially placed. See Appendix B for a further list of roof top considerations.

Sunlight should penetrate into the outdoor area for a minimum of three hours per day at the winter solstice, two hours of which should occur during the typical playtimes of 9:30 to 11:30 or 1:30 to 4:00. This is especially important in infant and toddler programs. Sunlight access should be protected by design techniques such as glazing in south-facing fences or parapets. North-facing sites are problematic if sun cannot reach the transition zone between indoor and outdoor space.

Non-glare surfaces should be used on highly-exposed sun areas. Some shading should be provided for a portion of the outdoor play area to offer a retreat on hot days.

6.2 Activity Zones

Outdoor space should be organized to offer specific activity zones for exploration by the children.

It is recommended that the outdoor play area be divided into play zones, as follows:

- a) Covered Play Area - This is a transition zone from the indoors to the outside and should be located adjacent to the entry. This zone is intended for quiet or concentrated activities such as painting/art, clay/water table, outdoor meals and for active play on rainy days. It is also used for napping in infant programs.
- b) Creative Zone - This should be located near the indoors and may be part of covered area. Activities in this zone may include carpentry and art projects that are messy and/or noisy.
- c) Fantasy Zone - This area should be near the covered play area, the Social Zone and the Dramatic Zone. This zone provides for play either standing or sitting and encourages projective and fantasy play. Activity areas should include sand, water table, water source, table and other small toys as well as storage for these play props.
- d) Social Zone - This area should provide a quiet place to sit, tell and listen to stories, talk with staff or friends in a central location which is shady in summer and sunny in winter.
- e) Dramatic Zone - A place to play "house" and dress-up should be provided. This zone provides for symbolic and parallel play and for associative and co-operative activities. Space should be provided for a house setting, props and utensils, large blocks and interlocking construction toys. It is appropriate for the wheeled toy route to extend into this area.
- f) Physical Zone - An area with stationary equipment for balancing, climbing, sliding and swaying is recommended. Equipment should be designed to provide graduated challenges to the appropriate age group. This zone should be located away from quieter zones but adjacent to the Dramatic Zone.

Physical development can also be promoted through the use of mounds, boulder clusters, paths for wheeled toys and other features throughout the outdoor setting.

- g) Natural Element Zone - natural elements should be included everywhere to provide an experience of nature including vegetable plots, fragrant flowers, soil for digging, animal hutches, sand, water, trees and shrubs, and wind toys such as sails or banners.

6.3 Landscaping

Significant areas of soft landscaping should be provided in all outdoor play yards whether above grade or on grade. Natural features and vegetation are important. This should include grassed areas, shrubs, massed planting, trees and planters. Appendix C provides a list of common toxic plants that should be avoided in childcare design. Plants with thorns should also be avoided in or near areas where children will play.

In all cases, the outdoor space should offer a variety of surfaces and terrains.

If the outdoor play space is located on a roof structure, it is critical that the roof should be designed to permit substantial areas of landscaping to be supported. Provision should be made for adequate support of lawn areas with sufficient soil depth for healthy growth of grass. All vegetation should be irrigated. A hose bib should be provided for watering purposes; it would also be useful to support sand play and water play by filling wading pools or operating a sprinkler to run through on a hot day.

A resilient fall surface, as approved by the Public Health Inspector, should be provided at all places where children can climb, slide, or fall. Assume that children will climb everywhere possible.

Loose materials such as pea gravel and wood chips can be contained with curbs or planters, surrounds of wooden decking or other edging solutions. Areas of loose materials should be separated from the entry to indoors by an expanse of paving which can be swept clean periodically.

6.4 Fences and Boundaries

The boundaries of the outdoor space should be secure and supervisable from many vantage points within the space. Fences should be provided of sufficient height and material strength to prevent children from getting out of the yard and strangers from reaching or climbing into the yard. It is also desirable for the outdoor play space to be visible and supervisable from indoors within the primary activity space. Vision panels in perimeter safety rails and fences around above grade play yards should be provided to discourage climbing for views over.

Appendix B provides a list of additional considerations for roof top play areas.

