



Healing Heights

Bridging the gap from
controlled to natural and
stressful to tranquil

The
Spotlight Adventure Gardens
at the Minneapolis Children's Hospital

Bailey Krause Spring 2014

design narrative

Healing Heights establishes a serene area for the patients, loved ones and staff of the Children's Hospital in Minneapolis, MN. This design creates a place to escape from the hectic environment of the hospital. This space can be shared with both children and adults to help improve the wellbeing of those who use this therapeutic roof garden.

The rooftop at the Minneapolis campus and existing green roof at the Children's St. Paul campus will create an eco-friendly identity for the Children's Hospitals and Clinics of Minnesota. The increased vegetation of Healing Heights will improve the biodiversity and urban heating index of the surrounding area. This green roof allow the participants to have a connection with nature which allows them to enhance their state of mind.



location



The Children's Hospital was chosen over Shriners Pediatric Orthopedics Hospital because of the views and open surrounding context.

This thesis design will provide a connection between the St. Paul and Minneapolis campus' and create an identity for the Children's Hospitals and Clinics of Minnesota.

This facility is located in between East 25 & 26th Streets on Chicago Avenue South. This placement is a mile and a half from the urban core of Minneapolis, which allows for fewer city distractions and noises.

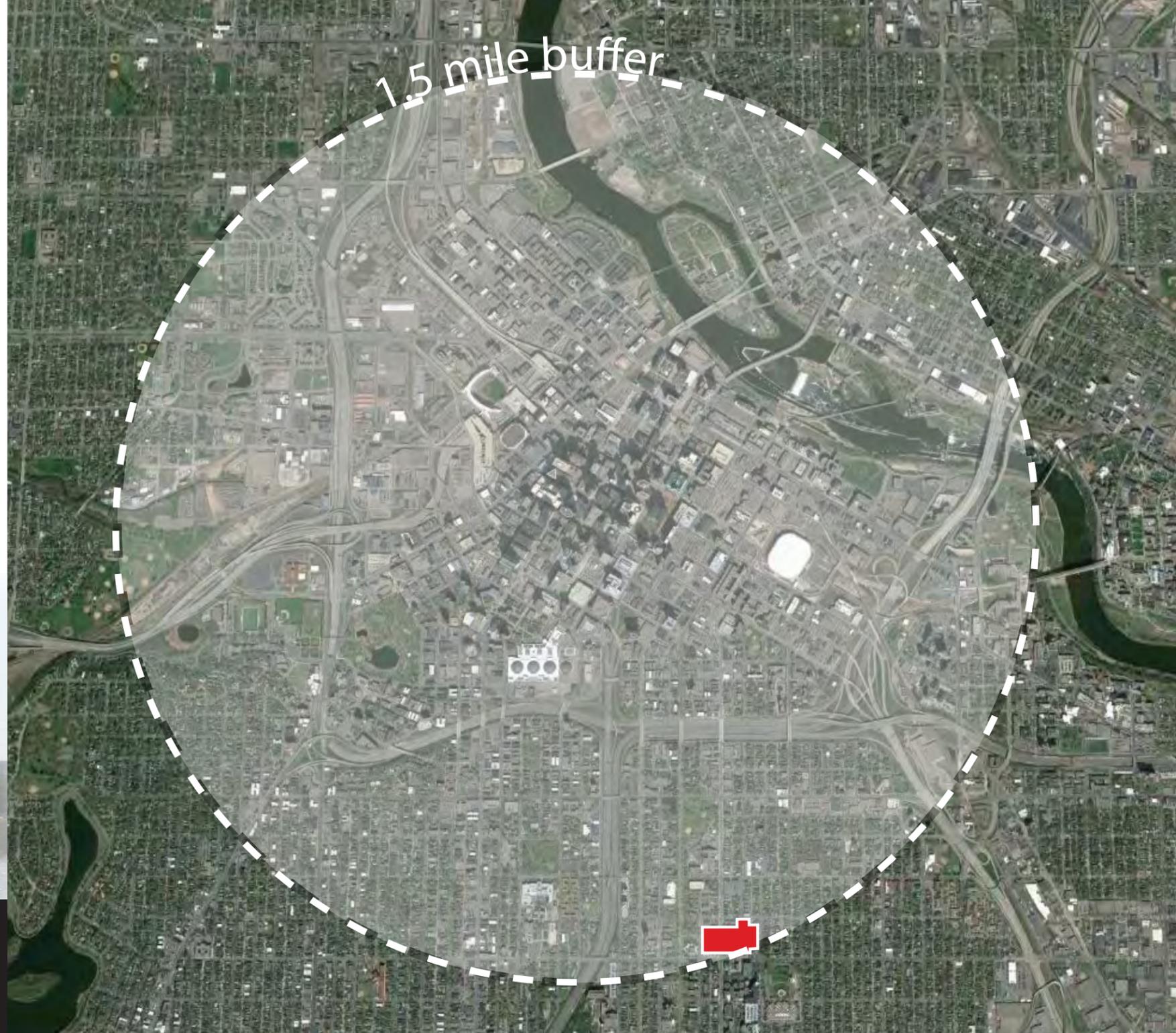
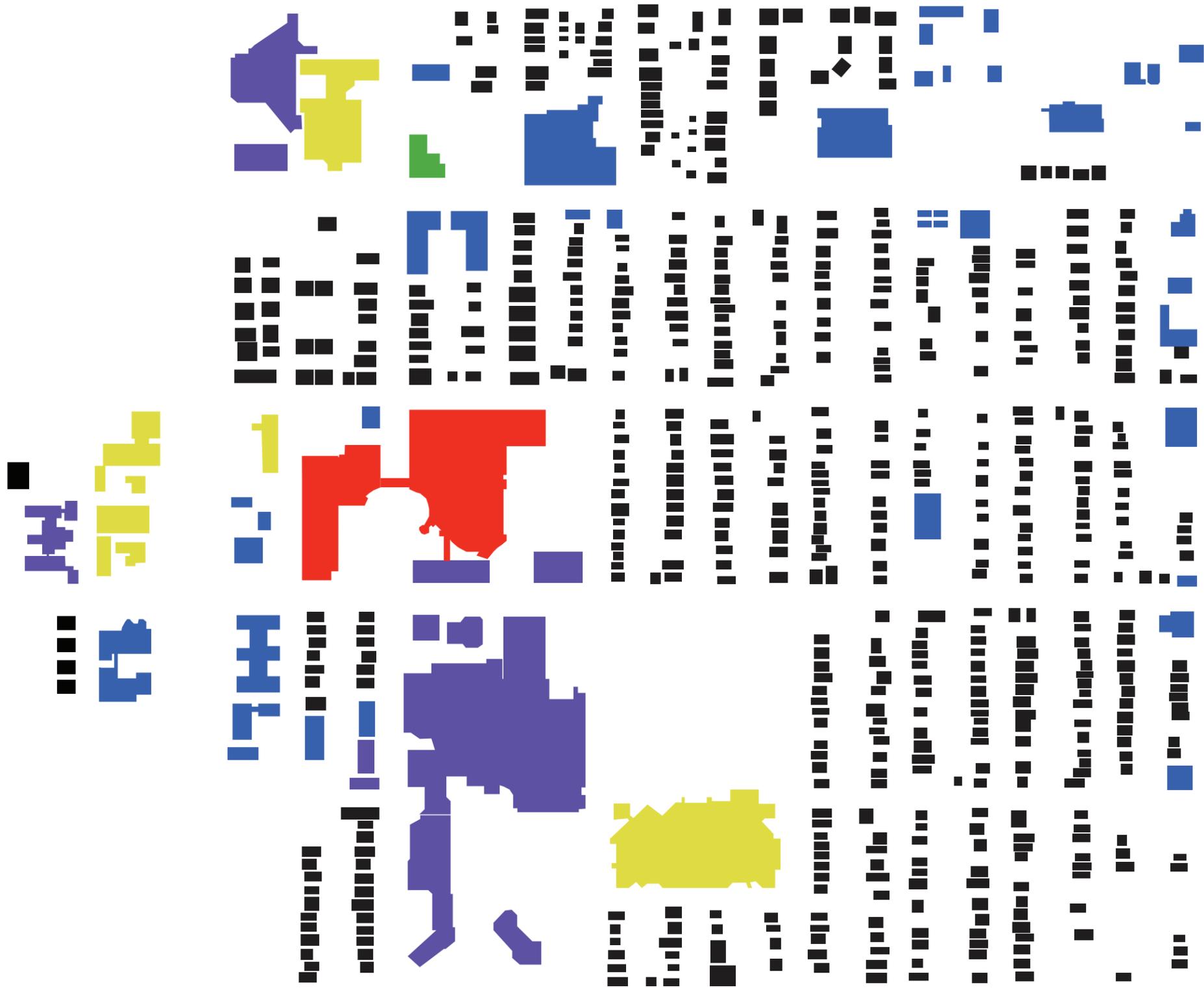


