

# Randall Children's Hospital

AT LEGACY EMANUEL



**A PLACE TO FLOURISH®**  
The CARITAS Project  
Generative Space Award  
Enabling Health: Everybody, Everywhere



RANDALL CHILDREN'S  
1994

guten tag  
bonjour  
hola  
ciao  
chào  
hello  
ni hao  
你好  
konichiwa  
privet  
namaste  
hey  
aloha  
こんにちは  
你好  
konichiwa  
privet  
namaste  
hey  
aloha

# Design Overview

The concept of “Generative Space” is both tangible and intangible. It is broad in its influence, yet can be found in the details. A look at Randall Children’s Hospital at Legacy Emanuel in Portland, Oregon reveals how the incorporation of a generative philosophy can dramatically advance a healthcare environment into a place to flourish.

The mission of Legacy Emanuel was to provide family-centered care to the youth of the community, by creating a new bed tower that would be dedicated to the care of children. Previously, children—nearly 100,000 annually—were treated in areas scattered throughout a hospital that addressed the needs of patients of all ages, where small, crowded units provided little space for families. Using research as its guide, the team set out to design a place specifically for children that would not only heal, but would also inspire.

The new 334,000 SF, nine-story Randall Children’s Hospital at Legacy Emanuel expands the facilities dedicated to children four-fold. It consolidates previously dispersed pediatric care and creates a new identity for the children’s hospital on the Legacy Emanuel Medical Center campus. It houses 165 inpatient beds for Acute Care, Neonatal Intensive Care, and Pediatric Intensive Care; a Children’s Cancer and Blood Disorder Unit; a new Children’s Emergency Department; and a Day Surgery Unit with direct access to surgery in the adult hospital. A tunnel connection, a first floor gallery connection, and a second floor bridge provide convenient access to the existing hospital’s other support services. The top floor of Randall Children’s is reserved for future growth. The project also includes a new 418-car parking structure, as well as new landscaping, gardens, street furniture, sidewalks, and pedestrian pathways that enhance the sense of place and arrival to the Legacy Emanuel campus. Graphics and colors used throughout the hospital celebrate the Northwest.

At the outset of the project, work sessions were held with Randall Children’s Hospital leadership to establish “Guiding Principles” for the design of the new hospital. The overarching goal was to create a place full of inspiration, with a sense of unexpected discovery and thoughtful distractions, in an environment that is comfortable for all ages.



**The hospital feels like home. The Make-A-Wish Foundation hosts Holiday Magic at Randall Children’s Hospital every year. In years past, several children have asked Santa for the “gift” of being able to go home for Christmas. At the first Holiday Magic held in the new Randall Children’s facility last December, not one child asked Santa to go home for Christmas.**



NW VIEW OF MAIN HOSPITAL ENTRANCE PHOTOGRAPHER NICK MERRICK  
© HEDRICH BLESSING

# SECTION



**Level 9**  
SHELL / FAMILY LOUNGE

**Level 8**  
ORTHO / NEURO / TRAUMA /  
REHAB / FAMILY LOUNGE

**Level 7**  
SCHOOL AGE MEDICAL /  
FAMILY LOUNGE

**Level 6**  
INFANT / TODDLER - GENERAL  
MED / SURG / FAMILY LOUNGE

**Level 5**  
PICU / FAMILY LOUNGE

**Level 4**  
ONCOLOGY / CARDIAC /  
FAMILY LOUNGE

**Level 3**  
OUTPATIENT CANCER CENTER /  
GARDEN ROOM

**Level 2**  
NICU

**Level 1**  
MAIN LOBBY / EMERGENCY

**Lower Level**  
CHILDREN'S DAY SURGERY

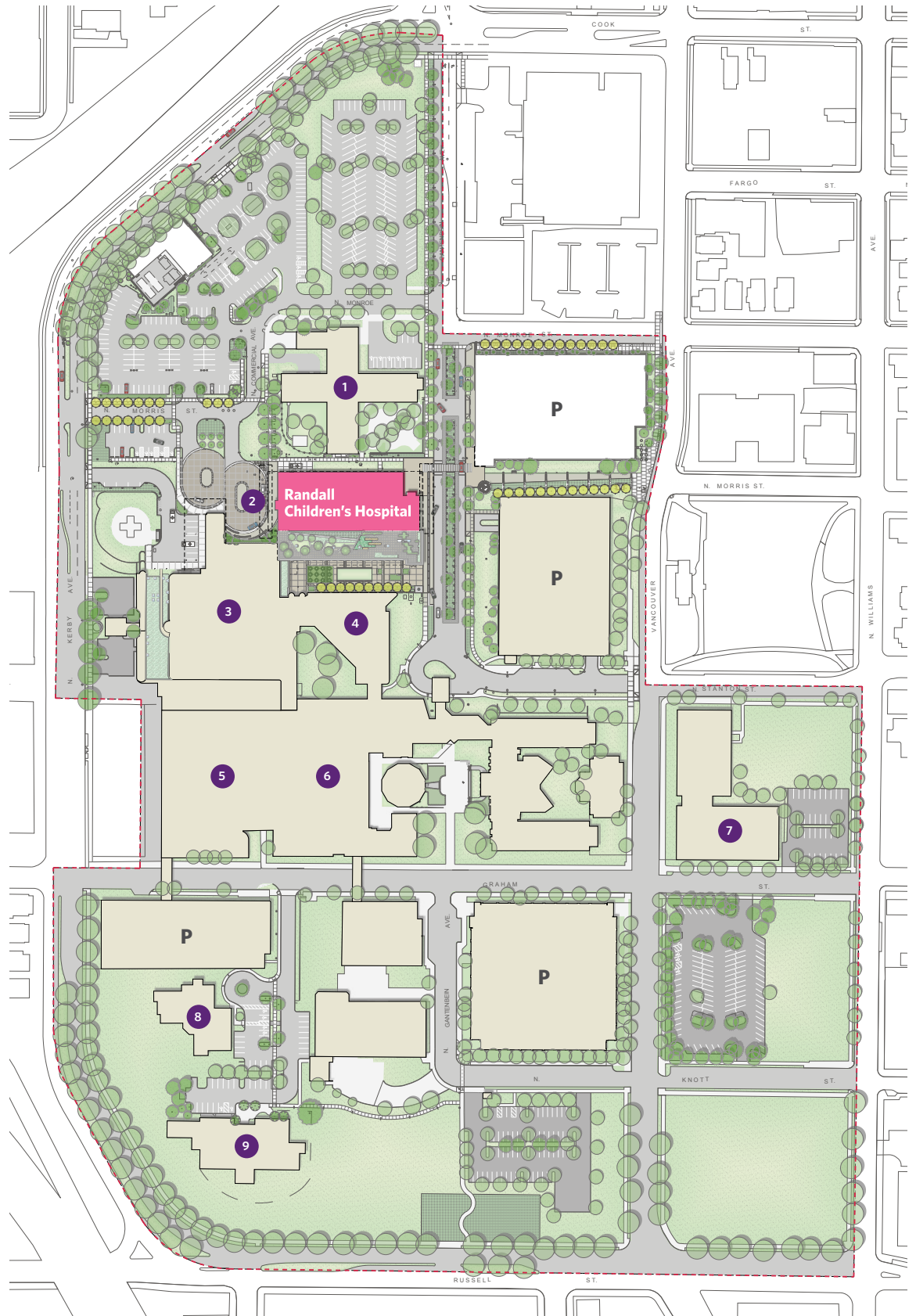
- Clinical
- Clinical Support
- Amenity
- Office
- Building Support
- Garden





