Momentum Clinic for Teen and Young Adult Cancer Patients

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An adaptive reuse design thesis submitted in partial fulfillment of the requirements for the degree of Master of Fine Arts, Interior Environments

Merian O’Neil
Virginia Commonwealth University
May 2016
am inspired by chasms that need
bridging and by people who flourish
against all odds.

believe design is bound to place, nature,
history, and the people it serves.

believe design should manifest itself
by inspiring possibility, fueling the
imagination, creating hope, sparking
people to action or by simply serving
people in a better way.

believe design can effect positive
change — for people, for our community,
for our environment, for our world.

believe in the creative process of
recognizing discoveries and shaping
design better than we once imagined.

The possible’s slow fuse is lit by
the imagination.

Emily Dickinson
Recognizing the need is the primary condition for design.

Charles Eames
Worldwide, a child is diagnosed with cancer every three minutes (St. Baldrick’s Foundation, 2014). In 2014, there were 5330 new cancer cases in the United States for adolescents aged fifteen to nineteen (American Cancer Society, 2014). One young American is diagnosed with cancer every hour (Teen Cancer America, 2016).

The VCU Children’s Hospital serves both the greater Richmond area and adjacent underserved areas in the region, defined by the boundaries of Fredericksburg, Williamsburg, the North Carolina border, and Louisa. In 2014, 113 children were treated at VCU Children’s Hospital for cancer; approximately twenty percent of these patients were adolescents aged thirteen to twenty-two (R. Dillon, personal interview, September 25, 2015).

The Hematology/Oncology clinic within the VCU Children’s Pavilion that opened in March, 2016 serves children and adolescents in an open clinic setting with no age separation.

The World Health Organization identifies adolescence as the years spanning ages ten to nineteen (World Health Organization, 2015). This period of life is a transition that is the second fastest period of growth and change in life, only outpaced by infancy. The target age group for this study is teens and young adults, ages thirteen to twenty-two.

Most teens endure long-term treatments in a pediactric facility targeted primarily for children, while others are treated in adult facilities. Teens have different privacy and social needs than children, and while they are not adults, they are involved in their own treatment decisions, unlike children.

Our experiences shape the way we think about design. I witnessed my son and other teens endure long-term treatments in a pediatric facility targeted primarily for children. Exam tables were too small, clowns visited frequently, and the lobby television was perennially tuned to a children’s network. While precedents are scarce, this design hypothesis is that a place that targets the unique needs of teens and young adults could make a difference in their experience and ultimately in their healing.

Research indicates a lack of design scholarship for teen cancer clinics or teen hospital settings. Healthcare Design published two articles between 2013 and 2015 featuring teen cancer centers, one for a pediatric center, one for a hospital teen lounge. A search of Interior Design and Journal of Interior Design resulted in no articles on teen or children’s cancer centers in the past ten years.

This study explores the needs of teen and young adult cancer patients undergoing long-term outpatient chemotherapy treatments and the design of an outpatient clinic that accommodates this population’s unique needs.

The site for this adaptive reuse program includes adjoining antebellum Italianate townhomes, the Samuel Putney and Stephen Putney homes located on the VCU Medical Campus at 1010-1012 East Marshall Street, Richmond, Virginia. They were built in 1859 for the Putneys, father and son shoe manufacturers, who occupied the houses from 1862-1894. The location of the houses is in the once-fashionable Court End area of town where Richmond’s elite lived. Today they are home to administrative offices for VCU Health Sciences and External Affairs.

The site was chosen based on its close proximity to the new VCU Children’s Pavilion (see map). The houses provided a canvas for designing a space for the targeted teen and young adult patients receiving outpatient cancer treatment and for survivor clinics. Porches and gardens provided additional design opportunities to incorporate nature.
I paint mostly from real life. It has to start with that. Real people, real street scenes, behind the curtain scenes, live models, paintings, photographs, staged setups, architecture, grids, graphic design. Whatever it takes to make it work.

Bob Dylan
The Putney houses are in an urban setting in downtown Richmond. Directly across the street from the VCU Children’s Hospital, their front elevations can be seen as reflections in the modern building façade. Busy medical professionals and hospital visitors can be seen on the streets and in line at food trucks during the weekdays. The VCU Medical Campus buildings face the houses on the east. The Valentine Museum is behind the houses.
Italianate trim and moldings adorn the exterior of the Stephen Putney brick house and the Samuel Putney stucco house. Period wrought iron posts, fences, and balconies frame the façade.

A garden along the east elevation of the Stephen Putney house provides a respite from the urban setting. A large magnolia tree shades the southeast corner of the house. Privacy in the garden is provided by shrubbery and a brick wall.
as-built plans
partis

scope and structure

floor 1

floor 2

floor 3

axes

floor 1

floor 2

floor 3
partis

g energy

door 1

door 2

door 3

entry and circulation

entry

circulation

parking

walking from children's hospital

walking from main hospital
sun analysis

East Marshall Street
North Eleventh Street

5:00 pm
9:00 am

East/west section

noon

north/south section

- 9:00 am
- 5:00 pm

- summer solstice
- spring and vernal equinoxes
- winter solstice
I think that the training of architects allows you to see what will happen ten years ahead of time, or twenty. It’s not guessing, it’s not intuitive, it’s based on research — and we may be wrong.

Zaha Hadid
Research indicates that there is no agreeable age range for adolescents. The range starts as young as ten and as old as twenty by the World Health Organization. The phase of adolescence is defined by a time when individuals are trying to assert independence and establish identity while planning for the future. They are involved in discussions about their cancer diagnosis and treatment.

An article in *The Lancet* discussed that neither pediatric nor adult facilities adequately addresses the needs of adolescent cancer patients (Hollis, 2001).
Adolescents and young adults are at a vulnerable age where their physical, cognitive, and social development can all change as a result of a cancer diagnosis and treatment. Their physical appearance changes, which could impact their self-esteem. Academic achievement could be impacted, depending on their ability to attend school. They could feel isolated from friends and peers, impacting their social life. Their independence is usually impacted, and they find that they now have to spend more time with parents instead of peers (Bell, 2015).