figure ground

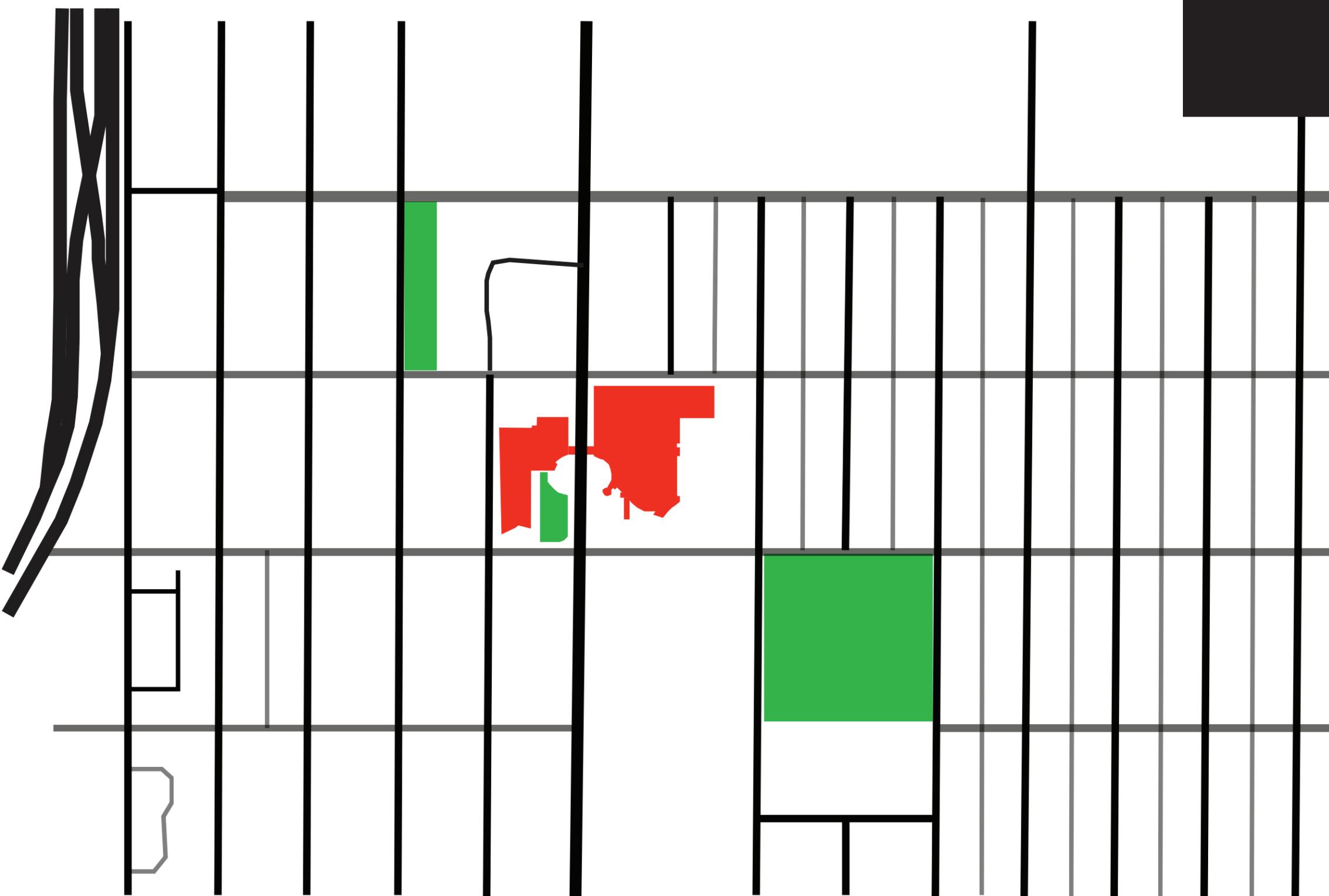


-  Children's Hospital Minneapolis
-  medical
-  educational
-  commercial
-  religious
-  residential

-  The Children's Hospital Minneapolis is mostly surrounded by residential housing and largely bordered to the south by medical facilities.
-  The image to the left is of the different types of building types around Children's.



roadways & green spaces



● The two buildings are separated by Chicago Avenue, a moderately busy street with parking on each side. This facility is located just 5 blocks from 35W.

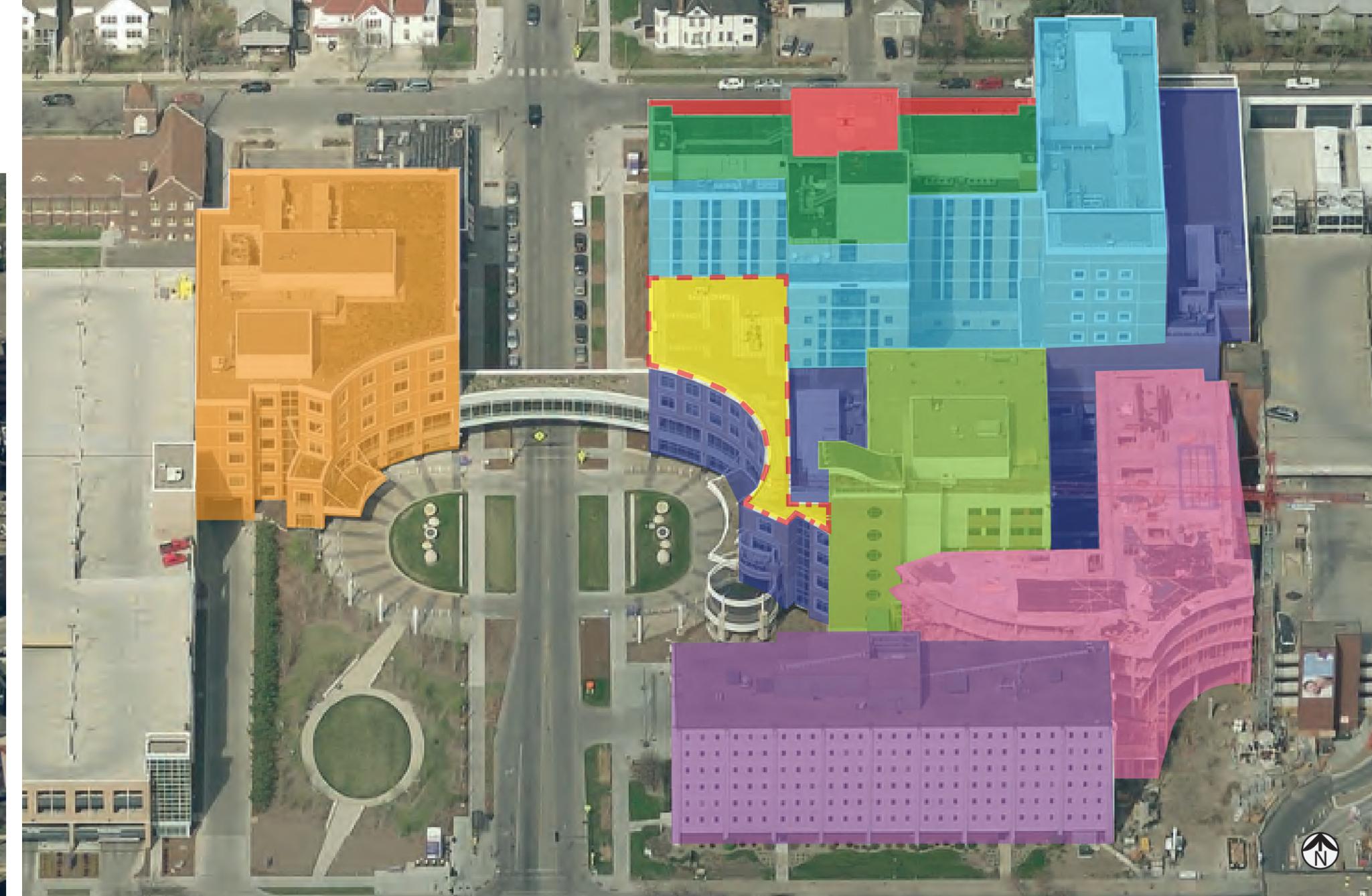
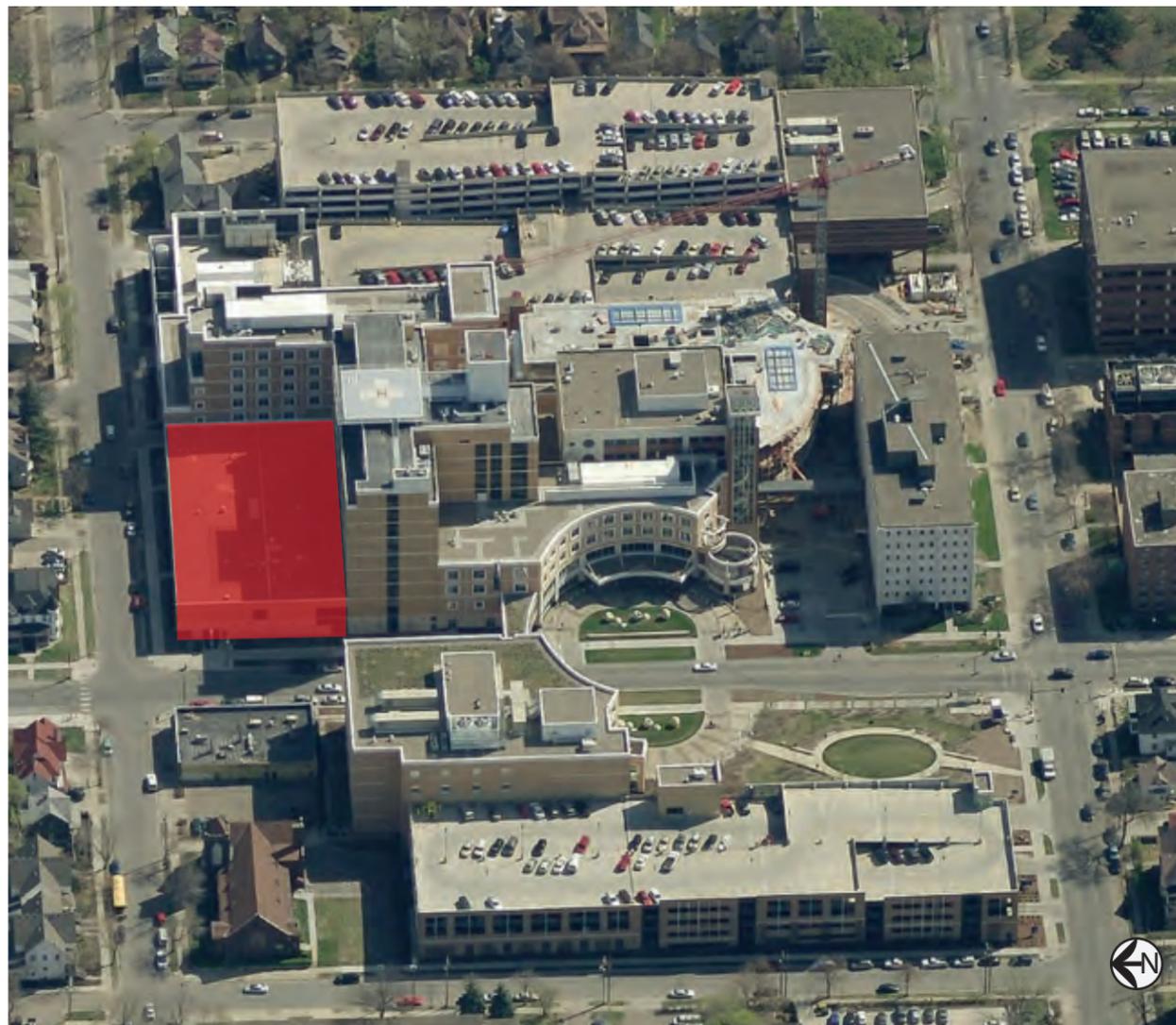


● Children's Minneapolis currently has an open green space on ground level, but was noticed to be under used while visiting this site in August & October.



site introduction

- There are currently 6 Children's hospitals and clinics in the Minnesota region.
- The Minneapolis location opened in 1973.
- Children's treats children from 0-21 years of age. The majority of these patients are between 0-16.



