

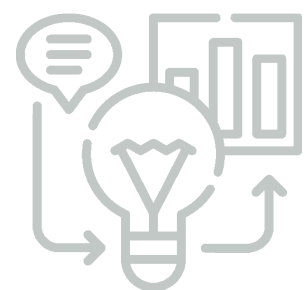
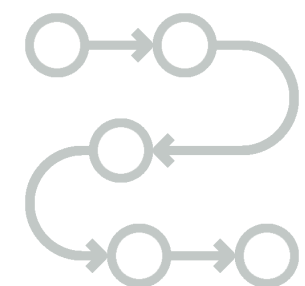


# Designing Academic Environments for Autistic and Neurotypical Needs Alike.

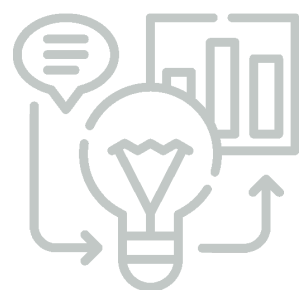
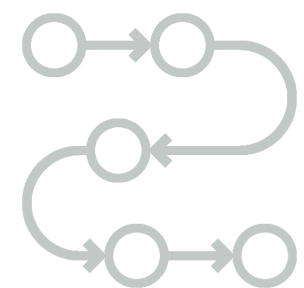
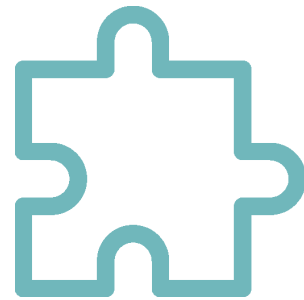


**1** in **52**

or



**119.4%**  
from 2000-2010



# What exactly is ASD?

Autism Spectrum Disorders (ASD) are a group of **neurodevelopmental disorders** characterized by **qualitative impairments** in **social interaction, communication,** and **restricted and stereotyped patterns of interests and behaviors.**

## Characteristics



deficits in theory of mind



motor planning



emotional regulation



difficulty understanding others emotions



rules and patterns



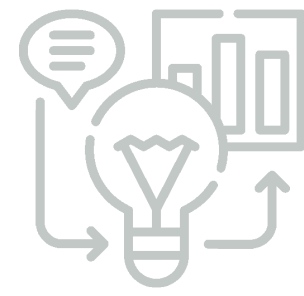
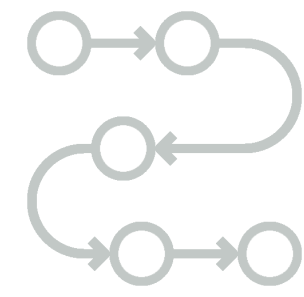
nuances of social interactions



hypo and hyper sensory sensitivity



difficulty communicating



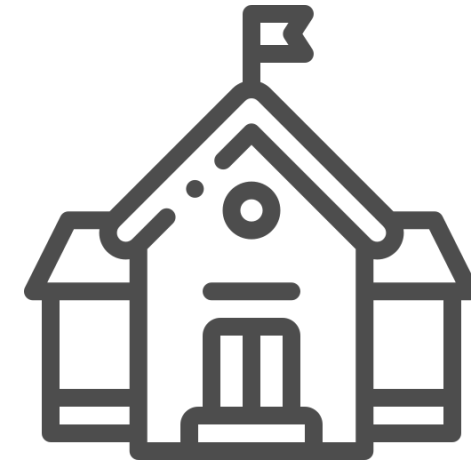
# Public Education Problems



**6.8 hours**



**180 days**

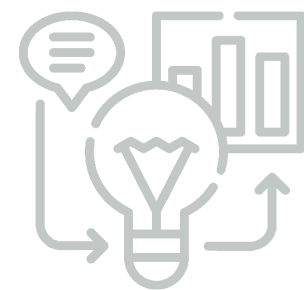
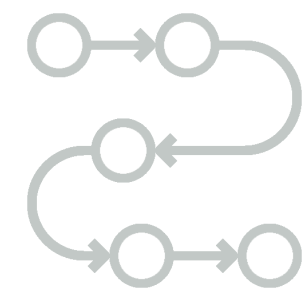


**1,224 hours  
every year**

Most public schools are not built with sensory needs in mind. For children with ASD, this means that they are essentially set up to fail from the start just because the environment they're in is actively working against them as they try to learn.

Children spend almost one 3rd of their waking hours in school, why not make it as comfortable for all of them as is possible?



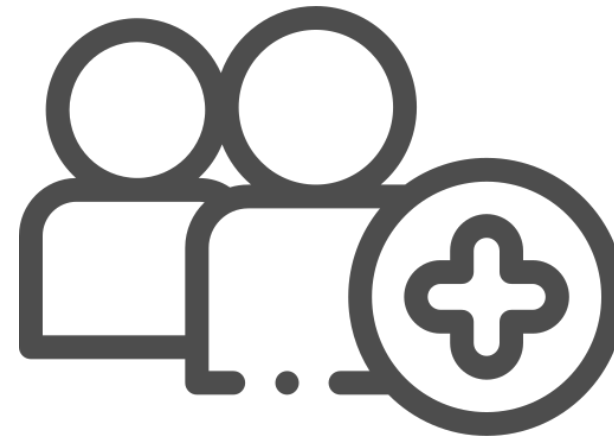


# What's the big deal?

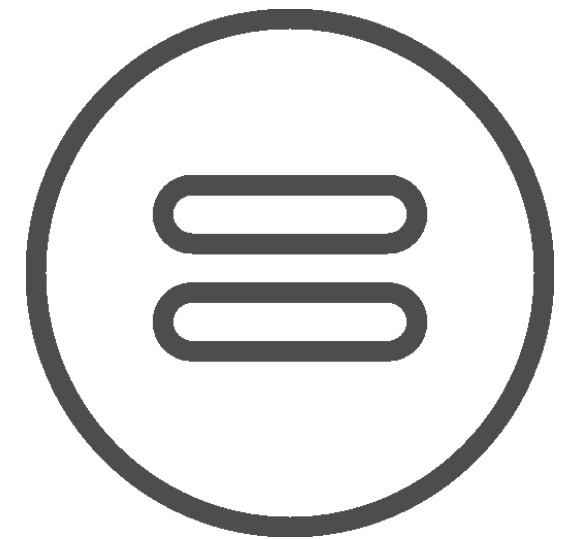
By recognizing the scope and significance of ASD, society can take a closer look at how it can create a world where these children can grow up knowing that they are



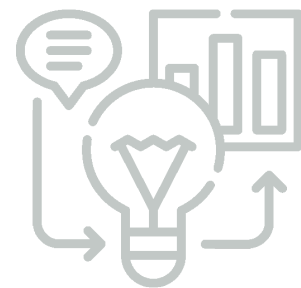
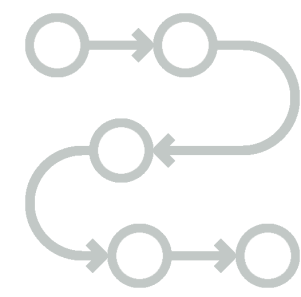
**SAFE**



**INCLUDED**



**EQUAL**



# Theory

## SENSORY DESIGN THEORY

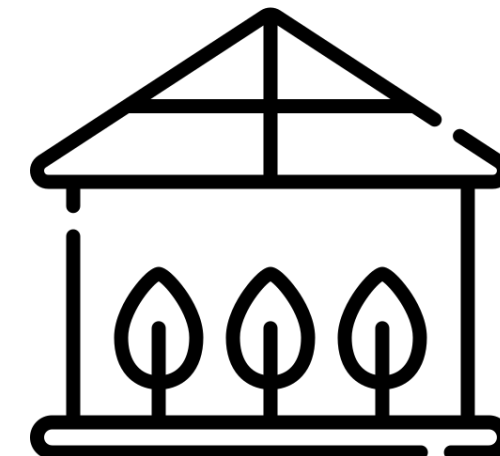
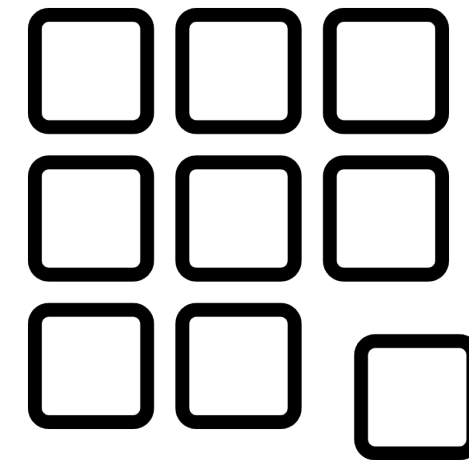
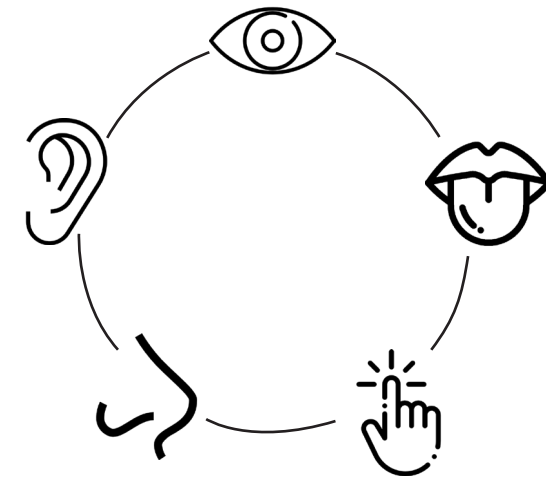
Considers the total experience regarding human senses of vision, touch, hearing, smell and taste when designing a space

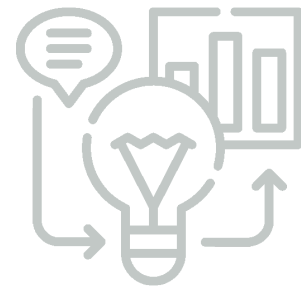
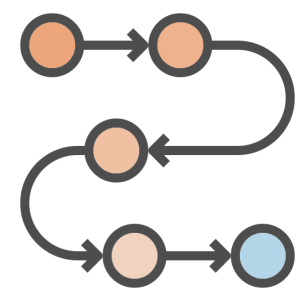
## ASPECTSS

Evaluates Acoustics, Spatial Sequencing, Escape space, Compartmentalization, Transition zones, Sensory zoning, and Safety in the context of sensory design Theory

## GREENHOUSE EFFECT

Autistic individuals will improve within a specific environment built for them but will not be able to adjust to spaces that are designed mainly with neurotypical needs in mind.





# Method

The proposed method of research would be to integrate neurotypical students into a school designed with autistic needs in mind. The neurotypical students would be placed in the school for half of the school year and then placed in a school designed for neurotypical students for the remainder of the school year. These students will vary between the grades of K-4th grade.

## Quantitative

NRC ratings in each school

Lighting types and controls

classroom organization style

school organization style

Colors of materials and where they are,

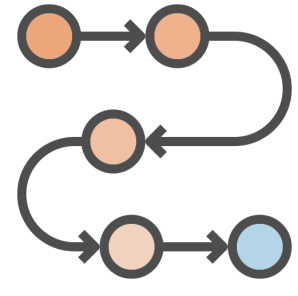
## Qualitative

Surveys to students asking how they liked school

surveys to parents asking about behavior at home

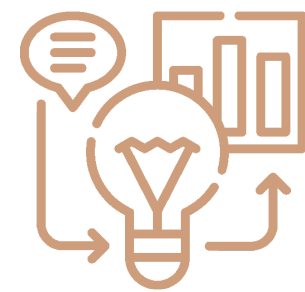
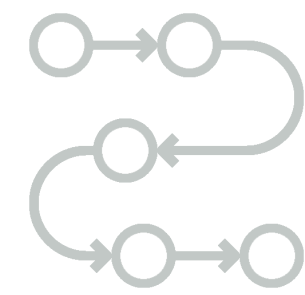
Surveys to teachers asking about class disruption, focus, and student behavior

Observers in the schools taking note of specified behaviors or lack thereof.



# Literature Review

Site Used	Search	Filters	Results	Used	Referenced
K-State Search-It	Understanding Autism	Peer-Reviewed	91,831	10	5
K-State Search-It	Autism and Design	Peer-Reviewed 2000-2020	71,000	10	6
Google Scholar	Autism in the U.S.	N/A	N/A	1	1
Google Scholar	Autism Statistics	N/A	N/A	1	1
Google Scholar	Autism Laws	N/A	N/A	1	1



# Precedent

Examples from  
Altenmueller-Lewis and  
Mostafa's published  
articles



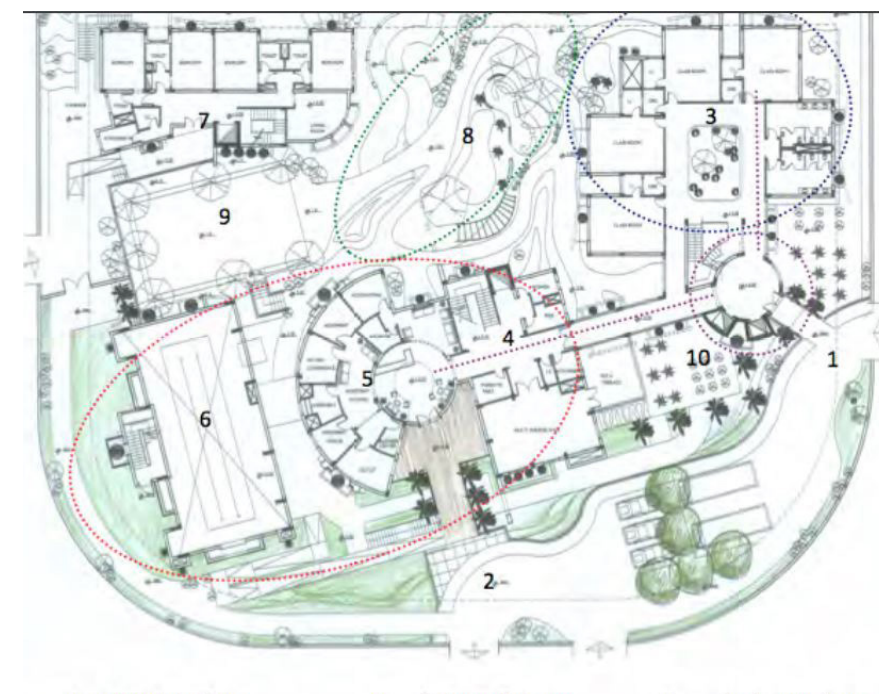
Pros: Organized and  
isolated classes

Cons: Not one way circ



Pros: Organized and  
isolated classes

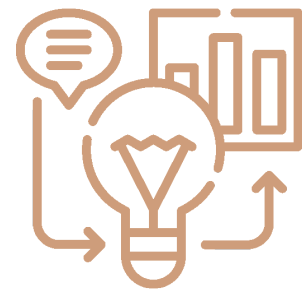
Cons: Not one way circ



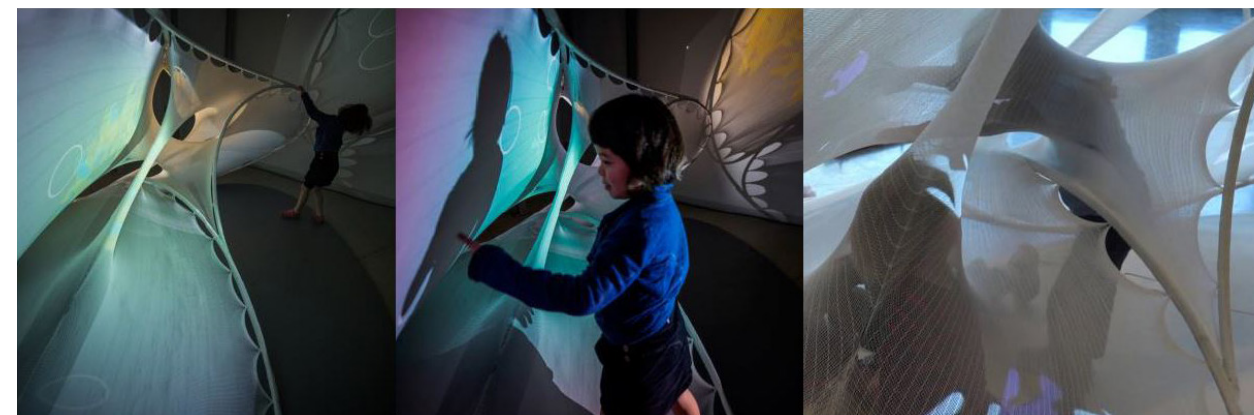
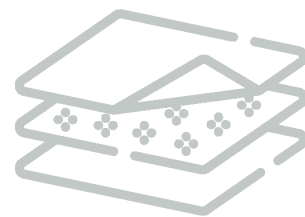
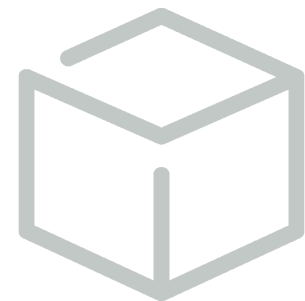
Pros: Organized, one  
way circ.

Cons: only for ASD

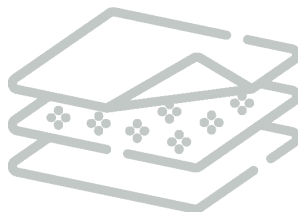
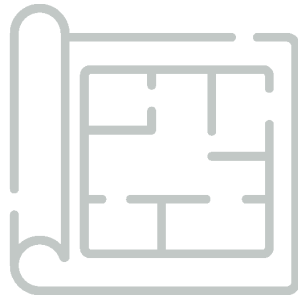
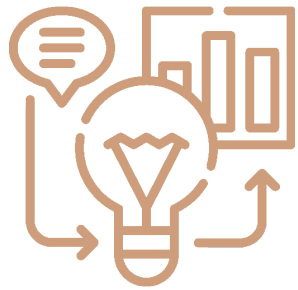




# Inspiration







# Location



**105,413** Population of Green Bay in 2020

**26,444** Between the ages of 0-17

**6,913** of 8-year-old children

**1.7%** Between the ages of 5-9

**2.5%**

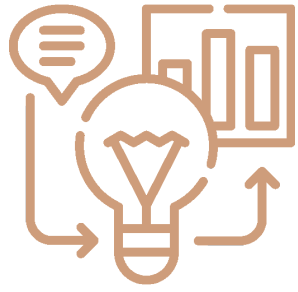


**173**  

---

**6,913** Between the Ages of 5-9

**100**



# Numbers



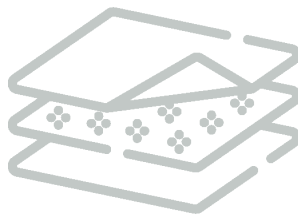
500

Kids with low or no  
needs in the School



100

Kids per grade



20

Kids per class



100

Kids with high needs  
ASD in the School

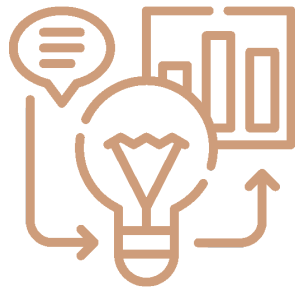
20

Kids per grade

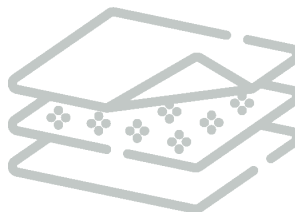
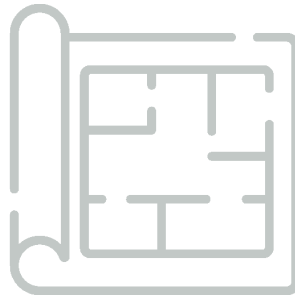
4

Kids per class

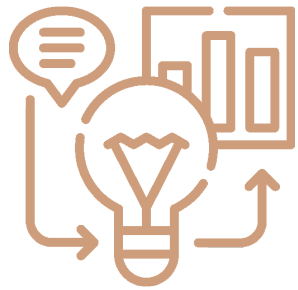




# Objectives



Goals	Problems	Solutions
Creating an academic environment that supports and stimulates both neurotypical students and students with ASD	<ul style="list-style-type: none"><li>-Stimulating activities and colors</li><li>-color coding</li></ul>	<ul style="list-style-type: none"><li>-organization that is not distracting</li><li>-do research on what colors are disturbing to the majority of children with ASD</li></ul>
Creating transition spaces that are intuitive and apparent.	<ul style="list-style-type: none"><li>-Noise control and sensitivity</li></ul>	<ul style="list-style-type: none"><li>- lots of soft porous materials</li><li>- thinking about textures that are not disturbing to sensory stimulation.</li></ul>
Allowing safe spaces to be inviting, logically placed, and separated for all students.	<ul style="list-style-type: none"><li>-Noise control, lighting control, privacy and demand.</li><li>-location.</li></ul>	<ul style="list-style-type: none"><li>-Nodes in halls that have doors.</li><li>-separate rooms in classrooms</li></ul>
creating a spatial organization that is logical and sequenced	<ul style="list-style-type: none"><li>circulation that is controlled but still allows for freedom.</li><li>-color coding</li></ul>	<ul style="list-style-type: none"><li>using an on-stage off-stage strategy for sections and having a larger main circulation section.</li></ul>



# Priorities

## Primary

Acoustics

Lighting

Organization

Safety



## Secondary

Escape Zones

Transition Zones

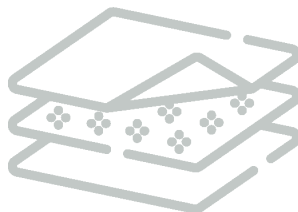
Greenhouse Effect

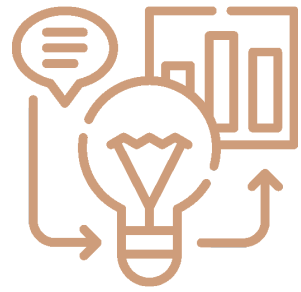


## Tertiary

Tactile Senses

Colors



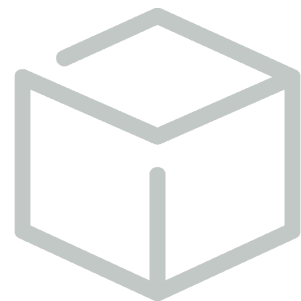


# Narrowing It Down



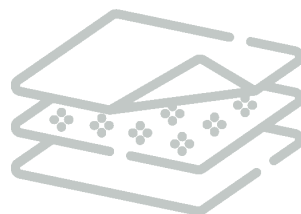
## Second Grade Wings

2 wings, one for high needs, one for low needs.  
5 classrooms in each wing:  
Math, Science, History,  
Reading, Writing.



## Transition zones

Spaces that  
communicate a change  
in stimulation and  
expectations to students.  
A space to reset.



## Escape zones

Spaces where  
students can go to  
regain control, low  
stimulation, and safe.

## Wayfinding

Strategies in  
organization, layout,  
and signage.

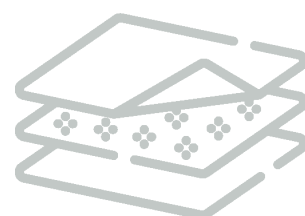
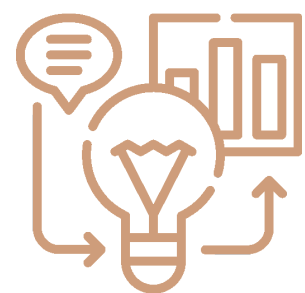
## Courtyard

A shared space for  
all students to play  
together and enrich their  
understanding of nature.