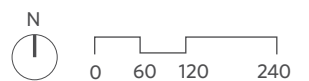
BUILDING ENTRANCE PHOTOGRAPHER  
STEPHEN A. MILLER © ZGF ARCHITECTS LLP

# SITE PLAN



## Legacy Emanuel Campus

- 1 Oregon Burn Center
- 2 Randall ED Drop-Off
- 3 West Wing
- 4 North Tower
- 5 Medical Office Building
- 6 Emanuel Central
- 7 Physicians Office Building
- 8 Radiation Oncology
- 9 Ronald McDonald House




# FLOOR PLANS

## LEVEL 2



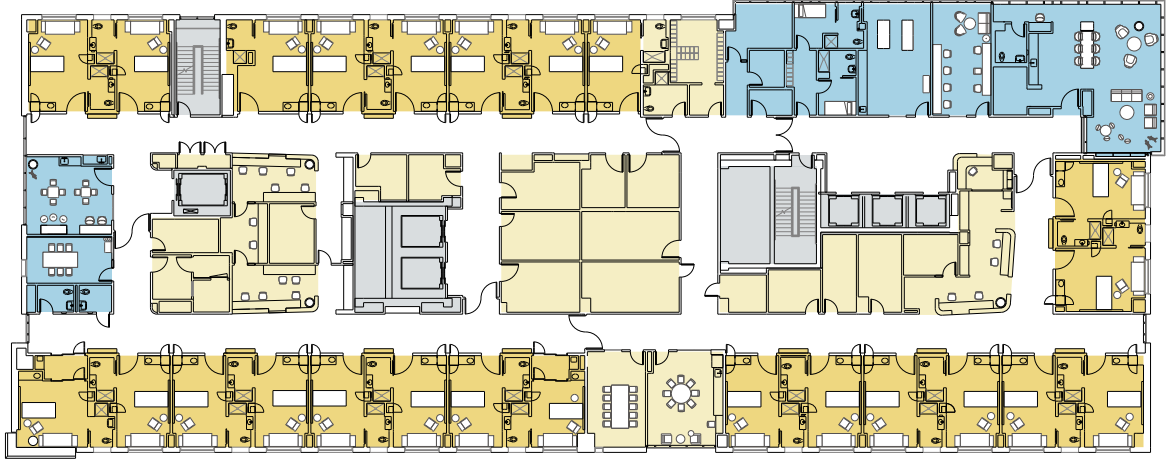
## LEVEL 1



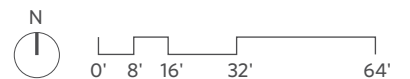
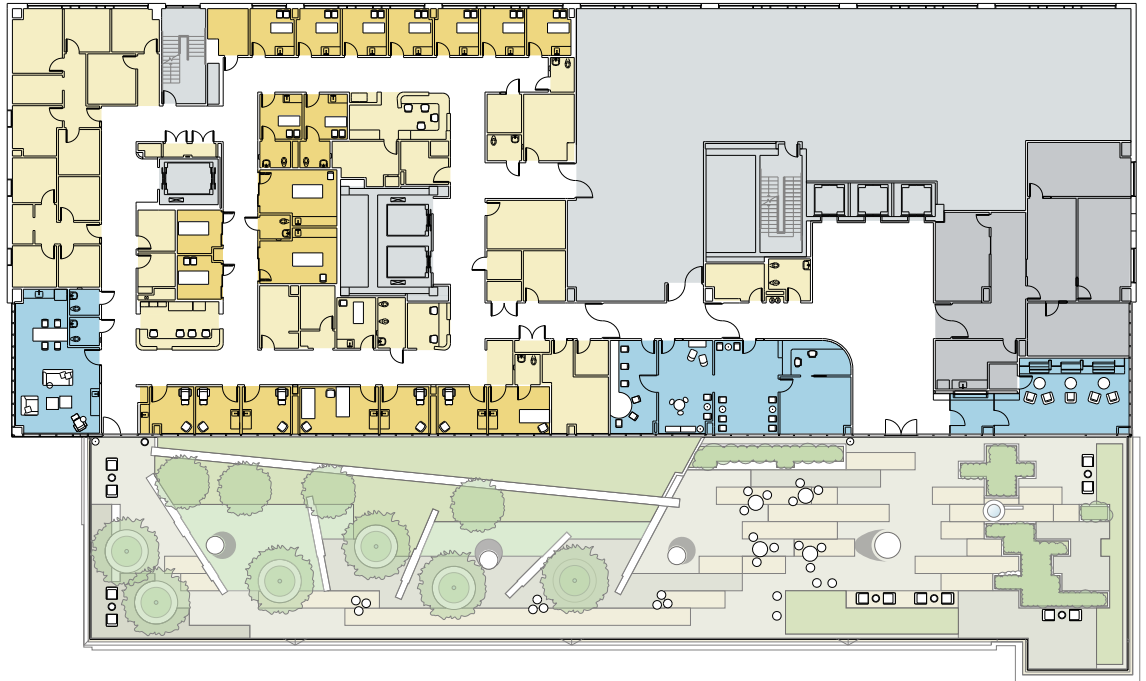
-  Clinical
-  Clinical Support
-  Amenity
-  Office
-  Building Support
-  Garden



