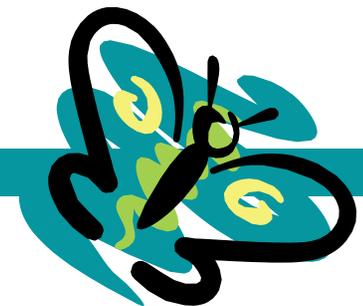


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## 5.0 Design Principles

**In this chapter we put forward the FirstSchool design principles and discuss the ways that the physical environment conveys values and messages about how to promote and support relationships, children’s growth across all developmental domains, and personal and environmental health. We include the questions we asked ourselves and our partners that helped guide our work.**



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## DESIGN PRINCIPLES

The physical environment of a school community provides more than shelter and work space. It is a powerful entity that conveys values and messages about who is welcome, what is important, and how children learn. School is the place where children, staff, and families spend much of their time, where routine needs are met, relationships are developed, skills are learned, abilities are enhanced, and attitudes towards learning, society, and our environment are formed<sup>1</sup>.

FirstSchools values and principles may be conveyed in a physical environment in many ways. In this section we present 1) questions that address general planning concerns for a FirstSchool facility; 2) the questions that guide inquiry into how specific principles can be reflected in the design; and 3) descriptions of the design principles.

### Inquiry into general planning concerns for a FirstSchool Facility

- How do you balance the need for security (e.g. weather extremes, public access, intruders) with FirstSchool principles such as daylighting?
- How does the design support your chosen instructional practices or configuration, such as non-graded and multi-age groupings?
- How does the design promote smooth transitions (e.g. moving from one space to another, moving between before school care and the classroom, moving from indoors to out) for children?
- What do you need to consider in facility plans that allow you to utilize the best technology (i.e. wireless facility, sound field systems, smart boards), and reasonable cost? How well will the design accommodate future upgrades and innovation?
- What are your before and after school care needs? How does this facility insure age appropriate space and storage, and how are the difficulties that arise with shared space attended to within your planning?
- How could public access to areas such as the gym, media center, or outdoor learning environment promote community engagement and allow for cost-sharing?

### 1. Positive relationships and partnerships throughout the school community

#### Questions for Inquiry

- How are relationships fostered by our indoor and outdoor environments?
- What barriers to relationships are apparent in our design?
- How does a facility promote family and community engagement?
- How does technology support inter-disciplinary work?
- How do we use the skills and talents of staff to enhance the environment?
- How do our values and beliefs influence our design principles and details?
- How does a facility welcome and honor all staff, children, and families?



**FirstSchool is designed to be an accessible and welcoming space where parents can learn more about their children's classrooms and teachers, access a variety of resources, and have the opportunity to meet and talk with staff and other families.**

### Considerations for design

The physical environment can promote and support relationships and partnerships throughout the school community.

- **Relationships among school staff and children**

Designing an environment that promotes positive interpersonal interaction and socialization between children and adults, as well as children and their peers means creating spaces indoors and outdoors that are comfortable, accessible, and welcoming; that are conducive to work and play; and that support one-on-one as well as small and large group interactions. Spaces should be interesting. Windows that overlook wildlife habitats, cozy spaces surrounded by books, work areas that have tools and resources that help children explore are spaces that will spark interaction and exchange. Spaces should allow for varying sized groups and permit different uses. Spaces where children learn, socialize, and eat, both indoors and out, should be comfortable, welcoming, and conducive to conversation.

- **Relationships among families and with staff**

Families deserve a school community that promotes respect for learning and promotes a sense of belonging, ownership, and pride for all members of the school community. Families are a part of this community. A beautiful, sensitively-organized environment has a major impact on the sense of belonging, comfort, safety, and the capacity of all participants to be responsible and productive. To that end, FirstSchool is designed to be an accessible and welcoming space where parents can learn more about their children's classrooms and teachers, access a variety of resources (including technology and tech support), and have the opportunity to meet and talk with staff and other families. There must be dedicated space for families where they can leave their belongings and talk together, with separate space to store and prepare materials for events. Within the school there should be an indoor or outdoor central gathering space. Display areas of varying kinds throughout the classrooms, and shared spaces should celebrate the diverse community of students, staff, and families through art, photos, murals, and other media.