## Circulation

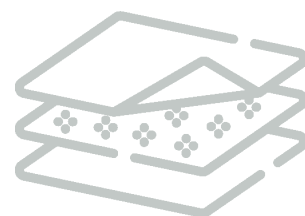
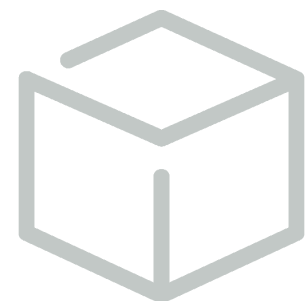
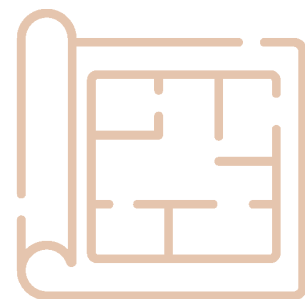
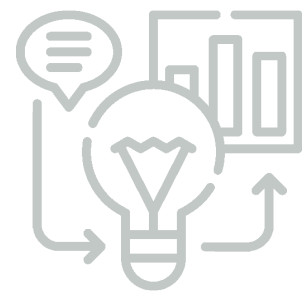
The way in which  
students move through  
the school, very specified  
direction and sequence.



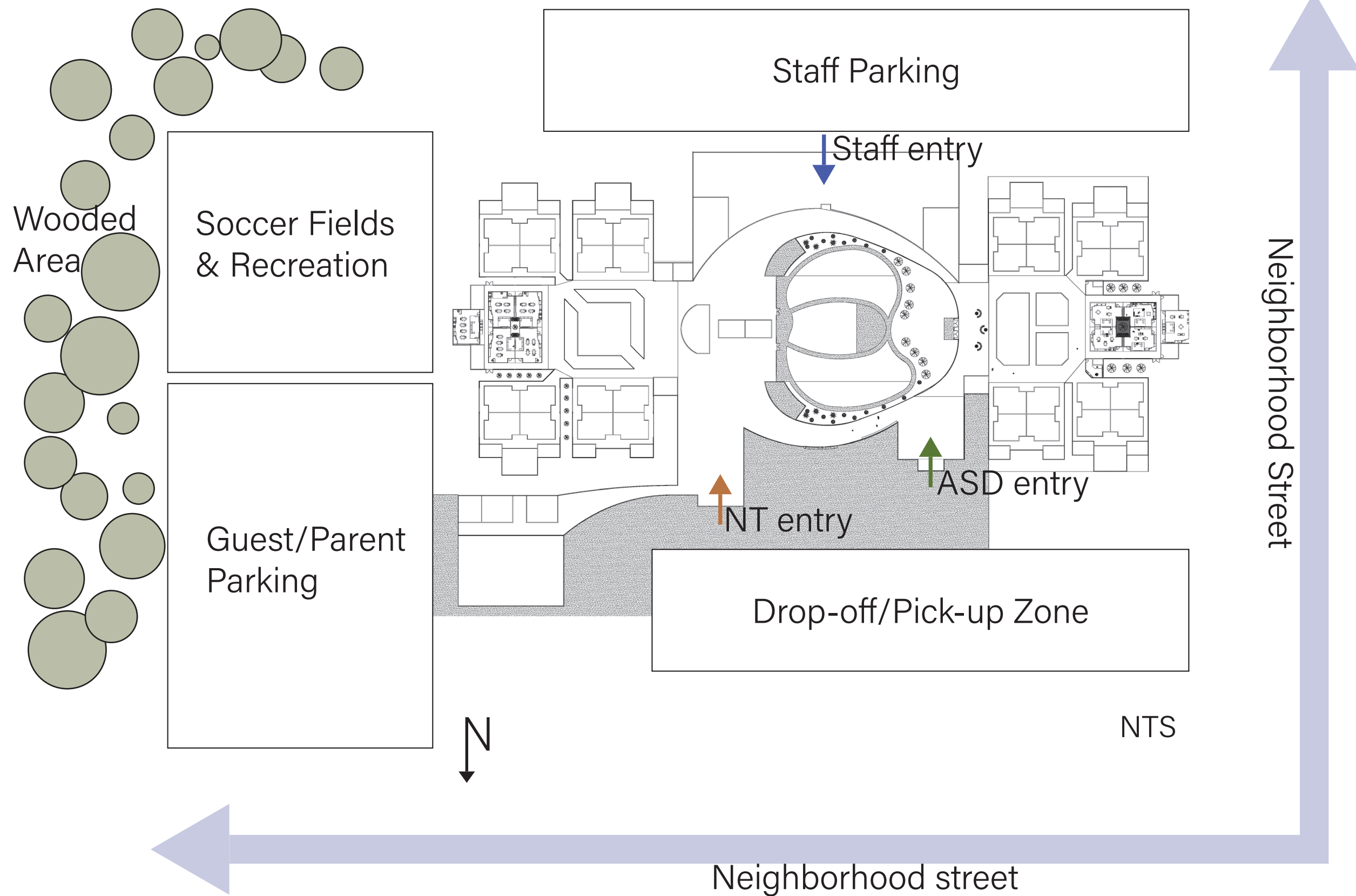


# Space Planning

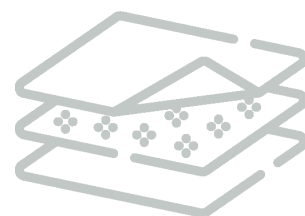
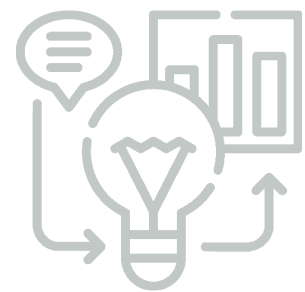




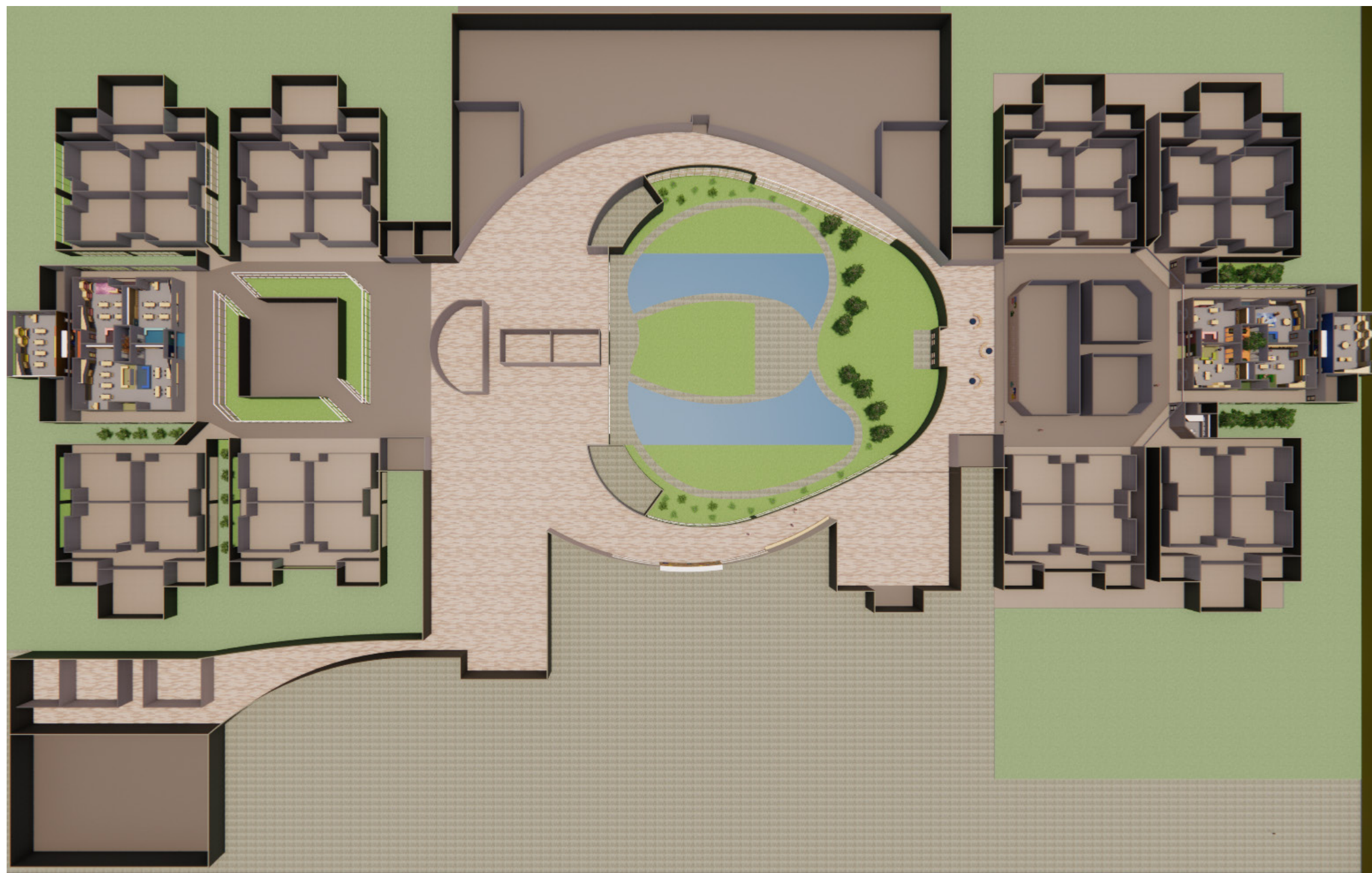
# Site Plan





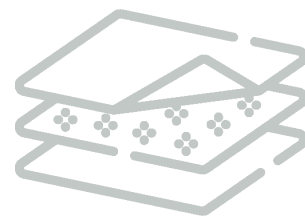
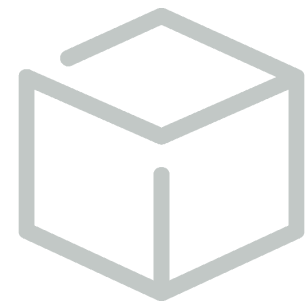
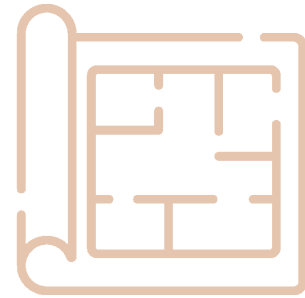
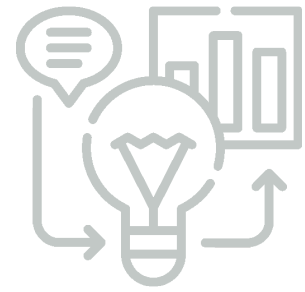


# Rendered Floor Plan

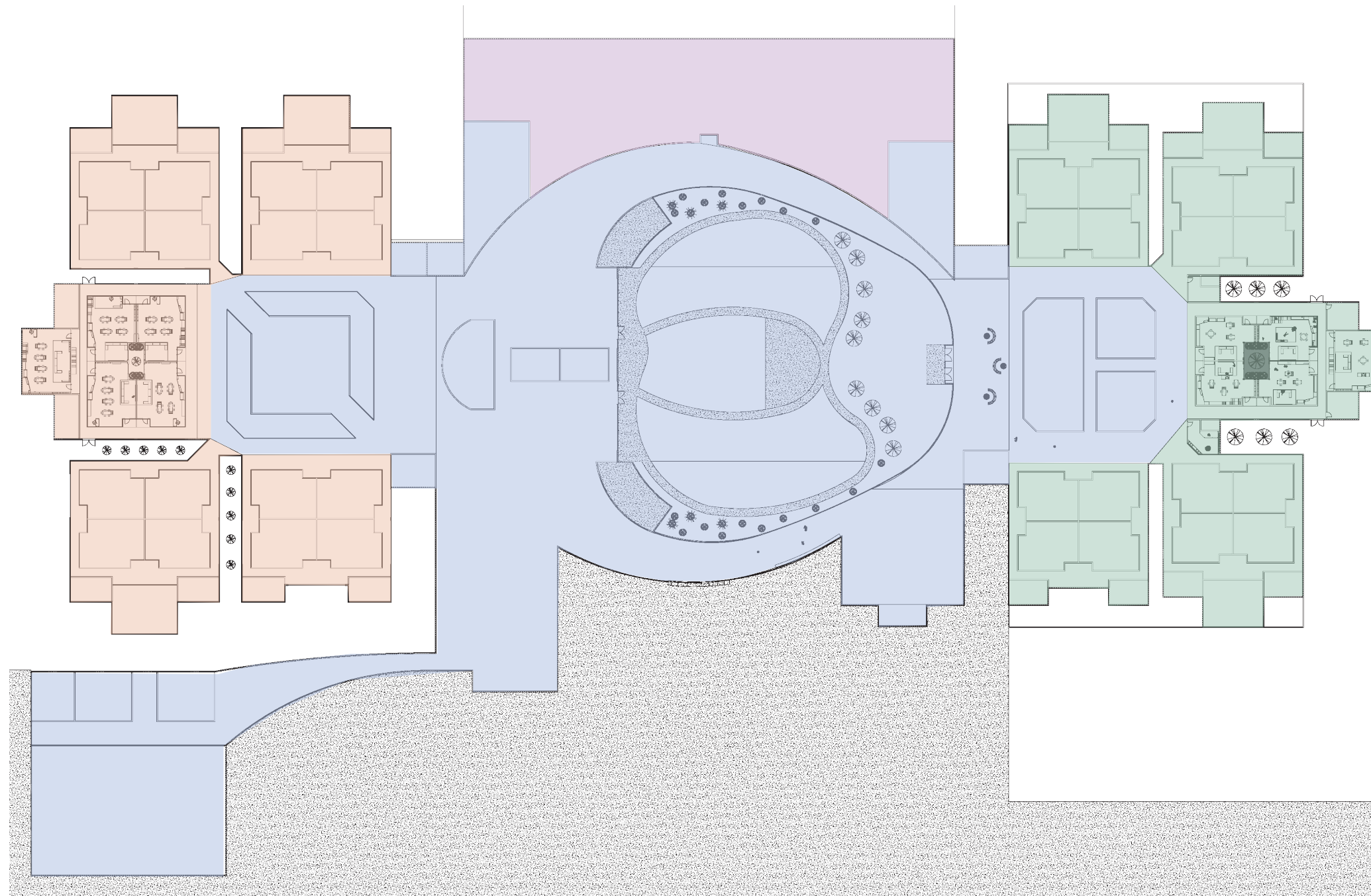


NTS





# Zones

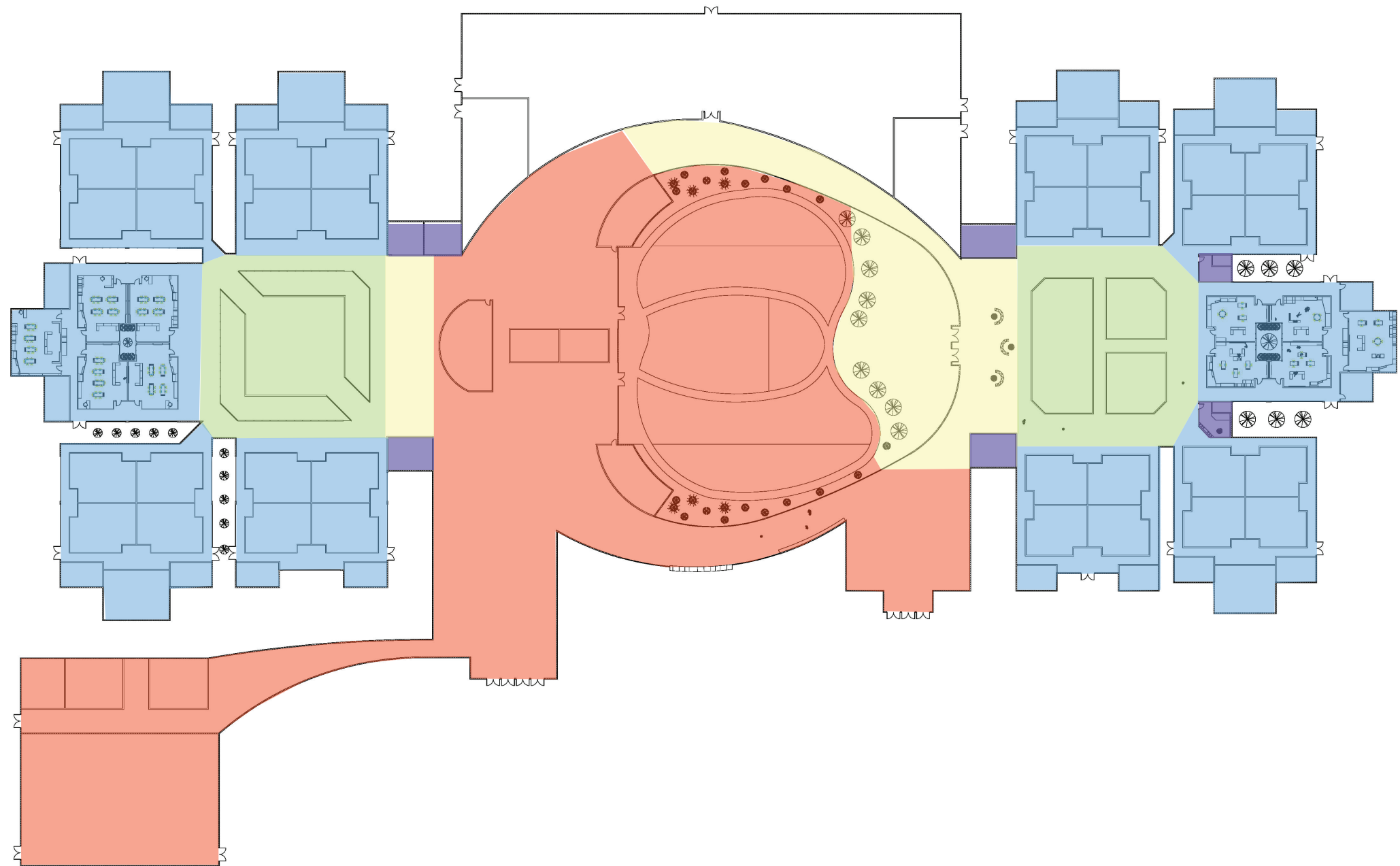
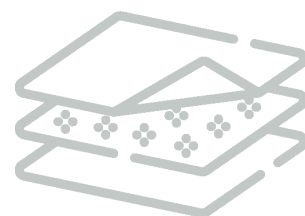
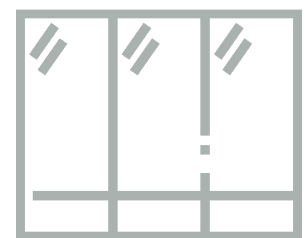
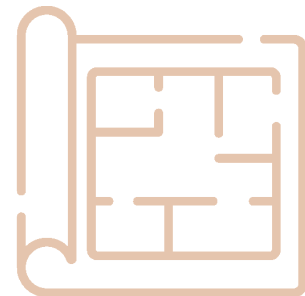
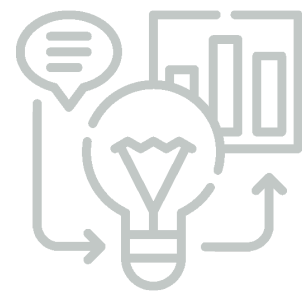


- NT Side
- Shared
- ADMIN
- ASD Side



NTS

# Stimulation Zones

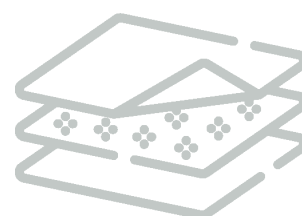
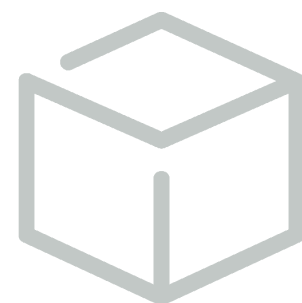
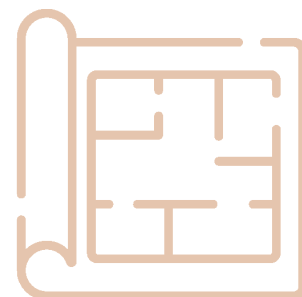
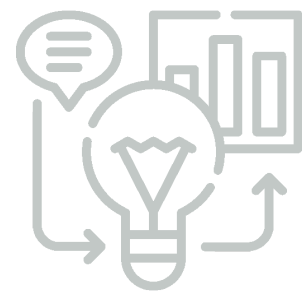


- High
- Middle
- Lower
- Low
- Lowest

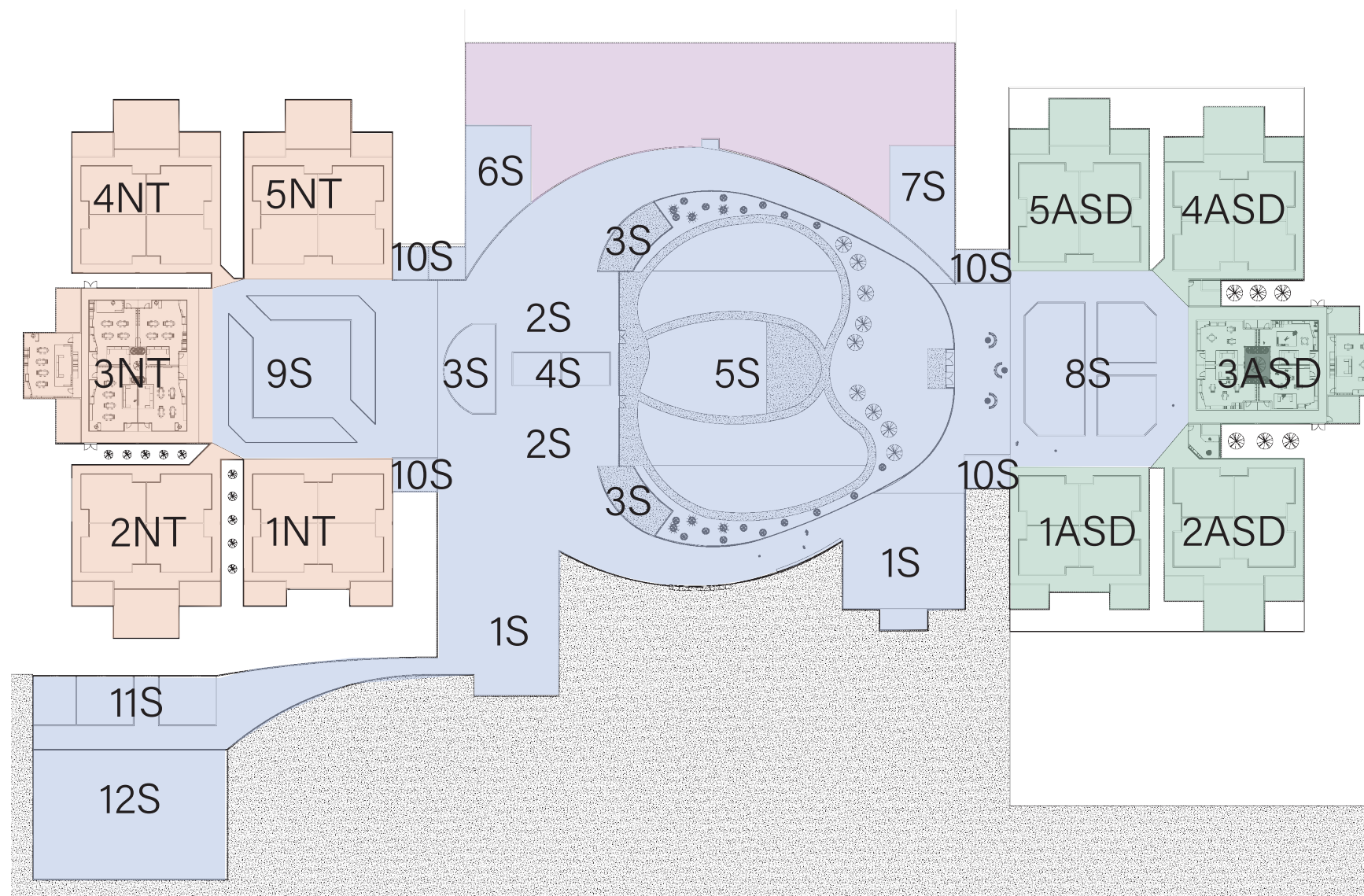


NTS





# Spaces



- 1S Entry
- 2S Lunch
- 3S Kitchens
- 4S WC
- 5S Courtyard
- 6S Music
- 7S Art
- 8S Special Subs
- 9S Library
- 10S Escape zone
- 11S locker room
- 12S Gym