TYPICAL  
PATIENT LEVEL



LEVEL 3





# A New Paradigm

REFERENCE The CARITAS Project

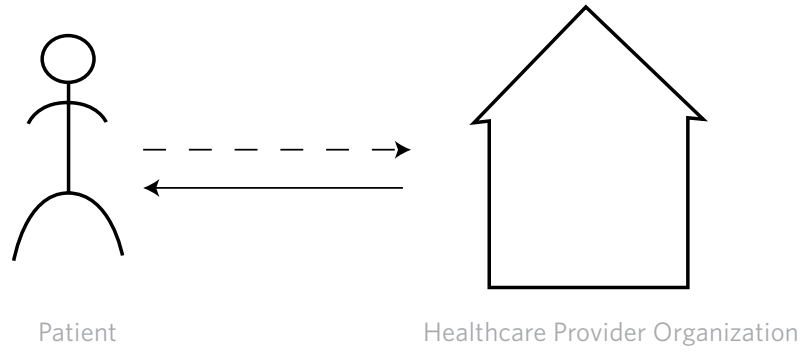
## Exercising 'Health Design Leadership' to Cultivate a More 'Generative Space'

Toward a Care-Centered Model of Whole-Community Health,  
Healthcare and Quality of Life



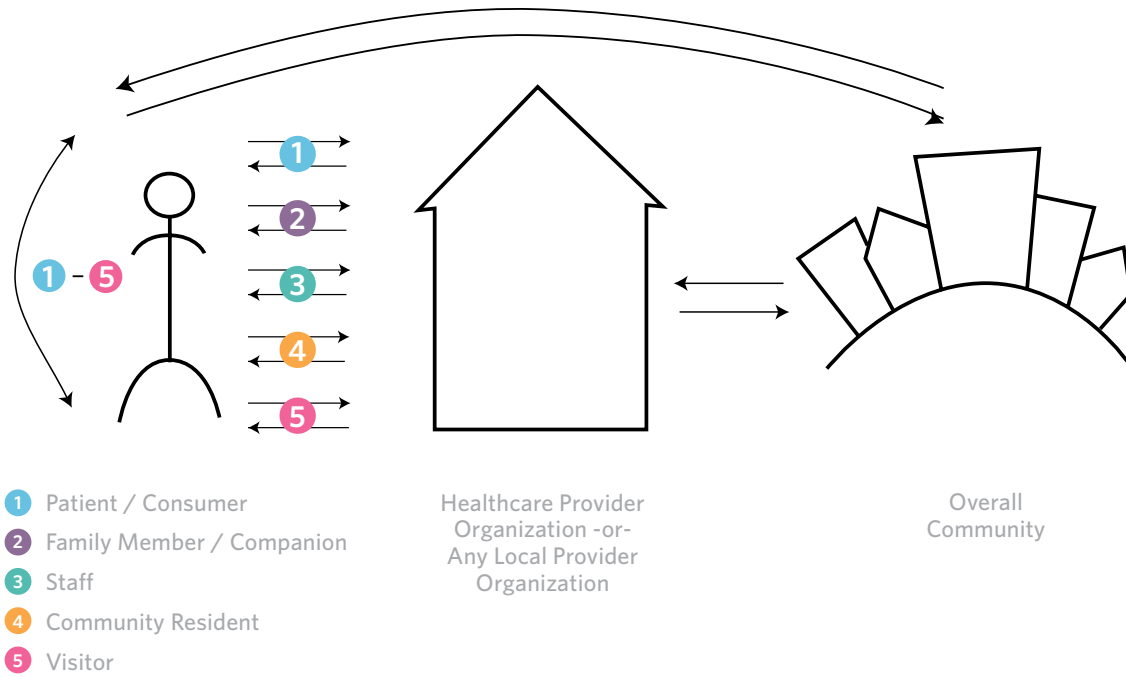
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**THE STATUS QUO** Instrumental Transactions (1+ arrow)



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**THE NEW PARADIGM** A Place to Flourish (15+ arrows)



# 1


## Patient

**GUIDING PRINCIPLE** We will offer the ideal patient and family experience by providing private patient rooms for all patients.

**DESIGN RESPONSE** All patient rooms are private in keeping with the family-centered care philosophy at Randall. The private room provides space for the families to be with their child, while providing the best healing environment for the patient with environmental control over lighting and temperature, and an acoustically quiet environment for enhanced sleep.

**ANTICIPATED BENEFIT** Patients will heal better and be less stressed, better rested and have a more positive hospital experience if they have privacy and control over their space and have their families with them.





