2008

Integrating Nature into Urban Educational Environments

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Virginia Commonwealth University

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integrating nature into urban educational environments

caroline davenport

MFA interior environments
Thank you to the following people who were a great help throughout this process:

Camden Whitehead, Christiana Lafazani, Vivian Jones-Schmidt, Catherine Snow, Scott Fowler, Amy Farley and my fellow studio mates.

A special thanks to my Mother, Paul, Ginny, Sarah, and Julie, who listened to me through all the ups and downs. Love you guys!
Urban educational environments struggle to offer green space and natural light to their students. Studies have shown that exposure to natural elements, such as natural light, ventilation and vegetation improves student performance and concentration.

The Waldorf School understands a child’s innate need for natural learning; making it a natural choice when studying design options that integrating nature into the educational environment. The emphasis on nature based learning in the curriculum leads Waldorf to be the perfect school to test the boundaries of what is possible in urban educational environments.

The project integrates nature into an urban adaptive re-use school environment, through use of natural lighting, access to green areas, and sustainable materials. The site is a total of 30,000 square feet, evenly separated between two floors and a roof garden. The site was built in 1923, as an automobile storage facility and straddles the boundary between an industrial neighborhood and a historic residential neighborhood. Through use of the Waldorf principles and architecture, an educational environment infused with natural rhythms and access to nature will be realized.

Through the research conducted on various site, program and process case studies, investigation of architectural options and a thorough understanding of the needs of a Waldorf school, the project develops a prototype to be used in other urban schools.

The work considers the possibilities in urban educational environments to integrate natural elements in the architecture for the benefit of students and teachers; creating a design example for both Waldorf and public educational environments.
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As my thesis began, I was looking for design that could be improved through sustainable ideas and urban renewal. I believe we live in a world where we will not have the luxury of building new at every turn and should consider how these ever expanding cities are affecting our lives. Urban renewal is important in cities such as Richmond, where “white flight” and years of urban transition have taken their toll. In these areas educational design is seen in aging schools that struggle to accommodate newer educational directives. Educational design is a market that demands good air quality and access to natural light and ventilation. Sustainable initiatives are rarely found in urban schools that are merely trying to hold on to their population. My goals in this thesis were not simply to create a sustainable school, but to show the options given when nature is infused into the urban educational environment.

Finding a school environment that would allow me to push the boundary of typical educational design was the first challenge. However, being a product of the Waldorf school’s elementary education, it was not only a perfect fit for me personally, but also forced me to approach the topic of nature in urban education from a holistic point of view. While researching and designing I found not only how fulfilling my choice of the Waldorf School was, but also how similar the objectives of sustainable design and the Waldorf School. Most people acquainted with the Waldorf School would not immediately think of an urban environment. For this reason, it was important to show how not only urban schools can benefit from this prototype, but also how Waldorf can flourish in any environment.
Perfection is overrated. As a designer the process of creation is overwrought with hard work, emotion and challenges. If a design is not allowed enough tolerance, it can quickly become maddening. Imperfect designs create the challenges for the next day.

In my career as a theatrical lighting designer and master electrician I worked together with extremely talented individuals to create art from simple text. The actors, director, designers and technicians work together to face the production’s challenges. When nearing the end of the process, and the production is finally ready, everyone involved breathes a sigh of relief. The relief comes not from the feeling of “thank god it’s over,” but from “thank god we can start on the next one.” All the frustrations and challenges faced in one production train us how to handle the next challenge. No matter how talented the designers and technicians, no matter how inspired the director, a production is never perfect. It is brilliant in its imperfection.

The imperfection of the creative process is what attracted me to interior design. In interior design you not only have the opportunity to learn from one aspect of design, but a multitude of challenges. As a designer I strive for the moment when I can breathe that sigh of relief, and learn from my design’s imperfections.
1657 West Broad Street

1657 West Broad is located at the corner of Allen Street and West Broad Street in Richmond, Virginia. The site is located in the historic neighborhood of the Fan. 1657 borders two areas; one of residential use and one of commercial. It is located a block from Orchard House, a middle school for girls, and less than a quarter mile from Maggie Walker High School. This location is ideal for an elementary school that uses the other established schools and feeder schools for their program.