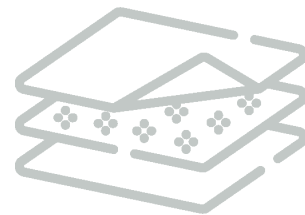
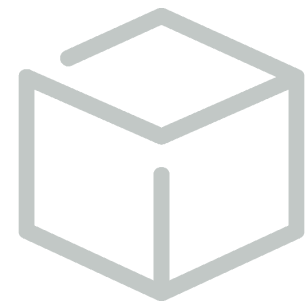
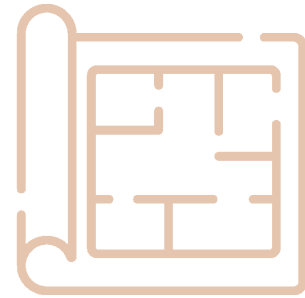
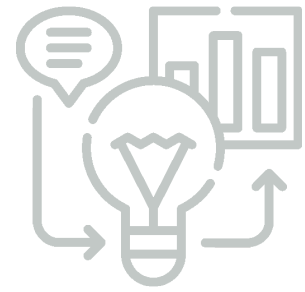


NTS

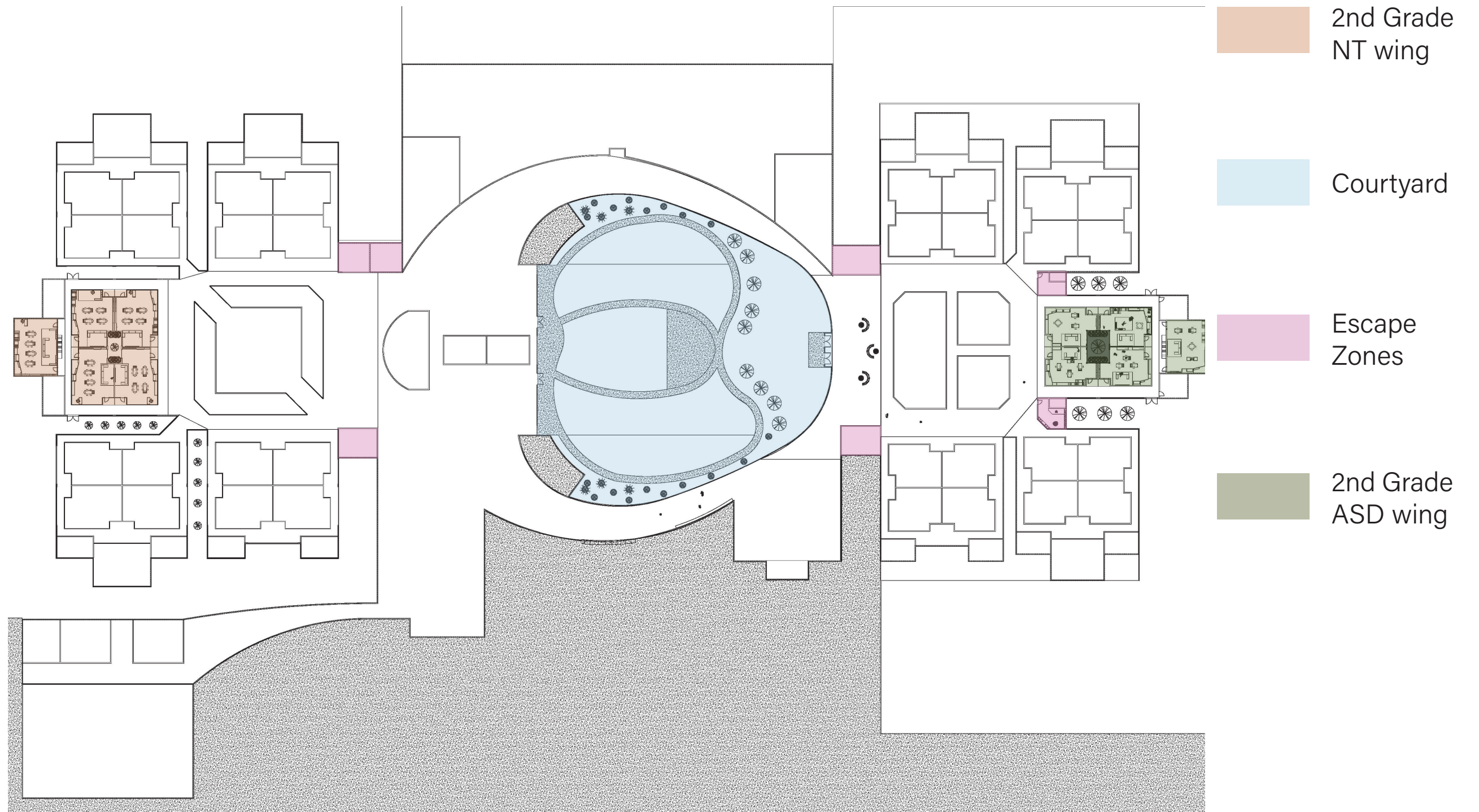
1ASD	2ASD	3ASD	4ASD	5ASD
Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade

1NT	2NT	3NT	4NT	5NT
Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade



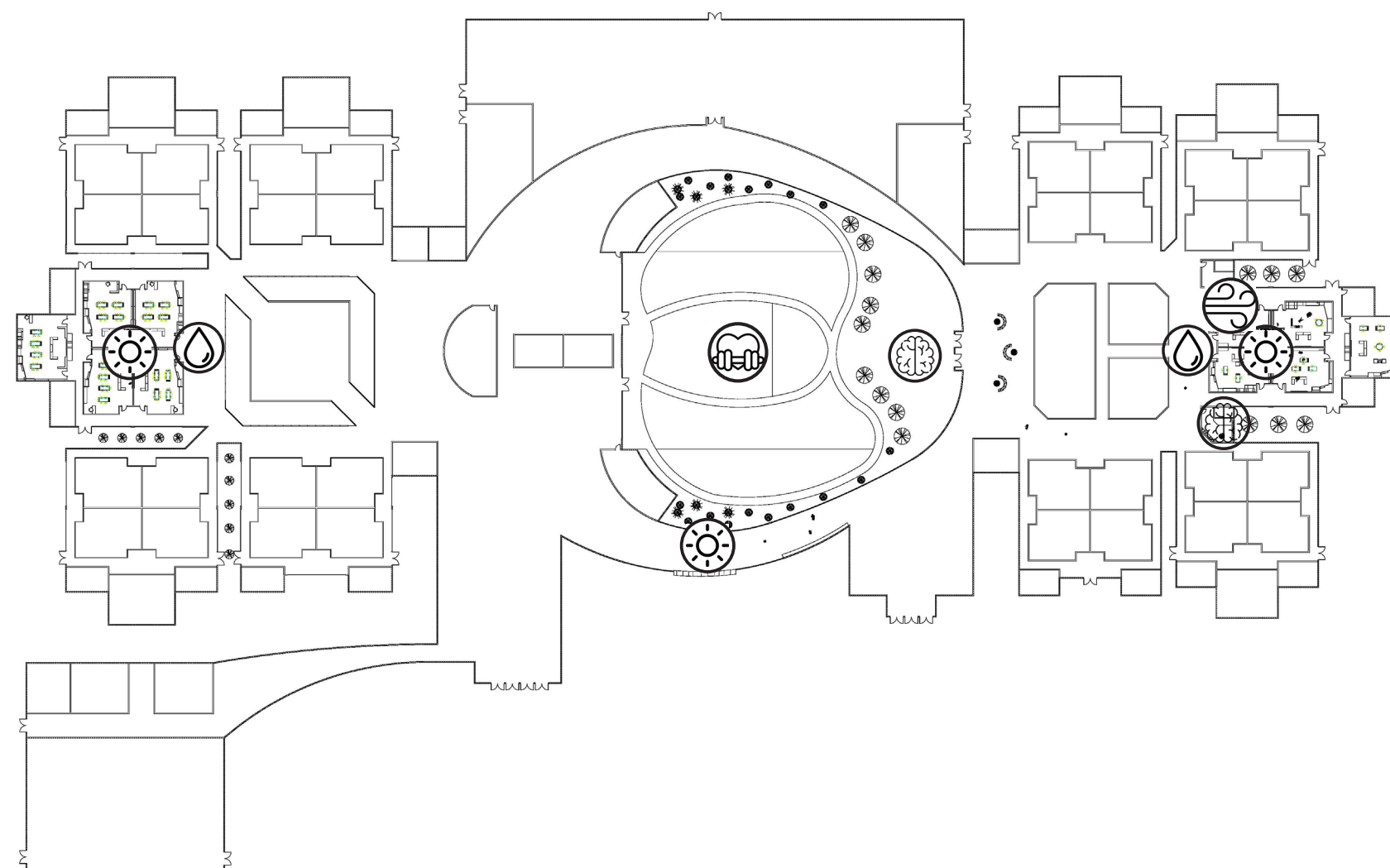
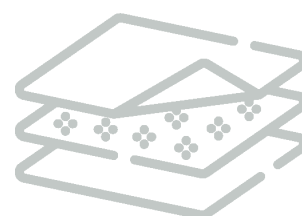
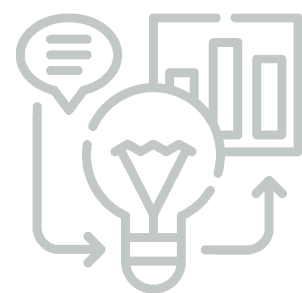


# Narrow It Down



NTS

# Well-Building Considerations



NTS

Controlled natural  
light through  
courtyards



Light



Air

4 drinking  
fountains were  
provided per wing



Water



Nourishment

Large outdoor  
courtyard for  
activities



Fitness



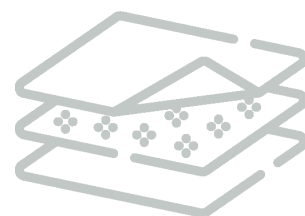
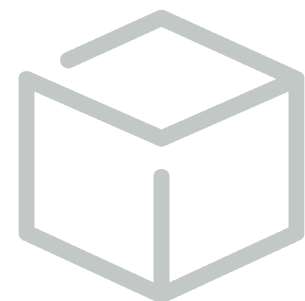
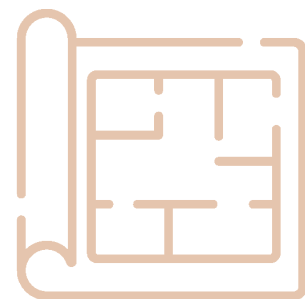
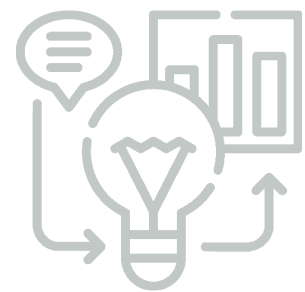
Comfort

Sensory garden  
and Escape zones

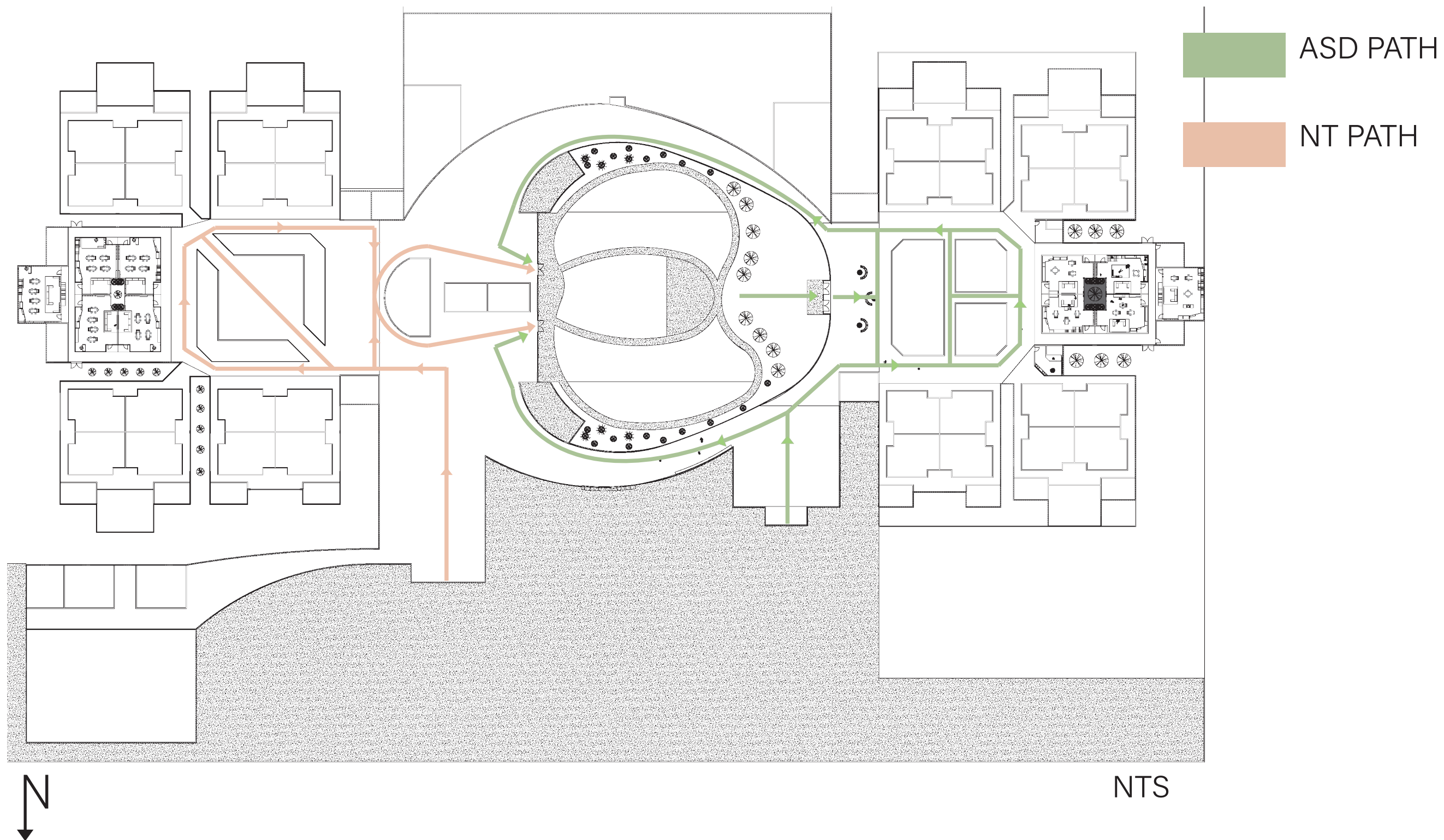


Mind



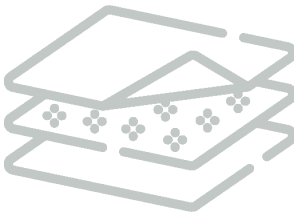
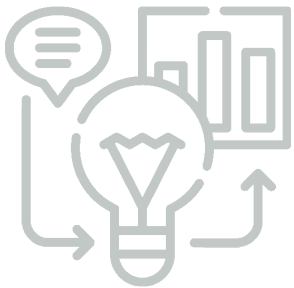


# Circulation

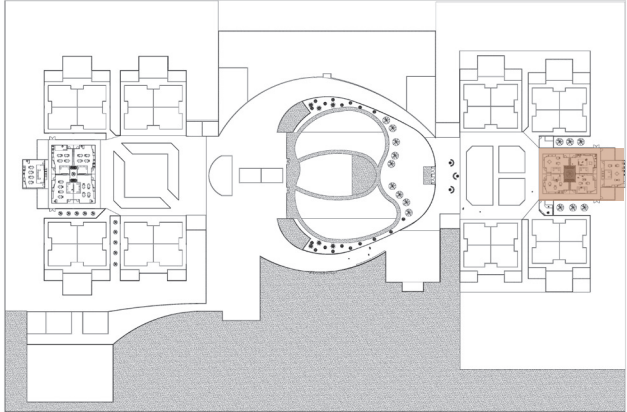




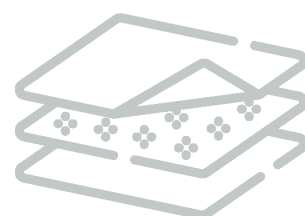
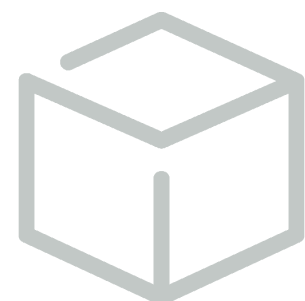
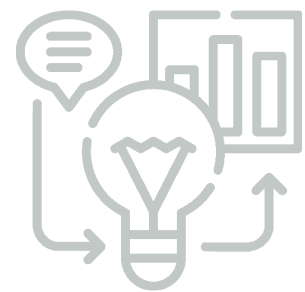
# ASD Wing Floor Plan



NTS







# ASD Wing Floor Plan



- (M) MATH
- (S) SCIENCE
- (H) HISTORY
- (R) READING
- (W) WRITING
- (RR) RESTROOMS



NTS

①

Each classroom is zoned by function through the furniture

②

Each classroom has custom casework that includes a built in escape zone for students to use.

③

This is an area to break up the hallway and provide a space for children to gather. There are recessed Geometric niches for them to sit in.

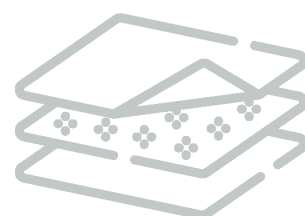
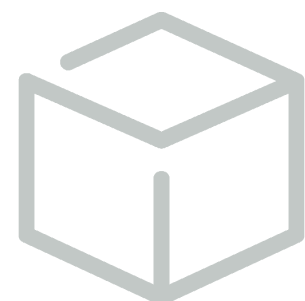
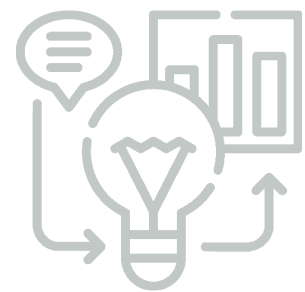
④

The reading rug is another zoning technique which allows students to know what task is meant to be done in this space and the expectations they can have.

⑤

These full wall windows allow maximum light into the clarestory windows in the classrooms, both of which are equipped with smart glass technology.





# ASD Wing Floor Plan



The pink arrows indicate which doors a student exits and enters from for each classroom, further allowing the circulation to be in a singular direction



The green arrows indicate the general direction of students path through the wing.



NTS

①

Custom casework with Geometric niches for sitting. Provides a place for children to feel enclosed while still participating in class

②

Carpet color changes match wall color changes to help with wayfinding.

③

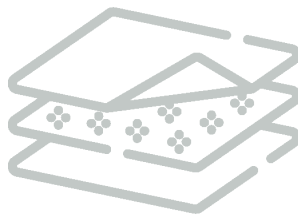
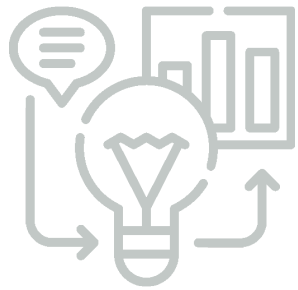
A courtyard provides access to the outdoors while maintaining safety and keeping children from running away.

④

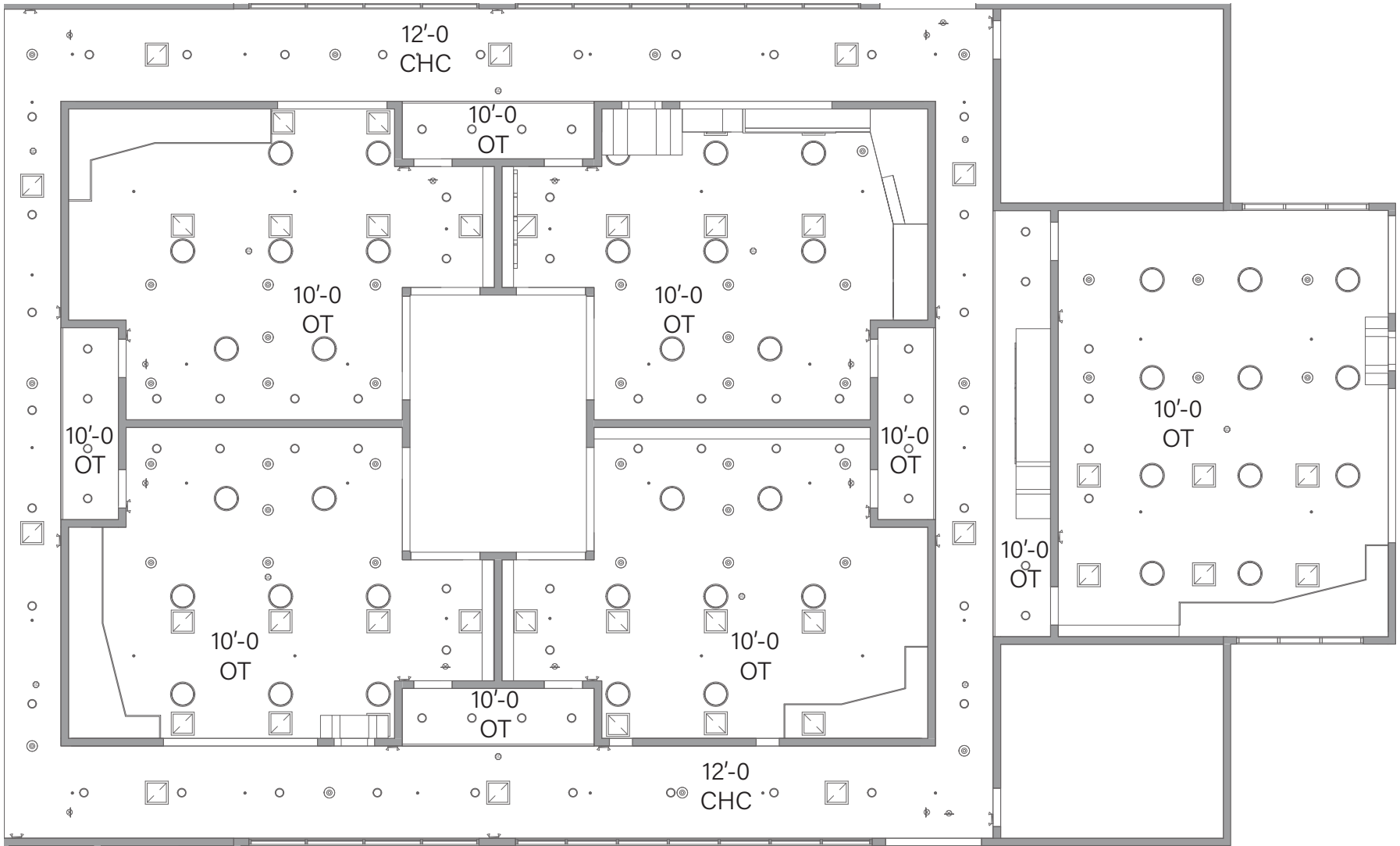
More custom casework that provides cubbies for kids to store toys and personal belongings.