“ We designed Randall Children’s Hospital with the idea that if we are going to care for children, we want to provide the best facility we can. ”

Bryce Helgerson, Vice President of Hospital Operations, Legacy Emanuel



BNICU-5



## PATIENT ROOMS

Much study has been done on the single patient room and the many benefits it provides over a semi-private room. Reduced risk of infection and the ability to provide a quiet environment are two compelling advantages to the single patient room. Patient and family control over their personal environment and greater utilization of rooms are additional advantages to the single patient room. At Randall Children's, the patient rooms all feature expansive 10-foot ceilings, which creates a sense of volume while providing enough space for a clerestory window into the corridor, directing more natural light into the core of the building. Patient rooms have large windows which frame city and mountain views. A bamboo headwall with a curving wood canopy over the bed is meant to mimic a "canopy" bed, providing a comforting enclosure around the child. Providing space for families in the patient room is an important aspect of family-focused care, and each room is equipped with a double sleeper sofa for family members, as well as a wardrobe closet and storage space under the sofa for

personal items. An entertainment module, additional patient/family storage and a niche for personal items are incorporated into the footwall of the room, along with a magnetic white board that allows patients to personalize their space. Lighting controls offer personalized dimming capabilities. Acoustics were also carefully considered to provide patients with a quiet environment. An independent wall was constructed behind the headwall to make sure that sound is not transmitted between patient rooms through the outlets in the headwalls. Patient bathrooms are located "mid-board," or between the rooms, enabling rooms to have a rectangular shape, more similar to that of a patient's bedroom at home. Sliding doors into the bathroom are made of colored glass and a large photograph of a nature scene, adding visual interest and art elements in the patient room.



**Since opening, overall family satisfaction rates have increased by over 10%, and specifically in the area of quietness of the rooms at night, satisfaction has increased over 20%.**

## NEONATAL INTENSIVE CARE UNIT

The 45-bed Neonatal Intensive Care Unit offers a family-centered care environment by providing private patient rooms with sleeper sofas and storage for personal belongings; 31 of the rooms are single patient rooms and seven of them have been designed to accommodate multiple births. A “neighborhood” concept was developed to organize the unit. Each of the four neighborhoods has a care team station and support space at its center to provide optimal visibility and access to patients by nursing staff. Smaller windows control light levels. High performance acoustical ceiling and wall panels and carpet ensure a quiet environment for this sensitive population.

## CHILDREN'S CANCER AND BLOOD DISORDER UNIT

Located on the third floor, the Children’s Cancer and Blood Disorder Unit consolidates clinic and day treatment facilities previously housed in separate buildings at Legacy Emanuel. The 8-bed inpatient oncology unit is located on the fourth floor, directly above, enhancing staff flow, collaboration and patient care between inpatient and outpatient oncology units. A mix of private and semi-private rooms for infusion provides opportunities for either socialization or privacy during treatment. A large corner room has been designed with space for three patients and is envisioned as a lounge-type environment for the adolescent and young adult (AYA) patient population. The infusion bays in the unit are located along the window wall adjacent to the terrace garden, where patients will have natural light and garden views. Patients, families and staff have direct access to the garden from the unit, where patients can also receive infusion treatment if they desire.

## DAY SURGERY

A 25-bed Day Surgery Unit provides space for pre- and post-operative services for pediatric patients. It is located to provide convenient access to the existing operating rooms in the main hospital via a newly developed well-lit tunnel connection that features lively stenciling to provide a positive distraction for patients on their way to surgery. A large play room is located in the Day Surgery Unit for children awaiting surgery. The lower level also includes the primary pediatric pharmacy and physical / occupational therapy facilities.

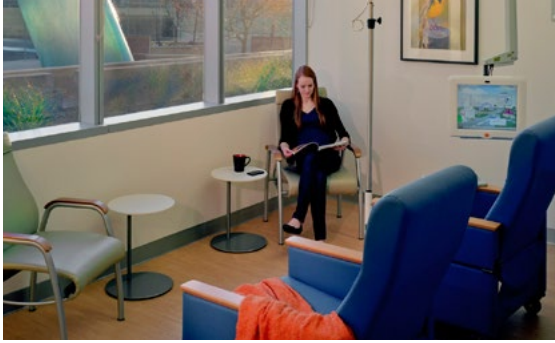
## ACUTE CARE UNITS

The 24-bed Acute Care Units provide private patient rooms organized into three 8-patient room neighborhoods. A decentralized model is employed, placing care team work stations and supply areas at the center of each neighborhood. This reduces travel distances for nurses and caregivers, and places their work areas close to the patients. Family lounges and other support spaces are located on the northeast corner of each floor, just off the elevator lobby. These spaces provide activity and respite space for families to spend time together, away from the patient rooms.



**Randall Children's is not only the product of lessons learned through personal experience and self-reflection within the Legacy Emanuel design team, but it has also incorporated successes from the other regional pediatric hospital in Portland, Doernbecher Children's Hospital. The two institutions will continue to act cooperatively, complementing each other in many regards, and offering reciprocal and mutual collaboration across organizations.**





**TOP LEFT** NICU PATIENT ROOM FOR MULTIPLE BIRTHS **TOP RIGHT** INFUSION PATIENT ROOM **MIDDLE** PICU PATIENT ROOM **BOTTOM** ACUTE PATIENT ROOM **PHOTOGRAPHER** PETE ECKERT © ECKERT & ECKERT



## PLAYROOMS, LOUNGES, AND ART STUDIOS

A dedicated art studio provides a place where patients have access to art supplies and can choose to work together on a project or individually. A teen lounge features computers and gaming software and an organically-shaped sectional couch that provides comfortable space for this special population to just hang out.



**TOP LEFT** ACTIVITY ROOM **BOTTOM LEFT** TEEN CENTER **RIGHT** ART STUDIO  
**PHOTOGRAPHER** PETE ECKERT © ECKERT & ECKERT



# 2

## Family

**GUIDING PRINCIPLE** We will provide family-centered care. The family, however it defines itself, is the center of the child's universe; therefore, family presence and participation in the care of its sick child facilitates healing.