green roof site

5-stories

Children's specialty center

2-stories

emergency department

9 floors

mechanical

floors 5-8

patient rooms

floors 1-5

patient care & offices

6-stories

executive suites & specialties

four-stories

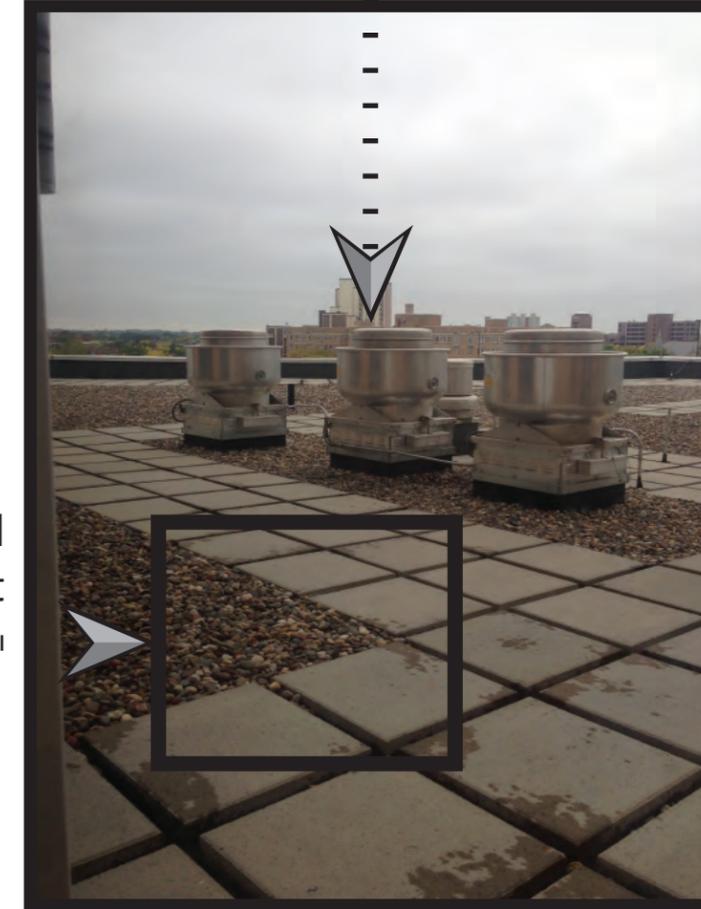
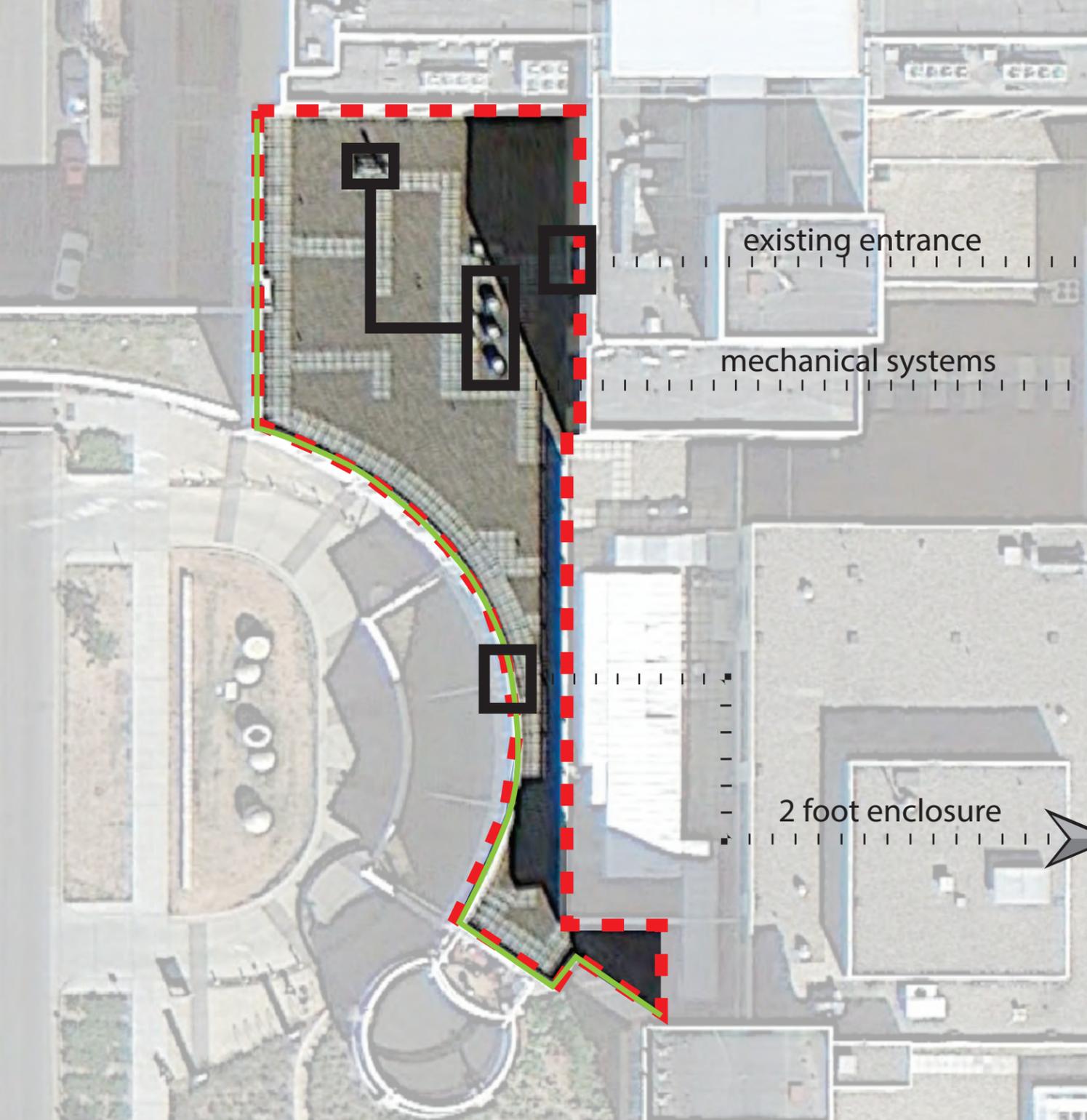
mother baby center