⑤

This circulation is one way for ease of wayfinding, organization, and helping students to be independent.



# ASD Wing RCP











NTS



## Notes

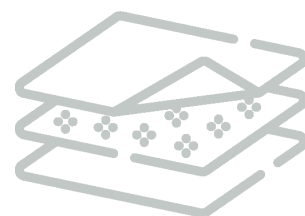
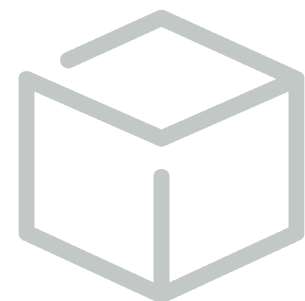
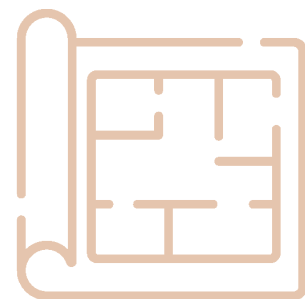
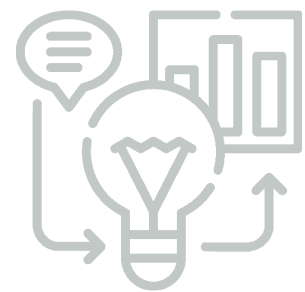
1. Maximum of 50 Footcandles in classrooms, can be dimmed to less. Recommended the FC be kept to 25-35.
2. NRC ratings of .8 or higher in all spaces in view.

-  Lateralo Suspended Luminaire
-  Inplana Recessed Luminaire
-  Exit Sign
-  Recessed Sprinkler
-  Smoke Detector
-  Return Vent
-  Supply Vent
-  Emergency Lights

OT Optima Techzone

CHC Calla High CAC



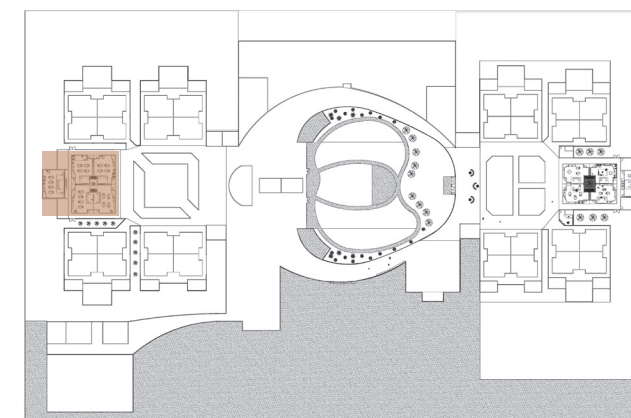


# NT Wing Floor Plan

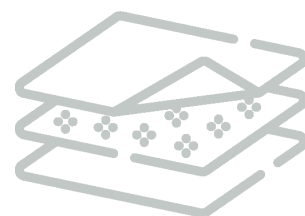
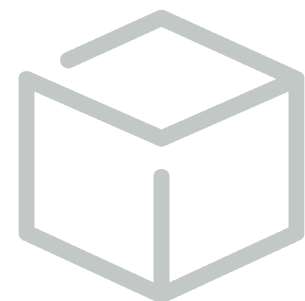
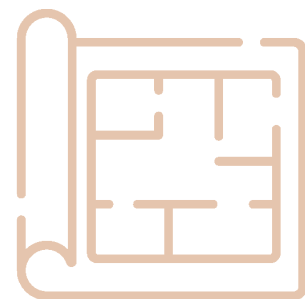
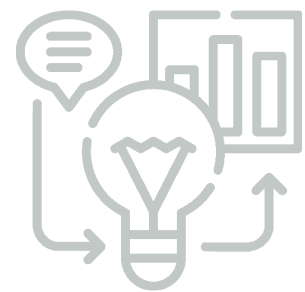


N  
↓

NTS







# NT Wing Floor Plan



- M MATH
- S SCIENCE
- H HISTORY
- R READING
- W WRITING
- RR RESTROOMS

①

Each classroom is zoned by function through the furniture

②

Each classroom has custom casework that includes a built in escape zone for students to use.

③

This is an area to break up the hallway and provide a space for children to gather. There are recessed geometric niches for them to sit in.

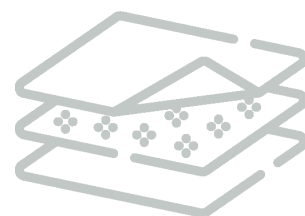
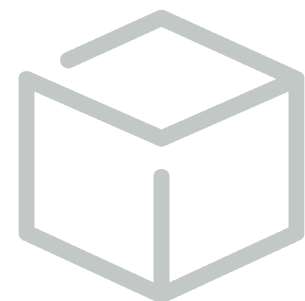
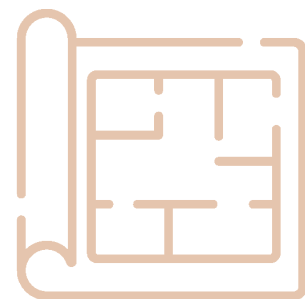
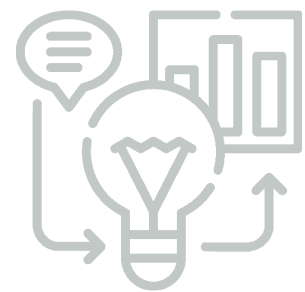
④

The reading rug is another zoning technique which allows students to know what task is meant to be done in this space and the expectations they can have.

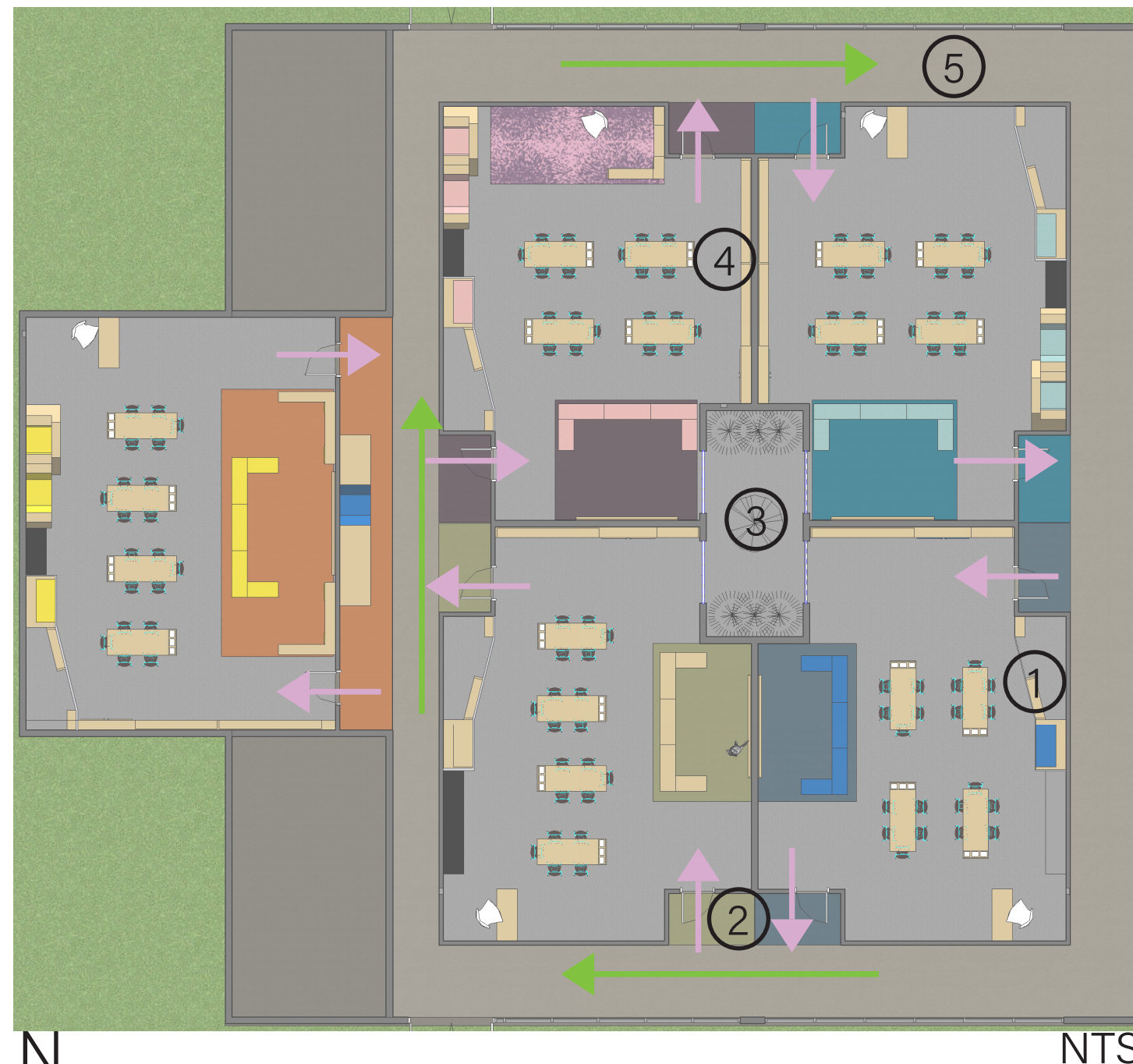
⑤

These full wall windows allow maximum light into the clarestory windows in the classrooms, both of which are equipped with smart glass technology.





# NT Wing Floor Plan



The pink arrows indicate which doors a student exits and enters from for each classroom, further allowing the circulation to be in a singular direction



The green arrows indicate the general direction of students path through the wing.

①

Custom casework with geometric niches for sitting. Provides a place for children to feel enclosed while still participating in class

②

Carpet color changes match wall color changes to help with wayfinding, some of these colors are more vibrant in this wing.

③

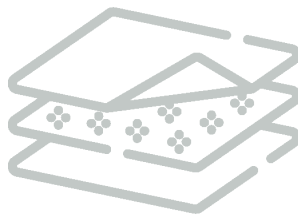
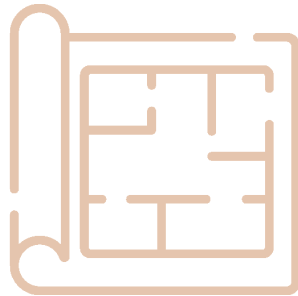
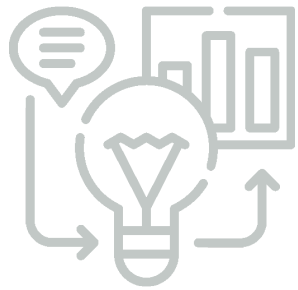
A courtyard provides access to the outdoors while maintaining safety and keeping children from running away.

④

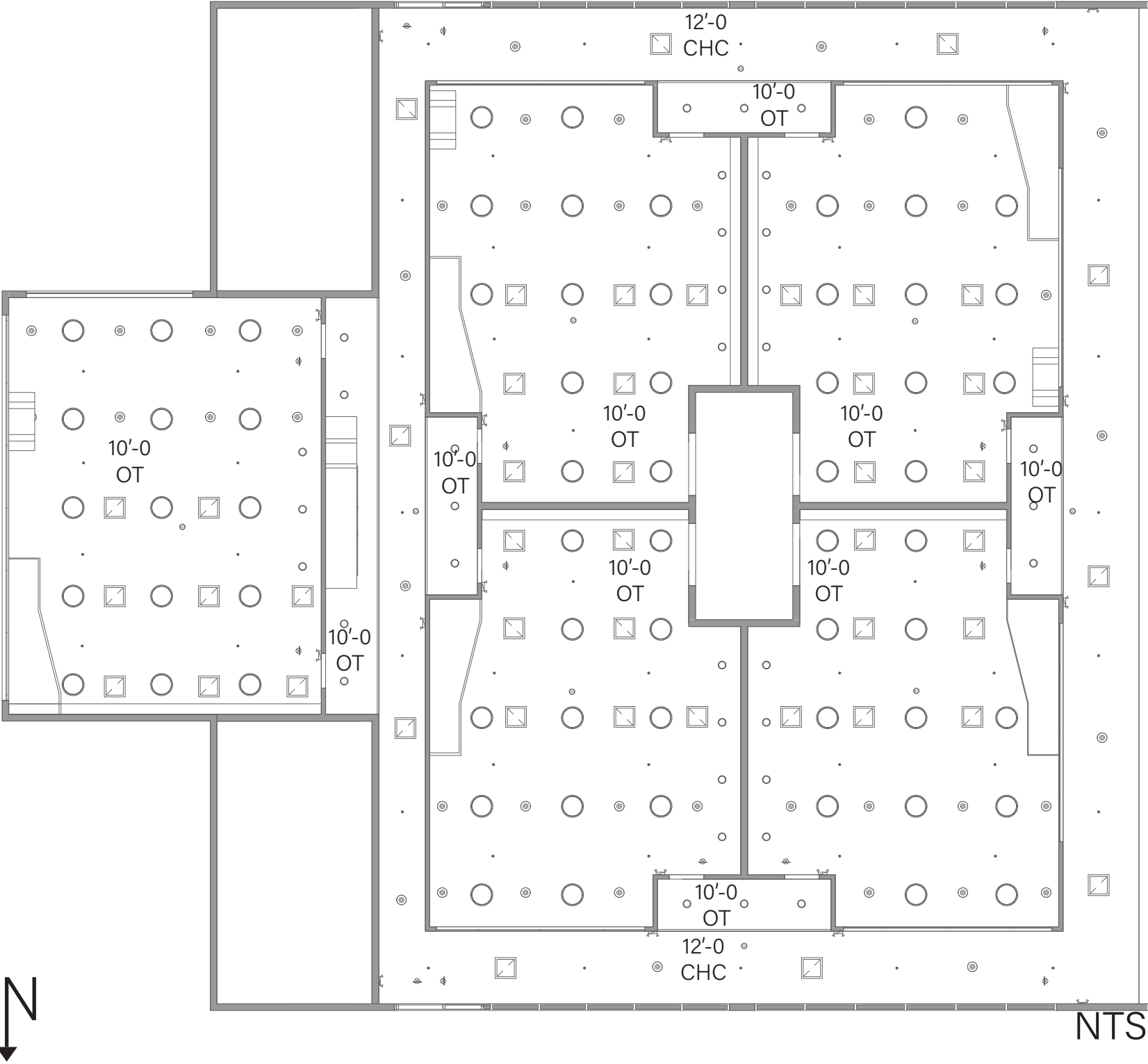
More custom casework that provides cubbies for kids to store toys and personal belongings. It also has shelves and a large cabinet for teacher storage.

⑤

This circulation is one way for ease of wayfinding, organization, and helping students to be independent.



# NT Wing RCP



## Notes

1. Maximum of 50 Footcandles in classrooms, can be dimmed to less. Recommended the FC be kept to 25-35.
2. NRC ratings of .8 or higher in all spaces in view.

○ Lateralo Suspended Luminaire

○ Inplana Recessed Luminaire

⊕ Exit Sign

• Recessed Sprinkler

SD Smoke Detector

□ Return Vent

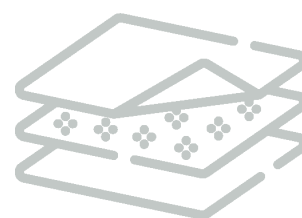
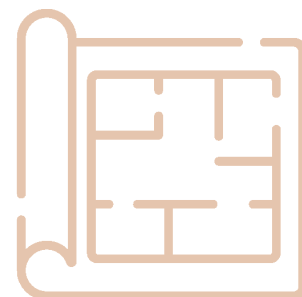
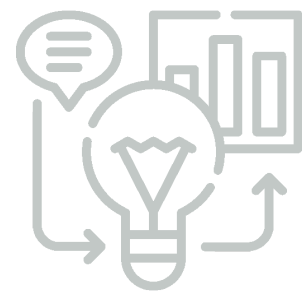
⊙ Supply Vent

— Emergency Lights

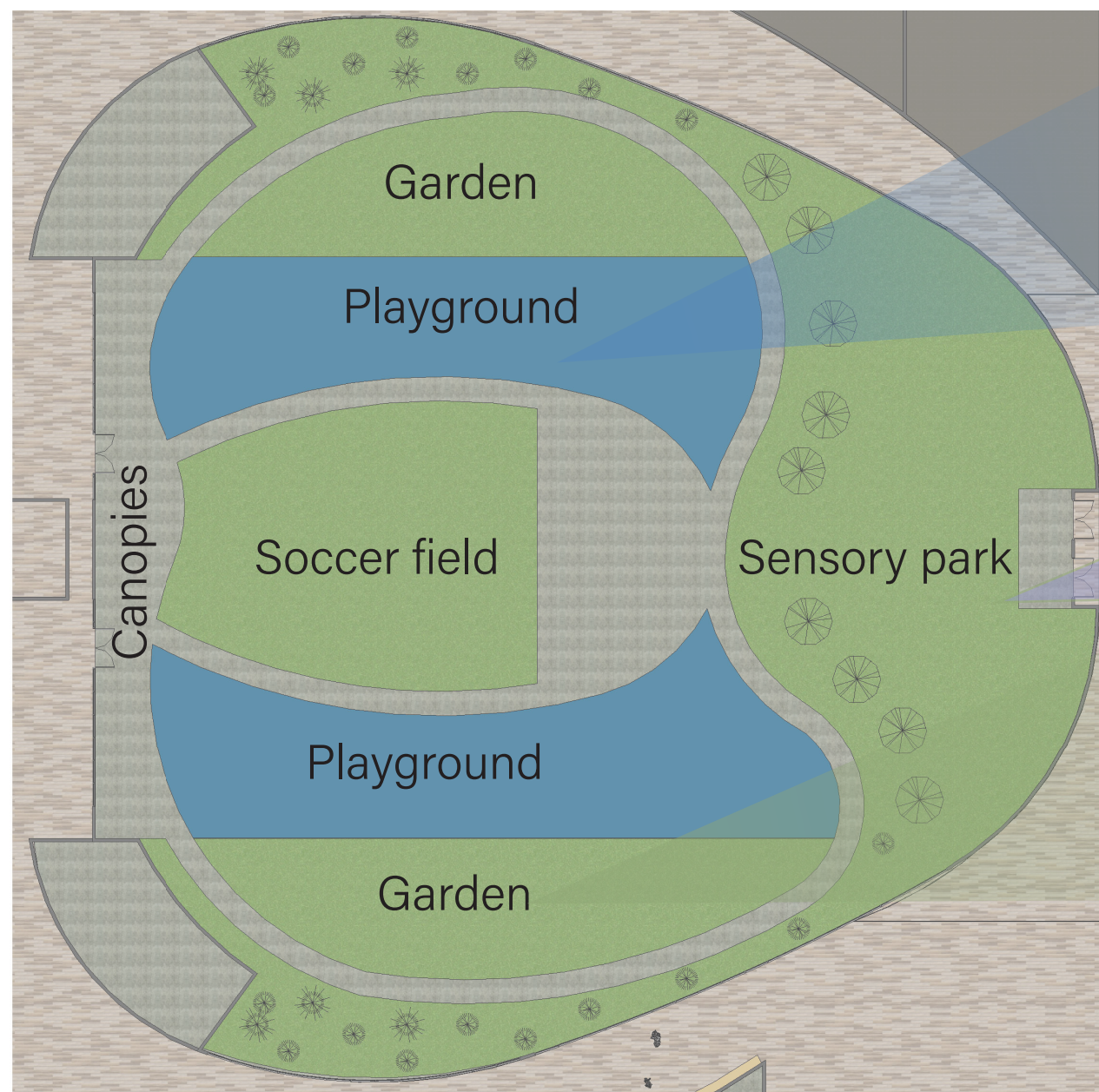
OT Optima Techzone

CHC Calla High CAC





# Courtyard



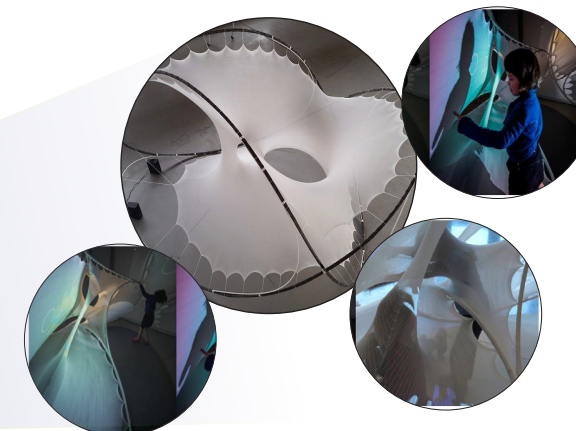
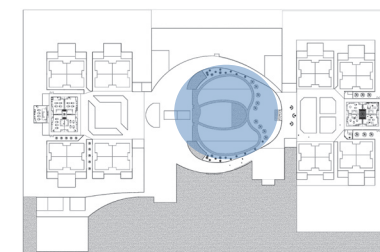
NTS



Accessible and muted colored jungle gyms so children can play together no matter their ability. The ground here is recycled tire chips for sustainability and accident forgiveness.



The gardens placed on either side of the courtyard are framed by two arching flower tunnels. This allows children to get away from high stimulation and feel enclosed. There are also vegetable planters and natural native plants that have labels. Children are welcome to explore these plants and are encouraged to participate in gardening with the garden supervisors.

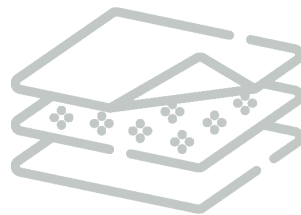
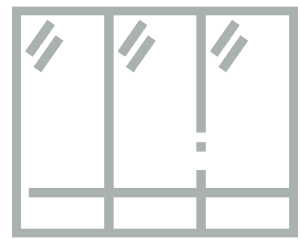
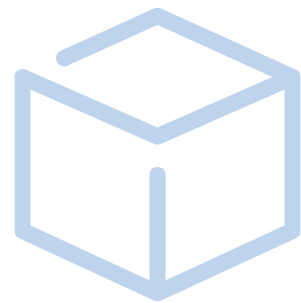
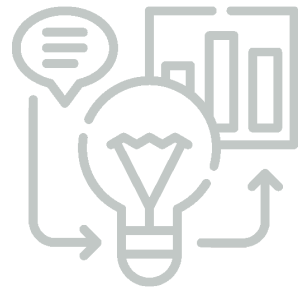


This sensory park is a way for children to engage their mind and senses without becoming overstimulated. It is also a great tool in getting children with ASD refocused and prepared to learn which is why it is located right by the way back into the school.