**DESIGN RESPONSE** Family spaces have been provided throughout the hospital, from space to sleep in the patient room to amenity spaces, such as the Wellness Center, the Family Resource Center, and the Terrace Garden.

**ANTICIPATED BENEFIT** With comfortable and attractive space and accommodations, parents will be less stressed and better able to cope with the hospitalization experience. This will not only benefit the parent, but will improve their communications with the patient, staff, patient's siblings, and even colleagues at their place of work.



“ The new children’s hospital is really truly gorgeous. It’s inviting, swank, modern, thoughtful and spacious. ” JANA EAST, Parent



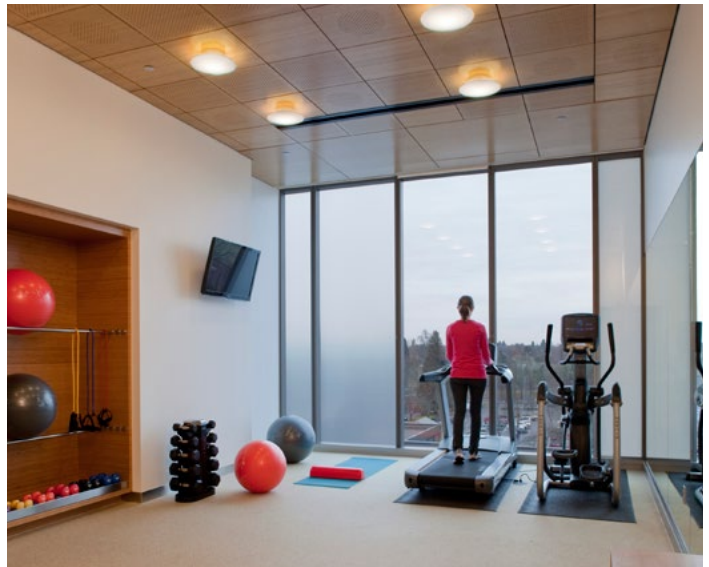


### FAMILY RESOURCE ROOM

The Family Resource Room includes computers, books, and a space for parents to work, stay in touch with other family members, and conduct research about their child's diagnosis.


### JACKSON HILL FOUNDATION WELLNESS CENTER

Some families may spend months supporting a very sick child in the hospital setting, as was the case for the family of Jackson Hill, a former cancer patient. When asked what changes they would like to see in a new hospital dedicated to children, the Hills expressed their wish for a facility on site in which to release anxiety through exercise and massage. The result was a wellness center at Randall Children's, open to all hospital families, 24 hours a day, year-round. It includes cardio machines, weights, Xbox and Kinect games, and a quiet area for stretching and yoga.



### FAMILY LOUNGES

Family lounges mimic home environments and let families share a meal, watch a movie, or do research on a computer. Seating of varying types accommodates all family members. Kitchen-like amenities are also provided, along with large windows that maintain a connection to the outdoors.

 **Systemic improvements, like quieter, calmer units for patients, families and staff, have reduced anxiety and stress. Nurses have commented, "It helps your mental state to be in spaces like these," and "I like the single rooms and the separation of spaces for nurses and families."**











## FAMILY AMENITY SPACES

Because families are at the center of care at Randall Children's, family amenities are abundant and fully integrated, narrowing the gap between hospitality and healthcare. Hospital leadership provided the vision to dedicate not just square footage, but variety of spaces, for families. Curving lines soften the building's interior and transform what could have been a typical sterile hospital into a family friendly space. Spacious outdoor terraces, with both fixed and movable seating, allow families to connect to the restorative powers of nature.

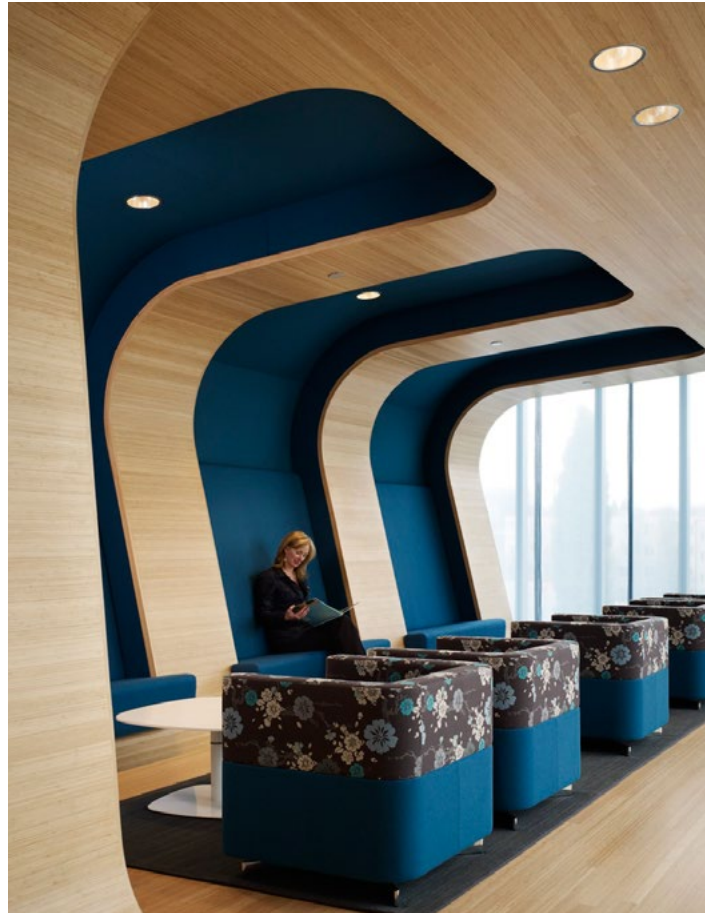


**Patients are not the only ones being nurtured in this hospital. Warm woods and curving forms inside, peaceful gardens outside, and strong connections to nature throughout the facility help improve the health and well-being of all who enter.**









### **TERRACE GARDEN**

A terrace garden on the third floor has been designed to provide a variety of environments for play, conversation, or contemplation. Portland artist Nanda D'Agostina designed sculptural, fiberglass cone elements, topped with a colored glass lens, that also act as skylights to the NICU below. Other elements, art glass panels, pergola structures, and plant and paving materials, have been chosen to create a restorative environment. An interior garden room is located at the east end of the terrace, offering a quiet place for introspection, regardless of weather, with access to a private outdoor garden.