- **Relationships among school staff**

FirstSchool values all members of the FirstSchool community. FirstSchool promotes Professional Learning Communities for educators through both accessible space and the use of state-of-the-art technology. In FirstSchool, school staff have personal and professional spaces that provide them places to plan, work, and meet in small groups. This includes custodians, cafeteria, and office workers. Custodial and service-related spaces need to be conveniently located for maximum efficiency, and demonstrate respect for staff through appropriate office and personal space. There are also spaces for other professionals who spend time at the school, such as community health professionals and social workers, to conduct their work and collaborate. State-of-the-art shared technology support professionals in multiple ways. Technology can maximize the sharing and storage of resources and materials for professional staff and

family members; provide the means for regular communication with multiple disciplines, community stakeholders, university faculty and family members; and support professional development within and across schools by providing opportunities for members of the school community to view and reflect upon their students, their work, and the work of others.

## 2. Providing a variety of learning opportunities for young children

### Questions for Inquiry

- How does a facility promote physical activity for children?
- How does access to multi-sensory, experiential learning impact children's outcomes?
- How do we use the skills and talents of staff to enhance the environment?
- How do our values and beliefs about how children learn influence our design principles and details?
- How does the outdoor environment enhance the learning opportunities we provide inside, and vice versa?
- How do we help educators fully incorporate the outdoor environment in their educational planning?

### Considerations for design

FirstSchool believes that children learn and develop to their maximum potential in settings responsive to the unique knowledge, interests, aptitude, learning style, intellectual skills, abilities, and health status of each child. The FirstSchool environment is designed to motivate children's natural excitement for learning, and engage and challenge the minds and bodies of all children in a variety of ways.

- **Indoor Spaces**

Schools typically have some shared spaces that are designed to support specific learning activities, such as music and art. In a FirstSchool facility there is a wide array of special rooms that extend the learning possibilities for children. Small kitchen areas support the development of skills and knowledge in health, nutrition, math, science, social studies, self regulation, and cooperation. Project areas with adequate space, surfaces, materials, and tools are developed with consideration to age, developmental level, and safety. Themed areas are available for use by multiple groups, and are not necessarily restricted to specific ages or classrooms. A water exploration room is equipped with drains and various water sources; equipment that promotes experimentation; systems that help children attend to water conservation and re-cycling; and a mudroom that facilitates easy clean-up. A specialized technology lab promotes group work and access to state-of-the-art technology with an increasingly global focus including partnerships with schools elsewhere; robotics as an avenue for the integration of problem solving, math, and science; and a focus on computers as a tool for learning.

The building infrastructure presents a variety of educational opportunities. Transparent walls allow children to view plumbing and electricity at work. Water and compost storage are visible to allow children to view stormwater drainage and decomposition. A variety of measurement tools allow children to gauge the acquisition of solar energy and rain water.



Early experiences with the natural world have been positively linked with the development of imagination and the sense of wonder, an important motivator for lifelong learning. Limiting outdoor playgrounds to gross motor activities and manufactured equipment falls far short of the potential of outdoor areas to be rich play and learning environments.



### Organic Architecture -

A philosophy of architecture which promotes harmony between human habitation and the natural world through design approaches so sympathetic and well integrated with its site that buildings, furnishings, and surroundings become part of a unified, interrelated composition.

- **Outdoor Spaces**

Children's physical boundaries have shrunk. Concerns about safety, increased supervision, highly structured lives, less time for free play, and reliance on technology for entertainment are often barriers to children's access to the outside environment in their home lives. Schools offer a safe space, supervision, and educational opportunity that should be maximized to reconnect children to nature. Outdoor space lends itself to a more unstructured use of time with more self-directed opportunities for children. In addition, these spaces allow children the chance to experience moderate levels of physical risk with adequate adult supervision to protect their overall safety.

The outdoor physical environment provides the stage for action, and stimulates children's active play and learning<sup>2</sup>. In FirstSchool, outdoor spaces are designed so children can test their abilities in an environment that offers many types and levels of challenges and stimulation. The outdoors helps children grow up closely connected to nature. By being exposed to trees, plants, and other natural materials, children can independently discover nature and its processes. The outdoor environment should engage children's sense of inquiry, stimulate their imaginations, invite exploration, and support their developing competencies. Limiting outdoor playgrounds to gross motor activities and manufactured equipment falls far short of the potential of outdoor areas to be rich in play and learning environments. Sand, water, soil, and plants provide settings for open-ended play that emphasizes unstructured creative exploration with diverse materials. Children need tools, open space, and the opportunity to interact with the outdoor environment.