Canopies are located near the entrance to the courtyard and provide shade and shelter to children who may like to have more quiet relaxed recess with friends or alone. There is also a walking path that goes around the entire courtyard, through the gardens, encouraging exercise.





# NT vs. ASD



NTS



## Differences

Class size of 20 vs. 4.

Larger Furniture in NT wing.

Brighter colors in NT wings.

Allowance of some simple patterns in NT wing.

Teachers have desks in NT wing.

Fewer designated escape rooms in NT wing.

Teachers have more flexibility with what kinds of decoration (posters) they can put on the walls in NT wing.



ASD

NTS



## Similarities

Aside from two colors, the classes are the same colors.

Both have courtyards and clarestory windows with smart glass.

One way circulation.

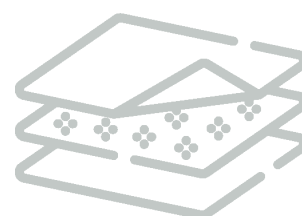
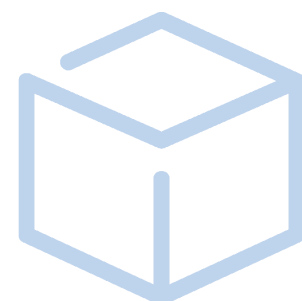
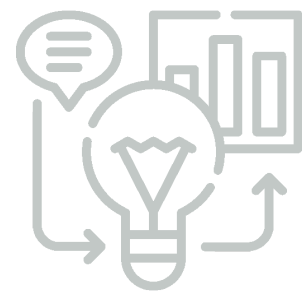
Custom casework with escape areas in every room.

High NRC ratings for materials and finishes.

Zoning within classrooms are similar.

Sequence of class order is the same.



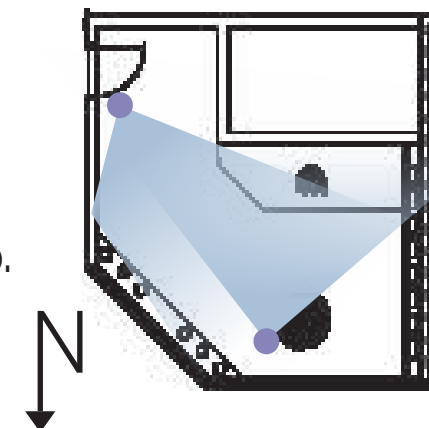


# ESCAPE ROOM



Chair that allows a student to rock gently as a coping mechanism. Studies show swaying reduces anxiety.

Glass tubes filled with water and lit gently from within have bubbles floating to the top. Can be turned off if needed.



NTS



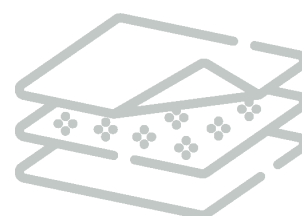
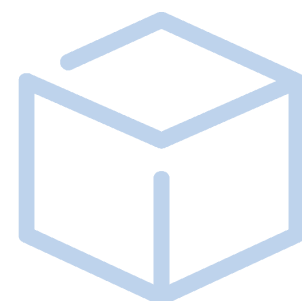
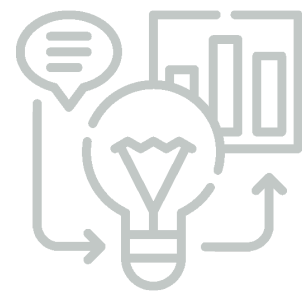
Dimmable uplights allow for low, indirect lighting that can be controlled at anytime. This reduces stimulation.

Fiber Optic strand bundles that are calming for tactile senses and visual.

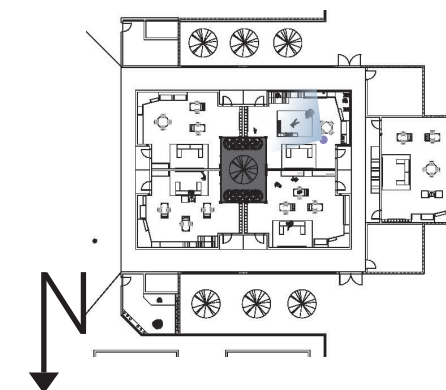
An enclosed space for children needing a safe place. There will be pillows and blankets in there as well.

The most important needs for this room are adaptability, durability, acoustic isolation, and comfort.

NTS



# READING ASD



NTS

①

Upholstered panels with Utmost II to help with acoustic absorption.

②

This is a Brody ottoman from Steelcase. It rocks and allows children to sway when sitting on them. They provide flexible seating.

③

Cushioned with Colorfield Textile from Knoll, custom niches give children a chance to work on motor skills and provide a space for them to feel enclosed.

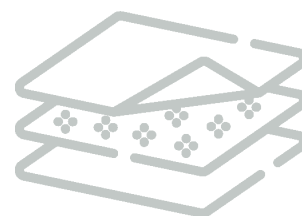
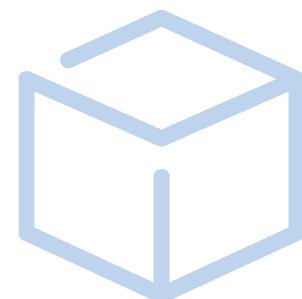
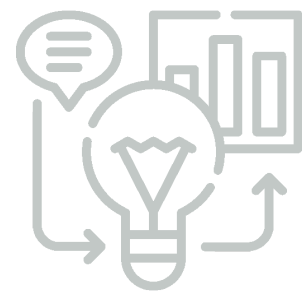
④

Clarestory windows that are shaped custom to the casework within the classroom. These are smartglass and help control the lighting in the classroom.

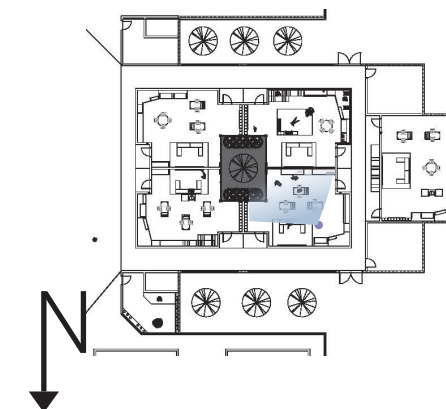
⑤

This casework provides out of sight storage for the teachers. It is lockable, and can also serve as a place to store students medication.





# SCIENCE ASD



NTS

①

Nanna Wall that fully opens to the courtyard. This is Smartglass, so the amount of daylight let in can be adjusted throughout the day as needed.

②

This is a custom table designed to incorporate two types of furniture to reduce the need for separate furniture.

③

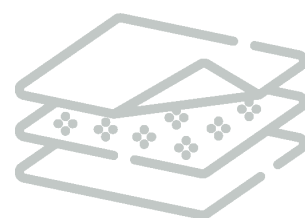
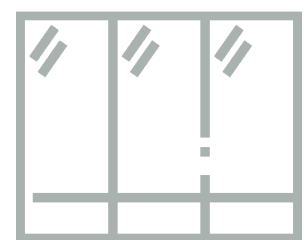
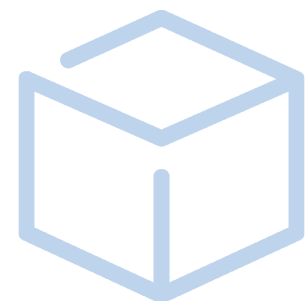
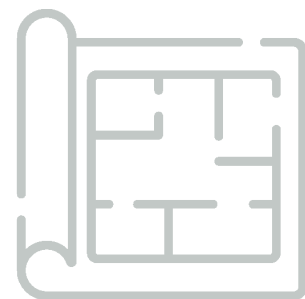
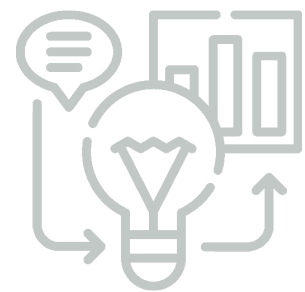
More custom furniture that combines shelving, marker storage, and whiteboards. All custom furniture are on rollers to allow for flexibility.

④

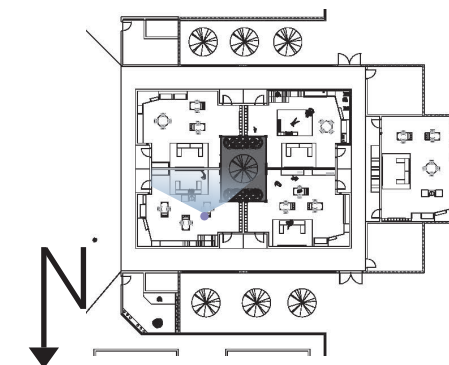
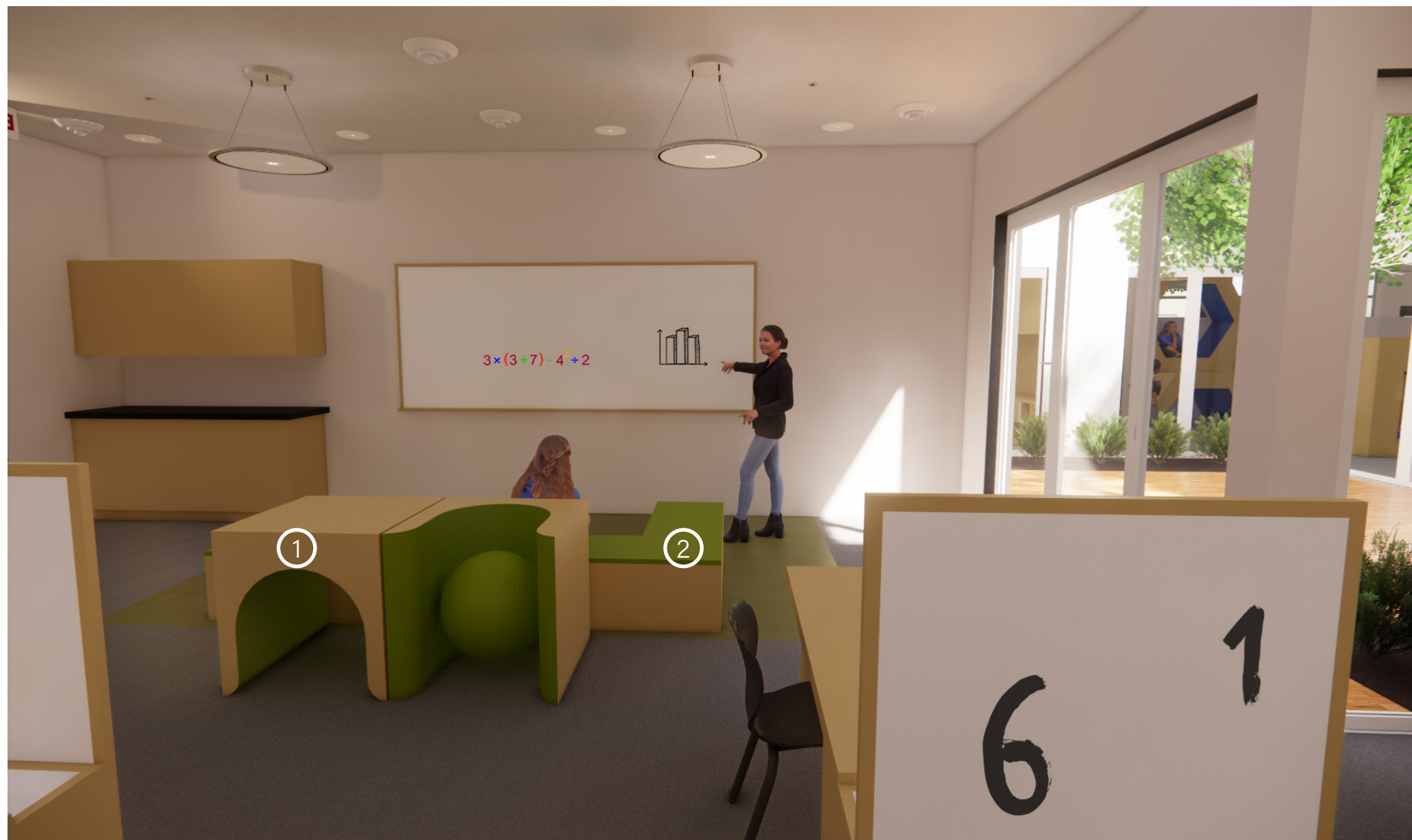
This casework was provided so that teachers can store their belongings and school supplies. Students can use the counter for doing science experiments.

⑤

This LED suspended luminaire is fully dimmable. It causes no glare, and provides uniform light to the room, eliminating shadows.



# MATH ASD



NTS

①

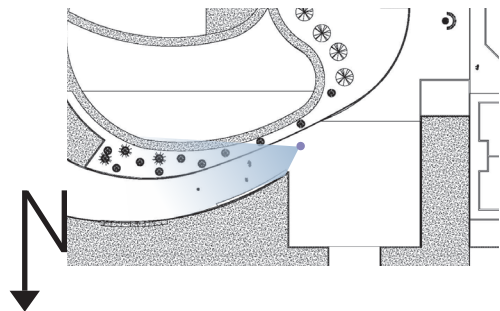
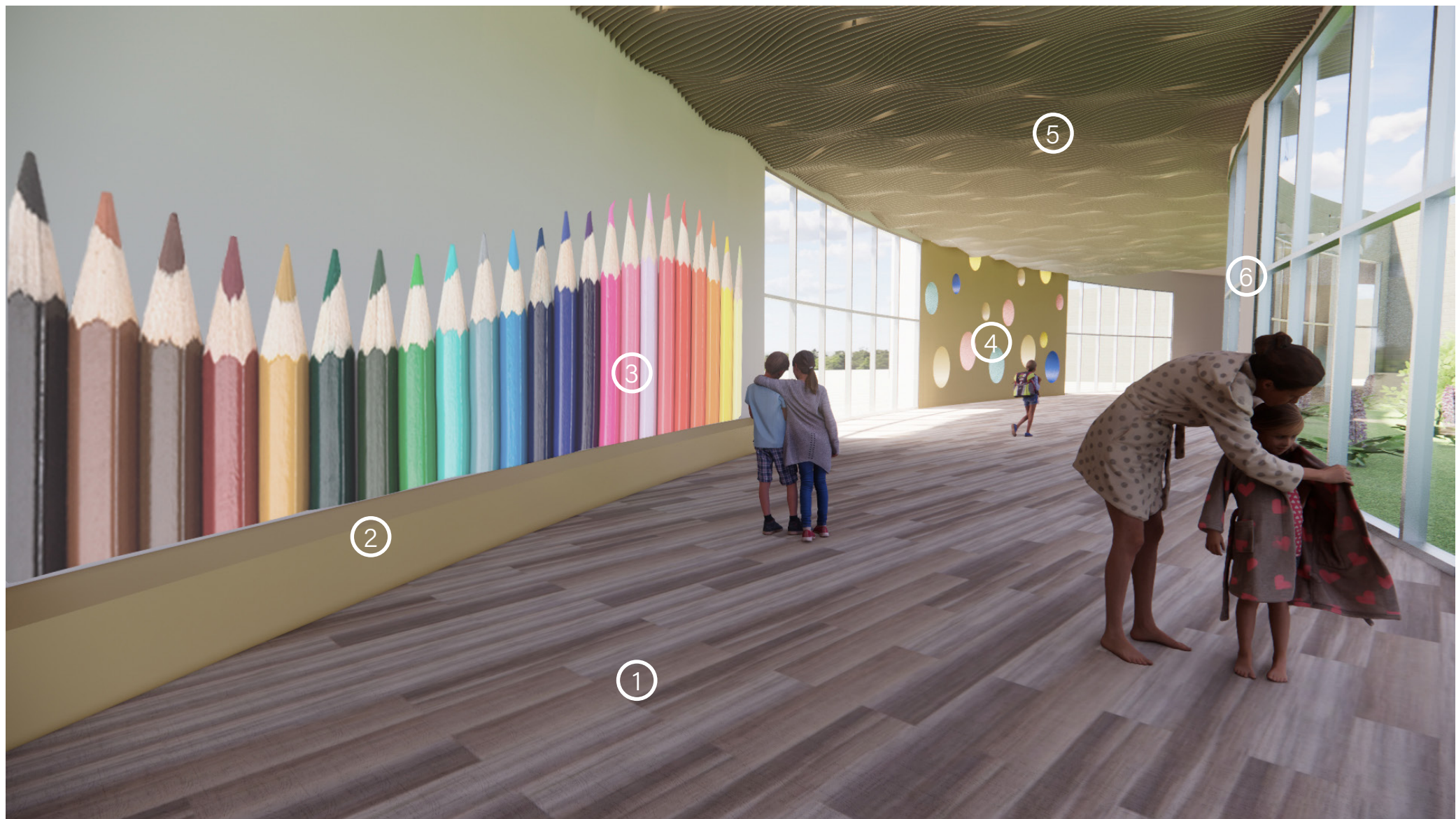
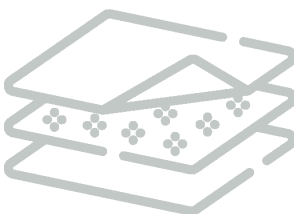
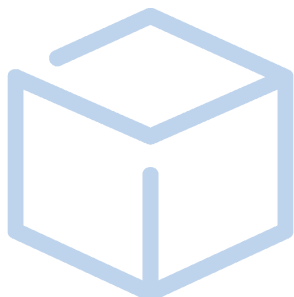
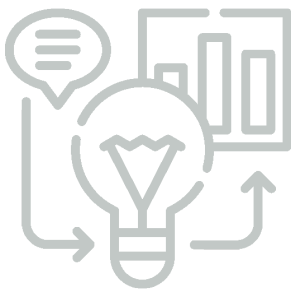
Custom furniture that gives a "crawl space" to students. It doubles as a table and the "ball" is a yarn knit pouf, so it can be used as a seat.

②

Custom bench. Upholstered top portion with Colorfield from knoll textiles. The top cushion is removable for hollow storage. The bench is made up of four smaller benches that velcro together



# Transition to Higher Stimulation



NTS

①

Flooring change from carpet to LVT indicates that there is a change in stimulation, zone, and behavioral expectations

②

Built in bench seating along the walls allows for students to sit and adjust to different levels of stimulation in the space.

③

This mural moves from muted colored pencils to more bright pencils. This indicates to users that they are leaving a low-stimulation area and entering a higher stimulation area.

④

This built in casework is part of the wall. There are nodes in the wall for children to sit in, providing another, more enclosed space for them to adjust to stimulation.

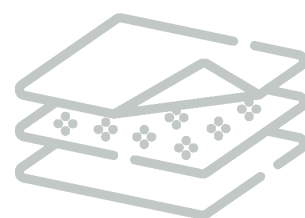
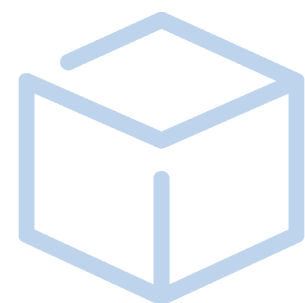
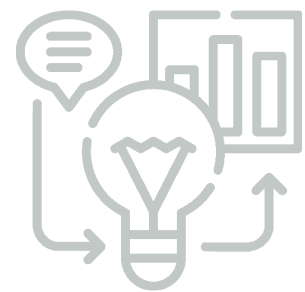
⑤

These felt blades from Armstrong ceilings help with absorbing sound, while indicating to students that they are entering a less ordered, more organic area of the school.

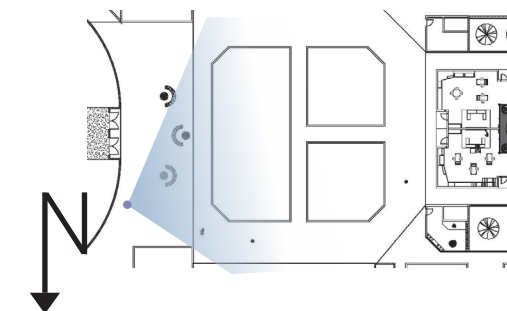
⑥

The views to the courtyard are obstructed by the plant tunnel and other trees. This helps prevent overstimulation and loss of focus by students.





# Transition Back to Learning



①

This transition zone provides more organic seating that can be moved. This area is highly flexible and can be used for assembly or events.

②

The wall has graphics that show that this wing is for children with ASD. The puzzle symbols act as wayfinding signage.

③

The flooring change here from LVT to carpet helps to solidify the understanding that the user is entering a different area.

④

The ceiling height drops and the material changes to Armstrong ceiling wood grille. This is a geometric, regular pattern. This implies organization and order are expected in this area.

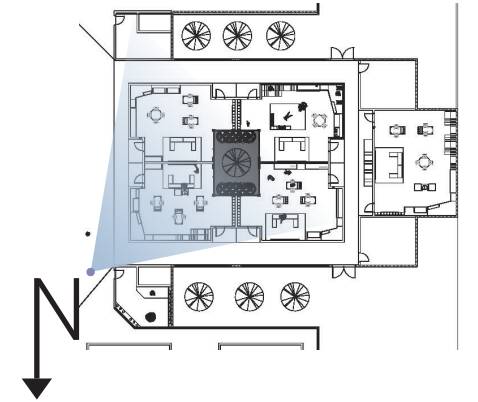
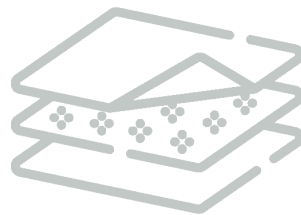
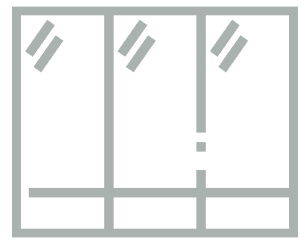
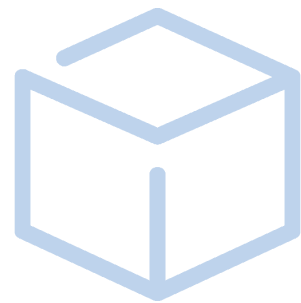
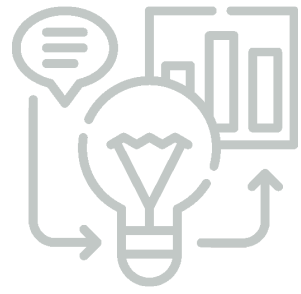
⑤

On the main wall in each pod, there is a letter (K) or number indicating what grade level the pod is.

NTS



# Transition Back to Class



NTS

①

The flooring change here from one carpet to another helps to solidify the understanding that the user is entering a different area.

②

The ceiling height drops and the material changes. This signals to the user that this is yet another change in space.

③

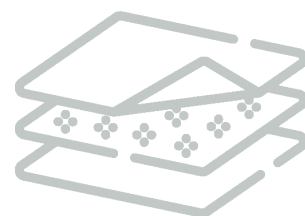
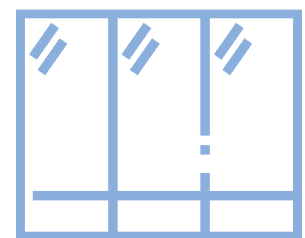
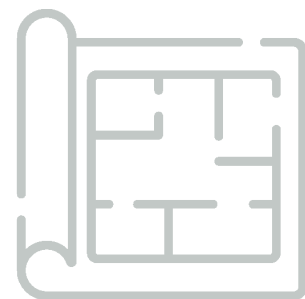
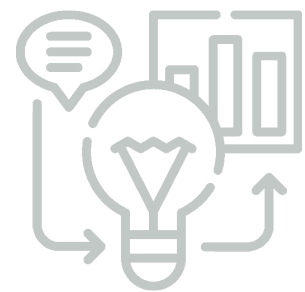
The wall here is painted two different colors, each matching the monochromatic color scheme in the room the door opens to. This helps with wayfinding.