# 3

## Staff

**GUIDING PRINCIPLE** Promote a healthy and supportive work environment to inspire and motivate clinical staff.

**DESIGN RESPONSE** The patient units have been designed with staff convenience and effectiveness in mind. Patient room neighborhoods shorten travel distances for staff by decentralizing supplies and work space. Centralized staff areas provide convenient spaces for collaboration and respite, and windows at the ends of the corridors admit natural light into the units.

**ANTICIPATED BENEFIT** By providing a working environment that reduces stress and fatigue, staff will be more effective and optimistic and better able to deal with the intense and important work they do. The attitude of staff has a direct impact on both patients and their families in their perception of care, so improving their work experience will improve the hospital experience for all.

 Since moving into the new facility, staff satisfaction surveys show a nearly 20% increase in satisfaction of safety and physical working conditions, which includes space, lighting, and noise.





“ In a fast-paced, 24-hour environment, having more open space allows us to provide optimal care. The aesthetics in our new environment are more appealing and also add to our sense of community. ”

JULIE SELBY R.N., Children's Emergency Department, and Former Patient and Kids Advisory Board Member



LEFT ACUTE NURSE STATION RIGHT ACUTE NURSE STATION PHOTOGRAPHER PETE  
ECKERT © ECKERT & ECKERT





### IMPROVING STAFF WORKFLOW

During the design development phase, rough mock-ups were developed for each patient room type to confirm patient care zones and the workflow process within the room. Simulations of procedures and workflow were conducted in the mock-up rooms, allowing the team to modify the mock-up with the clinical staff to test, evaluate, and refine the decisions. This process proved helpful for the clinical staff in confirming their preferred care model, to visualize the space, and to validate elements within the room. Staff at all levels benefit from the thoughtful design that resulted, as it provides comfortable places to involve families in the healing process, while enhancing staff workflow. Eight-bed neighborhoods with de-centralized nursing stations and supplies promote nurse-patient proximity and efficiency. By spending less time en route to collect supplies or services, nurses and other medical caregivers have more time to focus on the care of their patients.



## STAFF AREAS

Previously, staff had small, windowless lounges that functioned as both a break room and a report room. Recognizing the importance of respite for staff, a separate work room and lounge have been provided for staff on each floor. The staff lounges are located on the south side of the building overlooking the gardens, and have beautiful views, comfortable lounge seating, and bright open spaces. Separate locker rooms and bike storage are also provided on the lower level for bike commuters.

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TOP LEFT STAFF LOUNGE BOTTOM LEFT STAFF LOCKER ROOM RIGHT ACUTE NURSE STATION PHOTOGRAPHER PETE ECKERT © ECKERT & ECKERT



# 4

## Community

**GUIDING PRINCIPLE** Become the children's hospital of choice in the community.

**DESIGN RESPONSE** The design of the new hospital gives Randall Children's a distinctive and welcoming presence in the neighborhood and the community. The gardens and landscaped walkways create green space and connectivity to the neighborhood, not previously available on the self-contained campus.

**ANTICIPATED BENEFIT** The enhanced landscape, lighting, and pedestrian connections improve the appearance of the neighborhood and open the interface between the hospital and its neighbors, which serves to strengthen the physical and social relationships between them.



Several businesses donated to the capital campaign for Randall Children's, recognizing they were not only contributing to the well-being of the region's children, but also to the families of the region that have supported them.



An aerial photograph of Legacy Emanuel Children's Hospital, a large, modern, multi-story white building with a glass facade. The hospital is surrounded by a dense residential neighborhood with many trees showing vibrant autumn colors in shades of red, orange, and yellow. A large parking lot filled with cars is visible in the foreground. In the background, a green water tower stands out against the cityscape under a clear blue sky.

“ We’re really excited to be able to offer the community the kind of space and healing environment that kids and families deserve when they need to be in the hospital. ”

DR. MOLLY BURCHELL, Clinical Vice President, Legacy Emanuel Children’s Hospital



## CONNECTIONS TO THE COMMUNITY

A number of creative storm water strategies have been incorporated into the landscape design to collect and filter storm water runoff before it enters the municipal system. Flow-through planters along the landscaped walkway between the parking structures collect and slow rain water, directing it to a sculptural stone basin.

Special attention is focused on the clarity and identity of entry points to the campus, including new signage and wayfinding, new landscaping and pedestrian amenities along North Vancouver Avenue. Large granite boulders have been placed as a unique feature in the new landscape along Vancouver Avenue providing sculptural interest as well as informal seating.