floors 2

WIC clinic & NICU follow-up

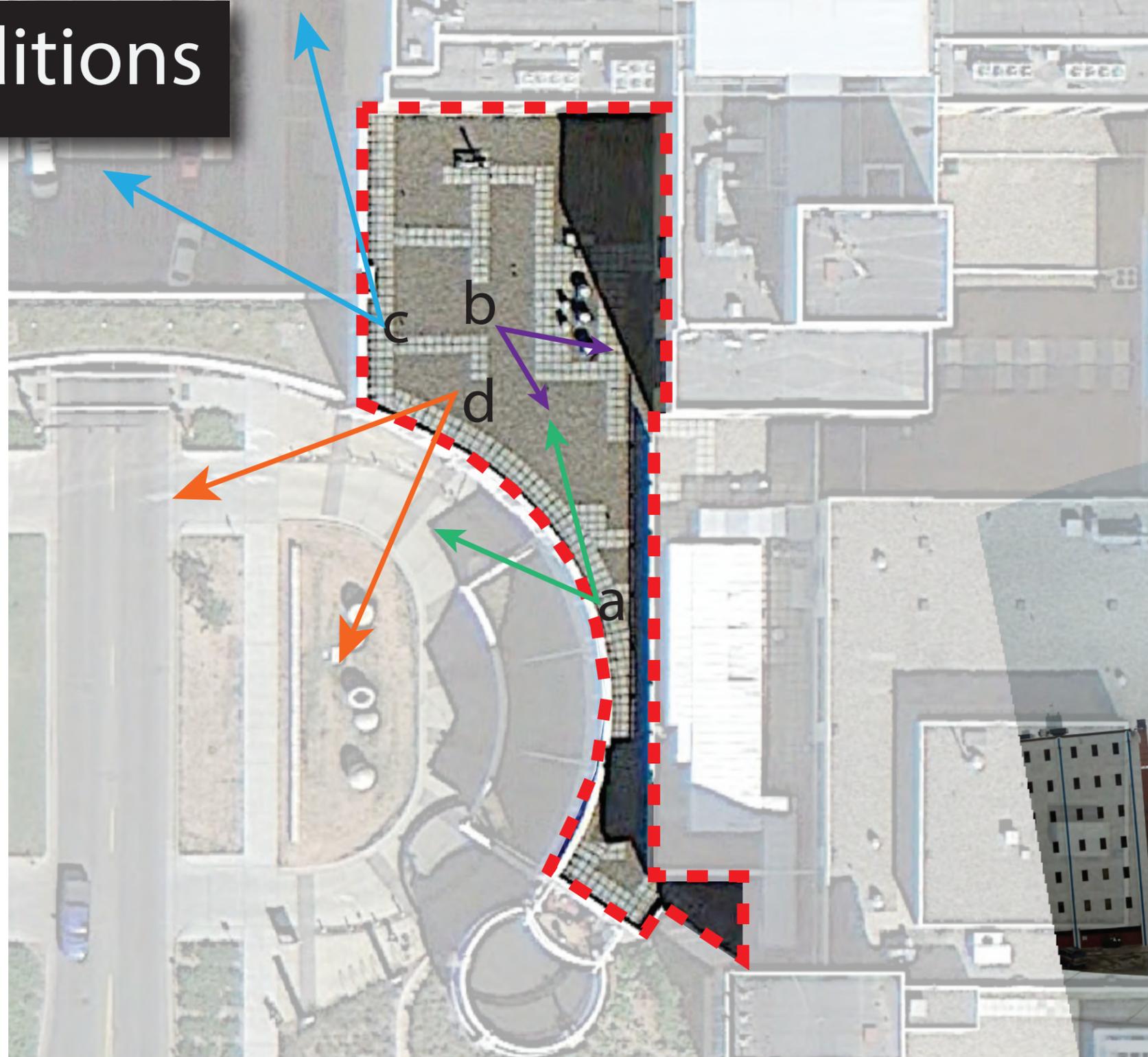
existing elements

size: 7,220 SF
membrane ballasted roof



current conditions

views



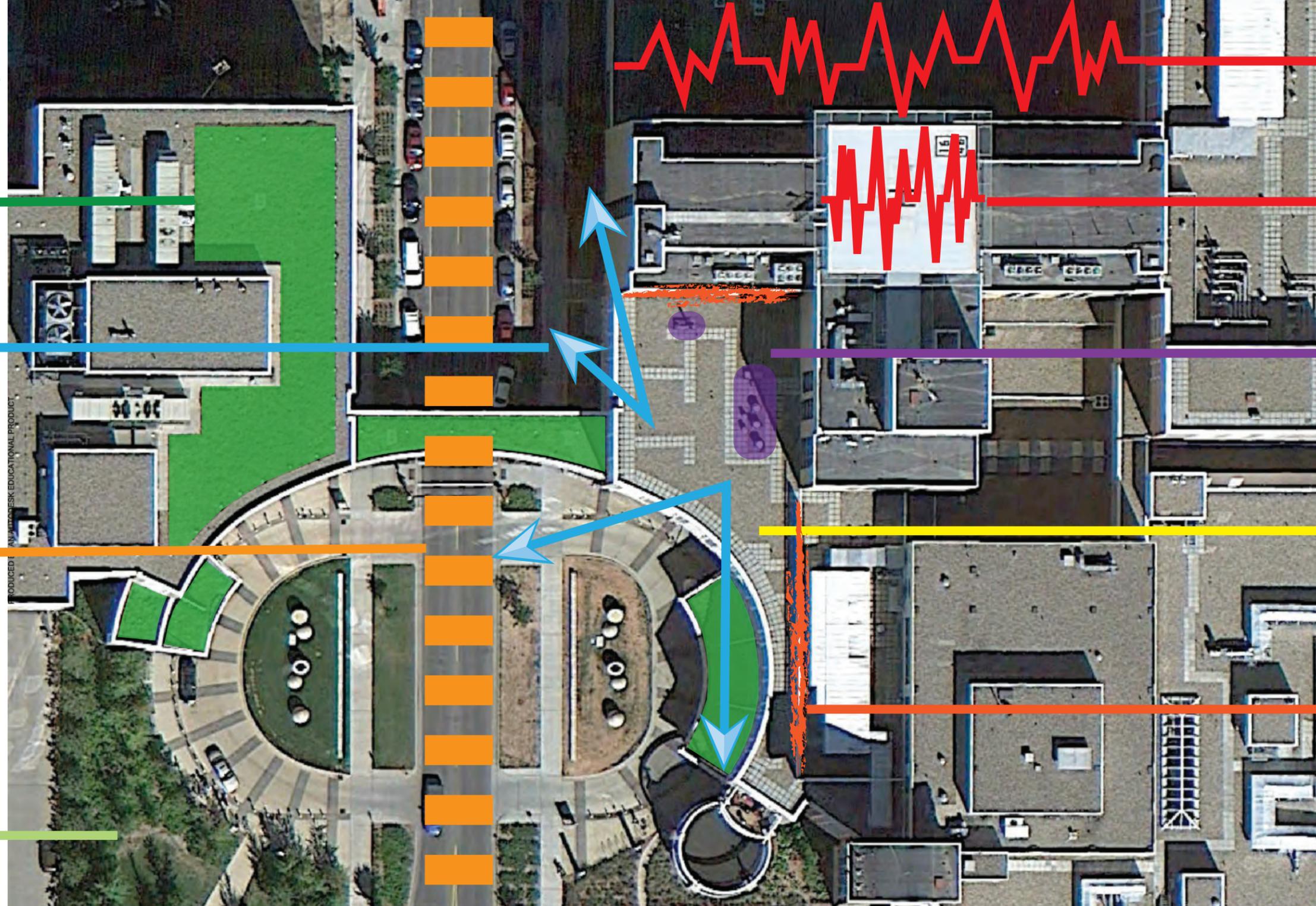
Surrounding effects

This facility already has five extensive green roof systems. Four can easily be seen from the thesis site.

This roof was chosen because of the expansive views to downtown Minneapolis and views that make this site seem larger.

The two buildings at the Minneapolis Children's Hospital are separated by the main artery road of Chicago Avenue. There is street parking on the North end of the site.

The rooftop has a view of the open green space that is across Chicago Avenue. This area is a large lawn that is surrounded by trees, but is highly distracted by the vehicle traffic.



Emergency response units for the ER and helicopter pad create loud and distracting noises.

The average helipad landings in 2013 was about 250 and is accessible 24/7.

Mechanical systems for the kitchen, walk-in coolers, general exhaust and air handler unit can be loud and emit bad smells at times.

This area of the roof is subject to the most sunlight and will need the most shaded spaces.

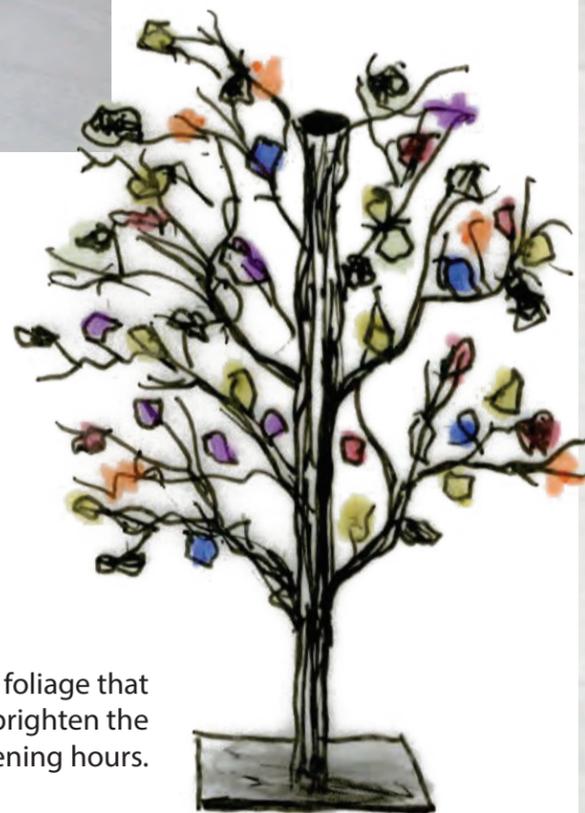
These two areas of patient rooms and offices will need to have privacy walls from the interactive roof.

current conditions

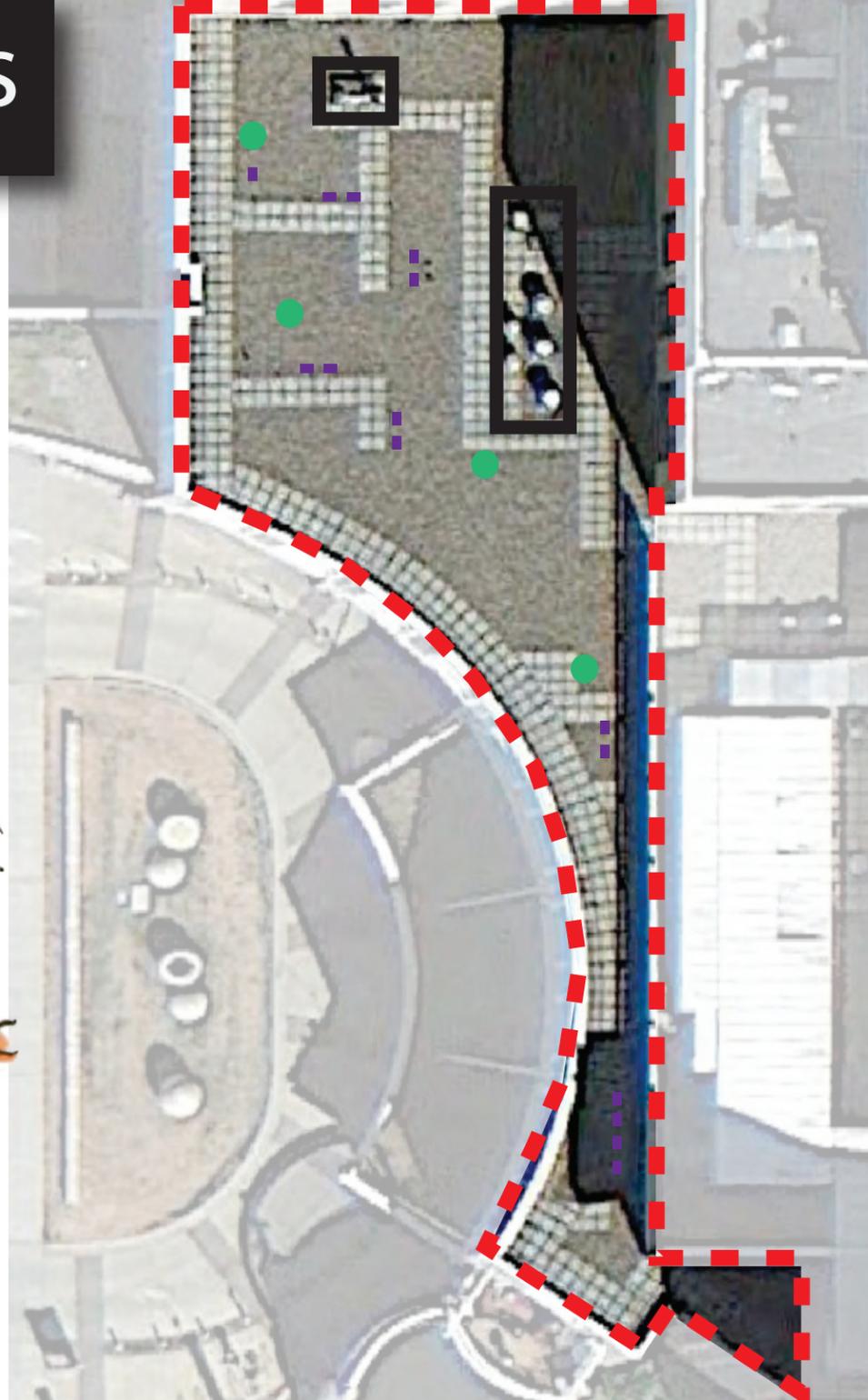
existing details



There are five sewage exhaust vents coming from the roof. These areas will be covered by artificial trees where the trunk will release the exhaust from higher up, reducing unpleasant odors.

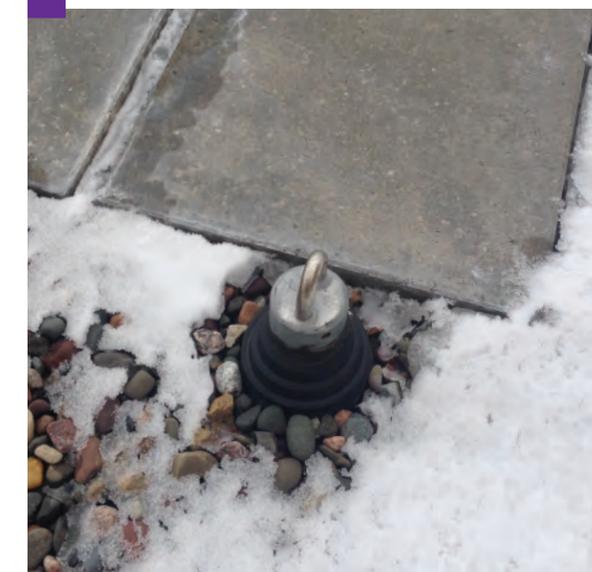


These metal artificial trees will have foliage that illuminates into different colors to brighten the area during the evening hours.



The mechanical systems that are present on this roof, take up a large amount of space. Instead of becoming strict void, these elements can become a showcase for art. While still keeping a semi-transparent barrier between visitors and the mechanical systems, people will wonder what the colorful objects are behind the fence, instead of just enclosing an eye sore.