The building was built in 1923 as an auto parts outlet. The Jones Motor Car Company occupied 1655-1657 from 1934 through the mid 1940’s. It remained an auto parts supply until the 1950’s when the building was used for United States Army Motor Pool storage. The elevator in the central tower of the building was installed in 1938 and enabled both previous owners and the Motor Pool to lift cars and service parts to the second floor. The pulleys for the elevator have remained intact. Because of the building’s industrial past, the structure is concrete column and beam and there is ample natural light on the North, South and Western walls.

Large loading bay doors are found at the base of the tower on the southwestern corner. These bays have been converted by recent owners to large windows and a main entrance for the building. The street entrance on the North side of the building has been converted to an entrance for a retail establishment. The most recent modifications to the building have converted the building into a mixed use building of retail and condominiums. Windows and skylights have been added to increase the natural light in the interior of the building.

During the renovation all of the non-structural partition walls were removed. The fire stairs have remained intact; however a new stairway has been added in the three story tower.
Site Evaluation for 1657 W. Broad

Edge Conditions for 1657 W. Broad

Dark Blue: Commercial
Light Blue: Residential
Green: Green Space
Purple: Educational
Grey: Parking
Red Arrows: Major Street Adjacency
Pink Arrows: Minor Street Adjacency
Unit to Whole

Plan Light Study
Existing site photographs
USE GROUP: E  
SQUARE FT: 10,000  
USABLE SQ. FT: 9,000  
SQ FT/ PERSON: 50/ SQFT  
OCCUPANCY LOAD: 180  
WATER CLOSETS: 4  
SINKS: 4  
WATER FOUNTAINS: 2  
MEANS OF EGRESS: 2  
ELEVATOR: 1  
ADA REST ROOMS: 2
USE GROUP: E
SQUARE FT: 10,000
USABLE SQ. FT: 9,000
SQ FT/ PERSON: 20/ SQFT in classrooms
50/SQFT in gathering areas
OCCUPANCY LOAD: 450/ 180
WATER CLOSETS: 4
SINKS: 4
WATER FOUNTAINS: 2
MEANS OF EGRESS: 2
ELEVATOR: 1
ADA REST ROOMS: 2
Code Overlay: Roof Garden

USE GROUP: E
SQUARE FT: 10,000
USABLE SQ. FT: 6,000
SQ FT/ PERSON: 50/SQFT in gathering areas
OCCUPANCY LOAD: 180
The California Academy of Sciences transitional facility houses the offices, library and exhibitions of the Academy while their old home is being renovated. The new facility, scheduled to open in 2008, is being designed by Renzo Piano and will be located in Golden Gate Park in San Francisco, CA. The transitional facility had to be large enough to house their research, office, library and exhibition spaces as well as be convenient for the community to visit. An industrial building on Howard Street, between and 4th and 5th streets, was the perfect site.

The facility is located in the neighborhood called South of Market or SoMa. Over the past ten years the old warehouse district has seen revitalization; attracting cultural and retail establishments. Since the Mascone Center, a large conference complex began to build to 1981 the area has changed from industrial district to thriving cultural center. Since 1995, when the San Francisco Museum of Modern Art moved to the neighborhood, the district began to see a shift to a cultural hub of the city. Because of its industrial past the blocks in this section of town are larger and allow for larger building footprints. This was a major attractant to museums wanting to move to the growing area. One of the main factors in the Academy choosing the site was the fact that the building allowed for large exhibition space and separation of public and private areas.

The six story 217,000-square-foot building allows for “stacked separation of public and private spaces” (Architectural Record Online Authors 2007). This is an important consideration given the large number of visitors to the exhibitions each year. Along with the Academy’s exhibits, a large collection of the Steinhart Aquarium is also being shown in the exhibition space. The structure of the industrial building allows for a clear separation between
each department and allows for a different feel for exhibition floors (Architectural Record Authors 2007).