Many factors affect the healthcare issues unique to this group, including whether they should receive pediatric or adult care, how they transition from pediatric to adult care, and how involved their families should be in their care (National Academy of Sciences, 2013). Teenagers who are treated in pediatric or adult facilities may not ever see others their age during their course of treatment, adding to their sense of isolation. This isolation limits their ability to form bonds with peers that could be important in dealing with cancer and its effects. Their diagnosis, treatment, and survivor care can span decades and many phases of life, which suggests that this group could have needs that are uniquely different than those diagnosed when they are children or adults. One young adult patient indicated that he walked in as a child and walked out as an adult (Blume, 2013).

In recent years, health care providers have become increasingly aware that adolescent and young adult cancer patients have not been adequately addressed in the current system. Depending on their diagnosis, they are referred to either pediatric or adult specialists, and their treatment becomes fragmented in various facilities and services. Despite the low incidence of teen and young adult cancer, it is becoming recognized by professionals worldwide that this group should be cared for by professionals who are expert in this age group and who can help provide an age-appropriate environment (Morgan, 2010).

Differences in teens can also be seen in their environmental preferences. Teens who were polled about their cancer healthcare experiences indicated that they liked having access to better entertainment, more social opportunities to interact with peers, and a more comfortable environment for themselves and their families (Farjou, 2013). Adolescent preferences were summarized in a study about offices and waiting areas. Study results indicate that the design of these facilities should be less childish, more teen-oriented, and more homelike. They also indicated they would like to have more diversions appropriate for teens, such as television and games (Tivorsak, 2004). Another study conducted via in-person interviews uncovered similar results. Teens indicated a need to talk with others who know what they are going through while also being able to participate in activities and have fun as a normal teenager (Cassano, 2008).

Similarly, adolescents and young adults find themselves in the same awkward situation after treatment. One study indicated that a significant number of these patients did not utilize psychosocial support services. This result indicates a need to discover why they are not and how these services could be improved to adequately address their needs (Zobrack, 2014). The U.K.’s Teenage Cancer Trust sponsored a study to examine the impact of the architecture and design of cancer units for teen and young adult patients. The study included interviews with patients, family members, and staff. Results pointed to a need to maintain a sense of normalcy for patients and their families. Teen Cancer Trust’s design philosophy evolved from the study findings and includes five elements: control, comfort, being connected, personalization, and stimulation (Cassano, 2008).
The Teen Cancer America (TCA) program is an outgrowth of the successful teen and young adult program in the U.K. They recognize teens and young adults as a “forgotten cancer population” and contend that by providing holistic support, including medical and psycho-social support, survival rates for this population could improve. TCA funds hospitals dedicated to treating and supporting teens and young adults with cancer (Shaban, 2014).

Young adult cancer patients indicate an overwhelming sense of isolation. (Davies, 2015). This is supported in feedback from patients in the first Teen Cancer America space at UCLA Medical Center’s Daltrey/Townshend Teen and Young Adult Cancer Center when asked about graphic designs in a hospital zone for them. They indicated that no imagery should be used where anyone is sitting or standing alone. They also expressed positive feedback in imagery that reflected the local surroundings, such as sun and surf, but noted that it should be sensitive to their situation. For example, showing surfers may not be appropriate given that many of these young people lose limbs. Another example is that bright red, a common chemotherapy color, may stir up feelings of nausea. These findings support the imperative to consult people who will be using the space (H. Gan, personal interview, January 13, 2016 and H. Barangan, personal interview, January 15, 2016).

Teens are not children, and they are not adults. They have completely different emotional and social needs than children or adults, however most cancer programs are designed for one or the other.
Our human attraction for nature, or biophilia, is a concept that can be built into design for healing. Biophilia was first described as our “innate tendency to focus on life and life-like processes” (Wilson, 1984). We feel a connection with nature, and it impacts our moods. Sunsets can have a calming effect, or rain can be invigorating (Huelat, 2003).

Biophilic design has become increasingly more prevalent in the urban environment where nature can appear distant. Strategies in urban settings might include incorporating green spaces in terraces and rooftops, the use of water features and daylight, and natural materiality like wood, rocks and stone in the interiors. It has been shown that even images of nature can have a positive impact on wellbeing (Augustin, 2015, Hild, 2013, and Huelat, 2003).

This photograph is a green wall built into the design of Lady Cilento Children’s Hospital in Brisbane, Australia.
Ginkgo trees thrive in Richmond—on urban streets and in parks—due to their tolerance for pollution and resistance to diseases. Their resilience, the shapes and colors of their small leaves, and their impact on the urban environment were a source of inspiration for this project’s design concept.

New and old ginkgos are found scattered throughout the Richmond landscape, including this specimen on the hospital campus across from the children’s emergency entrance in the Critical Care Hospital at MCV. Their unique fan-shaped leaves slowly turn from green to bright yellow in the fall and frequently fall altogether in a short period of time.

The ginkgo tree, indigenous to China and commonly known as the maidenhair, is considered a living fossil, remaining virtually unchanged for more than 200 million years. Considered a symbol of hope and peace in China and often depicted in art and literature, it was introduced to Japan, where it is frequently found in tea gardens. For thousands of years, ginkgos were believed to have medicinal properties in China and Japan, and now are recognized for these properties in the West as well.
From the pine tree, learn of the pine tree, and from the bamboo, of the bamboo.

Matsuo Basho
Precedents were chosen based on designs that are programmatically similar to the project, or that are mindful of healthy, sustainable, and accessible design, or that incorporate nature in meaningful or significant ways, or that are tied to the community, or that conceptually evoke an emotional response that is desirable in the design.
The Angie Fowler Adolescent and Young Adult Cancer Institute within University Hospitals Rainbow Babies and Children’s Hospital in Cleveland, Ohio was named for a fourteen-year-old adolescent who succumbed to melanoma in 1993. Angie was treated in an adult facility with no age-appropriate comforts.

The Institute was designed by Stanley Beaman and Sears and was completed in 2014.

Color-changing light is used throughout the facility to guide patients and families through the various environments. The backlit welcome wall displays changing graphics and messages to steer patients and visitors to their destinations. It frequently features an aquarium in honor of Angie who was interested in marine biology.
This floorplan and diagram illustrates how the design was guided by three key project components: participation, collaboration and information-sharing, resulting in a plan allowing more convenient patient/staff communication.

Patients and visitors enter the facility via the elevator directly across from the reception desk. The welcome wall is seen immediately upon entering the space.

The program for this cancer institute has pediatric and teen treatment spaces at opposite ends of the floor in separate wings. There are also separate social spaces for each group— a teen lounge and a pediatric activity room.