Tie-offs for maintenance purposes are located around the roof. These are used about once a month, but still need to have constant direct access between the tie-offs and the edge of the roof.



spotlight adventure garden elements

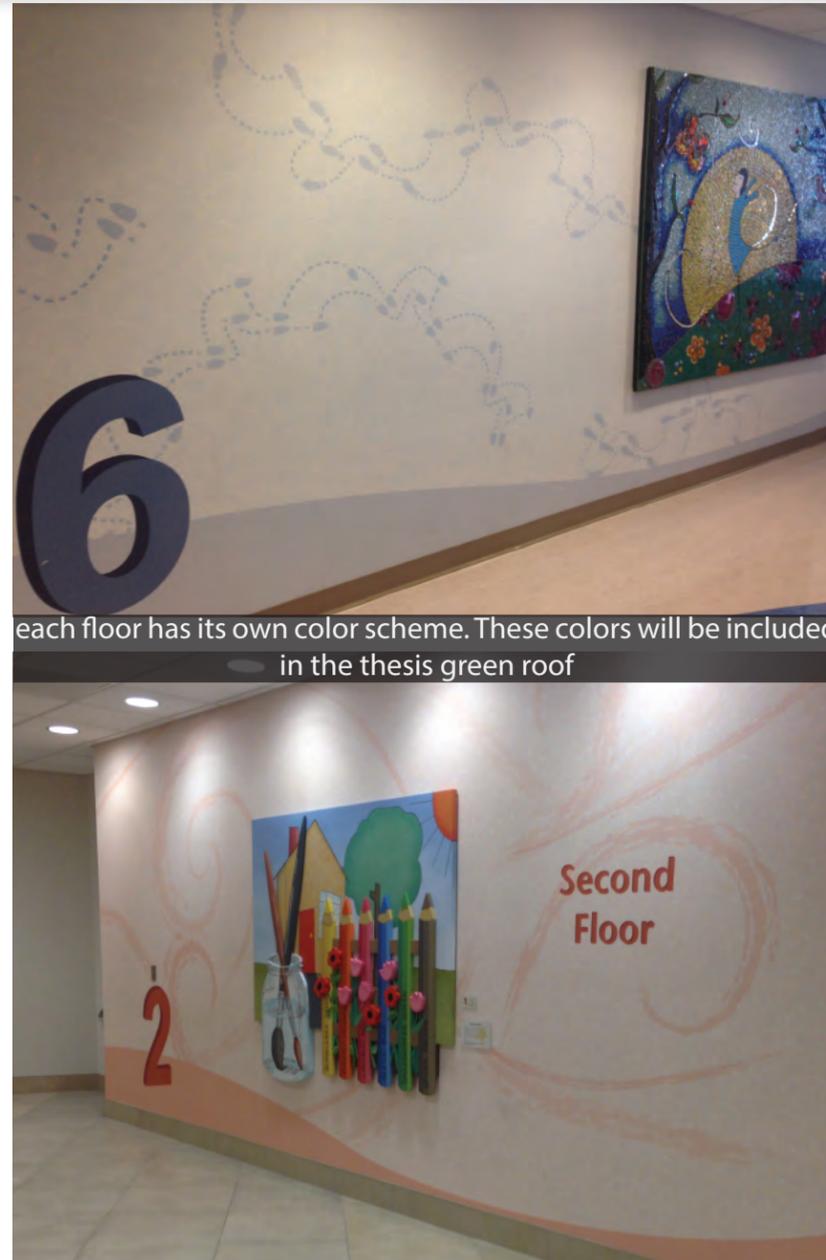
Different elements to appeal to the user's senses will need to have a variety of textures, scents and visual elements so that the experience is unique every time. The colors that are within the hospital will be incorporated in this design so that a connection will be made between the sterile and more natural environment.



st. paul's storyland roof garden



mikyong kim's crown sky gardens, chicago



each floor has its own color scheme. These colors will be included in the thesis green roof

inspiration

" i love it [existing meditation garden] but the benches face inward towards a large, open space. sometimes, to feel solitude, i want to be in a corner, or at a small table that would be considered 'mine' in the few minutes spent there."

-amy, star studio program director

" i think a rooftop garden space would be awesome! I would definitely use it as a place to get away from my desk for breaks and lunch pretty much every day. as for rehab patients, our inpatient therapists would definitely use it with patients as a place to get them away from their room and enjoy the outdoors and get a change of scenery from their room."

-michelle, rehabilitation therapy aide

" the addition of the green house will be very beneficial for the patients provide plant therapy. The lack of funding at the st. Paul campus was a disappointment, but truly adds to this design."

-mollie, development associate

personal testimonies

Different questionnaires were given to the patients, loved ones and staff of Children's Minneapolis.

The most useful feedback came from the hospital staff and helped understand the possible use this design may get, and what elements should be included.

spotlight adventure garden elements

Sight.Touch.Smell.Hear



the current 2 foot enclosure is not tall enough for the safety of active users. a taller, more decorative wall will be included that relates to the Children's themes.

a transition area from the hospital to the outdoors will create a space that can be occupied all year around. This space will be filled with natural plants and allow access to the ventilation system.

winding paths create a sense of an on-going journey and help users relax. different materials of paving will create distinct paths for child activity and diverse wandering.

There were insufficient funds for a green house at the St. Paul campus, so this design will incorporate an area for patients to learn how to garden, as well as escape from the hospital atmosphere during the winter months.

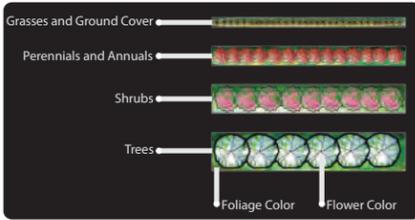
various plantings will be used to keep visitors intrigued and address their senses.

gathering spaces will allow for outdoor activities and a new environment for physical rehab and the in-house actor.

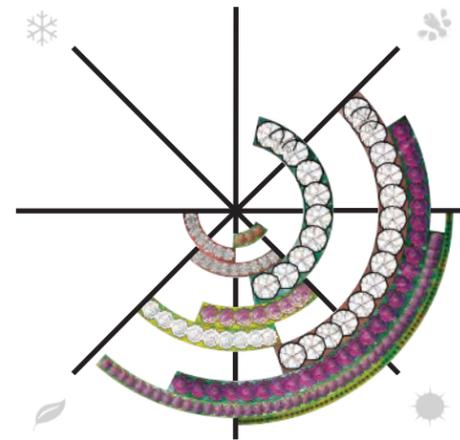
intimate spaces will give visitors and staff an area for self reflection. This will allow adults to be away from any activity that may also be happening on the roof.

The planting plan for this garden will focus on plantings that focus on peoples 5 senses. From this infograph you can see ten different plants for each sense that grow in the Minneapolis climate. The natural vegetation will have a variety of colors, while also having evergreens that will keep a green foliage during the winter months.

KEY



different size bars are used to differentiate the different types of plants. within these bars, the textures are also used to separate the plants. These graphs show both the flower color of each plant, as well as the foliage color.



SMELL

Scientific Name	Common Name
<i>Achillea millefolium</i> 'Terracotta'	Yarrow
<i>Actaea simplex</i>	Autumn Bugbane
<i>Actaea simplex</i> 'Hillside Black Beauty'	Bugbane
<i>Cladrasia lutea</i>	Yellowwood
<i>Clethra ainifolia</i>	Sweet Pepperbush
<i>Clethra ainifolia</i> 'Hummingbird'	Sweet Pepperbush
<i>Robina pseudoacacia</i> 'Frisia'	Golden Locust
<i>Rosa</i> 'Charles Alanel'	Hedgehog Rose
<i>Salvia pratensis</i>	Meadow Clary
<i>Sporobolus heterolepsis</i>	Prairie Dropseed

TOUCH

Scientific Name	Common Name
<i>Actaea simplex</i> 'Hillside Black Beauty'	Bugbane
<i>Alchemilla mollis</i>	Lady's Mantel
<i>Amsonia tabernaemontana</i>	Willow Blue-Star
<i>Artemisia ludoviciana</i>	Western Mugwort
<i>Clethra ainifolia</i> 'Hummingbird'	Sweet Pepperbush
<i>Eryngium planum</i> 'Blue Hobbit'	Sea Holly
<i>Rhus typhina</i> 'Tigereye Bailtiger'	Tiger Eyes Sumac
<i>Salix babylonica</i>	Weeping Willow
<i>Sporobolus heterolepsis</i>	Prairie Dropseed
<i>Stachys byzantina</i>	Lamb's Ears

TASTE

Scientific Name	Common Name
<i>Allium schoenoprasum</i>	Chives
<i>Allium schoenoprasum</i>	Round Headed Garlic
<i>Amelanchier x graniflora</i> 'Autumn Brilliance'	Apple Serviceberry
<i>Cladrasia lutea</i>	Yellowwood
<i>Beta vulgaris</i> 'Ruby Red'	Swiss Chard
<i>Gooseberry hinnomaki red</i>	Gooseberry
<i>Heuchera</i> 'Blackberry Jam'	Blackberry Jam Heuchera
Jewel Junebearing	Strawberries
<i>Malus domestica</i>	Whitney Crabapple
<i>Prunus virginiana</i> 'Schubert'	Schubert Choke Cherry
<i>Rubus strigosus</i>	American Red Raspberry

SIGHT

Scientific Name	Common Name
<i>Actaea simplex</i>	Autumn Bugbane
<i>Amelanchier x graniflora</i> 'Autumn Brilliance'	Apple Serviceberry
<i>Cladrasia lutea</i>	Yellowwood
<i>Heuchera</i> 'Coral Bells'	Chocolate Ruffles
<i>Houttuynia cordata</i> 'Chameleon'	Chameleon Plant
<i>Iris</i> 'Rip City'	Tall Bearded Iris
<i>Nigella damascena</i> and cvs.	Love-in-a-Mist
<i>Panicum virgatum</i> 'Ruby Ribbons'	Switch Grass
<i>Rhus typhina</i> 'Tigereye Bailtiger'	Tiger Eyes Sumac
<i>Salvia pratensis</i>	Meadow Clary

SOUND

Scientific Name	Common Name
<i>Andropogon geraardii</i> 'Pawnee'	Big Bluestem
<i>Artemisa ludoviciana</i>	Western Mugwort
<i>Catalpa speciosa</i>	Northern Catalpa
<i>Cornus alba</i> 'elegantissima'	Redtwig Dogwood
<i>Gymnocladus dioica</i>	Kentucky Coffeetree
<i>Miscanthus oligostachys</i> 'Nanus Variegatus'	Silver Grass
<i>Panicum virgatum</i> 'Ruby Ribbons'	Switch Grass
<i>Physocarpus opulifolius</i> 'Center Glow'	Ninebark
<i>Salix babylonica</i>	Weeping Willow
<i>Sporobolus heterolepsis</i>	Prairie Dropseed

patient rooms to the north and staff offices to the east need to have a privacy buffer between them and the green roof.