The result is a space using “economy, reuse and efficiency” (Architectural Record Online Authors 2007) to create an inviting educational environment. The first floor houses the main aquarium exhibits while the second floor is reserved for interactive learning areas. The office area on the third floor creates a transition from the public first and second floors to the private collection are on the fourth through sixth floors (Architectural Record Online Authors 2007).

Several elements from the original building are re-purposed in the transitional space. Older tanks are used in conjunction with a new plywood and Plexiglas structure. The new display invites observers to enter and enjoy the exhibits within. The retail store was reconstructed at the new site using theatrical lighting and re-purposed materials (Architectural Record Online Authors 2007).

The blank canvas of an industrial building allows the architects to decide how the design should interact with the structure. In this case, the space was “conceived as a “box of wonders” that emphasizes the exhibits, while leaving the “box” untreated” (Architectural Record Online Authors 2007). The first floor aquarium is
shaped in curvilinear forms to contrast with the orthogonal building (Architectural Record Online Authors 2007). This creates an effect of the exhibit being an alien form in the building. Even though the visitor recognizes they are in an industrial building the organic forms of the exhibitions draws the individual through the space and keeps the views attention on the exhibitions. Even though the design reflects the building’s past in industry, it does not follow the industrial aesthetic, creating a warmer more investigatory feeling.
4. Temporary tanks in aquarium area
5. Plywood hallway structure encasing reused exhibitions tanks
The structure of the building is very typical for an industrial building of its age. The main structure is created with outside walls and columns dispersed throughout the space. The challenges the structure presents include how to engage the columns and how to create non orthogonal movement in the rigid structure.

The circulation in the ground floor is mainly directed by the temporary structures of the exhibition area. The visitor is guided through the exhibitions by shape and width of openings. However, the designers allowed a lot of freedom to “roam” and experience the space.
This diagram was an important step in understanding the choices the designers made about the temporary exhibits and the organic nature of their design. All the temporary spaces were curvilinear and all the permanent structures were orthogonal. This was to let the visitor distinguish between structures that are exhibit and structures that are areas such as rest rooms and enclosed learning areas.

Continuing the comparison between the curvilinear and the orthogonal, this diagram illustrates the use of each on the first floor. It was important to evaluate how the designers used or did not use the column grid in the space. It becomes apparent that they rejected the structural grid completely and opted for using self supported structures for the exhibits. The result is a plan that seems slightly disorganized and more concerned with the exhibit within itself than how it related in any way to the structure.
Process Case Study: Landscape Urbanism

**Landscape Urbanism** is a process of evaluating urban infrastructure through the lens of natural processes. By thinking of the urban environment in terms of its circulation and through studies of development and migrations this theory has evolved into a powerful movement integrating architecture, landscape architecture, and urban planning. Some of the important theorists and practitioners in this movement include the Charles Waldheim, James Corner, Stoss Landscape Urbanism and West 8.

Charles Waldheim is a noted theorist, landscape architect and teaches at the University of Toronto. In 1997, he organized the first Landscape Urbanism symposium and exposition. He has edited several books on the topic; however *The Landscape Urbanism Reader* is the most noted. In his article, *A Reference Manifesto* he attempts to introduce the reader to a new paradigm that sees nature as a component part, not a radical juxtaposition, to the urban landscape.

James Corner defines and dissects the theories and practices of landscape urbanism in his article *Terra Fluxus* He encourages the reader to look at a landscape as not only literal, but imaginative and metaphorical. In the past, landscape architecture in metropolitan areas has been seen as a way to design respite in the middle of crowded urban environments. This consequently creates a border between what is “natural” and what is “urban.” Corner defines three important areas where landscape urbanism can redefine the relationship between these two entities:

“the ability to shift scales, to locate urban fabrics in their regional and biotic contexts, and to design relationships between dynamic environmental processes and urban form” (Corner 2006).