In order to facilitate communication between the medical professionals and patients, care teams were arranged throughout the facility in both open and semi-private arrangements.
Meandering paths, artwork, sculptures and a living plant wall are incorporated in the space.

A large work of art is displayed outside a conference room.

A green wall conceals duct work.

The roof garden provides time away from the hospital room.

Care team stations, flagged by warm woods, are decentralized to be closer to patients.

Storage cabinets and walls are efficiently organized for medical staff.

Treatment rooms house magnetic glass walls for patient and staff messages.

Patient and care team spaces are designed for maximum efficiency and to promote communication.

Meandering paths, artwork, sculptures and a living plant wall are incorporated in the space.
The interactive wall in the teen lounge provides access to the Internet, movies, and video games.

Lighting and window seats provide an open and airy feel in the teen lounge.

The learning space has curved glass walls and a sliding glass door.

A private work area is available for patients or parents.

Art in the teen room honors Angie’s love of art.

Windows provide ample natural lighting throughout the space.

The Institute is one of the few hospitals in the United States that has a separate facility for adolescents and young adults.

The teen lounge accommodates public areas for interactive play and lounging as well as private areas for doing homework or working away in a quieter zone.

Lighting and window seats provide an open and airy feel in the teen lounge.
Lady Cilento Children’s Hospital in Brisbane, Australia, designed by Conrad Gargett Lyons, was completed in 2014.

The project takes full advantage of incorporating biophilic design in an urban environment by harnessing maximum square footage of nature in its eleven stepped roof terraces. Connection was made to nature and to the surrounding urban landscape through the design of more permeable spaces.
Connection was made to the outside by designing the building so that people inside could see outside and outside people could see in, as depicted in the north elevation below. This idea further connects the sick to the community.

Incorporating natural landscape was a goal of the design, and extensive landscaping was included in the design on all levels, from the rooftop terraces to the greenwalls to the healing garden.

Over time, research will be conducted to determine the healing influence of the natural design.
The design of the Children’s Healthcare of Richmond Pavilion on the medical campus of Virginia Commonwealth University Health System completed in March 2016 by HKS creates a healing atmosphere in an urban setting. This precedent lends a local Richmond perspective to the project.
The new outpatient pavilion is located at 1000 East Broad Street, one block from the Putney houses.

The design concept for the pavilion is an urban oasis for children. It draws inspiration from the nearby James River. A terraced plaza uses stepped planters to symbolize the river’s edge. Panels surrounding the parking levels have a pattern of openings that evoke light and shadow in trees. A sky garden brings nature to the environment.
Levels in the pavilion are color-coded for wayfinding and represent elements of the design concept — from the path at the ground level to the clouds on the top level.

Patient space in the pavilion’s hematology/oncology area includes five infusion stations in an open area and two additional private infusion rooms, eight exam rooms, and a nourishment station.

Staff and office spaces include a nurse station, physician and staff workrooms, child life office, clinic coordinator office, interview and consult room, and a lounge for staff.

Other spaces include a pharmacy, medication storage, and other storage and utility closets.
Common design features throughout the facility are nature and interactive walls and floors designed for visitor engagement.
Genzyme Center, the LEED-platinum headquarters for Genzyme Corporation in Cambridge, Massachusetts, completed by Behnisch Architekten in 2004, is an international biotechnology company that is “dedicated to making a major positive impact on the lives of people with serious diseases” (Olmstead, 2005).
The Genzyme Center is an example of a project built to maximize a healthy environment. The building was designed from the outside in to reflect how employees work and collaborate and makes maximum use of daylighting, air circulation and individual lighting and temperature control. Eighteen gardens throughout the facility bring the outdoors in. A large prism chandelier is installed in the atrium.

Daylight is distributed throughout the facility through acrylic prisms installed as a large-scale mobile installation. Light bounces around the building as the prisms move, which further enhances the dynamism in the environment.

Furnishings in the Genzyme Center were designed by Steelcase, the first LEED-certified manufacturing facility. Furniture is ergonomic, adjustable, and made from natural and sustainable materials.
The Salk Institute for Biological Studies in La Jolla, California, was designed by Louis Kahn and completed in 1962. At the direction of Jonas Salk to create an open, collaborative environment, Kahn created two mirror image buildings on either side of an open courtyard.

The architecture of the Salk with its central organizing axis frames a path to infinity—a path where all things are possible just over the horizon.
Open travertine courtyard as façade to the sky with a narrow waterway linking the building to the Pacific Ocean.

Conceptual interpretation of the paths to infinity in the open courtyard and structure between laboratories.
Richard Meier designed the High Museum of Art, completed in 1983 in Atlanta, Georgia, with a central ramp system that was inspired by the Guggenheim. This space differs in that there is a separation between the circulation space and gallery space which allows direct and indirect light to filter in through the large atrium.
The High Museum creates an inviting experience for visitors through the design of the primary circulation path—the long, winding ramp. Use of the ramp allows visitors to gradually experience the open volume of the multi-story atrium. There is a sense of discovery as visitors move in and out of the galleries accessed from the ramp.

Floor plan depicting ramp, central atrium, and circulation

Section diagram of open atrium, skylights, and circulation ramps with windows

Natural light in the atrium

View from the atrium looking through the skylights

Front entrance with ramp extending to the street
Everything should be made as simple as possible, but not simpler.

Albert Einstein
Type III - combustible (wood) floor and roof framing and non-combustible (brick) exterior walls

ADA accessible
Durable finishes and sterile/antimicrobial surfaces for cleanliness and infection control
Layout that promotes efficient medical attention
Increased emphasis on acoustic and visual privacy (HIPAA)
Typically requires emergency battery backup for 25% lighting

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<th>Area</th>
<th>Gross</th>
<th>Net (60% efficiency)</th>
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<td>basement</td>
<td>4,219</td>
<td>2,531</td>
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<td>5,097</td>
<td>3,058</td>
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<td>floor 2</td>
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</tr>
<tr>
<td>floor 3</td>
<td>3,605</td>
<td>2,163</td>
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<td>Total</td>
<td>17,970</td>
<td>10,781</td>
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<table>
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<th>Occupants</th>
<th>Total</th>
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<td></td>
<td>112</td>
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Toilets: 1 per 25 for first 50 + 1 per 50 for remainder = 4
Sinks: 1 per 40 for first 80 + 1 per 80 for remainder = 4
Water fountain: 1 per 100 = 2