6.5 Outdoor Storage

Convenient and secure storage is key to the regular use and maintenance of outdoor play equipment. Storage should be protected from rain and wind to prevent equipment from rusting or getting water-logged and dirty. It should be securely locked to prevent unauthorized entry.

Outdoor toys, wheeled vehicles, play equipment and maintenance equipment should be stored convenient to points of use. All storage should be secure from unsupervised entrance by children and outfitted with appropriate hooks, bins and shelving.

Maintenance and landscaping material and equipment should be stored separately from program equipment.

6.6 Relationship to Indoor Space

Outdoor space should be at the same level as the indoor space (plus or minus .5 m) and contiguous with it. The two areas should be planned together. Ramps for wheeled equipment should be provided when a level change exists. The area should be protected against flooding.

A strong visual connection should exist between the indoor and outdoor activity areas.

6.7 Shared Outdoor Space

When several groups share an outdoor area, precincts should be provided which support age appropriate play for each group. This will facilitate supervision and control and minimize use conflicts among children of different ages.

Net Area Recommendations

Infant Group Daycare (12 Children)

1 Indoor Activity Spaces

1.1	Activity Room	
1.1.1	Table and Art Area	11 m ²
1.1.2	Reading, Cozy Corner	8 m ²
1.1.3	Open Area for Other Activity Settings	<u>37 m²</u>
		56 m ²
1.2	Gross Motor/Nap (2 @ 13 m ²)	<u>26 m²</u>
	Net Activity Area	82 m²

2 Support Spaces

2.1	Cubby	12 m ²
2.2 *	Kitchen	9.5 m ²
2.3	Storage	7.5 m ²
2.4	Handicapped Accessible W/C & Diapering Area	7.5 m ²
2.5 **	Parent's Room	6 m ²
2.6 **	Handicapped Accessible Staff W/C	4.5 m ²
2.7	Staff Office	7 m ²
2.8 **	Laundry/Janitorial	<u>4 m²</u>
	Net Support Area	58 m²
	Total Net Indoor Area	140 m²

3 Outdoor Space

3.1	Covered Outdoor	22 m ²
3.2	Open Outdoor	<u>63 m²</u>
	Total Outdoor Area	85 m²
	Total Infant Area	225 m²

* Where a kitchen is shared by two groups the total kitchen area should be at least 12 m².

** These support spaces may be shared where 2 or 3 groups are located in one facility with a commensurate reduction in area. When 4 or more groups are aggregated, the noted support spaces may be shared but no reduction in area should occur. The area gained from sharing will be required for garbage collection, janitorial, reception/waiting, central storage and circulation.

Toddler Group Daycare (12 Children)

1	Indoor Activity Spaces	
1.1	Main Activity Room	
	Art Area	9 m ²
	Table Area	11 m ²
	Other Activity Settings	20.5 m ²
1.2	Gross Motor/Nap Room	28 m ²
1.2.1	Storage for Mats & Equipment	4.5 m ²
1.3	Quiet Room	<u>9 m²</u>
	Net Activity Area	82 m ²
2	Support Spaces	
2.1	Cubby	12 m ²
2.2 *	Kitchen	9.5 m ²
2.3	Storage	7 m ²
2.4	Handicapped Accessible Child W/C & Diapering Area	8 m ²
2.5 **	Parent's Room	6 m ²
2.6	Staff Office	7 m ²
2.7 **	Handicapped Accessible Staff W/C	4.5 m ²
2.8 **	Laundry/Janitorial	<u>4 m²</u>
	Total Support Area	58 m ²
	Total Net Indoor Area	140 m ²
3	Outdoor Space	
3.1	Covered Outdoor	33 m ²
3.2	Open Outdoor	<u>137 m²</u>
	Total Outdoor Area	170 m ²
	Total Toddler Area	310 m ²

* Where a kitchen is shared by two groups the total kitchen area should be at least 12 m².

** These support spaces may be shared where 2 or 3 groups are located in one facility with a commensurate reduction in area. When 4 or more groups are aggregated, the noted support spaces may be shared but no reduction in area should occur. The area gained from sharing will be required for garbage collection, janitorial, reception/waiting, central storage and circulation.