④

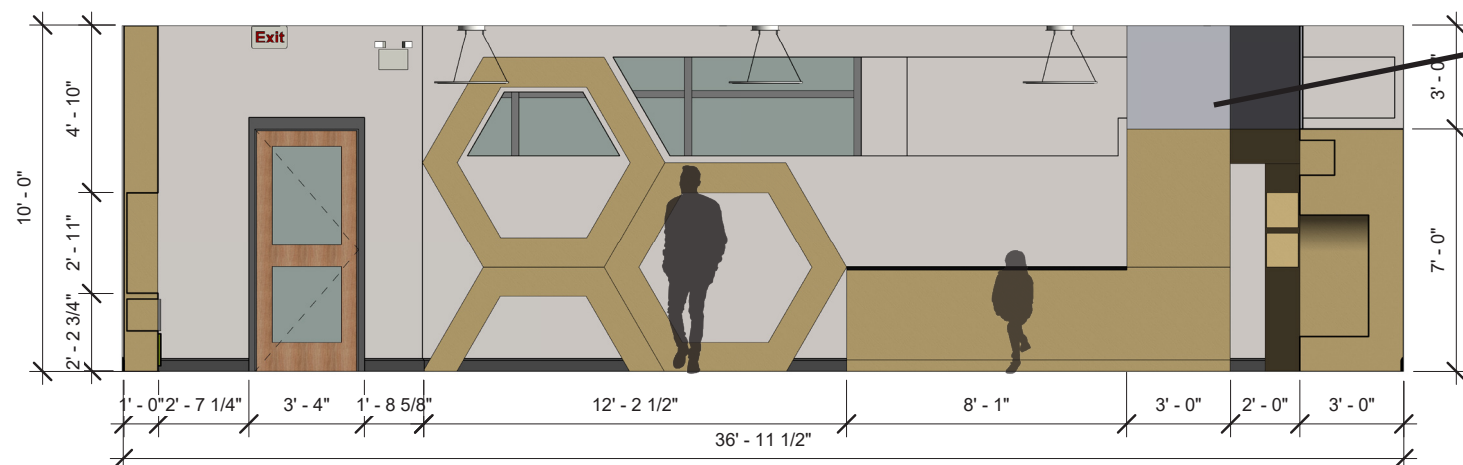
The wall here is a birch plank wood wall. The large number 2 indicates that this is the 2nd grade pod of the ASD wing.

⑤

There are niches in the halls that break up the long walk nicely and help students to know where they need to go next.

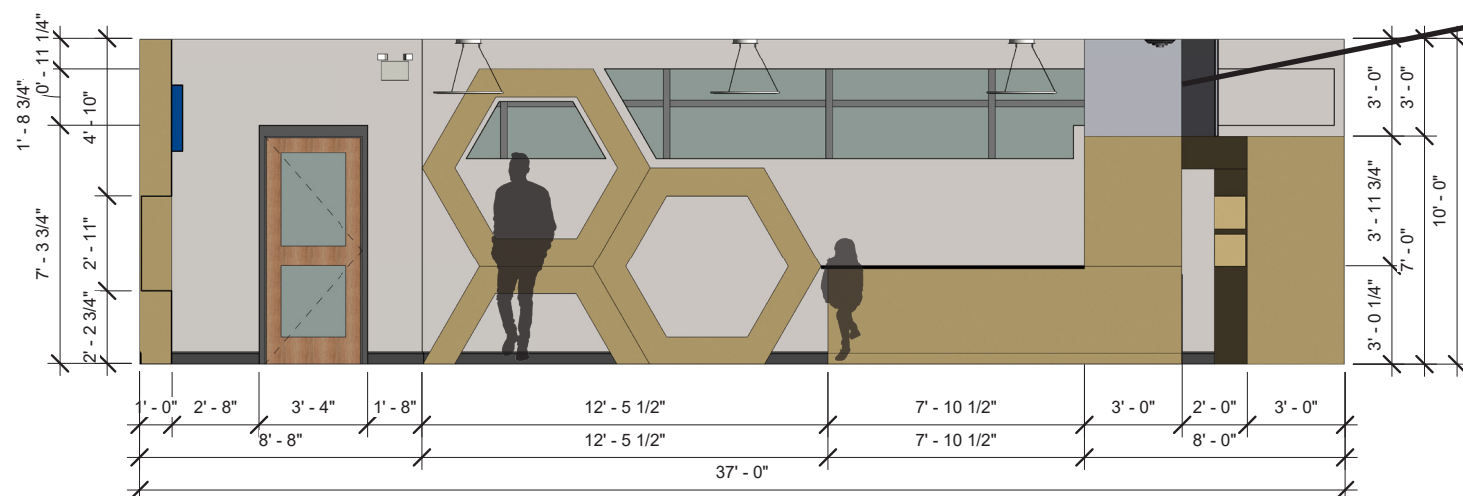


# Custom Casework ASD



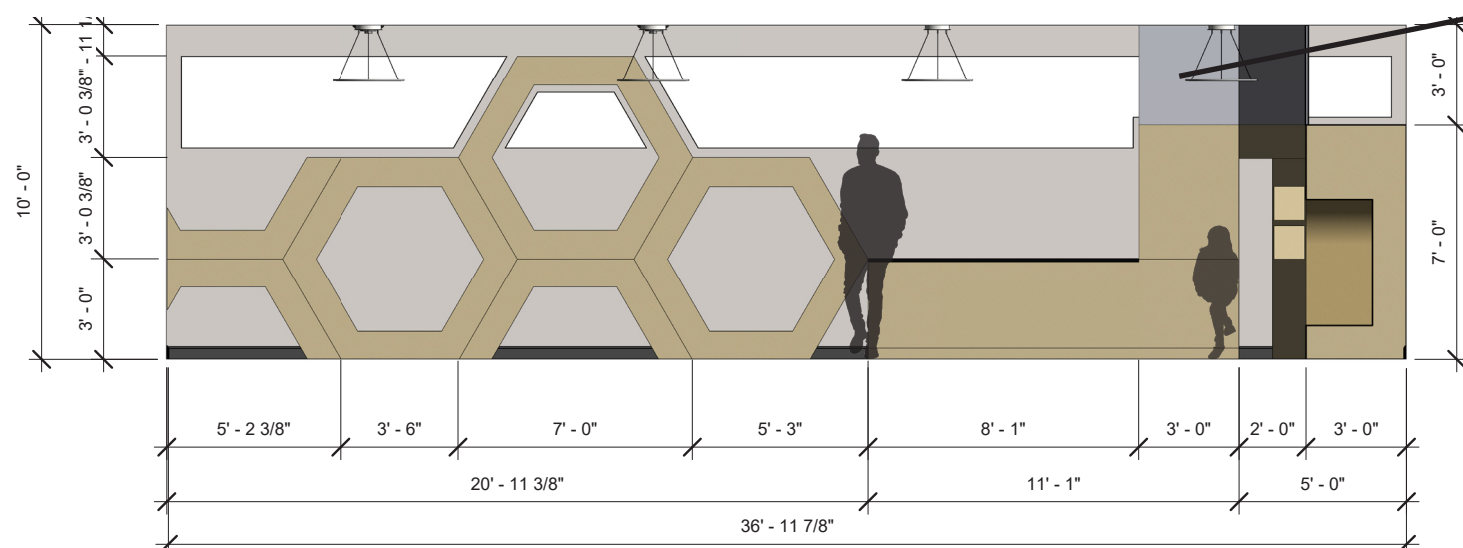
math

NTS



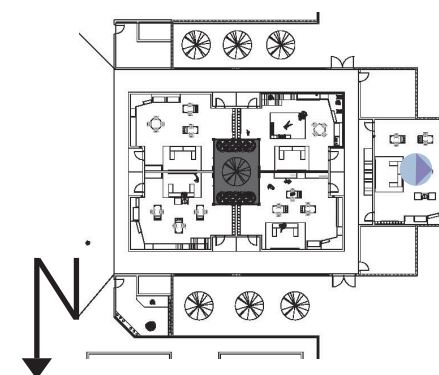
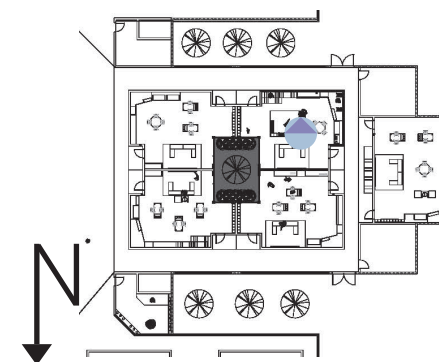
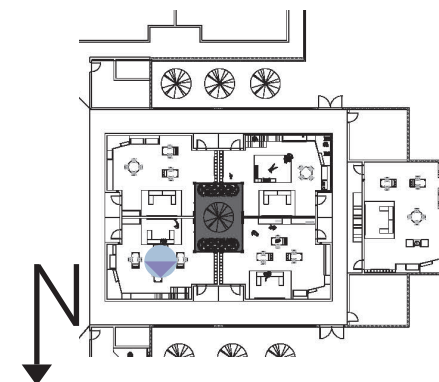
reading

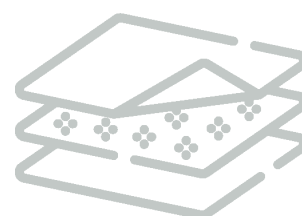
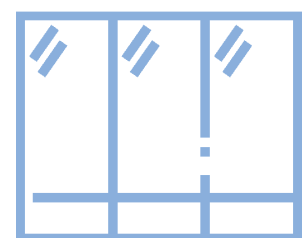
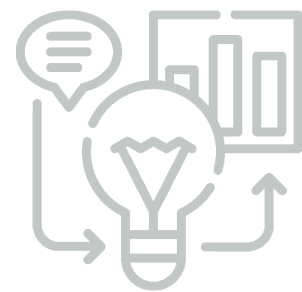
NTS



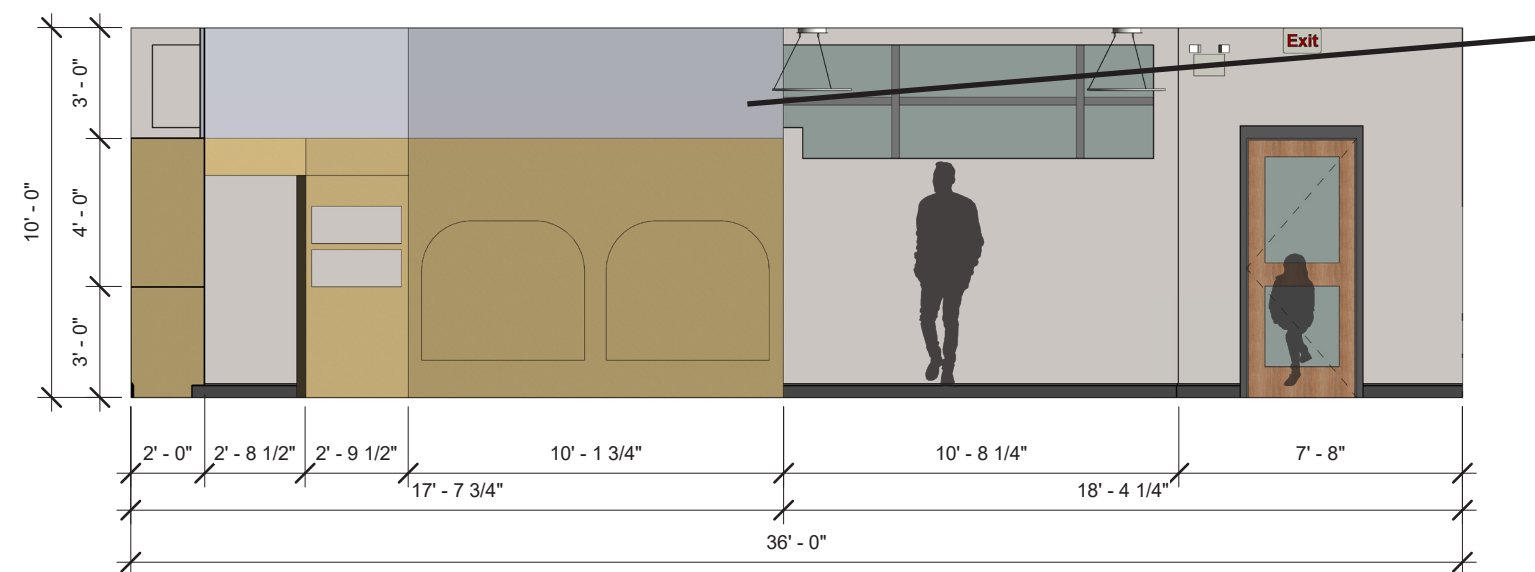
history

NTS





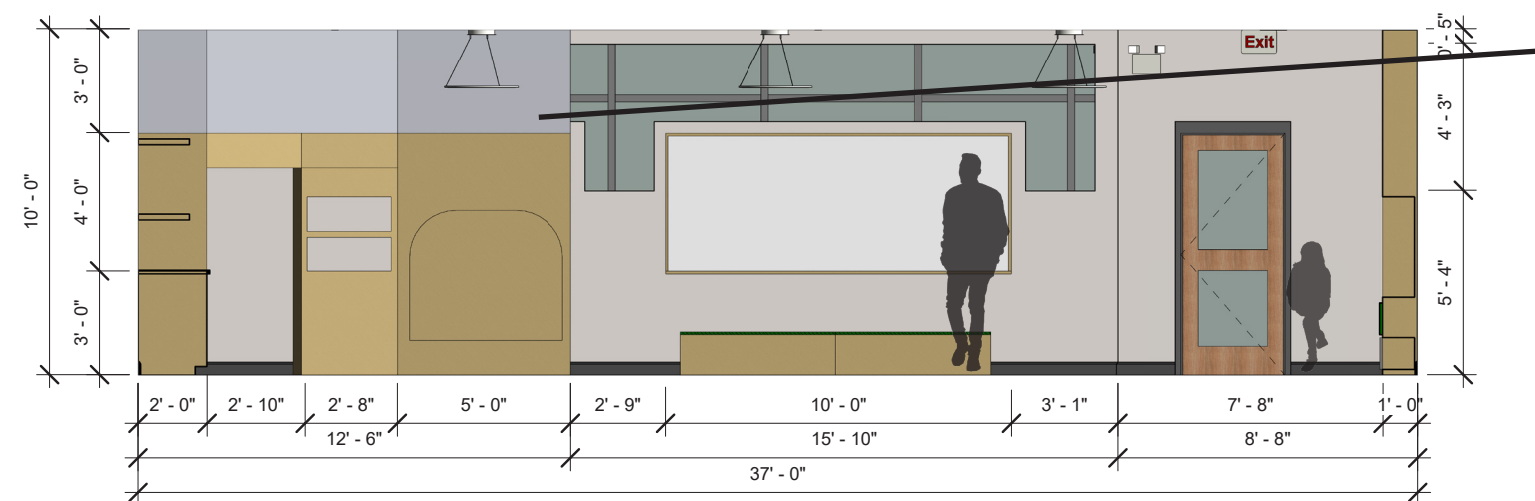
# Custom Casework ASD



3-Form translucent glass goes to the ceiling to diffuse light and prevent dust from collecting.

writing

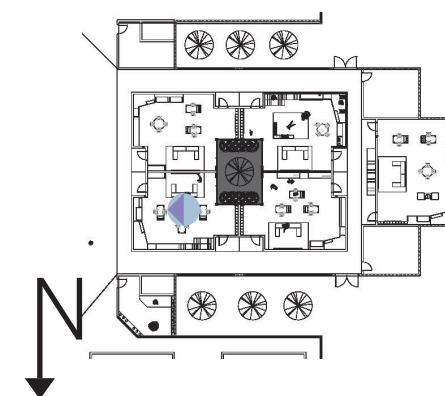
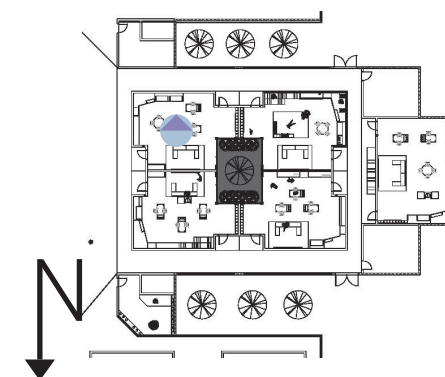
NTS



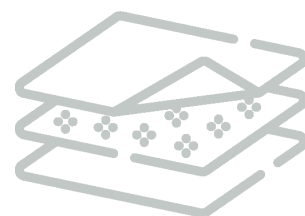
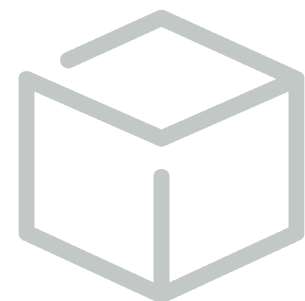
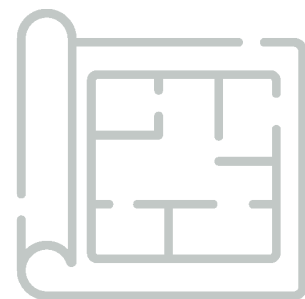
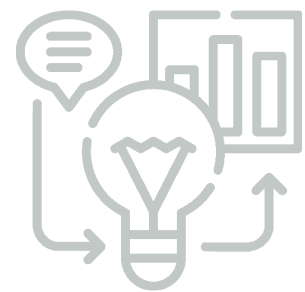
3-Form translucent glass goes to the ceiling to diffuse light and prevent dust from collecting.

science

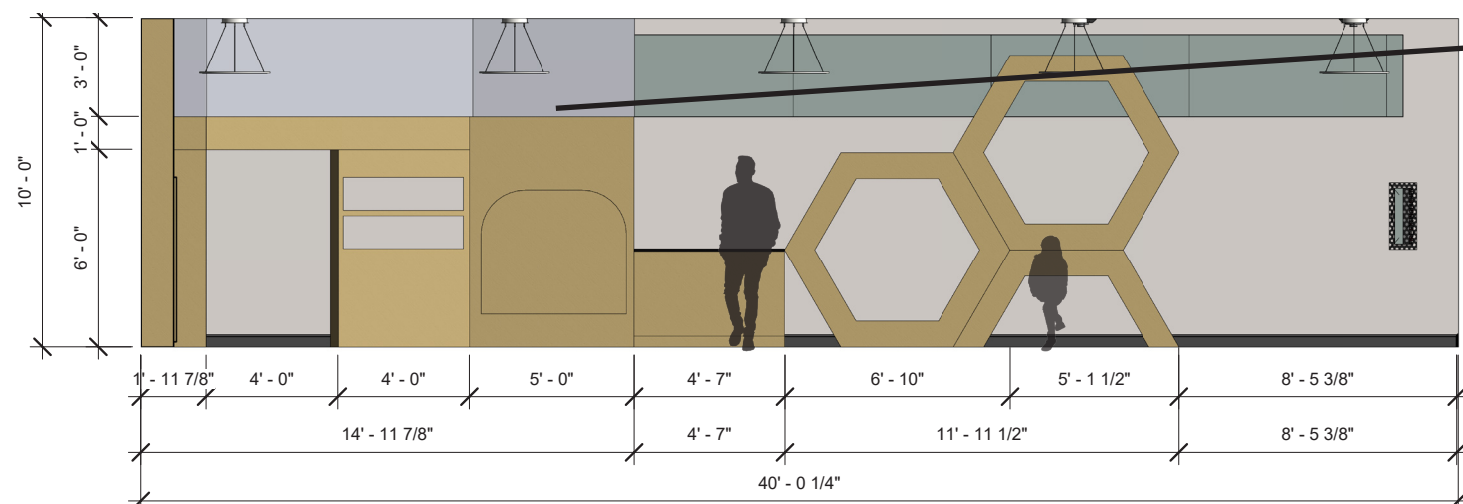
NTS







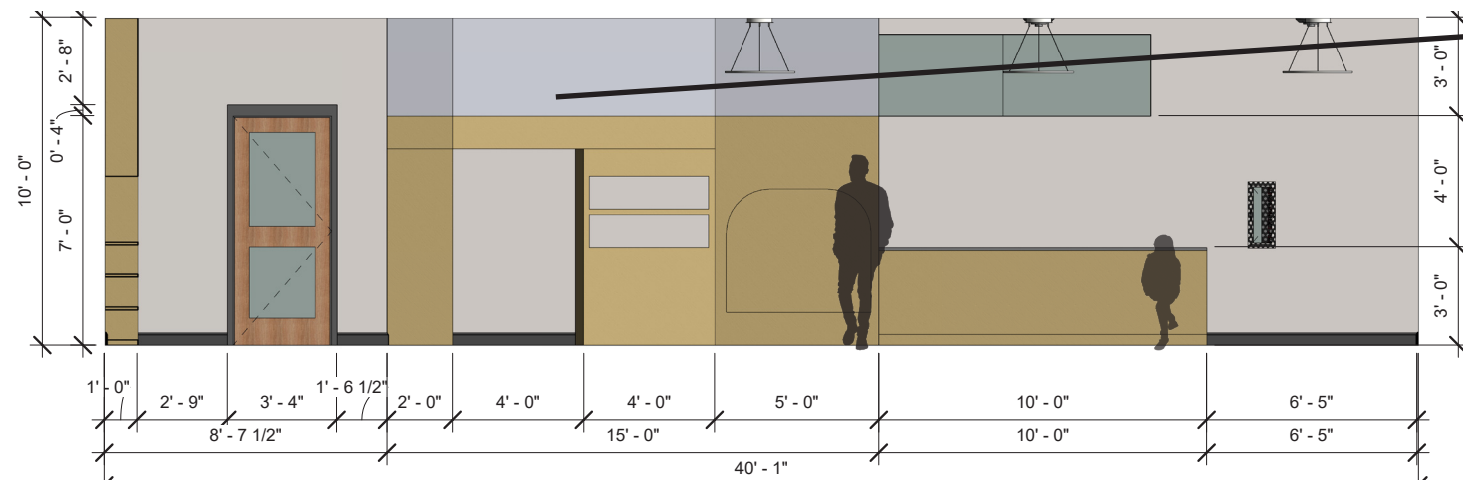
# Custom Casework NT



3-Form translucent glass goes to the ceiling to diffuse light and prevent dust from collecting.