Two exits per story
**areas**

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<th>description</th>
<th>activities</th>
<th>fire</th>
<th>ADA</th>
<th>privacy</th>
<th>acoustic</th>
<th>visual</th>
<th>physical</th>
<th>net square feet</th>
<th>area / occupant</th>
<th>adjacencies</th>
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</thead>
<tbody>
<tr>
<td>reception and waiting</td>
<td>space where patients and survivors check in for treatment, examinations, counseling, or a group survivor session</td>
<td>seating, occasional tables and lamps for 10-12 people, reception desk and chair, storage unit, computer station</td>
<td>y</td>
<td></td>
<td>12</td>
<td>30 sq ft</td>
<td>410 sq ft</td>
<td>reception, restroom, nurse station</td>
<td>reception and waiting</td>
<td></td>
</tr>
<tr>
<td>treatment room</td>
<td>open infusion room with private bays where patients self receive treatment and can interact with other teens and young adults</td>
<td>patient lounge chairs with built-in tables for 4-6 patients, guest chair for 6-10 visitors, storage unit for supplies, mobile tables, television, medial storage unit, bookcase, sink</td>
<td>y</td>
<td></td>
<td>20</td>
<td>175 sq ft</td>
<td>3500 sq ft</td>
<td>exam rooms, snack room, restrooms</td>
<td>treatment room</td>
<td></td>
</tr>
<tr>
<td>exam rooms</td>
<td>4 exam rooms</td>
<td>examination table, guest chair, medical stool, counter, sink, medical supply storage unit</td>
<td>y</td>
<td></td>
<td>16</td>
<td>38 sq ft</td>
<td>600 sq ft</td>
<td>exam rooms</td>
<td>exam rooms</td>
<td></td>
</tr>
<tr>
<td>study room</td>
<td>room for patients to study or family members to work or read</td>
<td>waiting for 9-10 with chairs, sofa, tables, bookcase, magazine rack, dolly stations</td>
<td>y</td>
<td></td>
<td>10</td>
<td>20 sq ft</td>
<td>225 sq ft</td>
<td>treatment room, restrooms</td>
<td>study room</td>
<td></td>
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<tr>
<td>snack room</td>
<td>small kitchenette with stocked snacks and drinks</td>
<td>small sink, self-serve, microwave, seating for 8-10 patients and guests</td>
<td>y</td>
<td></td>
<td>10</td>
<td>17 sq ft</td>
<td>400 sq ft</td>
<td>snack room</td>
<td>snack room</td>
<td></td>
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<tr>
<td>recreation room</td>
<td>a series of recreation spaces for patients and survivors to play games, watch television and movies, and do activities</td>
<td>television, DVD player, electronic game console, electronic docking stations, pool table, lounge seating for 10-12 people</td>
<td>y</td>
<td></td>
<td>16</td>
<td>26 sq ft</td>
<td>410 sq ft</td>
<td>snack room, restrooms</td>
<td>recreation room</td>
<td></td>
</tr>
<tr>
<td>meeting room</td>
<td>conference-type group meeting space for teen and young adult survivor or staff meetings</td>
<td>conference table and chairs for 10 people, lounge seating for 6 people, television, storage credenza</td>
<td>y</td>
<td></td>
<td>16</td>
<td>25 sq ft</td>
<td>400 sq ft</td>
<td>snack room, restrooms</td>
<td>meeting room</td>
<td></td>
</tr>
<tr>
<td>nurse station</td>
<td>desk area for nurses or other medical staff</td>
<td>3 desk arrangements with filing units and computers</td>
<td>y</td>
<td></td>
<td>3</td>
<td>80 sq ft</td>
<td>240 sq ft</td>
<td>reception, exam rooms, office</td>
<td>nurse station</td>
<td></td>
</tr>
<tr>
<td>office</td>
<td>office for medical staff and other care coordinators</td>
<td>3 desks with computers and storage space</td>
<td>y</td>
<td></td>
<td>8</td>
<td>30 sq ft</td>
<td>240 sq ft</td>
<td>exam rooms, nurse station</td>
<td>offices</td>
<td></td>
</tr>
<tr>
<td>physician work room</td>
<td>place for physicians and medical students to work</td>
<td>3 desks with computers and storage space</td>
<td>y</td>
<td></td>
<td>3</td>
<td>40 sq ft</td>
<td>120 sq ft</td>
<td>exam rooms, offices</td>
<td>physician work room</td>
<td></td>
</tr>
<tr>
<td>staff work room</td>
<td>place for healthcare staff to work</td>
<td>2 desks with computers and storage space</td>
<td>y</td>
<td></td>
<td>2</td>
<td>40 sq ft</td>
<td>80 sq ft</td>
<td>offices, treatment room</td>
<td>staff work room</td>
<td></td>
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</tbody>
</table>

**Total 112**

800 sq ft (10,781 total net sq ft available)
floors 1-3
13,751 gross sq ft
total space (all floors)
17,970 gross sq ft

program space (floors 1-3)
8,565 net sq ft

graphic program

- treatment room
- reception and waiting
- snack room
- recreation room
- offices
- physician work room
- staff work room
- study room
- meeting room
- exam rooms
- nurse stations
- physician work room
- exam rooms
- meeting room
- staff work room
Critical adjacencies are determined by programmatic and conceptual demands of the project.

The Americans with Disabilities Act (ADA) informs all design solutions, but serves as a basis rather than a goal. To address the treatment, recovery, and healing needs of teens and young adults, their families, and the medical professionals that serve them, a designer must look beyond building codes and other legal requirements to determine the best design strategies for the project.
Various spaces at MCV Hospital in Richmond were observed for programmatic design: reception areas on the main floor and ancillary areas of the hospital, seating areas in the hospital, corridors with adjoining seating, an information area with high-low water fountains, a conference room, an intake area with semi-private interview desks, and a wayfinding wall.

All main corridors are wide, allowing ample circulation space for the constant people traffic throughout the day and night. All spaces are ADA-accessible, from the sizes of the corridors to the low reception interview desks.

Materials used on furniture, including vinyl and laminates, are necessarily easy to maintain and clean. Low maintenance terrazzo and laminate floors and carpet tiles are also used throughout.