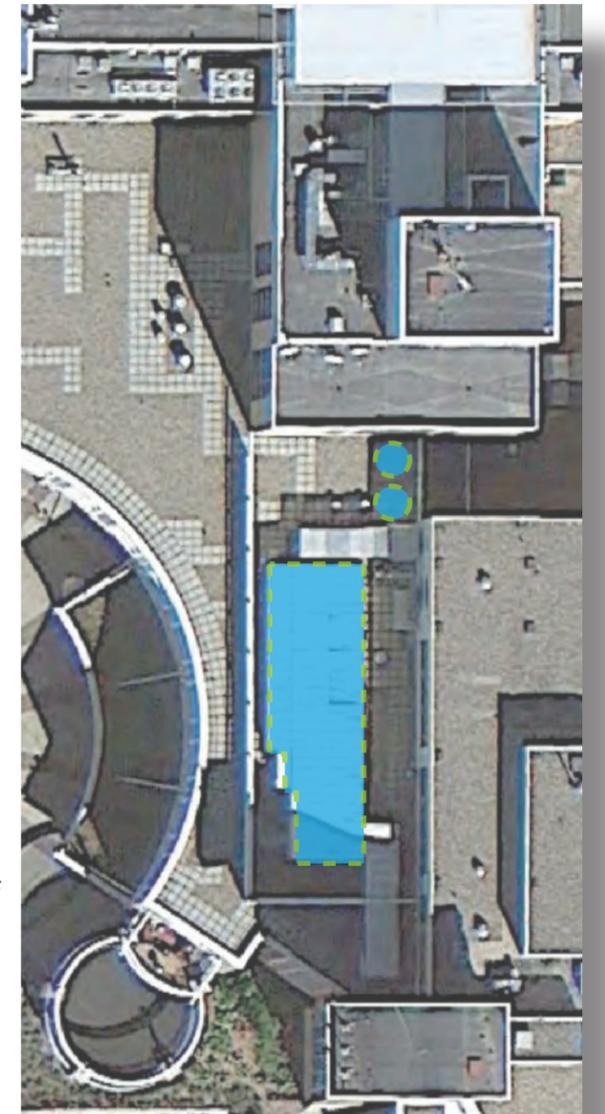
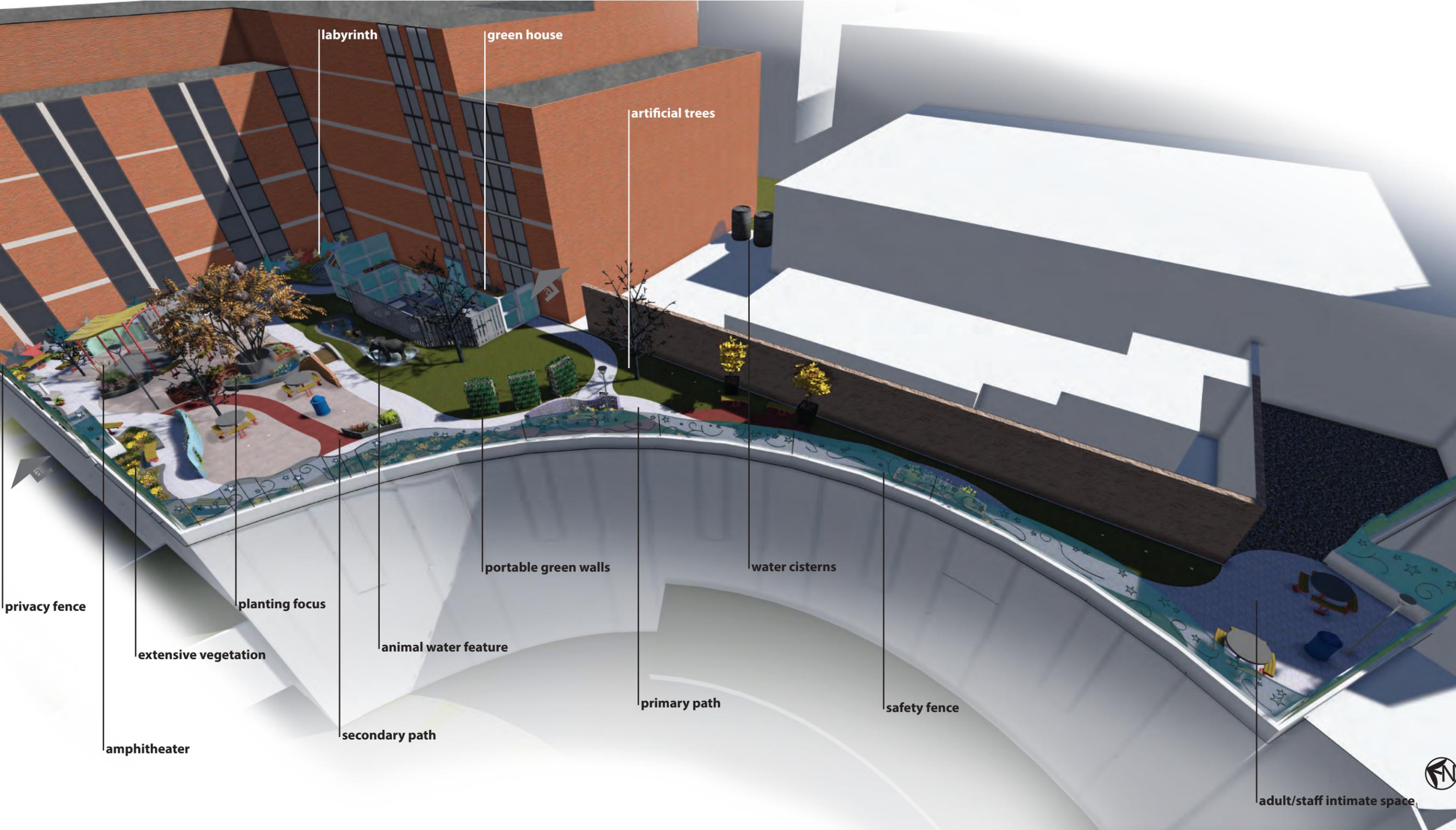
the vents will not be able to be removed or relocated, so a fence around them will reduce noise and odors.

introducing water features will create a white noise that is calming and reduces the distraction of the vents.

introducing a labyrinth to the north east corner of the plan will allow for visitors to be secluded from the rest of the roof so that they can focus completely on themselves.

master plan

size: 7,220 SF
weight: 154,193 lbs
approximate scale:

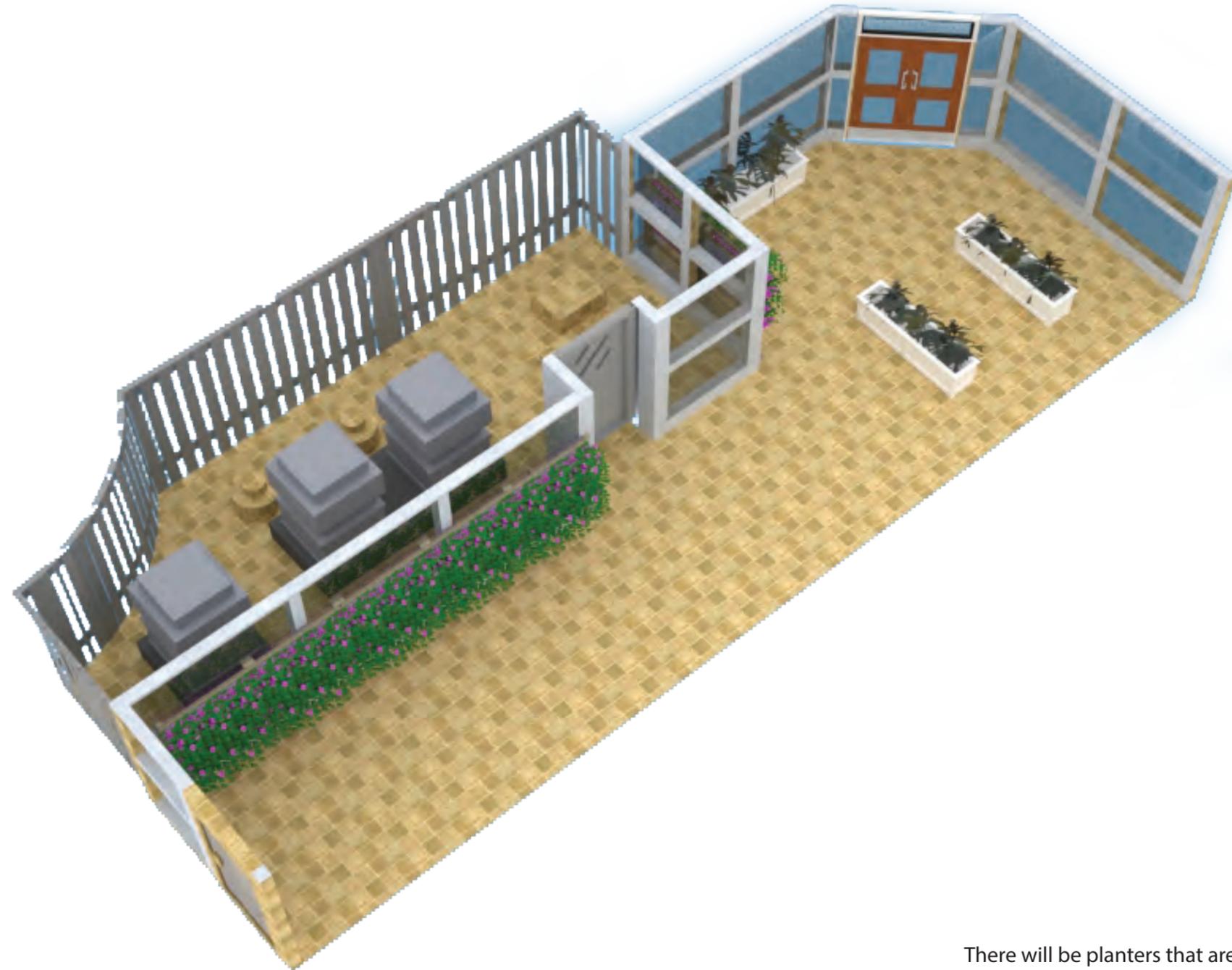
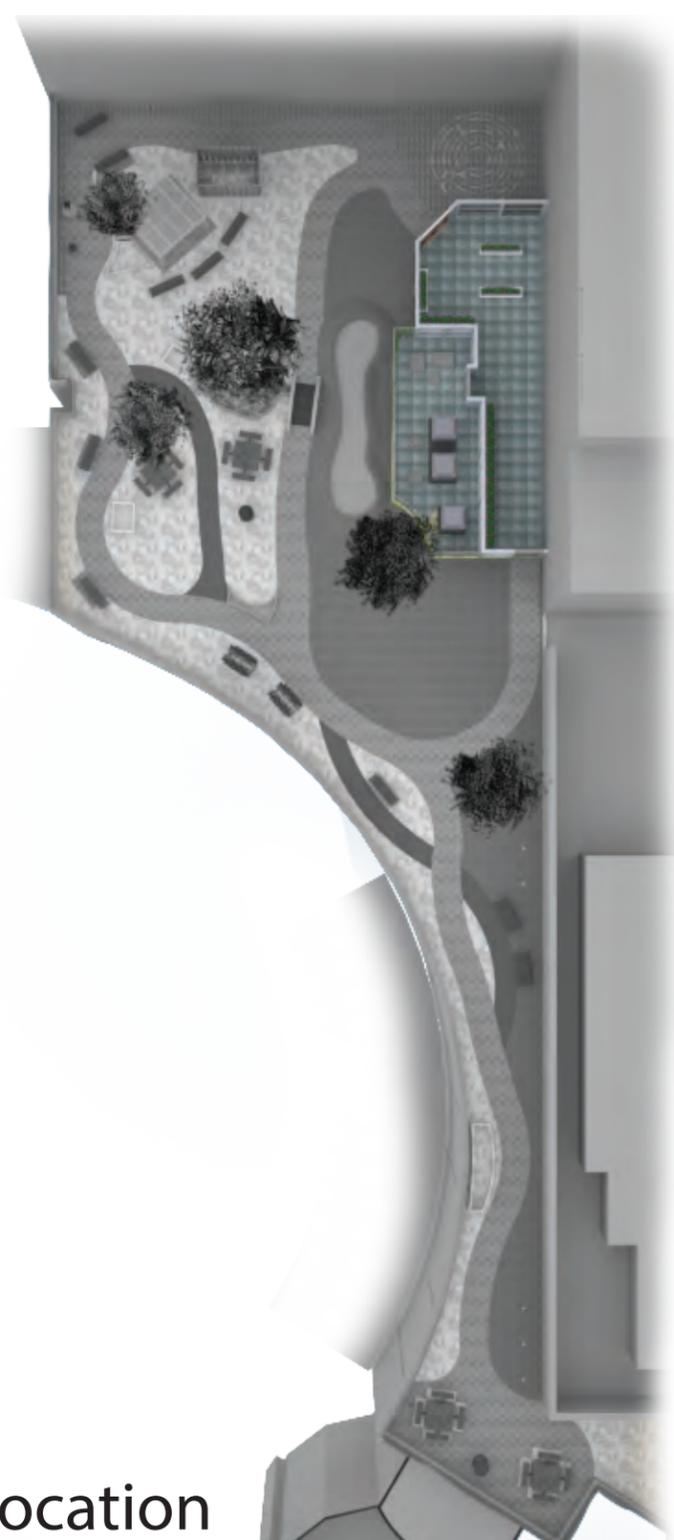