History

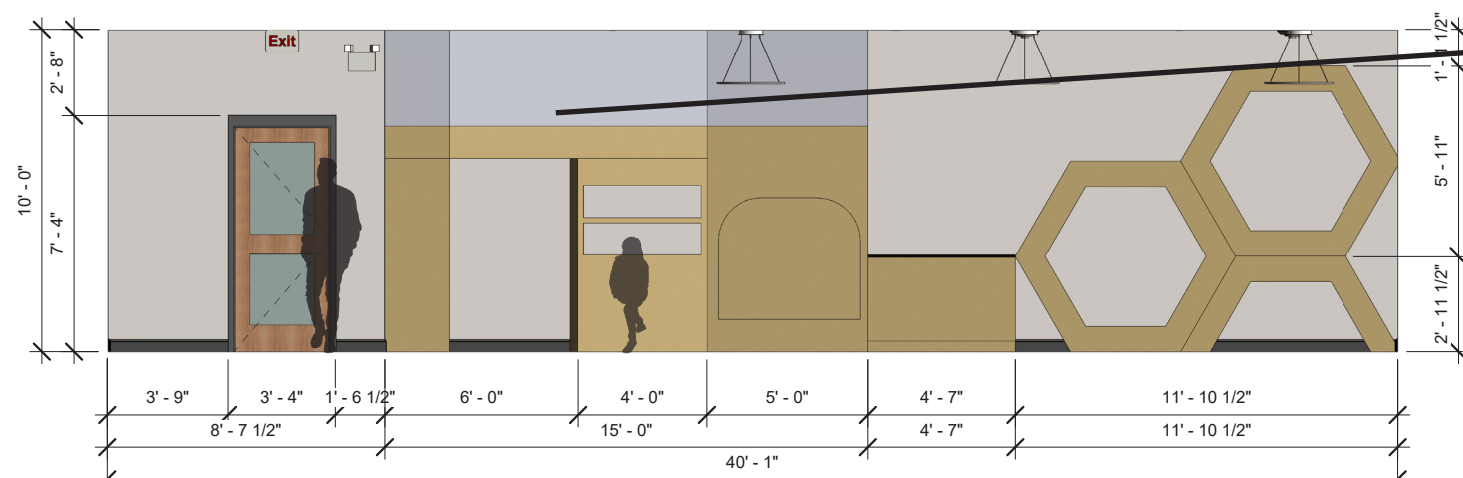
NTS



3-Form translucent glass goes to the ceiling to diffuse light and prevent dust from collecting.

Math

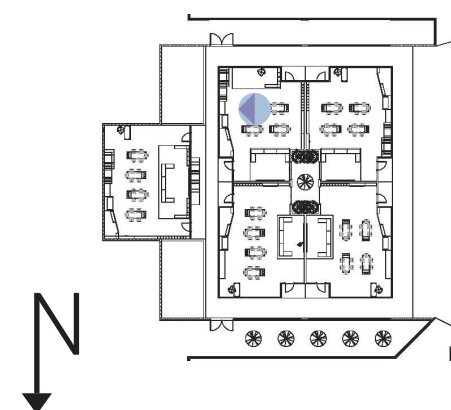
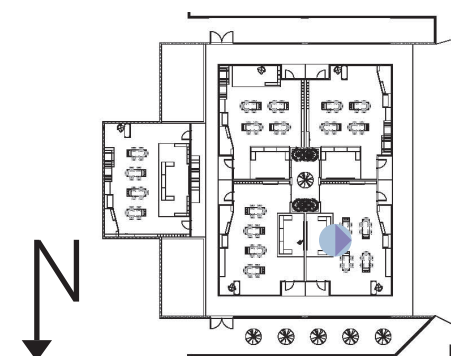
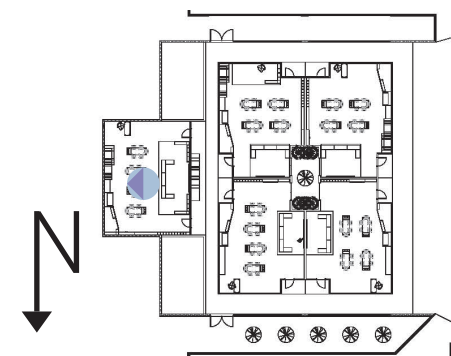
NTS



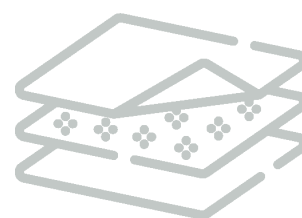
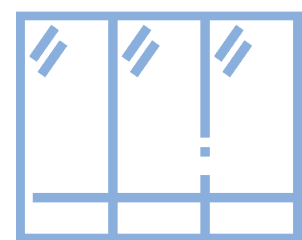
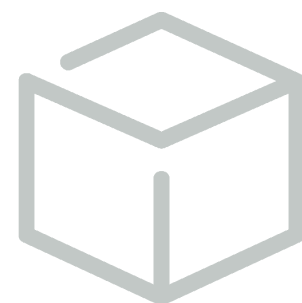
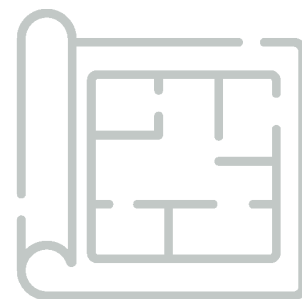
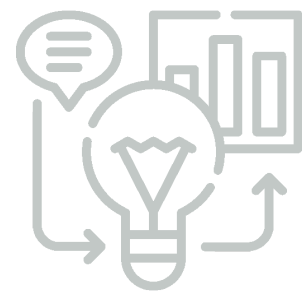
3-Form translucent glass goes to the ceiling to diffuse light and prevent dust from collecting.

Reading

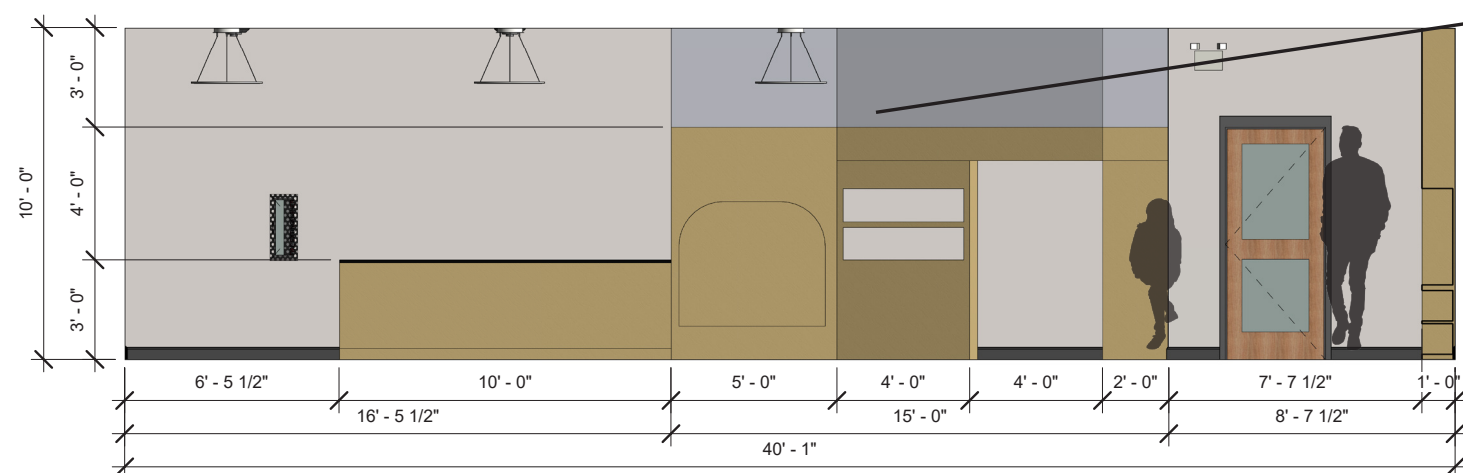
NTS





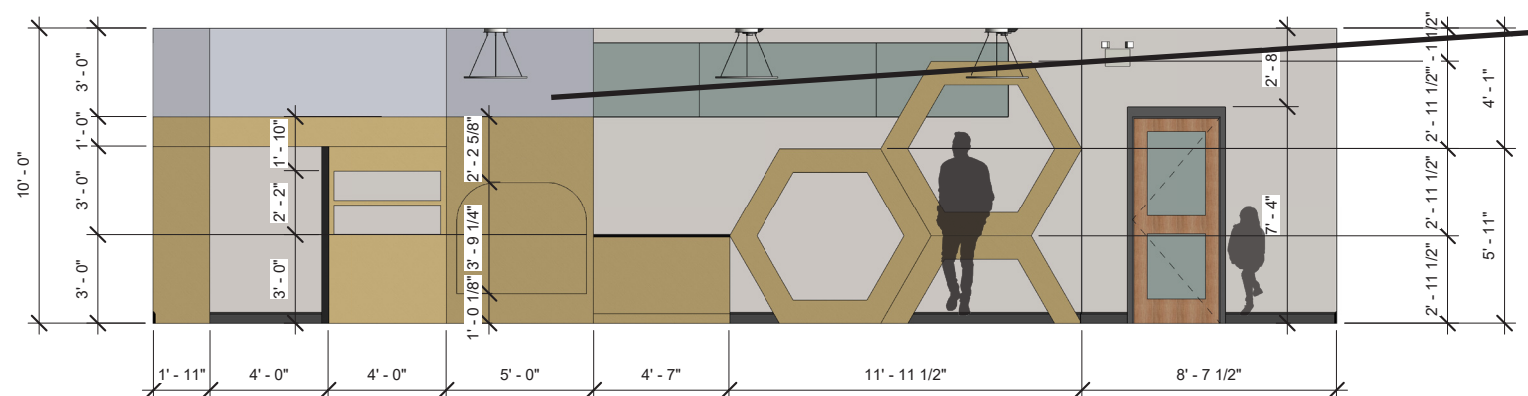
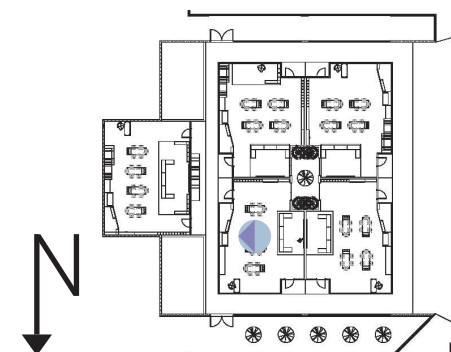


# Custom Casework NT



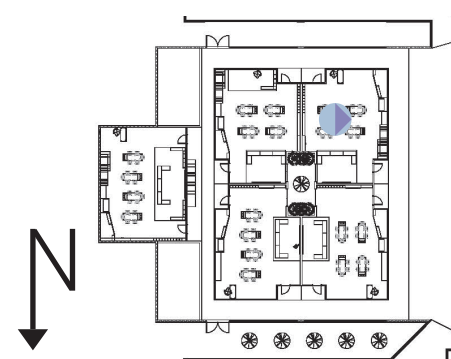
science

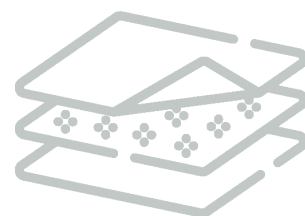
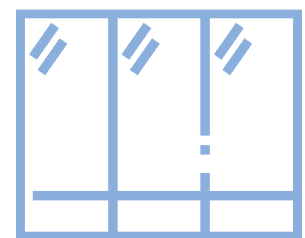
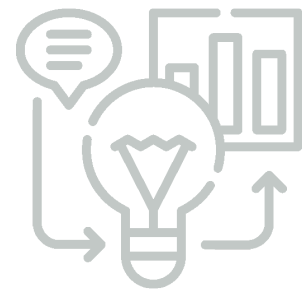
NTS



writing

NTS





# Wayfinding

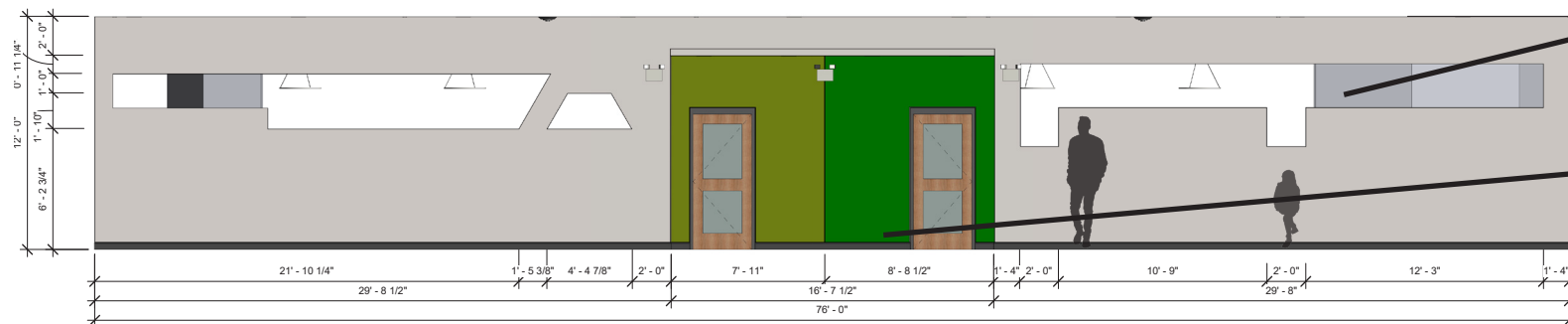
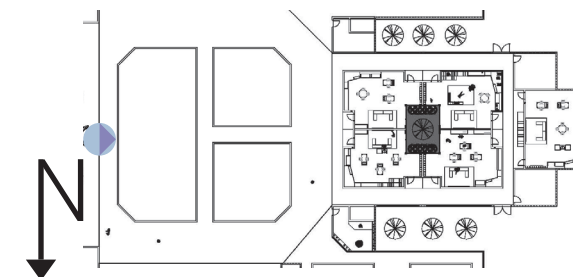


ASD Wing

NTS

Birch wood plank wall.

Puzzle symbol to indicate that this zone is for children with ASD, but doesn't make them feel different.

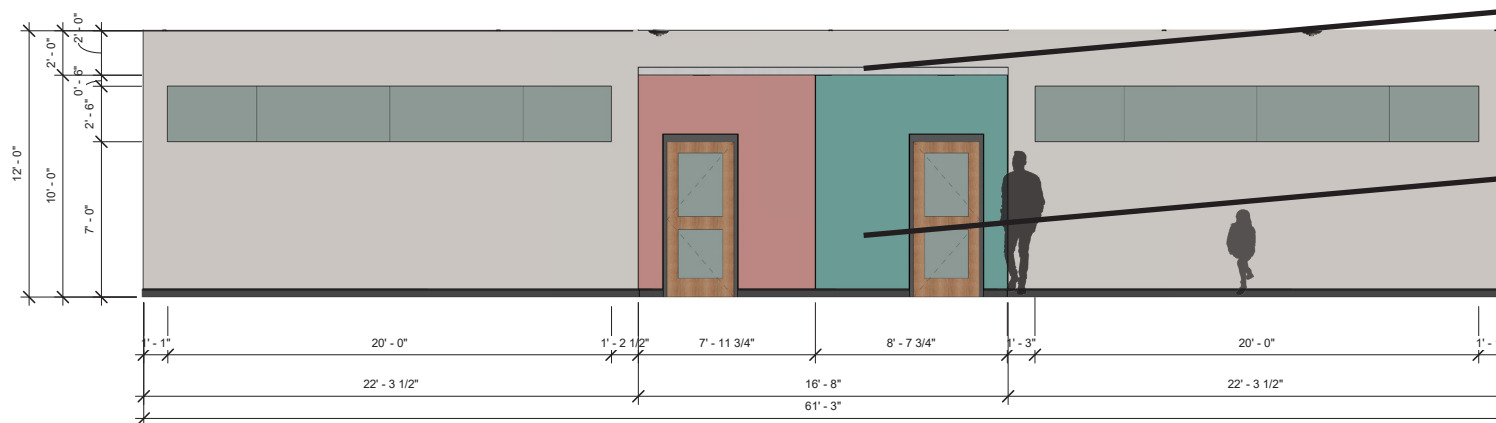
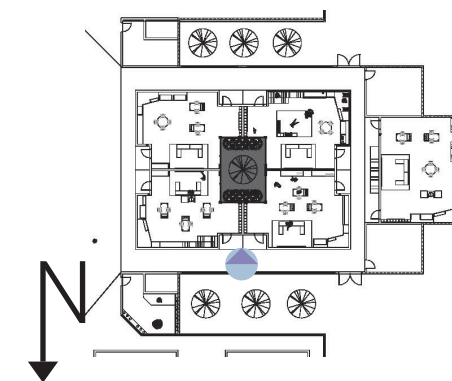


math sci ASD

NTS

Clarestory windows are cut in junction with the custom casework in the classroom.

Different colors on wall indicate the doors lead to specific classrooms that are color-coded.

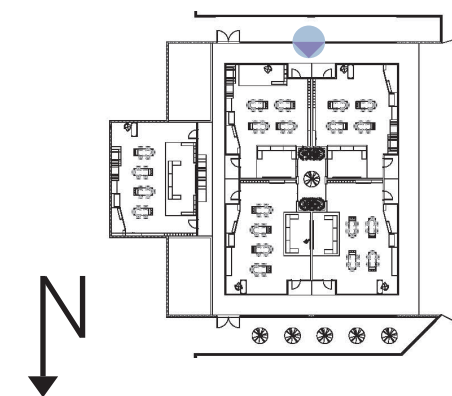


read writ NT

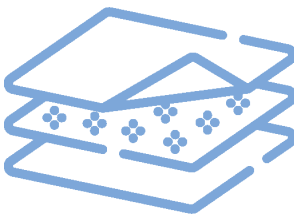
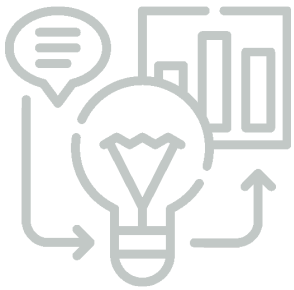
NTS

Ceiling height change provides direction that these doors lead to a different space.

Different colors on wall indicate the doors lead to specific classrooms that are color-coded.



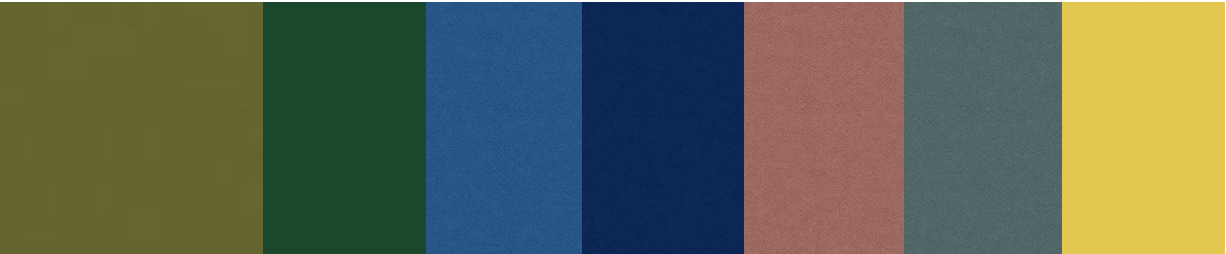




# Materials & Finishes

K  
N  
O  
L  
L

Utmost II



Wyzenbeck: 65,000  
NRC Rating: .90  
Clean Air: Gold  
Cleaning code: W

Used as an upholstery on custom furniture in classrooms and on upholstered panels

Chosen for it's NRC rating and it's clean air rating.

Color Field

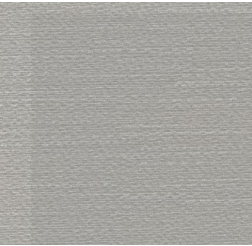


Wyzenbeck: 250,000  
Greenguard Certification: Passed  
NRC Rating: N/A  
Clean Air: Silver  
Cleaning code: Water-bleach

Used as an upholstery on custom furniture in classrooms.

Chosen for it's cleanability, durability, tactile properties and its clean air rating.

Bewitched



Greenguard Certification: Passed  
NRC Rating: .65  
Clean Air: Silver  
Cleaning code: W-S

Used as drapery in the escape areas in classrooms.

Chosen for it's NRC rating and it's clean air rating.

Light Oak Casework



Used for casework and custom furniture.

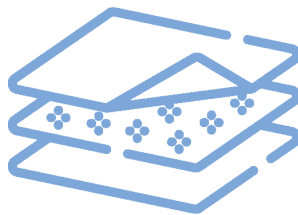
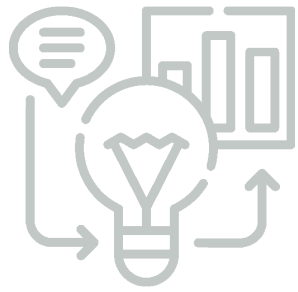
Chosen for it's cleanability, durability, and natural wood look.

Corian counter



Used for countertops in classrooms

Chosen for it's cleanability, durability, and low reflectance value.

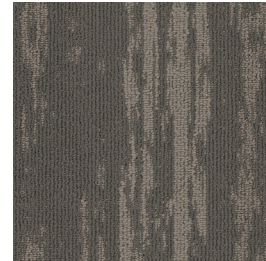


# Materials & Finishes

J

Modular carpet

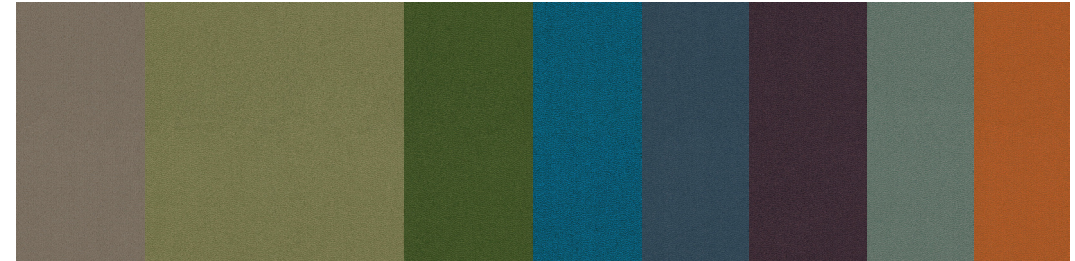
Storyline:  
Protagonist



Used in ASD  
and NT wings.

Chosen for it's  
cleanability and  
durability.

Chroma



Used in classrooms  
and grade pods

Chosen for it's  
cleanability,  
durability, and color  
variety

+

J

LVT  
Alloy:  
Union



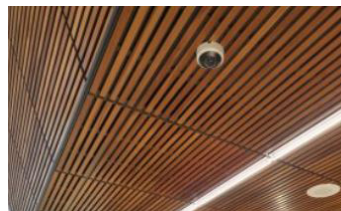
Indoor Air Quality: Floorscore certified  
Commercial traffic: Heavy commercial  
Slip resistance: passes

Used in high  
stimulation and  
transition zones.

Chosen for it's  
cleanability,  
durability, and  
natural wood look.

## ARMSTRONG

Woodworks  
Grille



Chosen for it's NRC  
rating (.75), pattern,  
and natural wood  
look.

feltworks blades  
ebbs and flows



Chosen for it's NRC  
rating (.85), pattern,  
and soft look.

calla high cac



Chosen for it's NRC  
rating (.90) and lack  
of gridline

optima techzone



Chosen for it's NRC  
rating (.95) and lack  
of gridline

Birch plank wall



Wall paint

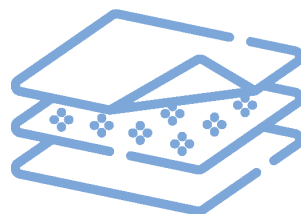
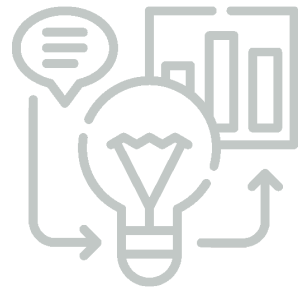


Smart Glass



on all classroom  
and wing  
windows





# Lighting Selections

T  
R  
I  
L  
U  
X



The planar, uniform light and ideally matched direct and indirect light components illuminate the room brightly, softly and without shadows.