These important factors challenge the disciplines of architecture,
landscape architecture, design and urban planning to create a new form based on the landscape of urban context. Corner goes on to establish four important themes that are intrinsic to landscape urbanism:

1. Process over Time
2. Staging of Surfaces
3. Operational Method
4. The Imaginary

A focus on a process over time allows the designer to consider and discuss a myriad of factors at one time, instead of considering them individually. This leads to holistic and fluid design. Landscape Urbanists want to shift from object oriented design to design that considers “the systems that condition the distribution and density of urban form” (Corner 2006). “Spatial form” is seen as “a provisional state of matter on its way to becoming something else” (Corner 2006).

The staging of surfaces considers the sidewalk to the whole city, micro to macro. In this context, building roofs and ground plane are one in the same. The organization of the city becomes intrinsic to the growth of the city. James Corner cites the traditional grid as a great example of a system of organization that allows a city to fluctuate and change over time.

The operation or working method of each designer is left undefined, ready for the new generation to define and create
their own methods. It is important to realize in this discussion the newness of these theories and how exciting the possibilities are to shape and form the process by which the theory is practiced.

The imaginary plays an important role in the shaping and construction of the design, because all “public spaces...are the containers of collective memory and desire” (Corner 2006). In this, the designer must commit to creating not only functional or beautiful works, but strive to impress their work in the collective memory of the public. Through this the design will become an important fixture in the life of the city, not just an object to be admired.

“The lyrical play between nectar and NutraSweet, between birdsong and Beastie Boys, between springtime flood surge and the drip of tap water, between mossy heaths and hot asphaltic surfaces, between controlled spaces and vast wild reserves, and between all matters and events that occur in local and highly situated moments, is precisely the ever-diversifying source of human enrichment and creativity” (Corner 2006).

The Boston, MA based landscape urbanism firm Stoss works through a project from two perspectives. The first way of generating ideas comes from analytical diagramming to understand the full scope and complexity of a project. The second method is an iterative process of plans, models, sections and technical studies. These processes help the team make decisions based on many factors and studies of actual practices and structures (J. Desmini personal communication, Nov. 28, 2007 ).

In their work for the Toronto Waterfront, Stoss had the challenge of converting an industrial port into an area of lively community interaction. The program included both commercial and residential factors as well as public areas. They began the process by considering how the hydrology of the area could shape the concept and form of the design. Once they had thoroughly studied
and understood the history and impact of the environment they moved forward to the planning and programming of the structures. The river and the natural formation of the area remained a focus throughout the design (J. Desmini personal communication, Nov. 28, 2007).

In the design for the Harvard University Art Center the considerations were centered on how to integrate natural environments into an urban landscape. The design considerations were guided mainly by the client who requested vertical and horizontal green spaces, LEED certification, and a high standard for performance. Because they were working within a highly confined urban environment, the consideration for edge conditions was very important. They used a mix of models and section studies to understand how the different surface modifications would affect the functionality and aesthetics of each choice. They combined these three dimensional studies with analytical diagrams for LEED, performance structures, and ecology systems to create the final design. In their dense urban projects the design is always driven by the program considerations, residential boundaries, edge conditions, and creating a diverse micro-climate. (J. Desmini personal communication, Nov. 28, 2007).
9. Aerial view of athletic fields Toronto Waterfront
10. Toronto Waterfront’s rehabilitated marshland areas
11. Model showing art center with green roof
12. Site plan showing green areas and proposed modifications
Rudolf Steiner was born Kraljevec, Austria in 1861. Son a free-thinking railway official he is encouraged to continue his education and receives degrees in mathematics, physics and chemistry. He later receives his doctorate for completing his philosophical thesis. He sees his life work being completed in the academic world and mostly works as a tutor to put himself through his studies. He later works with Professor Karl Schoeder and edits the scientific works of Geothe. He is greatly influenced by the arts and life in Vienna during this period. His later architecture reflects his admiration for the Secessionist movement and their impact in Vienna. After completing his studies in Vienna, he is invited Weimar, the home of the Goethe archive. There his work on Goethe’s scientific writings continues and he participates in the editing of works by Schopenhauer, a German philosopher of the seventeenth century.