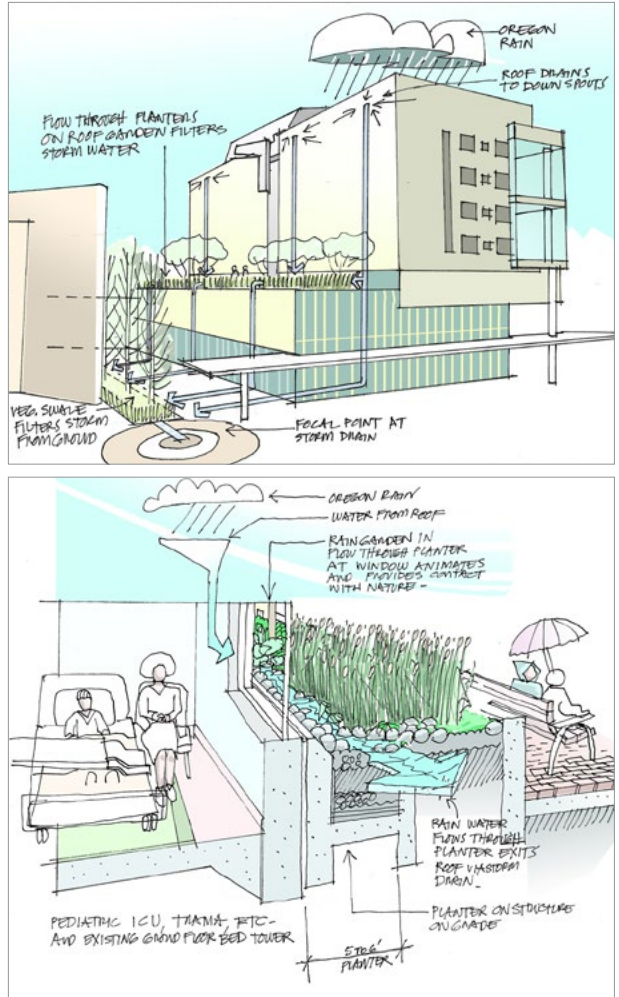
P  
Parking 4  
RANDALL  
CHILDREN'S  
HOSPITAL

See Patients  
See Parents  
See Us



EXTERIOR VIEW OF TERRACE PHOTOGRAPHER PETE ECKERT © ECKERT & ECKERT





## SUSTAINABILITY

The design of the new hospital incorporates many sustainable design strategies and follows "The Green Guide for Healthcare," from high-performance glazing to use of materials with significant recycled content. At the terrace garden, rainwater from the canopy is collected and delivered through a spout where it trickles into a tall stone urn, creating an ethereal water display. Rainwater from the roof of the patient tower is delivered to the ground level; during peak rainfall, pressure allows the water to spout in graceful arcs from a planter near the building entry or from a stone column in the courtyard. A "smart system" for irrigation, tied to actual weather data, triggers irrigation.



The exterior envelope is highly insulative and incorporates high-performing thermal materials that not only allow it to exceed the Oregon Energy Code, but will be self-sustaining over time.

# 5

## Visitor

**GUIDING PRINCIPLE** Develop a unique and identifiable palette of materials that represents the children and families of the hospital and the region it serves.

**DESIGN RESPONSE** The colors and material palettes are inspired by the four distinct geographical regions that are served by Randall Children's Hospital. The environmental graphics and art include plants and animals from each of these regions.

**ANTICIPATED BENEFIT** Visitors of all ages will find delight and familiarity with the interior design of the hospital. The hospital environment will contribute to a feeling of optimism and inspiration to those who visit it.



With larger public spaces, Randall Children's has launched an annual Healthy Kids' Fair, which provides safety and healthy living information to children and families in the community.



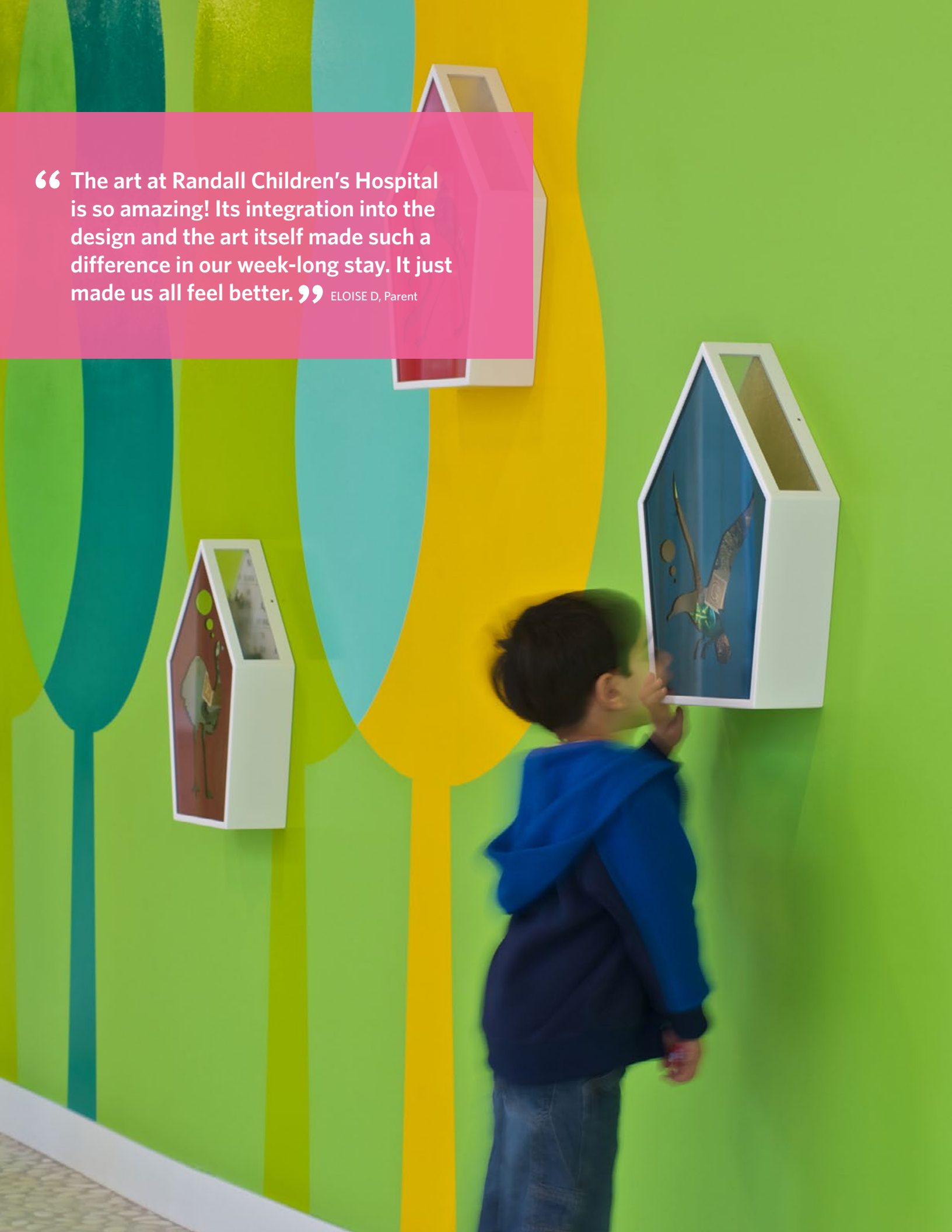
“ Perhaps the most striking aspect of the hospital is its generous provision of common areas designed to feel more like living rooms than hospital rooms. The warm woodwork, soft carpets, soothing artwork and floor-to-ceiling windows strive to make it easy to feel less hospital bound. ” JOE ROJAS-BURKE *The Oregonian*