On average, Minneapolis receives 30.1 inches of rain a year. this 7,220 SF roof will obtain nearly 900 gallons of water and will need to be collected for watering the vegetation, and water feature present in the design. Two-300 gallon cisterns will be located in the back of the storage area for the garden.

An additional 50 gallons of water can also be retrieved from the air handling unit located directly east of this roof.



Location



There will be planters that are easily accessible for patients in wheel chairs.



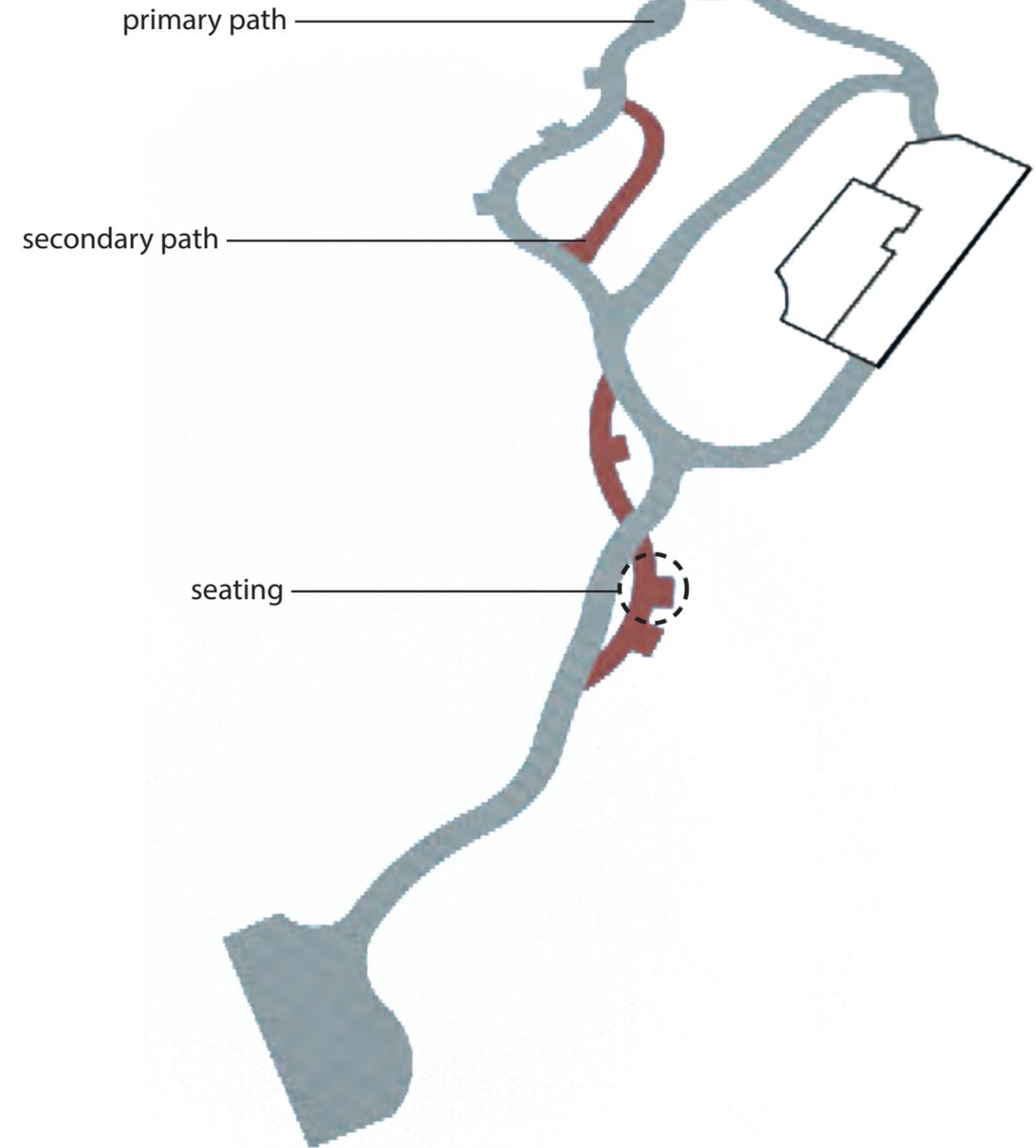
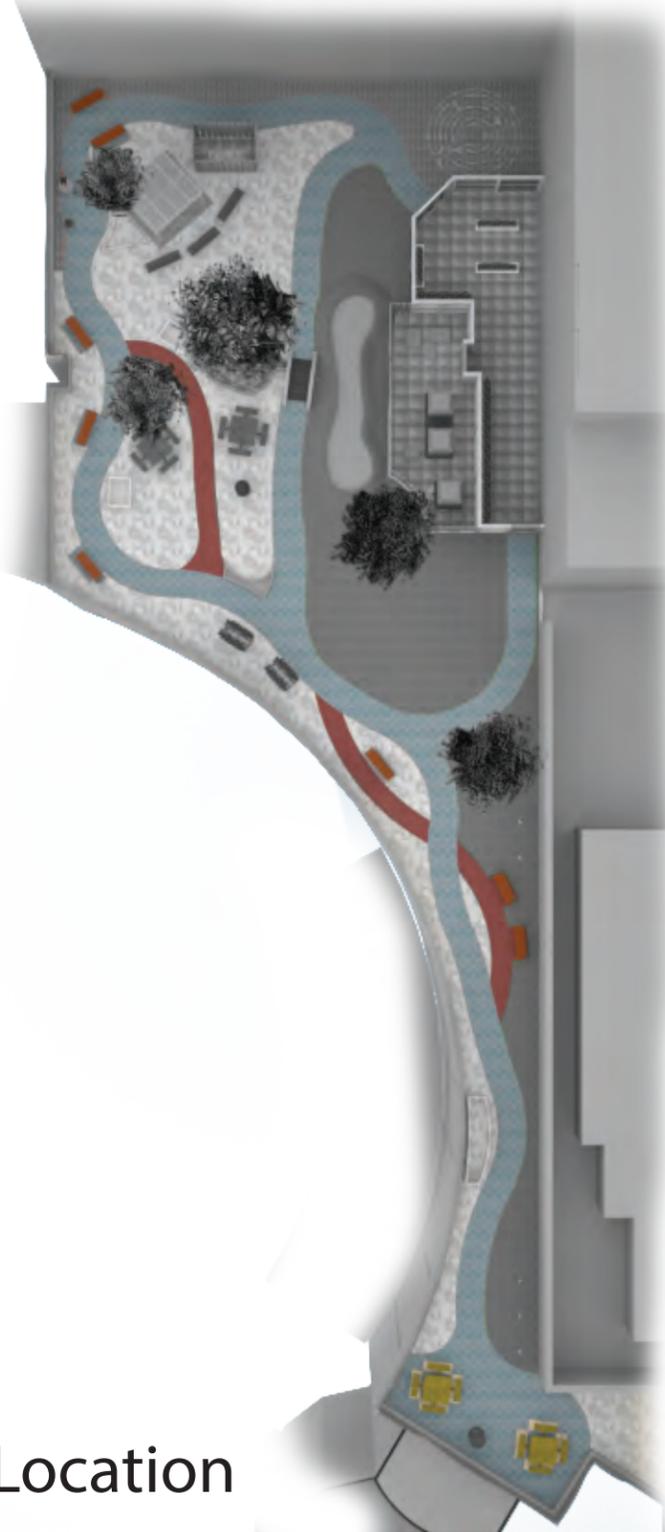
green house

The StoryLand Play Garden at the St. Paul campus did not receive enough funding from sponsors to include a green house for their vegetated roof.

This location at the Minneapolis will be a great candidate for a green house to offer plant therapy for patients and a place to escape to during the winter months while the rest of the rooftop is closed.