Preschooler Group Daycare (25 Children)

1	Indoor Activity Spaces	
1.1	Dedicated Art Area (wet messy)	10 m ²
1.2	Table Area	14 m ²
1.3	Area for Other Activity Settings	60.5 m ²
1.4	Quiet Room	9 m ²
1.5	Gross Motor/Nap Room	30 m ²
1.6	Storage with Large Motor/Nap Room	<u>4.5 m²</u>
	Net Activity Area	128 m ²
2	Support Space	
2.1	Cubby	14 m ²
2.2 *	Kitchen	9.5 m ²
2.3	Handicapped Accessible Children's W/C	9 m ²
2.4	Storage	8 m ²
2.5 **	Parent's Room	6 m ²
2.6	Staff Office	7 m ²
2.7 **	Handicapped Accessible Staff W/C with Diapering Area	4.5 m ²
2.8 **	Laundry/Janitorial	<u>4 m²</u>
	Total Support Area	62 m ²
	Total Net Indoor Area	190 m ²

3	Outdoor Space	
3.1	Covered Outdoor	45 m ²
3.2	Open Outdoor	<u>305 m²</u>
	Total Outdoor Area	350 m ²
	Total Preschooler Group Daycare Area	540 m ²

- * Where a kitchen is shared by two groups the total kitchen area should be at least 12 m².
- ** These support spaces may be shared where 2 or 3 groups are located in one facility with a commensurate reduction in area. When 4 or more groups are aggregated, the noted support spaces may be shared but no reduction in area should occur. The area gained from sharing will be required for garbage collection, janitorial, reception/waiting, central storage and circulation.

Preschool Space List

1	Indoor Activity Spaces	
1.1	Art Area	7.5 m ²
1.2	Table Area	14 m ²
1.3	Other Activity Settings	47.5 m ²
1.4	Quiet Room	<u>9 m²</u>
	Net Activity Area	78 m ²
2 *	Support Spaces	
2.1	Cubby	12 m ²
2.2	Handicapped Accessible Children's W/C	7 m ²
2.3	Storage	9 m ²
2.4	Staff Office & W/C	<u>12 m²</u>
	Total Support Area	40 m ²
	Total Net Indoor Area	118 m ²
3	Outdoor Area	
3.1	Covered Outdoor Space	33 m ²
3.2	Open Outdoor Space	<u>107 m²</u>
	Total Outdoor Area	140 m ²
	Total Preschool Area	258 m ²

- * Based on the assumption that access to a kitchen will be provided in a shared facility. Otherwise add 9 m² for kitchen.

Roof Top Play Yards

Design of play spaces above grade should incorporate planning principles already discussed in sections on indoor and outdoor spaces with additional consideration for the opportunities and constraints offered by the above grade location. Briefly, the constraints and opportunities are:

Constraints

- weight;
- more severe climate;
- wind and anchorage;
- safety;
- added construction costs; and
- increased technical design challenge.

Opportunities

- better privacy and security for children;
- separation from traffic and noise;
- good sun access; and
- potential for greater area on tight sites.

The design should allow for the safe exposure of children to natural elements and sun, wind, rain, plants, water and animals.

The following items are summarized from the publication "The Potential of Roof Deck Play Spaces Above Grade", by Dan Matsushita Associates commissioned by CMHC in 1979 and provides technical design specifics for play spaces on roof decks.

Provide technical and design features specific to roof deck development of outdoor play spaces:

- Select a location that is protected from exaggerated **wind** effects around buildings. Provide wind shields as required (up to 3 m high). Locate penthouses as protection. A wind test area model may be required to determine the adequacy of setting and design. Provide play materials to use the winds (flags, kites, sails, whirligigs). Anchor structures and trees. Awnings should be retractable or designed to resist the wind.
- Provide **sun access** in all seasons for at least 3 hrs./day. South side fences or parapets should be glazed or open. Do not place in a north shaded location. Provide shade during the summer months. Roof decks can get especially hot. Use non-glare surfacing on highly exposed sun areas.
- Provide for summer shading to at least **a** of the outdoor play area.
- Provide especially secure **perimeter fencing** that allows for views through the fence to the world below to reduce the need of the curious to climb; that is higher than normal; that is set back from the edge to minimize vertigo and which has a top overhanging into the day care to prevent climbing.
- Locate to reduce **noise** from children disturbing adjacent uses and to reduce noise from roof-top equipment disturbing the playspace.
- Consider noise and fumes which may be caused by roof top **mechanical equipment**. Provide for maintenance access. Integrate equipment into play if appropriate.
- Protect against future **roof leakage**. Provide sectional play elements that allow for incremental roof repair. Consider a redundant roof layer for extra protection.
- Consider **weight** of play space elements, especially sand, soil and equipment. Locate heavy items over beams and columns. Use light weight soil, equipment and surfacing (ex. rubber mat impact protection under play equipment). The effect of weight is a major cost determinant.
- Provide **anchorage** for all planting and equipment against the wind, and normal use. It is better to plan and prepare for anchorage points during construction. Use smaller equipment to reduce weight and wind effects. Design anchorage to retain integrity of roof membranes (for example, Kampan Play Equipment can be anchored at any location into a 3½" thick concrete top coat).

- Mitigate unpleasant **scale** effects with overhead structures. Provide trellises or planting against adjacent high building faces.
- **Safety** is a primary concern as roof decks are a more hazardous environment. Keep higher equipment at centre of deck, use rubber matting under equipment, anchor all equipment, use non-slip surfaces.
- Provide adequate **drainage**. Clean outs should be accessible and have catch basins. Provide 2 percent slope to drain at hard surfaces and greater for other surfaces. Wood decking drains well, while artificial turf traps water and freezes.
- Security and controlled access of a private roof deck allows for added richness of play elements (water, special gardens, pets, sails and kites) that could be damaged or stolen on-grade.
- Use wind tolerant and draught resistant landscape **planting** (small soil pockets dry out quickly). Provide an automatic watering system with soil sensors (timed equipment often overwaters plants causing failure). Plant boxes can serve as dividers and climbing structures. Also provide plant boxes for vegetables and flowers and at least one grassed area of 30 m² for picnics and lying about.
- Use **resilient surfacing** in all potential fall zones as per CSA requirements.

Common Toxic Landscape Plants

This list includes the more common toxic plants used in landscaping in North America. It is **not** an exhaustive list of all toxic plants. The B.C. Poison Control Centre (682-5050) reports that many of these plants do not cause toxicity unless ingested in very large amounts and that symptoms may vary from a mild stomach ache, skin rash, swelling of the mouth and throat to involvement of the Heart, Kidneys or other organs. If in doubt about a particular plant, check with your local Botanical Garden or consult the **AMA Handbook of Poisonous and Injurious Plants**.

Botanical Name	Common Name	Toxic Part
Aconitum spp	Monkshood, Wolfbane	all parts
Actaea spp	Baneberry, Cohosh	berries & roots
Aesculus spp	Chestnut, Buckeye	
Allium Canadense	Wild Garlic, Wild Onion	bulbs, flowers, stems
Anemone spp	Anemone, Pasque Flower	whole plant
Arisaema spp	Jack-in-the-Pulpit, Bog Onion	whole plant
Atropa belladonna	Deadly Nightshade	whole plant
Aucuba japonica	Aucuba, Japanese Laurel	fruit
Baptisia spp	Wild Indigo, Rattle bush	whole plant
Buxus sempervirens	Boxwood, Box	
Calla palustris	Water Arum, Wild Calla	whole plant, esp root
Caltha spp	Marsh Marigold	whole mature plant
Calycanthus spp	Carolina Alspice, Spice bush	seeds
Capsicum spp	Chili Pepper, Bird Pepper	fruit & seeds
Celastrus scandens	Bittersweet	fruit
Clematis spp	Clematis	whole plant
Colchicum spp	Autumn Crocus	whole plant
Convallaria majalis	Lily-of-the-Valley	whole plant
Daphne mezereum	Daphne, February Daphne	whole plant
Datura spp	Jimson Weed	whole plant, esp seeds
Delphinium spp	Larkspur, Delphinium	
Dicentra spp	Bleeding Heart	
Digitalis purpurea	Foxglove	whole plant
Dirca palustris	Leatherwood	whole plant
Echium spp	Bugloss, Snake Flower	whole plant
Euonymus spp	Burning Bush, Spindle Tree	fruit
Euphorbia spp	Spurge, Gopher Purge	latex
Galanthus nivalis	Snowdrop	bulb
Gelsemium sempervirens	Yellow Jesamine	flowers
Gymnocladus dioicus	Kentucky Coffee Tree	seeds
Hedera spp	English Ivy	berry & leaf
Heliotropium spp	Heliotrope	whole plant
Helleborus niger	Christmas Rose	whole plant
Hyacinthus orientalis	Hyacinth	
Hydrangea spp	Hydrangea	flower bud
Ilex spp	Holly, English Holly	fruit
Iris spp	Iris, Flag	roots, flowers
Jasminum nudiflorum	Jasmine	
Kalmia spp	Mountain Laurel	leaves, nectar