He publishes *The Philosophy of Freedom*, but is disappointed by its reception and shortly leaves Weimar for Berlin in order to edit an avant-garde publication. In these times he is interested in art and creative writing and begins to be interested in more radical ideas and beliefs. These connections lead him to give a series of lecture for the Berlin Worker’s Union. His teachings are infused liberal Marxist ideology and range from history and natural science to public speaking. Even though his ideas are centered on Marxism he does not join a party and therefore is forced to leave his post shortly after the turn of the century. This time in his life is a turning point which eventually leads him to establishing the philosophy of Anthroposophy. (Johnson Fenner 1992)

His search for a new philosophy in his left begins with his conversion to Theosophy. In the 1870’s a woman named Helena Potrovnia Blavatsky defines a Source of Wisdom which she calls Theosophy, from the Greek Theosophia in her work *The Secret*
Doctrine. (Theosophy Online Authors 2007) The new philosophy is seen in Europe as being highly controversial and associated with the occult. Through social connections in Berlin, he quickly becomes an active member in the Theosophist organization. He lectures to many groups throughout Berlin and is soon seen as a member of a frige society. He knows he risks social alienation because of his beliefs, but feels he must “speak openly and directly out of the inner faculties of spiritual perception he has known since childhood and has been quietly nurturing, developing and disciplining.” (Johnson Fenner 1992)

In the coming years he begins to feel that Theosophy is not speaking to the needs of his time and begins to write about his own spiritual beliefs. This movement away from Theosophy is the beginning of the Anthroposophical movement. He comes to believe that Europe needs a philosophy that addresses the sciences and integrates Christianity into the belief system. Throughout this time he begins to make a connection between the arts and the spiritual sciences, developing what later will come to fruition in the curriculum of the Waldorf schools. (Johnson Fenner 1992)

1913 he begins to build the first Goetheanum, in Dornach, Switzerland. Dornach is the to be the home of Anthroposophy and in turn expresses both the natural and the spiritual world. He
expresses that he wants the main building of the Goetheanum to bring

“home to us a feeling that rings out in sacred tones in our soul, telling us how much greater than little human beings potentialities of the universe, how much greater must become the best that we can produce from within ourselves if it to cope with the tasks facing us in the objective world.” (Steiner 1999/p80).

The Goetheanum was a wood frame structure, which consisted of a performance hall and support spaces. The design of the main hall is a work of Gesamtkunstwerk; every decision was made in accordance with the total work in mind. The organic design of the main hall exudes a human warmth, which is reflected in community created frescoes, sculptures, and details. Unfortunately, the first Goetheanum was destroyed by fire on New Year’s Eve 1922/1923. The reason for the fire was arson.

In the design of the second Goetheanum Steiner wanted to use poured concrete to create form as easily as he did with his plasticine models. He chose to “depart from the essentially circular building and return to something more rectangular and less rounded- that is, a building with corners” (Steiner 1999/p158). Steiner took the opportunity to rebuild and reevaluate the needs of the community and shaped the program and plan according to the growing demands of Dornach. Interruptions in Eurythmy rehearsal and visitors touring the facility were important factors in his decisions. He also considered the demands that the auditorium will have to meet in the coming years. He emphasizes the need to consider the future in the design by drawing on the example that Eurythmy was not yet created when the first Goetheanum was designed and therefore was not relevant in 1914. However, now with the opportunity to rebuild brings the creation of a space designed for the community.
15. First Goetheanum: plan and section
16. Second Goetheanum: plan and section
17. First Goetheanum
18. Pastel drawing of First Goetheanum auditorium
19. Second Goetheneum
20. Photograph of interior of second Goetheneam Auditorium
The Waldorf School was founded in 1919 in Stuttgart, Germany when Emil Molt of the Waldorf-Astoria Cigarette Company wanted to establish a school for the factory’s children. Rudolf Steiner agrees to create a curriculum as long as the school is open to all children, is co-educational, is a unified twelve year school, and the teachers have primary control of the school. From these humble beginnings the Waldorf has grown to be one of the fastest growing private schools in the world. In North America alone there are one hundred forty six schools and three schools in Virginia (AWSNA Online Authors 2007). The curriculum attracts parents from all different backgrounds and offers a chance for students to grow naturally into their knowledge.