Waiting spaces were designed to be mindful that visitors may be seated for extended periods of time. Opportunities to view the outdoors were incorporated in the seating arrangements where possible.

Clear signage and wayfinding was found throughout the main corridors.

**mcv hospital**
The Children’s Hematology/Oncology Clinic in the MCV Nelson Clinic building is fondly known as the “fish bowl”—the motif used in the infusion area. This clinic moved to the new Children’s Pavilion in March 2016.

The facility includes a reception and waiting area, triage room, consult room, infusion room with nurse station, exam rooms, private patient room, ADA-accessible restrooms, and physician and staff workrooms. Materials and floors are easy-to-clean vinyl and laminates. In the absence of natural light, the areas are well-lit and delineated by ceiling clouds.

The waiting area seats twenty-five to thirty children and adults. The triage room is approximately eight by six feet and can comfortably seat a child and nurse.

Exam rooms are approximately nine feet by fifteen feet in size and include a patient exam chair, a physician chair and table with counter and sink, and a guest chair.

Accessible restrooms are approximately eight and one-half feet by six feet, ten inches. The private patient room is much like an inpatient room with a bed, television, and private restroom, and is approximately eight feet by twelve feet.

The infusion room is approximately eight feet by fifteen feet, with patient and guest chairs to accommodate six patients and one guest each. Curtains are available for privacy. The nurse station is across from the infusion area and has space for five nurses.

The staff workroom is approximately nine by eight feet, where two to three healthcare professionals can work at computer stations. The physician’s workroom has space for approximately five physicians and medical students to work and access computers.
Hope is the thing with feathers
that perches in the soul
And sings the tune
without the words
And never stops at all.

Emily Dickinson
Concept exercises encourage freedom for the designer to explore a germ of an idea within a minimal framework that does not limit the imagination.
This series of watercolors explores the cell structure of ginkgo leaves. Varying parts of the cells have different jobs, but they work together to nourish plant life. If one is out of rhythm, the entire structure is compromised.

The original watercolors were digitally solarized, which resulted in a luminescent symphony of colors.
Crucial to creating a design that suits your target audience is understanding their needs. A series of emotions and feelings was examined against a backdrop of the design site.

The series begins with the time of diagnosis and culminates at the end of treatment. Hashtags were assigned to each site view, representing what the client would be thinking and feeling during each phase of treatment.
Cancer patients undergo treatments over the course of months, sometimes years. The concept of seasons carries new meaning as they progress through these treatments.

This series of collages examines the phases of treatment in relation to seasons and how one might feel, from the shock of the initial diagnosis to the isolation of being a young cancer patient.

As patients come to accept their new normal, they begin to notice little things like nature, the kindness of strangers, or being comforted by new friends they have something in common with.

The end of treatment marks a sense of freedom coupled with worry for what’s to come.
Young cancer outpatients will spend hours at a time over the course of many months in this facility. The view to the outside world is as important as the design inside the rooms.

What might they see from each side of the building? Which views have the most opportunity to contribute to a healing atmosphere? This series of collages examines those questions.
What can a design do to best address the needs of these young patients?

Comfort is a necessity. Nesting in cocoons comes to mind. Warm, soft materials come to mind.

Being surrounded by family and friends is nourishing, like a canopy of trees.

Design should address these needs with both the privacy of one’s own nest along with the opportunity to socialize under a canopy of wellness with other patients, family, and friends.
Accessibility is of the utmost practical concern in a healthcare setting. Finding a way to incorporate accessibility as a design feature is desirable. This series of studies explores how ramps and materiality might interact with the building.
Reflection on research led to the identification of important program constituencies and the needs and desires of each.

The ideas that were explored in previous conceptual studies were also examined.

concept examination

building

to preserve and inspire through history.
to be reflective of the community.
to fit within locale.
to be conscious of site.
to be accessible.
to be safe.
to be structurally sound.
to be environmentally sound.
to adapt to the needs and desires of clients.
to reflect natural light.

designer

create design where there is a gap in needs and desires.
design spaces that make a difference.
design spaces that are bound to place.
design inspiring spaces.
tie nature to design.
create hope through design.
design spaces that fuel the imagination.
design spaces that spark people to action.
design spaces that effect positive change.
shape design in a better way through discovery.

concept studies

holistic Design should be greater than the sum of its features.
harmonious Design should be a blend of its greatest features.
reflective Design should reflect the nature of the situation.
inspirational Design should nourish the soul.
temporal Design should reflect how and when the space will be used.
hopeful Design should encourage positive feelings.
authentic Design should begin with reality.
possible Design should end with possibility.
nourishing Design should foster health and well-being.
surprise Design should interject elements of surprise and discovery.

program

needs to include

spaces for safe treatment.
spaces that maximize social interaction.
design that brings out the true character of the space.
spaces for family and friends.
comfortable spaces.
efficient spaces for medical and administrative staff.
materials that are appropriate for well-being.
lighting to accommodate different moods and activities.
design that promotes communication.
easy and identifiable pathways.

clients

comfortable private spaces.
features that provide control for enhancing the space.
spaces for play.
spaces that stimulate the imagination.
spaces that incorporate nature.
safe and secure spaces.
spaces that create a sense of hope.
spaces that are age-appropriate.
spaces that are inspirational.
spaces that encourage normal activity.
Overlap among the needs and desires pointed to potential conceptual drivers.

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<tr>
<td>light</td>
<td>communication</td>
<td>normal</td>
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</tr>
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- holistic
- harmonious
- reflective
- inspirational
- temporal
- hopeful
- authentic
- possible
- nourishing
- surprise
Concepts were refined and collages were developed for the ten identified concept drivers:

- Reflective
- Nourishing
- Possible
- Inspirational
- Social
- Authentic
- Imaginative
- Hopeful
- Safe
- Holistic
Five concepts were further refined through line and tonal drawings and three-dimensional models.

Some of the concepts began to meld together.
Design principles and elements can be discovered in nature. Living cells, fundamental units of life, were investigated through diagramming ginkgo leaf and stalk cell drawings. An analogies can be drawn between cell dynamics and what occurs in an interior environment. Like living cell environments, the design for the clinic will be transparent where interaction within the space is desirable. Movement from space to space will be permeable, rhythmic, and fluid. The space will be compartmentalized for specific functions, united in common areas, and adaptable to accommodate changing demands and individual control over personal space. Like cell functionality, some spaces in the clinic will have one function while others will have more cooperative activity.