The Preschool Outdoor Environments Measurement Scale<sup>3</sup> describes an ideal outdoor area as one that contains a variety of natural play and learning settings, offering children multiple opportunities to observe, explore, and interact with nature. For example, an edible garden allows children to use tools, care for living things, learn how and when things grow, improve their diet, and appreciate a range of foods. Resident farm animals promote attention to the proper and ethical care of animals. An outdoor water exploration area promotes creativity, innovation, and exploration. The outdoor area also contains a variety of play and learning settings with constructed or manufactured elements that encourage physical activity. In addition to gross motor equipment, outdoor equipment can promote arts and crafts, scientific and mathematical exploration, relaxation, solitude, and dramatic play.

- **Relationship between indoor and outdoor spaces**

FirstSchool is connected within and beyond the school grounds through design, planting, and technology. The building needs to be set within the natural landscape as Frank Lloyd Wright urged in his philosophy of "organic architecture," which maintains that a building should develop out of its natural surroundings<sup>4</sup>.

Connections with the community are developed through structural features such as roads, bike paths, shared space for families, and community groups. Design elements demonstrate responsiveness to the cultural, language and ethnic makeup of the community. The school community lives within nature, rather than keeping it at a distance.

### 3. Promoting Health and Safety Throughout the School Community

#### Questions for Inquiry: Possible ways to start the discussion

- How can a facility promote physical activity for children?
- What natural materials can we choose that help keep the indoor surfaces sanitary?
- What learning opportunities for children, staff, and families exist in a “Green Environment?”
- What is the impact of daylighting, controlled acoustics, etc., on children’s ability to attend and learn?
- What ideas can we use from schools that have taken the lead in providing healthy and nutritious foods; developing and using an edible garden; linking school nutrition to local farmers; and creatively funding these efforts?

#### Considerations for design

- **Health and safety for children, staff and families**

FirstSchool promotes the health, well being, safety, and nutrition of all members of the FirstSchool community; protects children and staff from illness and injury; and pro-actively works to prevent disease. The health of the FirstSchool community is promoted through attention to and provision for staff and children’s daily need for physical activity, sensory stimulation, fresh air, rest, and nourishment. The building design permits members of the community to rely on natural light, and is structured to reduce noise. Outdoor plumbing provides for drinking water, hand-washing, and toilet facilities to be accessible in all areas.

- **Accessibility**

All areas must be accessible for children, families and staff, including indoor learning areas, toilets, sinks, drinking fountains, and outdoor space.

Schools must fully accommodate all adults and children in the indoor and outdoor environment in as many ways as possible, and make the adaptations and modifications needed to support those with special needs to function at maximum potential.

The environment must also support a child’s development. A developmental task of childhood is to move from total dependence on adults to increasing independence. Independence can best be achieved by providing adult support, and through creating environments that are designed to be used by children with a wide range of individual preferences and abilities, where children have access to materials and





## Sustainability

A method of harvesting or using a resource so that the resource is not depleted or permanently damaged.

equipment, and can easily find and put away what they need. In order to allow children to acquire increased levels of autonomy, as well as support children in becoming confident inhabitants and users, the environment must offer graduated challenges for a range of children within groups over time.

Accessibility is also important for families. In order for family members to feel welcome and part of the school community, spaces must be available that are sized for adults, where comfortable adult furniture is present, and where family members (regardless of their physical abilities) feel safe and welcome.

- **Sustainability**

FirstSchool is dedicated to developing high-performance and sustainable buildings that minimize impact on the environment through decreased energy use and water consumption, less impact on landfills, less run-off, and the use of natural, rather than synthetic and chemical materials. The design should rely on daylighting, solar power, stormwater storage and use, and environmentally-friendly finishing materials. FirstSchool is dedicated to preserving and utilizing natural space, and educating the people who inhabit it to protect and safeguard the environment.

Endnotes:

- 1 NAEYC, 2005.
- 2 Moore & Wong, 1997.
- 3 De Bord, Hestenes, Moore, Cosco, & McGinnis, 2005.
- 4 Vatsky, 2007.