“The head the heart and the hands”: a curriculum focused on learning from experience instead of memorization. Waldorf schools emphasize the ascending spiral of knowledge; each lesson building on the previous and using the skills, both intellectual and physical that have been taught previously. There are several developmental stages that the curriculum speaks to; early childhood, middle childhood and adolescence.

Early childhood is marked by the child's ability to imitate the world around them. Because of this an “environment worthy of unquestioned imitation” (Johnson Fenner 1992) should be established. The environment should work towards creative play and meaningful imitation. The Waldorf School believes that if you stress a child’s intellect when they are very young the physical side of the child is slowed. Therefore, the focus of the early years is one of physical and experience based learning.

Middle childhood is a transition between the early childhood and the adolescence. In middle childhood the intellect of the child begins to take shape and they begin to form their own opinions.
Waldorf uses the world of imagination to educate the whole child and begin a dialogue of analysis. Through imagination the myths and legends of antiquity teach important lessons of morality and history. Through imaginative play, handwork and movement the child learns to take pride in their accomplishments.

Adolescence is an important time in the life of a child. The intellect becomes the primary focus. The child begins to manifest their individual spirit and Waldorf education is focused on nurturing and curing this process. The child begins to self educate and truly move into adulthood.

Lessons are taught through all manner of writing, speaking and creation. In kindergarten the focus is one of imitation and learning through movement. Morning in the kindergarten class is dedicated to creative play. After kindergarten the curriculum finds structure and a rhythm to the day. In the morning a long lesson is taught and the children learn from a combination of instruction, movement, and creative, interactive learning. In the afternoon, a learning activity is scheduled. Eurythmy, a form of movement, handwork, art or gym are afternoon activities. Handwork is a very important part of the Waldorf curriculum. It includes knitting, crocheting, beeswax modeling and later, woodworking and needlepoint. These are all seen as tools to improve hand eye coordination and a means for the student to create through themselves, sponsoring self reliance. The act of creation helps the child identify with form and line and learn from their own perspective the
lessons that are being taught everyday.

The Waldorf aesthetic is a conglomeration of the inclinations of the teachers, the curriculum and established norms in the Waldorf School. When walking through a Waldorf School one will encounter watercolor paintings, hand knitted dolls, wooden toys, and natural elements. One of the most interesting and enduring aspects of the Waldorf School aesthetic is the color coding of the classrooms and the correlation with the ages of the grade. Each grade is assigned a color from a warm peach-pink for kindergarten to a violet in eighth grade. The colors symbolize the educational endeavours in each class. In kindergarten through third grade the colors begin at peach-pink and follow the spectrum through to yellow/gold. These years are seen as physical more than intellectual years and the color corresponds with this activity. In the fourth grade the color begins to cool into green, symbolizing the shift from physical learning into the intellectual. This color palette continues until eighth grade when the color becomes violet. These colors are usually applied using a technique called Lazure. It is a painting technique that is applied in layers and uses all natural paint made from beeswax and natural pigments. This technique lessens the abrupt corners in a room, giving a sense of rounded walls and movement (Vivian Jones-Schimdt personal correspondence Nov. 14, 2007).
23. Woolen animal toys
24. Michaelmas Festival at the Meadow School in Somerset England
### Diagram of European Waldorf School

#### Classroom Colors

<table>
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<th>Age in Years</th>
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<th>7</th>
<th>8</th>
<th>10</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15-16</th>
<th>17-18</th>
<th>Mass.</th>
<th>Working</th>
<th>Room Relationships</th>
<th>Windows</th>
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<td>(B)</td>
<td>(C)</td>
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<td>(G)</td>
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<td>(J)</td>
<td>(K)</td>
<td>(L)</td>
<td>(M)</td>
<td>(N)</td>
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<tr>
<td>London School</td>
<td>1925</td>
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<td>Stuttgart, Main Building</td>
<td>1921-3</td>
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<tr>
<td>Hamburg</td>
<td>1927-28</td>
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Note: The Xerox copy does not show the subtle gradations from red to yellow. Shades are only approximate.