These cells have a density in the nucleus with less density in the periphery. A clear hierarchy emerges between the various cells. The sizes of the individual cells appear to be proportional to each other.

Disparate patterns of these cells combine to create a unified whole. The individual cells are primarily closed shapes. The cells are rhythmically arranged both vertically and horizontally.

There is asymmetrical balance in the arrangement of these varied cells. Harmony can be found through color.
Reviewing and editing the concept studies revealed a direction for designing the space.

The design and experiential vision for the Momentum Clinic is to immerse patients and staff in an environment that is physically, mentally, and emotionally nourishing. The clinic is to be a space for unbridled hope and a space that embraces possibilities.

To support that vision, the design concept is to define a permeable and fluid space that is inspired by living cell dynamics — how cells are independent yet interactive. There is a connection between living cells that is similar to connections between the spaces within the proposed building.
The multiple levels of the Putney buildings are not naturally conducive to permeability and fluidity. The front sections of both buildings are completely separate, and the rear sections are abutted together with only one pass-through on the first floor. Two sets of stairs lead visitors in one pathway from the top to the bottom levels of each building separately.

A series of diagrams demonstrates potential opportunities to create a more permeable and fluid space between the two buildings, between the front and rear sections of the buildings, and in relation to the building exterior.
Sometimes when you innovate, you make mistakes. It is best to admit them quickly, and get on with improving your other innovations.

Steve Jobs
The program will honor and respond to the concept intent through celebration and discovery of spaces that are at the heart of the program: the main entrance and reception, treatment space, and visitor gathering and recreation spaces. Creating permeability and fluidity between these spaces is a requisite design goal.

Opportunities for patient control over their individual environments as well as opportunities for social interaction will be created. The graphic program was arranged in various schemes to respond to these needs and desires for the space.
Bubble diagrams were interpreted from the graphic program schematics.
The first option has both public and private treatment spaces on the first floor along the east elevation looking out to the garden.

The recreation area and other spaces that will be used by patients are on the second floor.

The third floor includes spaces that will primarily be used by staff.

The second option has a public and semi-private treatment space on the first floor along the east elevation looking out to the garden.

This option explores the arrangement of all of the program spaces on two floors, which opens up possibilities for removing floors and opening space in some areas.

The reception area is located on the second floor in the last option, where patients will check in and see medical staff for examinations before going to the treatment area on the first floor.

The recreation area is divided into two different spaces on the third floor.

Block diagrams of plans and sections further refined the options.

Block diagrams 1 2 3

reception exam rooms treatment
snacks recreation workrooms
meeting workrooms

The first option has both public and private treatment spaces on the first floor along the east elevation looking out to the garden.

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Primary spaces were further developed from the block diagrams.

1. The first floor includes the main entrance, reception area, and two main treatment rooms.
2. The second floor includes meeting spaces, offices, and exam rooms.
3. Recreation areas occupy the third floor spaces in both buildings.
Initial inspiration was drawn from the greens and blues of the concept studies and their interplay with natural and sustainable materials such as wool, wood and resin.
Collages for primary spaces were sourced based on programmatic function and consideration of color, light, and texture.

The spaces on the opposite page are inspiration for outdoor gathering, reception, indoor gathering, and a snack area.
Collages for the spaces on the opposite page are inspiration for a meeting space, exam rooms, treatment space, and recreation and play.
Early watercolor perspective studies examined some key spaces in the design: an elevator, the treatment room, and an exam room.
Primary spaces were further explored during the schematic phase.
A 1/16-inch scale sketch model of the site and building was constructed to aid in the design schematics.
Rhythm was explored in this 2.5D model—the rhythm of the ribbon of windows on the east wall and the rhythm of the building levels arranged from south to north.
To whom does design address itself: to the greatest number, to the specialist of an enlightened matter, to a privileged social class? Design addresses itself to the need.

Charles Eames
Accessibility is an important consideration for the space and was accommodated by installing a new elevator enclosed in a glass atrium between the buildings. Visitors walking from nearby medical facilities will access the clinic from this front entrance.

All three floors were opened to the outside garden on the east side of the site by installing doors to the balconies on each of the three levels.

The reception and waiting area is just inside the atrium entrance and adjacent to the elevator entrance in the Samuel Putney house. Parking in the rear leads visitors to the back entrance that also leads to the reception area. The rear space of the Samuel Putney space on this floor is used for storage.

The first floor of the Stephen Putney house includes the treatment space that leads to a connections café in the rear part of the building via a ramp.
Open and enclosed meeting and gathering spaces, and staff offices and workrooms are located in the Samuel Putney second floor building.

The second floor of the Stephen Putney building includes exam rooms, a small library, and nurse station. Access to the meditation and study area on a higher level in the back of the Stephen Putney building is accommodated with a ramp into the space from the second floor.
Both sides of the third floor are reserved for recreation. A new bridge inside the atrium provides a new circulation path between the two spaces that encourages additional connections. A new rooftop garden can be viewed from the east recreation space.
Progression through the levels of the Putney houses occurs via the new elevator or the existing stairs in the Samuel Putney house. The stairwell was enclosed in glass to show connections and blur the lines between the spaces.

The Stephen Putney front stairs were demolished, and a new stairwell was added in the rear of the building.

Circulation between the two buildings was opened up on each level via a passageway in front of the elevator.

The Samuel Putney third floor was lowered to the level of the Stephen Putney third floor, providing accessible corridors between the two buildings.
There are multiple levels through the Samuel Putney space. Patient areas in this building are those that can be accessed from the elevators, reserving the back spaces only accessible by stairs for staff.
The Stephen Putney spaces also include multiple levels, but were made accessible to patients via ramps.

A second floor was removed from the rear part of the building, which opened up the connections: café to a two-story space. The café is accessible via a ramp from the front of the building's first floor.

