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## Spatial Designs to Enhance Early Development and Wellbeing in Urban Environments

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The physical environment of dwelling units and outdoor recreation spaces immediately surrounding them is of central importance to children's cognitive, physical and social development. Where children live has an impact on their early development and well-being. The built environment has been shown to play a significant role in shaping the lives of young children especially in urban environments (Burton, 2011). In New York City, for example, space is limited and spaces for children to play safely are at a premium. Collaboration between child development experts and architects on how to create spatial designs to enhance the growth, development, and well-being of children in confined urban spaces is needed now more than ever before.

The design issues associated with creating multi-family living spaces in cities and urban environments have long been of interest to architects and designers. In 1952 Le Corbusier focused on the issue of multi-family living spaces when he was commissioned to design and build [Unite d'Habitation](#) which today houses 1600 residents distributed among eighteen floors in Marseille, France. His design required a novel approach. Most of the communal aspects were placed on the roof, which became a garden terrace with a running

track, a club, a kindergarten, a gym, and a shallow pool. The Unite d'Habitation is essentially a "city within a city" that is both spatially and functionally optimized for the residents. This concept has been expanded over the years and has influenced apartment dwelling designs focused on maximizing the living experience.

Research within the last decade has zeroed in on the role that active design strategies can play in enhancing health and well-being. Active design strategies to influence better health outcomes in children have provided strong evidence that physical activity is key to supporting developmental milestones and maintaining good mental health and well-being (CDC, 2015). The U.S. Department of Health and Human Services' Physical Activity Guidelines for Americans recommends 60 minutes per day of physical activity for children (DHHS, 2008). The benefits of physical activity for children extend far beyond healthy weight and prevention of weight-related chronic diseases. Increased physical activity among children is also associated with improved behavior, self-esteem, and academic performance (OCAD, et al, 2013). In addition, there is significant evidence of the important role that home and neighborhood environments play in shaping disparities in physical activity (Gordon-Larsen, et al, 2006). "Daily active living opportunities such as regular stair use can assist in weight control and chronic disease prevention. Similarly, increased exposure to green space is associated with higher activity levels and other positive health outcomes, including stress management and improved mental health" (OCAD et al, 2013:10). Since physical activity levels appear to decrease as children age, especially children in urban environments, it is important to design urban living spaces that stimulate activity thereby enhancing cognitive development and well-being.

"Urban and building design strategies for increasing physical activity in daily life have been synthesized in various research studies and design guidelines" and opportunities "for active transportation, movement in buildings, and active recreation" are instrumental supports for the success of such designs. (OCAD, et al, 2013:11). Supporting healthy living through residential building designs that influence activity offers a powerful set of opportunities for early intervention and measurement of sustained effects. Over time, these strategies can help improve children's individual outcomes by establishing healthy habits with lifelong cognitive benefits.

The physical environment also contributes to children's listening and hearing developmental skills. Since their ability to really focus on speech does not develop until ages 13-15, it is important that children clearly hear consonant sounds to correctly interpret spoken words. Consequently, creating physical living spaces that support these developmental stages could provide long-term effects on their general mental health. A growing body of research indicates that quiet, indoor environments also support the needs of children with learning difficulties (O'Donnell and Peterson, 2010). This evidence suggests that to maintain a healthy audible interior environment for children to develop their speech recognition skills, dwelling units should be designed to mask out the rumbles louder than a loud

whisper, including sounds of equipment, highway noise and the rumble of the streetscape. Child development experts and architectural design professionals should collaborate to provide state-of-the-art solutions that minimize these obstructions to development and well-being for urban children. For example, sound absorption strategies that utilize tools such as acoustical ceiling, fabrics and carpet to effectively mask undesirable sound can be incorporated into architectural designs.

There are significant benefits to be gained from thoughtful design for outdoor and indoor physical spaces inhabited and frequented by children. For example, the physical design of the dwelling unit can enhance the development of children's sensory skills. Their ability to touch different textures and observe various colors is significant to their experience and understanding of the world around them. Colors can help to define spaces for various activities making them attractive and visible for all children by turning drab spaces into vibrant play areas. Outdoor play areas intended for children between the age of 3 and 12 can help in the development of fine and gross motor skills and balance coordination skills. Physical activities such as grasping, throwing and catching, balancing, pushing and pulling, twisting, skipping, climbing and jumping are important for the development and well-being of children. Play and learning spaces should have natural and built features (e.g. trees and plants) that connect them to nature and physical features such as monkey bars and geometric shapes that stimulate and facilitate physical activity.

Further, research suggests that the use of outdoor spaces can be encouraged by co-locating parent fitness opportunities alongside children's activity spaces and providing views to the landscaped outdoor from physical activity spaces through large windows. Similarly, windows located between public corridors, children's playrooms, and fitness rooms can promote greater awareness of these physical activity spaces and allow adults to visually oversee their children's play while engaging in physical exercise. As well, easy access to stairs in residential buildings provides a healthy alternative to the elevator. Color coded signage and visibly accessible stairs can be a venue for physical activity and increase opportunities for moderate to vigorous physical activity for children in the building.

In New York City, the winter months provide a unique set of challenges. Indoor spaces within high-rise buildings that have large windows overlooking the landscaped outdoors and/or the streetscape, and furnished with age-appropriate furniture help to facilitate children's socialization activities. For example, the provision of a dedicated room with soft mats, crayons, and construction paper where children can meet when outdoor physical communal activities are restricted is a great way to fulfill children's need for physical activity spaces. Thus, using physical design to enhance children's long-term development and maintain their well-being.

## Conclusion

Living spaces for children in urban environments should be designed to support their cognitive, social and physical development. Physical activity plays a vital role in allowing children to test many different and important developmental skills. Imaginative use of material can bring spaces to life, particularly where there are large floors and wall areas for the creation of different degrees of transparency. Allowing light to travel through a building presents opportunities to make children more aware of active outdoor spaces. Approachable spaces that one can see into can encourage and stimulate activity. It is important, then, that child development experts engage and collaborate with architects and designers to provide new ways to better aid children's development, mental health, and well-being. In like manner, architects and architecture can help promote and support the cognitive and social development of children which enhances the ultimate meaning of a building beyond mere architecture.

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