Common Toxic Landscape Plants (cont'd)

Botanical Name	Common Name	Toxic Part
Laburnum spp	Laburnum, Golden Rain Tree	all parts
Lantana camara	Lantana	
Leucothoe spp	Pepper Bush, Sweet Bells	leaves, nectar
Ligustrum vulgare	Privet	whole plant
Lobelia spp	Cardinal Flower	whole plant
Lonicera spp	Honeysuckle	possibly berries
Lycoris spp	Spider Lily	bulb
Morus rubra	Red Mulberry	
Narcissus spp	Daffodil, Jonquil, Narcissus	bulb
Nerium oleander	Oleander	whole plant
Nicotiana spp	Flowering tobacco	whole plant
Ornithogalum spp	Star of Bethlehem	whole plant
Parthenocissus quinquefolia	Virginia Creeper	fruit
Pernettya spp	Pernettya	leaves & nectar
Physalis spp	Chinese or Japanese Lantern	fruit
Pieris spp	Lily-of-the-Valley Bush	leaves & nectar
Podophyllum peltatum	May Apple	whole plant
Prunus spp	Cherries, Plums, Peaches	pit kernels only
Quercus spp	Oak	
Ranunculus spp	Buttercup	sap, roots
Rhamnus spp	Buckthorn, Cascara	fruit & bark
Rheum rhabarbarum	Rhubarb	leaves
Rhododendron spp	Azalea, Rhododendron	leaves, nectar
Rhodotypos spp	Jetbead	berries
Rhus vernix	Poison Sumac	
Ricinus communis	Castor Bean	seeds
Robinia pseudoacacia	Black Locust	leaves, roots, bark
Sambucus spp	Elderberry	whole plant except cooked berries
Scilla spp	Squill, Star Hyacinth	whole plant
Senecio spp	Groundsel, Ragwort	whole plant
Solanum spp	Nightshade, Potato, Jerusalem Cherry	uncooked sprout, green skin
Sophora spp	Scholar Tree	seeds
Symphoricarpos spp	Snowberry, Waxberry	berries in large quantities
Taxus spp	Yew	most of the plant, but not the red aril around the seed
Wisteria spp	Wisteria	
Zantedeschia aethiopeca	Calla Lily	leaves
Zephyranthes atamasco	Zephyr Lily, Rain Lily	bulb

Common Toxic Tropical Plants

Botanical Name	Common Name	Toxic Part
Aloe spp	Aloe	latex beneath skin
Amaryllis	Amaryllis, Belladonna	bulbs
Anthurium	Anthurium	leaves & stems
Arum	Arum, Solomon's Lily	whole plant
Caladium spp	Caladium, Elephants Ear	whole plant
Clivia spp	Kaffir Lily	whole plant
Crinum spp	Spider Lily	whole plant, esp bulb
Dieffenbachia	Dumbcane	leaves
Epipremnum aureum	Pothos	whole plant

Common Toxic Tropical Plants (cont'd)

Botanical Name	Common Name	Toxic Part
Eriobotrya	Loquat	pit kernel
Hymenocallis spp	Spider Lily	bulbs
Monstera deliciosa	Monstera, breadfruit	leaves
Philodendron spp	Philodendron	leaves
Spathiphyllum	Spathe Flower, Anthurium	whole plant