### Description

**25. Diagram of European Waldorf School classroom colors**

**26. The third grade classroom at Mulberry Waldorf School in Kingston Ontario**

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**COLOR IN THE SCHOOL -**

**ANALYSIS OF COLOR SCHEMES FOR THREE DIFFERENT COMBINED LOWER & UPPER COEDUCATIONAL SCHOOLS (Europe) - after Dr. Rudolf Steiner**
The Richmond Waldorf School opened in 1995 and settled in the educational building of a church in the Northside of Richmond. They remained there several years, but began to grow out of the church’s educational center. Several years ago they moved into the Westover Hills Baptist Church educational center. They share some facilities with the Baptist church, however most of their facilities are separate. They are currently a Pre-K through seventh grade school and hope to establish their eighth grade in the coming year (Amy Farley personal correspondence Sept. 17, 2007).

The site is a fairly residential neighborhood that offers ample street parking and pleasant surroundings. Even though the school is connected with the Baptist church, neither party has functions that intrude on the other. The playground is in the back of the school and offers both structured and non-structured play. The entrance to the school is located at the back of the building making it hidden from the main street. This does require the school to have more wayfinding, however it also offers a more secluded entrance. The classrooms and offices of the school are up a main stairway, on the second floor. This does limit easy ADA access, however once again does offer a little privacy for the school.

Because their facility is an old educational center the rooms and surrounding structure fit nicely into Waldorf aesthetic. The original floor plan and most of the original materials from the building have been kept. The only modifications that have been made are in the Eurythmy room. Because of budgetary reasons they have had to settle for carpet instead of wood to replace the existing vinyl composite tile.

When one first enters the upstairs lobby, reception and main offices are directly to the left. This allows for visitor greeting as well as an extra pair of eyes on the students. The right hand section of
the building is dedicated to student and classrooms, while the left hand side is mainly administrative and parent oriented.

All the classrooms are in one central location, giving both students and teachers interaction with the entire school. The placement of the classrooms emphasizes the close knit community that exists at Waldorf schools. All of the classrooms have a teacher area, a nature table, a chalkboard and at least one area for storage. The largest classrooms are set aside for Kindergarten and first grades, giving ample room for creative play. The upper grades have smaller rooms, but need ample space for storage of art supplies, cooking supplies and materials. Each classroom holds the mark of what grade is taught in the room, not only through the color on the walls, but their storage and curriculum needs. The younger classrooms are grouped together at the one end and the upper grades are farther along the hall. Each room has moveable desks with built in storage. In the Waldorf curriculum the teachers are the main administrators and always need a quiet, convenient place to hold meeting, therefore a large teacher’s lounge is important.
Diagram showing major breakdowns of space allotment

School plan, second floor
Richmond school’s kindergarten classroom

Typical upper grades classroom plan
The Charlottesville Waldorf School was founded in 1982 with guidance from the Baltimore Waldorf School. Their first location was in southern Albermarle County in a small farmhouse. In 1991 after several moves accompanying growth, they moved the grade school to the small town of Crozet, Virginia just outside of Charlottesville. In 2003 they began the campaign to build the “greenest school in America” (Charlottesville Waldorf Foundation website Dec. 2, 2007). This August they were able to open the first stage in the process: the Kindergarten through seventh grade building. Their new site allows for ample growth while maintaining a beautiful landscape and play areas. The new building will be LEED certified and embody both the principles of Waldorf and the principles of sustainable design.