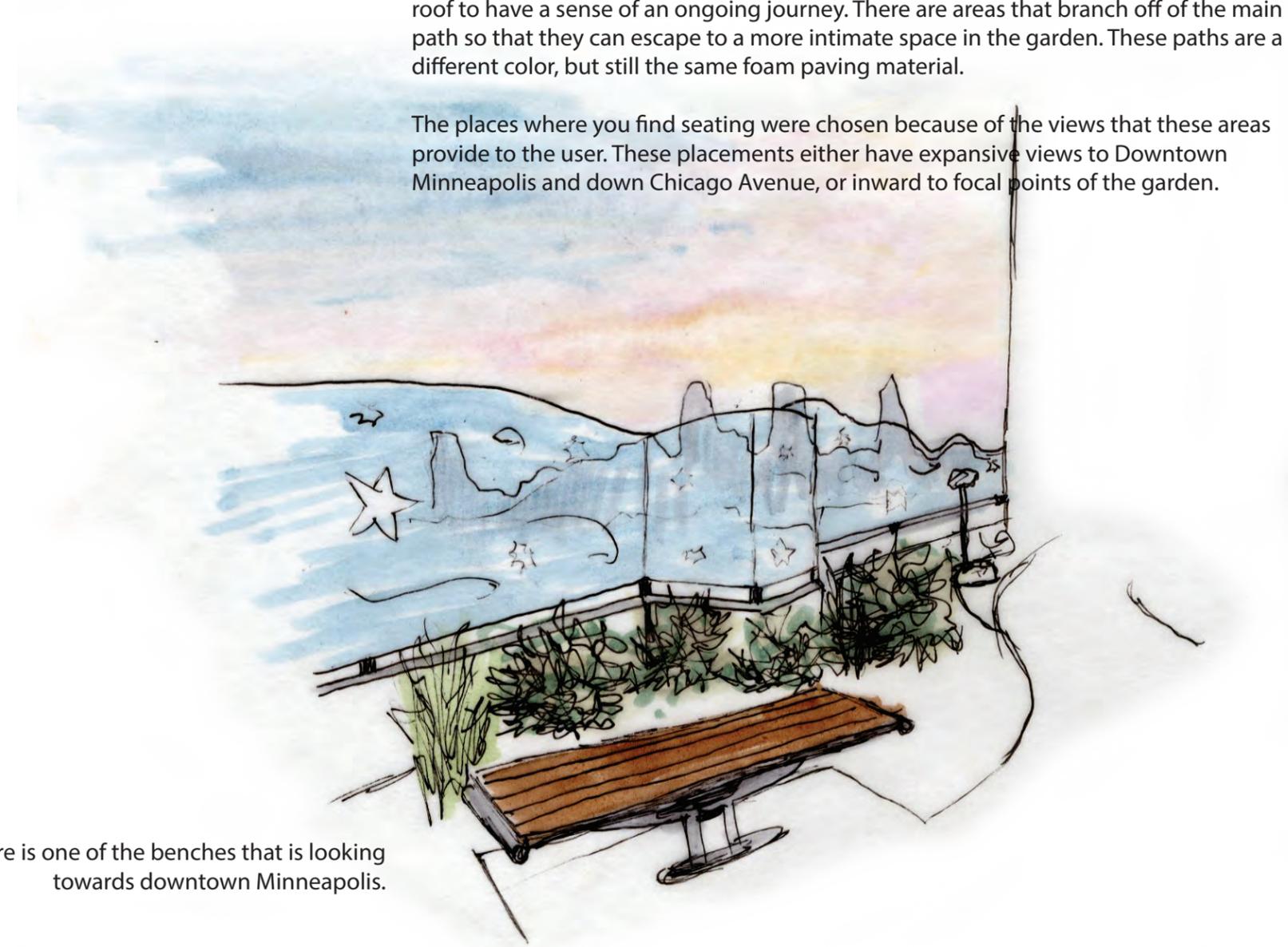
Location



paths and seating

The path systems focuses on curving and meandering features to allow for visitors to the roof to have a sense of an ongoing journey. There are areas that branch off of the main path so that they can escape to a more intimate space in the garden. These paths are a different color, but still the same foam paving material.

The places where you find seating were chosen because of the views that these areas provide to the user. These placements either have expansive views to Downtown Minneapolis and down Chicago Avenue, or inward to focal points of the garden.



Here is one of the benches that is looking towards downtown Minneapolis.

SECTION DETAILS

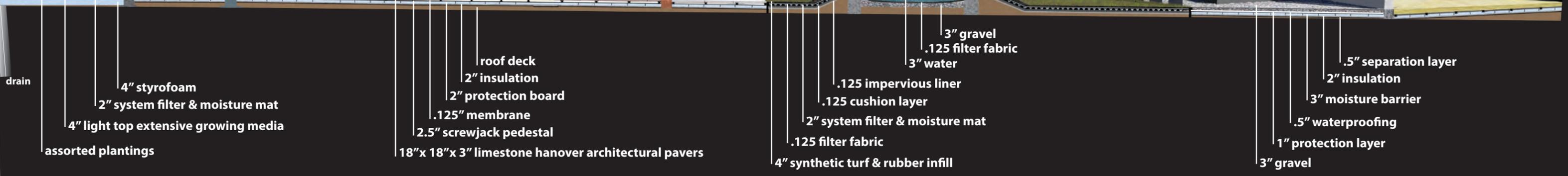
North SECTION



The small area of the roof that has extensive vegetation can improve the ecological and beauty of the area as well as improve building costs.

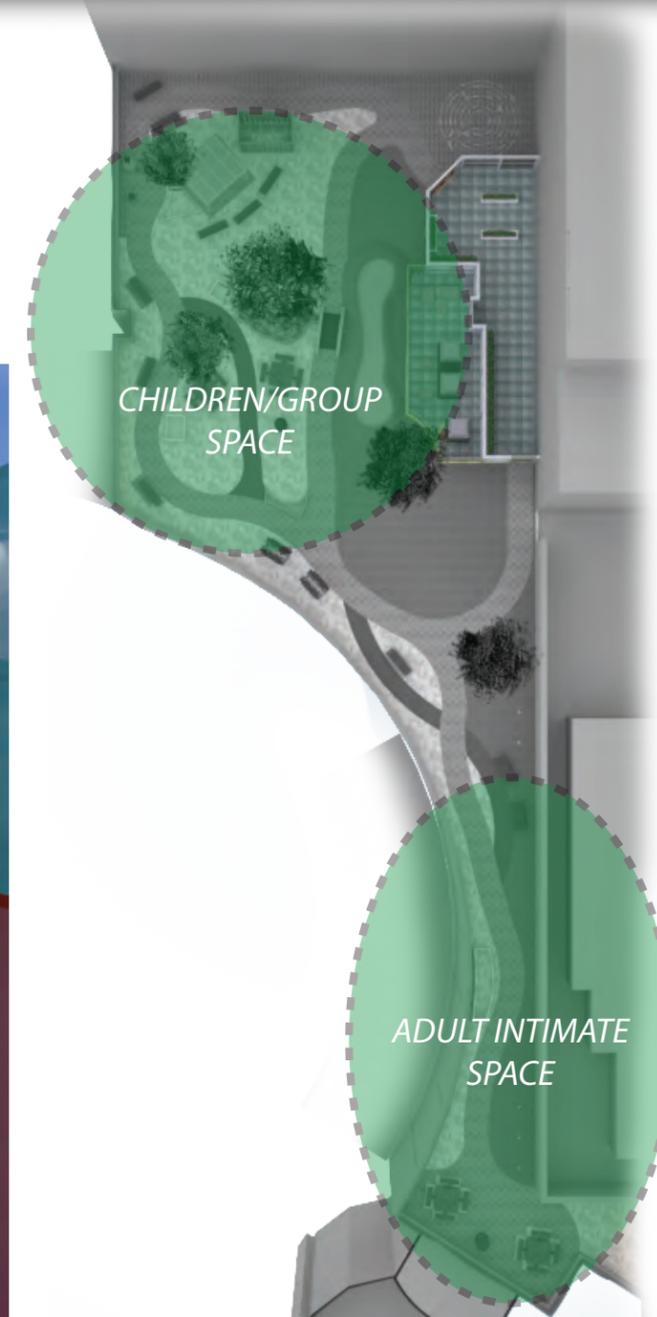
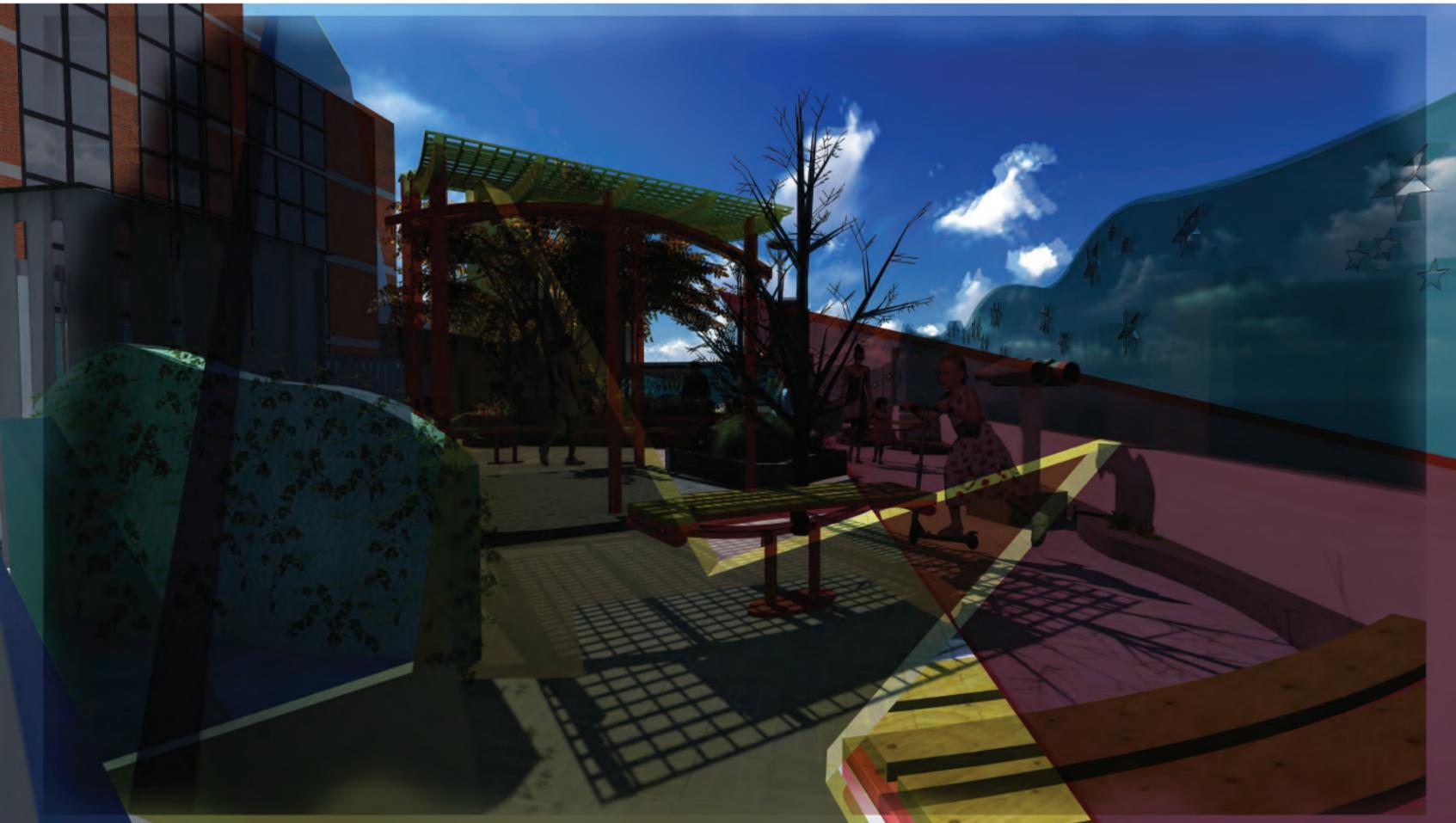


The pavers on pedestals roofing systems is beneficial to facilitate the flow of water below the paver surface as well as easy maintenance qualities.



welcoming to children & adults

This view is looking out of a patients room onto into the garden through the colorfully transparent starts. These ground floor views add a new way of looking at the garden other than when visitors are experiencing it in person.



This roof garden had to also accommodate for the staff and adult visitors of the Children's Hospital. The South end of the roof will be for adults to escape to a more quiet area, away from any activities that may be going on.



evening surprises

Light details triggered by a person's footstep will be included in a few of the planters throughout the garden. the artificial trees will also have colorful twinkling lights that add a unique technology characteristic to this naturally calming space





warmer months

The Spotlight Adventure Gardens has many different activities for groups, individuals and people of all ages



winter months

Although the garden is closed during the winter months, colorful lights and evergreen plantings will keep the area full of life.