A ramp from the second floor leads to the meditation and study space in the rear of the building.
A 1/8-inch scale model of the exterior and site of both buildings displays the new atrium entrance and emphasizes the architecture of the historic buildings.
The east side of the model shows gardens that patients can enjoy from the treatment room and connections café. One of the patient treatment spaces is nestled inside the bay window. Doors off the balconies on all three levels provide access to the outside. The new rooftop garden can be viewed from the recreation area on the third floor.
Privacy is maintained in the garden via a brick wall enclosure in the rear two-thirds of the garden. The garden’s shape echoes the linearity of the buildings. Access to the garden is provided through a door from the connections café that was relocated next to the bay window to provide space for the ramp inside.
Patients driving to the clinic have access to parking just outside the rear entrance to the Samuel Putney building.
The model allows the two buildings to be pulled apart to show a section view in the Stephen Putney building, including ramps and treatment bays.
The color palette for the space was inspired from a Knoll textile that was ultimately specified for the reception space. It evokes the design concept with its colors permeating into and out of each other.

Blues, greens, and neutral colors were selected for the quieter treatment, meditation, and study spaces to encourage a calming environment.

Orange and purple accents and more patterns were used in the more active spaces—the reception area, the connections café, and recreation areas.
Infection control is a high priority in healthcare settings and was a primary consideration for the treatment area. Marmoleum flooring, a natural linoleum, was specified for this area. It is bio-based, highly durable, non-toxic, anti-microbial, and easy to maintain. It is also used in the connections cafe where there will be food and high traffic.

Cork flooring was specified for the reception, meditation and study areas to provide a resilient, cushioned, and aesthetically pleasing surface.

A combination of Marmoleum and carpet tiles were selected for the recreation spaces to delineate the different areas. Carpet tiles can be easily replaced when damaged and worn.

Flooring transitions will not be abrupt, but will be arranged in a gradually-changing pattern from one space to another, tying back to the design concept of permeability and fluidity.
The design for the clinic unifies the two buildings with a clearly marked entrance to the space between the two buildings. A new ramp from the sidewalk leads to the atrium entrance with enclosed elevator. The existing separate front entrances to the Putney buildings were converted to Juliette balconies for patients to enjoy the outdoors.
Visitors enter the reception area via the
elevator to the first floor or from the
steps just inside the atrium. The reception
and waiting space is an open area with
views to the interior stairway through
glass walls. The reception desk is back-lit
with 3form Chroma to indicate where
visitors should check in.
ff+e
reception, waiting, common areas

Knoll Atelier Confetti
Knoll Hopsack Melon
Designers Guild Source Hestia
Knoll Whip Mist

CoalesseAwait
CoalesseDiekman Trees

Herman Miller Sayl
LZF Agatha Bola
3form Chroma Surf

Torly's Carlton Teak
Torly's Call di Tinทรา the Dual
The treatment space on the first floor includes treatment bays arranged along a curve facing the windows, allowing views to the garden from all spaces. Translucent glass walls permit light in while maintaining privacy.

Each treatment bay has three small pendant lights that can be dimmed based on personal preferences. Booths for nurses are arranged on the opposite side with glass walls and doors that can also be pulled closed for privacy. Open booths provide extra guest seating.
ff+e treatment

Knoll Whip Sprig
Knoll Whip Bluesky
Momentum Velocity Pond
Momentum Silica Alfresco

Felt/Forbo Modular Compressed Time

Steelcase Health Verge
Coalesse Await
Coalesse Bob
Herman Miller Everywhere
LZF Raindrop

need to put cafe furniture, bar top and door back on stephen new -- moved to this level to print floor plan only
The connections café is an active area where teens and young adults can sit together and connect. A large interactive wall was installed along the ramp side. It will feature local outdoor graffiti murals and allow patients to add their own graffiti to the wall.

The semi-circular counter encourages patient interaction and allows patients in wheelchairs to pull up directly from the ramp. Counter-height stools are arranged on the opposite side, which allows all guests to be at the same eye level.

(See next page.)
Forbo Marmoleum Modular Fox Club

Momentum Vox Tropic

Momentum Silica Tropic

Concept Surfaces Pixel tile

Blue

Orange

Green

Forest Marmoleum Modular Fox Club

ff+e connections café

need to put cafe furniture, bar top and door back on

-- moved to this level to print floor plan only

Blue

Orange

Lime

Emerald

Ocean

Bees outdoor wall mural, Richmond, Virginia, Matt Lively

Coalesse Lagunitas

Herman Miller Eames

LZF Raindrop

3form Chroma Surf

LZF Dandelion

Shorm Osama Surf

186
added staff furniture and doors to floor 2 to print this floor plan (it physically resides on sam 2 newback) so currently the furniture is doubled up on two different levels — delete furniture on floor 2 to print sections.

added grab bars on floor 2 to the stephen east new restroom to print this floor plan — delete if print sections.
ff+e: exam rooms

Herman Miller Swivel
Midmark 204
Midmark 680
Steelcase Health Verge

ff+e: porches and balconies

Forbo Marmoleum Modular Compressed Time
Forbo Marmoleum Modular Laguna

Added staff furniture and doors to floor 2 to print this floor plan (it physically resides on sam 2 new back) so currently the furniture is doubled up on two different levels — delete furniture on floor 2 to print sections.

Added grab bars on floor 2 to the stephen east new restroom to print this floor plan — delete if print sections.

Added cafe furniture, bar top and door back on stephen new — moved to this level to print floor plan only.
The meditation and study space is located in the rear of the Stephen Putney building facing the east garden of the site. It is a quiet place of reflection and blurs the lines between inside and out with application of natural materials and a rock garden with plants that faces the exterior garden. Teens can study or meet with tutors in the glass-enclosed study room. (See next page.)
ff+e meditation / study space

Knoll Hopsack Celery
Knoll Whip Twig
Knoll Whip Sprig
Designers: Lauren Birch

Knoll Intrigue Adventure
Sanfoot Walnut veneer wallcovering

Herman Miller Osso
Herman Miller Osso
Herman Miller Eames
Knoll Saarinen Womb

Bernhardt Code
LZF Link
LZF Ribbon
The third floors of the Putney buildings are reserved for active connections and play. The bridge inside the atrium permits fluid movement between the two spaces.

The Samuel Putney west side includes space for a pool table, a seating area, and a dual-height counter space for snacking and charging electronics.

The Stephen Putney east side includes larger seating groups, an area for playing computer games with a large-screen television, and a small kitchen and snack area (opposite page).
ff+e recreation samuel

Momentum Terra Trolley
Designline Hotspot Shell
Momentum Silica Bright Night
Forbo Marmoleum Modular Fox Club

Cassina Dinkman Tree
Knoll Bertoia
Herman Miller Everywhere
Herman Miller Nelson
I don’t particularly like showing furniture on pedestals, but for whatever reasons you always have to in museums.