Phase one of the project, which opened August 2007, is the main building on the lot. It is not clearly visible from the road; however it is focus of the area. The administrative offices and Pre-K are currently in a small house slightly closer to the road. This unfortunately breaks the campus up into two parts, but is only considered temporary. When their new building is completed they are hoping to have an integrated Pre-K through eighth grade, including administrative offices.

The main building is extremely open to the elements. Every classroom is off an outside corridor that is only protected by overhangs. The outside corridors do not allow for much grade interaction and most assemblies are currently being held outdoors, weather permitting. The cozy community felt in most Waldorf Schools is only seen when the students are in recess and is hard to maintain without common indoor areas.

The sustainable aspects include woods harvested from managed forests and low VOC finish materials. They have also incor-
Corporated fresh air ventilation systems, rainwater harvesting and a multitude of daylighting techniques. In the final plan they also are hoping to incorporate green roofs and geothermal heating systems (Kathryn Snow personal correspondence Oct. 19, 2007).

The new building has both downstairs and upstairs classrooms. The upstairs is accessible by stairs and by ramp. All of the decking is made of wood and allows the building to blend in with the surrounding natural area. All of the classrooms have three major components: mud room, rest room and instructional area. The mud room contains storage for outdoor sports, personal student coat racks and area where students can shift from outdoor to indoor. The rest rooms were a requirement given the absence of a common hallway. It allows for students to be excused without major interruptions to class and to clean up after being outdoors. The instructional areas are very similar to other Waldorf schools, and they all have a large sink and prep area, making art clean up easier and quicker. The general storage and personal student storage varies from grade to grade, however they all have the basic teacher area, desks and chalk boards.
Section and upstairs partial plan

Typical classroom plan
31. Section/ Perspective of proposed building
32. Mechanical engineering section of proposed building
The Chicago Waldorf School was established in 1974. They moved into an old church education building and began to establish the school. They are now one of Chicago’s most successful and well respected private schools (Chicago Waldorf Online Authors).

During the site visit, it is clear from the way Waldorf had infused the neighborhood with their aesthetic that the school had been there for quite some time. The surrounding area has been changed to reflect the presence of Waldorf. The neighborhood surrounding the school is predominantly residential. However, even though residential it is still in an urban environment; the elevated train is only a block from the school and the major feeder avenue is only two blocks away. This creates juxtaposition next to Waldorf’s mainly natural setting; however the school blends into the surrounding neighborhood.

Over the years, the Waldorf school grew out of the confines of the old education center and moved south across the street as well. The Pre-K, the teacher’s office and other administration, and the school store have store fronts across the street from the main building. Their presence further infuses the neighborhood with the Waldorf aesthetic. Waldorf has created large carved stones to mark where their school facilities are. It is a nice way of stating that these areas are affiliates without a huge sign that states that.

The store fronts across the street are decorated with beautiful displays for the season. In this way Waldorf is expressing their aesthetic but also softening the urban environment around them. The windows are a simple way the school is giving back to the community and expressing their values at the same time.

Another way the Waldorf School is changing the community is in the community garden located between the school and the
rail line. In a vacant lot they have created a community garden that teaches the students gardening and farming skills while giving the community a beautiful place to enjoy. The gate is never locked, so the public is always welcome to come and enjoy even the garden.

The Waldorf School also allows the community to use their playground in off hours. The back of school is dedicated to a playground that is shaped around the side and rear of the school. The playground itself is centered on unstructured imaginative play. There are only four structures on the plot, including a geodesic dome, a chain ladder and two small houses. Even though these are structures they do not program the children in to one activity, thereby allowing for free creative play. The other components of the playground are a sandbox, large logs, carved stones and trees. These simple, but beautiful elements allow for complete creative play while also allowing for a simple structured environment.

The Chicago Waldorf School has not allowed their urban setting to deter any of their school’s goals. Instead they have taken the opportunity to change the urban environment around them to reflect the school’s emphasis.
Diagram of neighborhood relationships

Diagram of playground layout
A display in the storefront of the administration building
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26. http://www.mulberryschool.net/about.htm
27. www.richmondwaldorf.com
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Bibliography