HOSPITAL  
EMANUEL

tag nihao こんにちは  
our 你好 konnichiwa  
howdy privet  
hi namaste yo  
hey annyong  
aloha ciao

“ The art at Randall Children’s Hospital is so amazing! Its integration into the design and the art itself made such a difference in our week-long stay. It just made us all feel better. ” ELOISE D, Parent





## WAYFINDING AND ART

Four regionally-inspired color palettes for interior finishes are used throughout the hospital to represent the geographic regions served by the hospital: the Willamette Valley, Cascade Range, Oregon Coast, and Desert. The palette applied relates to the function of the space; for example, the NICU reflects the tranquil Coast palette while the ED uses the more active desert palette. Moreover, each hospital floor is assigned an animal found in its region and that animal is repeated in environmental graphics throughout the floor, with a variety of materials. A gallery space with floor-to-ceiling glass on its south wall connects the main lobby to the

existing hospital. Working with artist Larry Kirkland, a nature-inspired art installation was created. An undulating wood ceiling runs the length of the gallery; the floor's palette of wood, terrazzo and pebbles reinforces the theme of nature. The gallery space is intended to provide a positive distraction, a destination where patients and families can discover new things each time they visit, while also offering a connection to the lobby garden outside.



**The culturally-sensitive environmental design incorporates an art program that is devised to grow and change over time, through a hierarchy of integrated installations that include commissioned, existing, and children's art.**



ALLERIES  
(2ND FLOOR)  
(2ND FLOOR)

Family Lounge

onnichiwa yo  
namaste  
chào howdy  
ola privet  
tag bonjour  
hello こんにちは



LEFT ELEVATOR LOBBY RIGHT TOP ACUTE LOBBY RIGHT BOTTOM ACUTE ELEVATOR LOBBY PHOTOGRAPHER PETE ECKERT © ECKERT & ECKERT







## AWARDS

*Architizer A+ Awards, Finalist, Health Care & Aging Facilities*  
MARCH 2013

*Contract Magazine, Interiors Award, Healthcare Category*  
JANUARY 2013

*Interior Design, 2012 Best of Year in Healthcare* NOVEMBER 2012

*Portland AIA, Mayor's Choice* NOVEMBER 2012

*ENR Northwest's Best Projects, Best Healthcare Project*  
OCTOBER 2012

*Oregon IIDA, Healthcare - Best of Category* OCTOBER 2012

*Contract Magazine and The Center for Health Design, Honorable Mention, Healthcare Environment Awards, Acute Care Category*  
AUGUST 2012

*DJC Oregon, First Place, Private Buildings, \$50M and Up, Top Projects Awards* MAY 2012

*DJC Oregon, Project of the Year, Top Projects Awards* MAY 2012

## PUBLICATIONS

*archdaily.com, "Randall Children's Hospital/ZGF Architects LLP"*  
MARCH 2013

*Inhabitat.com, "ZGF Architects' Randall Children's Hospital Celebrates Healing Through Sustainable Design"* MAY 2013

*Contract Magazine, "Randall Children's Hospital"* JANUARY 2013

*Interior Design.Net, "Best of Year: Randall Children's Hospital"*  
DECEMBER 2012

*Healthcare Design Magazine, "Architectural Showcase: Randall Children's Hospital"* SEPTEMBER 2012

*World Health Design, "Project Report: Children's Hospital"* JULY 2012

*Interior Design, "Over the River and Through the Woods"* JULY 2012

*WAN, "New hospital improves children's recovery through family-centered care"* APRIL 2012

*Portland Business Journal, "Randall Children's Hospital brings economic benefit"* FEBRUARY 2012

*The Oregonian, "Randall Children's Hospital gets a stylish new home in Portland"* FEBRUARY 2012

## ARCHITECT, INTERIOR DESIGN, LANDSCAPE, ENVIRONMENTAL GRAPHICS

ZGF Architects LLP

OWNER Legacy Health

LOCATION Portland, Oregon

DATE COMPLETE January 2012

SQUARE FEET 334,000 SF

BEDS 165

## CONSULTANTS

STRUCTURAL ENGINEER Catena Consulting Engineers

ELECTRICAL ENGINEER Sparling

MECHANICAL ENGINEER CDi Engineers

CIVIL ENGINEER Harper Houf Peterson Righellis, Inc.

MEDICAL EQUIPMENT Medical Equipment Planning, Inc.

ACOUSTIC & VIBRATION Altermatt Associates

LIGHTING Candela

SIGNAGE & WAYFINDING Mayer/Reed

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