Zaha Hadid
The project was part of PÆRÆPÆKTIV(Z) A SPACE ODYSSEY, an exhibit showcasing thesis projects of graduating MFA Interior Environments students at VCUarts Depot Gallery April 29-May 15, 2016, with an opening reception on April 29.

Concept studies, six presentation boards, a 1/8-inch scale section model, and FF+e samples were displayed.
concept studies
The site for this adaptive reuse program includes the Putney houses, a series of townhouses located on the VCU Medical Campus at 1010-1012 East Franklin Street. The Putney houses were built in 1859 and are home to administrative offices for VCU Health Sciences and External Affairs.

To print this floor plan, go to floor one level below the rear entrance that also leads to the reception area. The rear of the Samuel Putney house leads visitors to the elevator or steps leading to the reception area. Parking in the vicinity is accommodated by installing a new elevator ramp. The rear space of the Samuel Putney space on this floor is used for storage.

The first floor of the Stephen Putney building includes the treatment space that leads to a connections café. The second floor includes exam rooms, open and enclosed meeting and gathering spaces, and staff offices and workrooms. Access to the meditation and study area on a higher level in the back of the Stephen Putney building is accommodated with a ramp into the space from the east side of the site by installing doors to the balconies on each of the three levels.

The second floor includes exam rooms, open and enclosed meeting and gathering spaces, and staff offices and workrooms. Access to the meditation and study area on a higher level in the back of the Stephen Putney building is accommodated with a ramp into the space from the east side of the site by installing doors to the balconies on each of the three levels.

The second floor includes exam rooms, open and enclosed meeting and gathering spaces, and staff offices and workrooms. Access to the meditation and study area on a higher level in the back of the Stephen Putney building is accommodated with a ramp into the space from the east side of the site by installing doors to the balconies on each of the three levels.
The new design for the clinic unifies the two buildings with a clearly marked entrance to the space between the two buildings. A new ramp from the sidewalk leads to an atrium entrance with an elevator inside. The existing separate front entrances to the Putney buildings now serve as Juliette balconies for visitors to enjoy.

Visitors enter the reception area via the elevator to the first floor or from the steps just inside the atrium. The reception and waiting space is an open area with views to the interior stairway through glass walls. The reception desk is back-lit with 3form Chroma to indicate where visitors should check in.

There are multiple levels through the Samuel Putney space. Patient areas in this building are those that can be accessed from the elevators, reserving the back spaces only accessible by stairs for staff.

The Stephen Putney spaces also include multiple levels, but were made accessible to patients via ramps. A second floor was removed from the newer rear part of the building, opening up the connections café to a two-story space. The café is accessible via a ramp from the older front part of the building’s first floor. A ramp from the older second floor of the building leads to the meditation and study space in the newer part of the building.
The connections café is an active area where teens and young adults can sit together and connect. A large interactive wall was installed along the ramp side. It will feature local outdoor graffiti murals and allow patients to add their own graffiti to the wall. The semi-circular counter encourages patient interaction and allows patients in wheelchairs to pull up directly from the ramp. Counter-height stools are arranged on the opposite side, which allows all guests to be at the same eye level.

The treatment space on the first floor includes treatment bays arranged along a curve facing the windows, allowing views to the garden from all spaces. Translucent glass walls permit light in while maintaining privacy. Each treatment bay has three small pendant lights that can be dimmed based on personal preferences. Booths for nurses are arranged on the other side with glass walls and doors that can also be pulled closed for privacy. Open booths provide extra guest seating.

The meditation and study space is located in the newer part of the Stephen Putney building facing the east garden of the site. It is a quiet place of reflection and blurs the lines between inside and out with application of natural materials and a rock garden with plants that faces the exterior garden. Teens can study or meet with tutors in the glass-enclosed study room.

The recreation space on the third floors in the older parts of the Putney buildings are reserved for active connections and play. A bridge was installed inside the atrium that connects the two spaces together. The Samuel Putney west side includes space for a pool table, a seating area, and a dual-height counter space for snacking or charging electronics. The east Stephen Putney side includes larger seating groups, an area for playing computer games with a large-screen television, and a snack area.
section model
the opening
I hope that this project will inspire designers to:

- bridge chasms that need narrowing for people who flourish against all odds.
- connect design to place, nature, history, and the people it serves.
- strive to inspire possibility, fuel the imagination, create hope, spark people to action, or serve people in a better way.
- effect positive change — for people, for our community, for our environment, and for our world.
- trust the creative process, recognize discoveries, and shape design better than we once imagined.

Thank you.
May you build a ladder to the stars
And climb on every rung
May you stay forever young

Bob Dylan

guidance
hernan barangan
jillian chapin
robyn dillon
hilary gan
laura hild
christiana lafazani
rab mcclure
shari perago
linda pye
sara reed
kayt rosemond
emily smith
rob smith
roberto ventura
camden whitehead

collaboration
ray ab-dun-nur
erin casey
leah embrey
thomas kennedy
yvonne lefrancois
nilufar makhamatova
rose peck
jessie walton
elise warren
sarah webb
ashley whitehead
laura wilson

inspiration
patrick o’neill
colin o’neill
jim o’neill
Ink is better than the best memory.

Chinese proverb


design development
pp. 184-186, 214. Bees outdoor mural used with permission from artist Matt Lively.
http://nelsonnaturally.blogspot.com/2014/04/murals-2.html
ff+e pp. 169-203
http://www.3-form.com/download_files.php
http://www.bernhardtdesign.com/products.html
http://www.coalesse.com
http://www.designtex.com
http://www.flor.com/zebra-crossing-wave.html#
http://www.hermanmiller.com/products.html
https://www.john燎.com/shop
http://www.lzf-lamps.com
http://www.midmark.com/products
http://sanfoot.net/species_customstains.html
http://www.steelcase.com
https://www.themomgroup.com/momentum_textiles.shtml#
http://www.wideplankflooring.com/cork-plank-flooring/torlys/torlys-sisal

exhibition
p. 206. Jim O’Neil
p. 220. Roberto Ventura
p. 221. (l) Jim O’Neil, (r) Roberto Ventura
To everything
turn, turn, turn
There is a season
turn, turn, turn
And a time to every purpose
under heaven

Pete Seeger
(adapted from the Book of Ecclesiastes)