Lateralo Ring LED

Various light colours give a pleasant feeling of light at all times of the day, and allow the interior design to appear in best light. With the help of LiveLink a circadian curve automatically provides the right colour temperature at the right time.



The luminaires emit glare-free, planar light

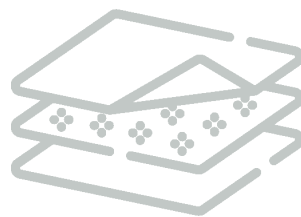
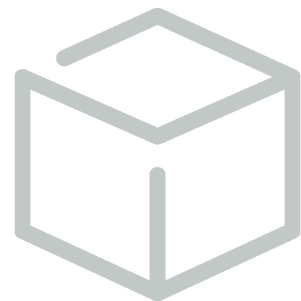
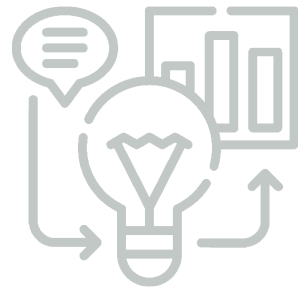
Inplana Recessed Light with Translucent Cover

the colour temperature can be set steplessly with the Active variant to enable the benefits of HCL to be used

## CALCULATIONS

A maximum of 13 luminaires in the ASD classrooms with a max FC of 50

A maximum of 15 luminaire in the NT classrooms with a max FC of 50



# Furniture

## Steelcase



SW-1 Seating



Brody Ottoman



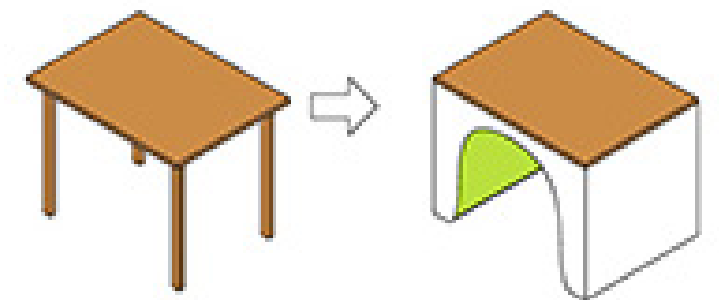
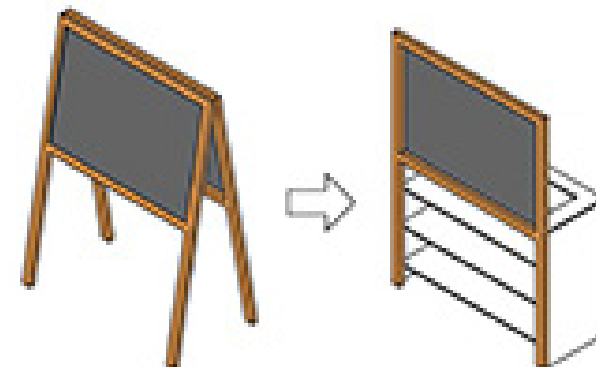
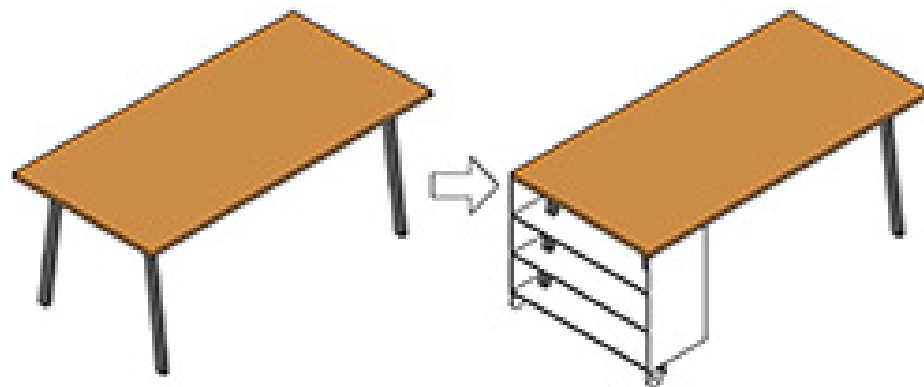
Zed 14" Standard Chair

## HermanMiller



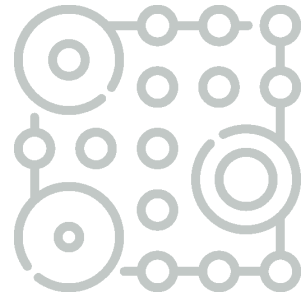
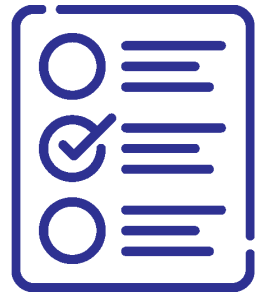
Nelson Swag Leg Table

## CUSTOM

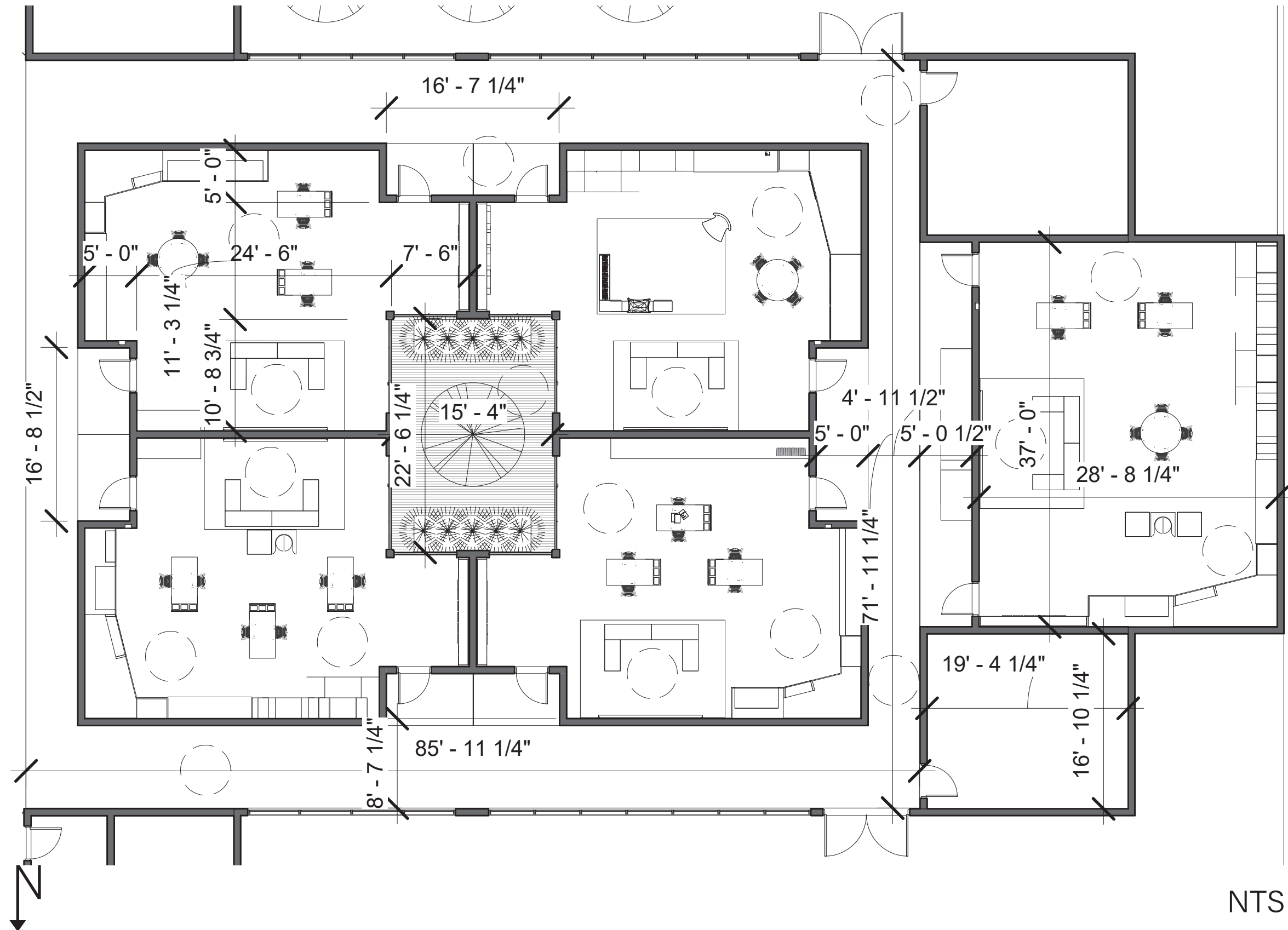


Designed to reduce the amount of furniture needed in rooms so as to reduce business and reduce overstimulation and a sense of disorganization.





# Measurements





Architectural floor plan showing a building layout with various rooms and dimensions. The plan includes a central corridor, several rooms of different sizes, and a large open area on the right. Dimensions are provided for various sections and rooms. A north arrow is located in the bottom left corner, pointing downwards. The text "NTS" (Not To Scale) is in the bottom right corner.

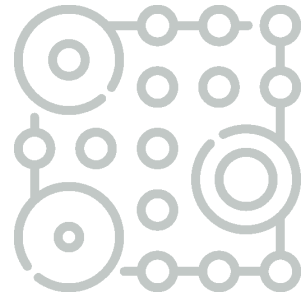
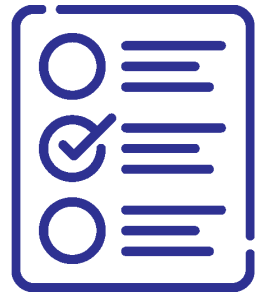
Key dimensions and labels include:

- Top horizontal dimensions: 9' - 6", 3' - 6 1/8", 13' - 2 5/8"
- Left horizontal dimensions: 5' - 6", 6' - 6", 5' - 6"
- Bottom horizontal dimensions: 15' - 0", 15' - 0", 15' - 0", 15' - 0", 15' - 0"
- Right horizontal dimensions: 4' - 10", 24' - 10"
- Vertical dimensions: 8' - 6", 8' - 6", 13' - 4 5/8", 3' - 6 1/8", 7' - 10 1/4", 10"
- Room labels: SD (Staircase), 2' - 0", 8' - 6", 2' - 0"

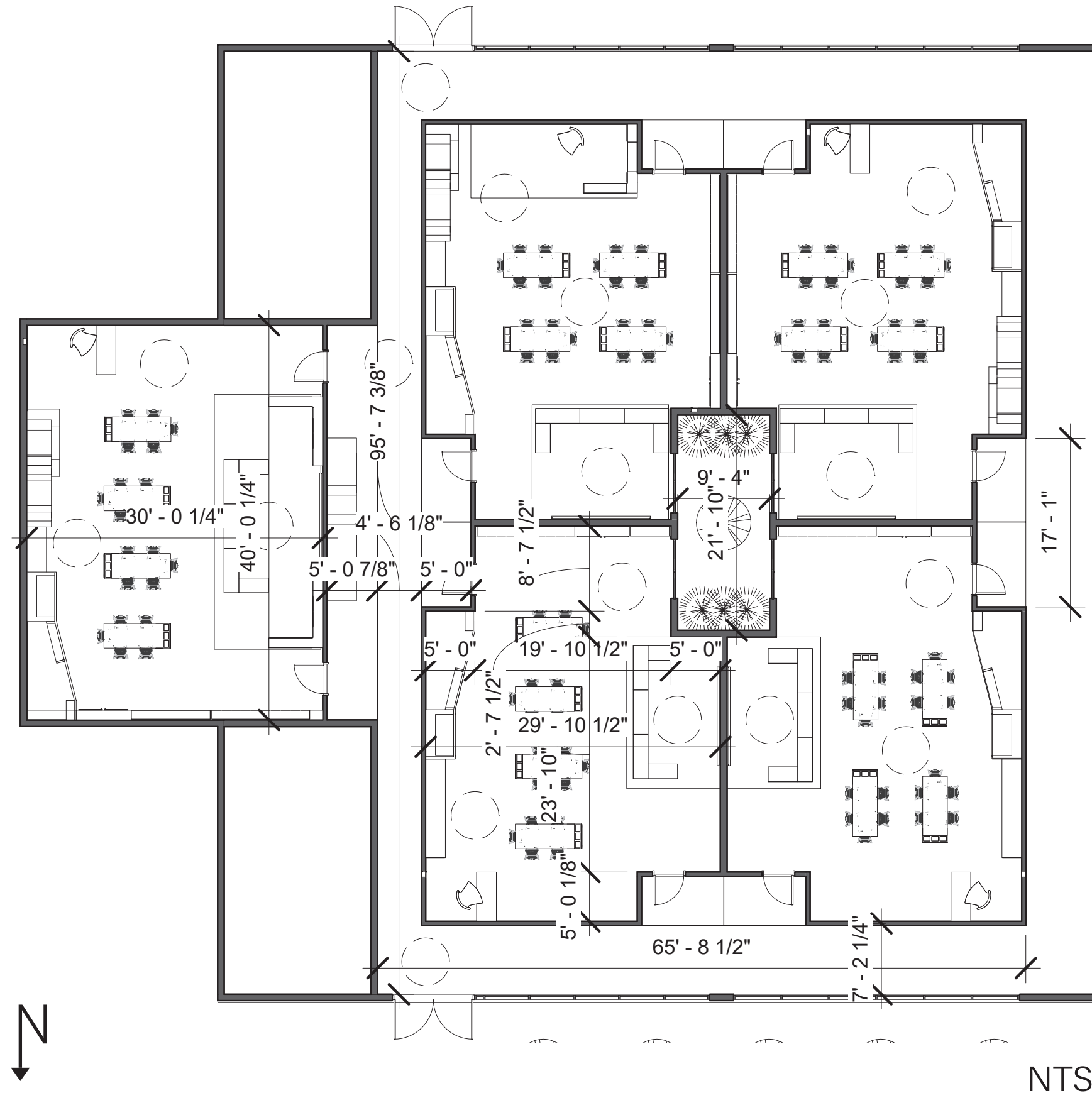
NTS

NTS



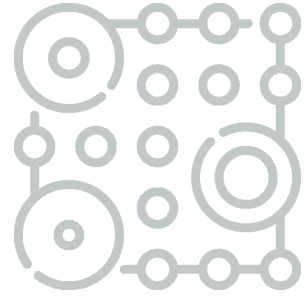


# Measurements

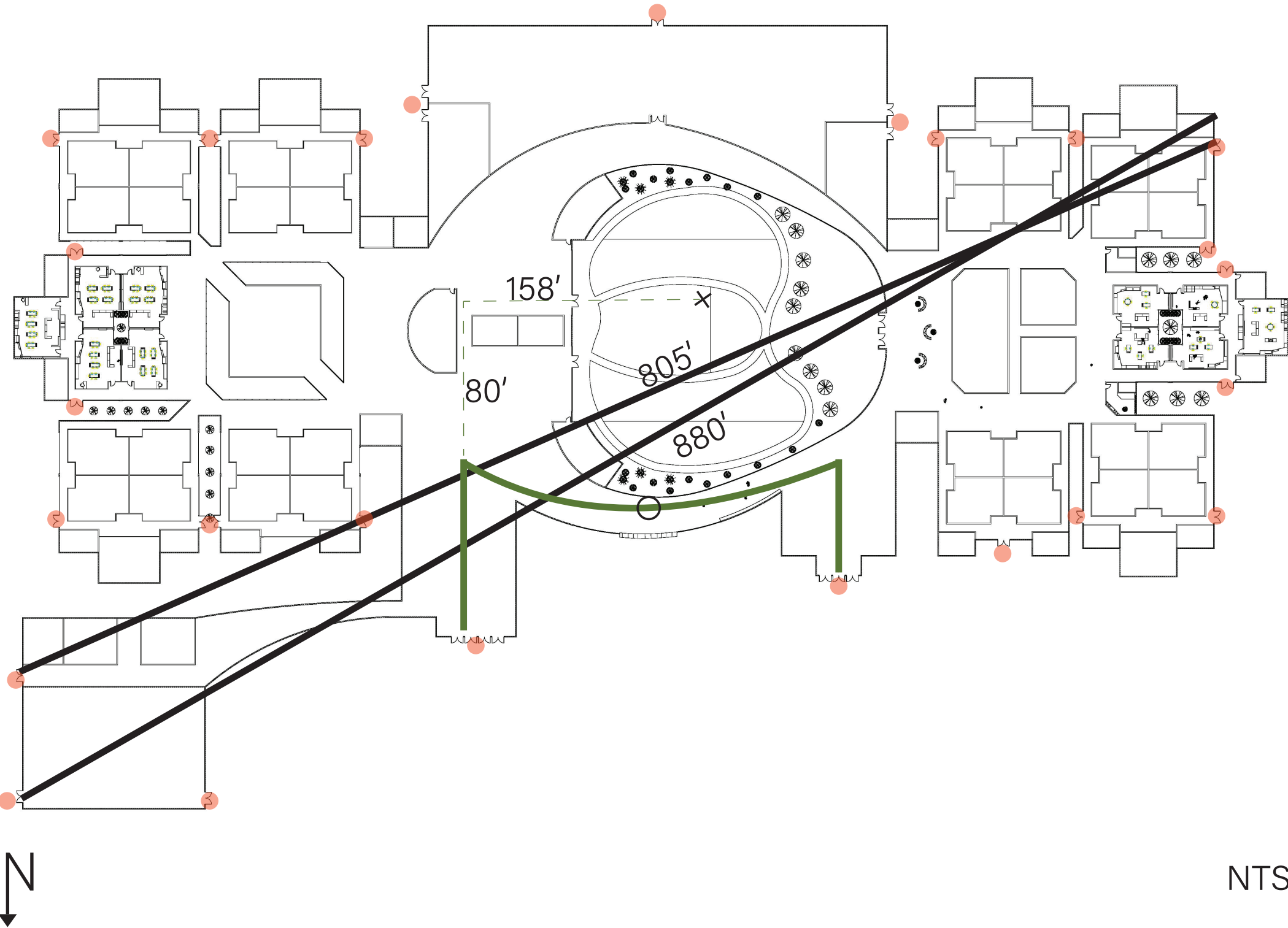


[illegible]





# Code



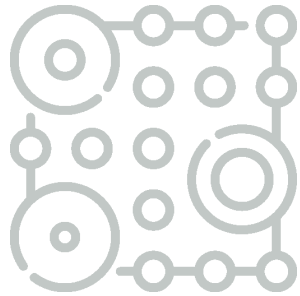
— Door Distance

- - - Farthest Point from Exit

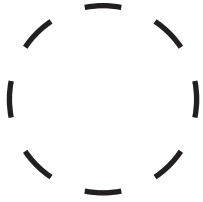
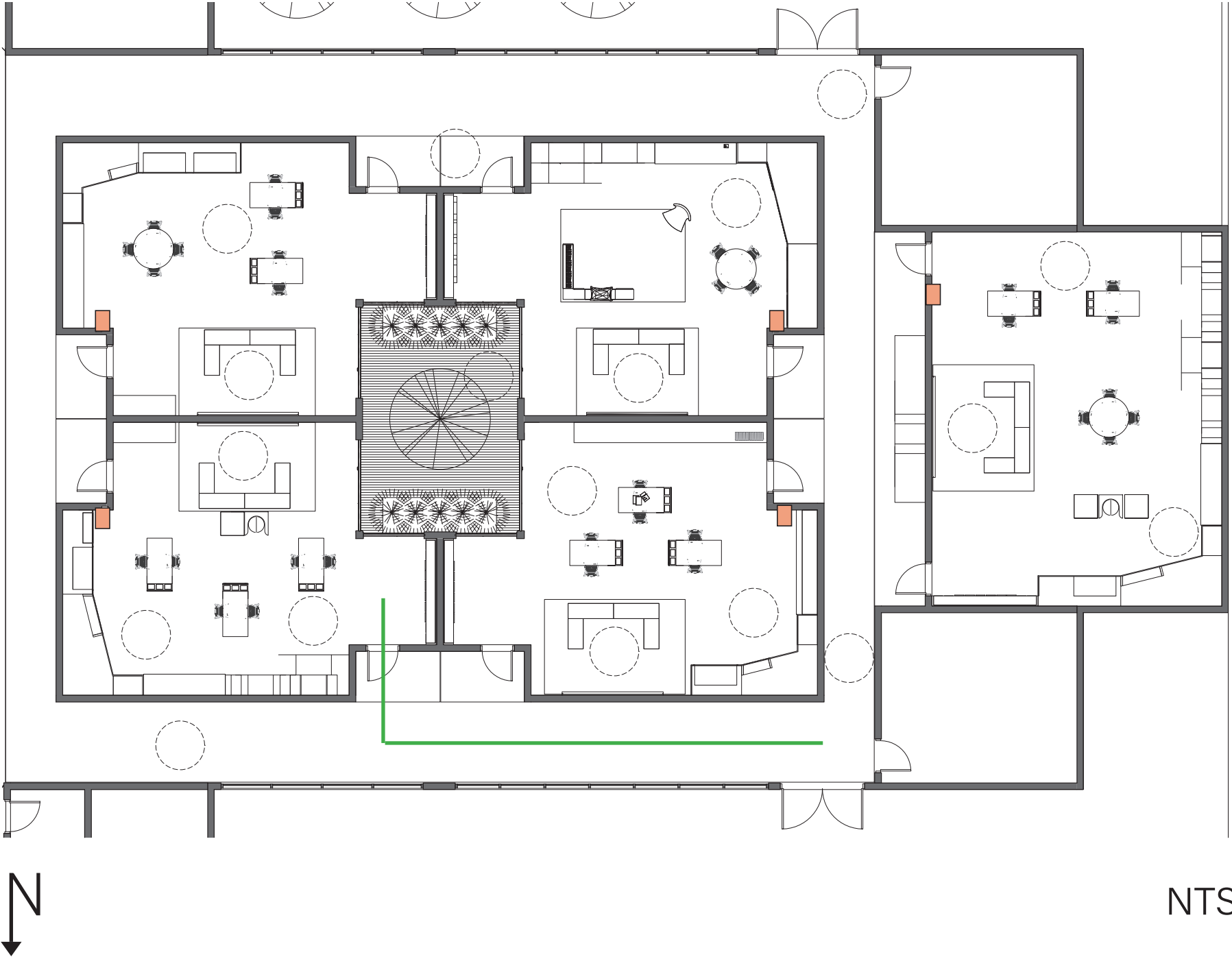
— Common Path of Travel

● Emergency Exits

NTS



# Code



ADA Turning Radius



Common Path of Travel

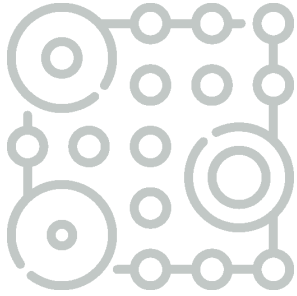


Fire Extinguisher Cabinet

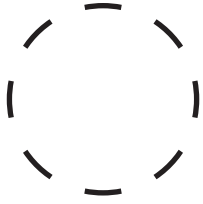
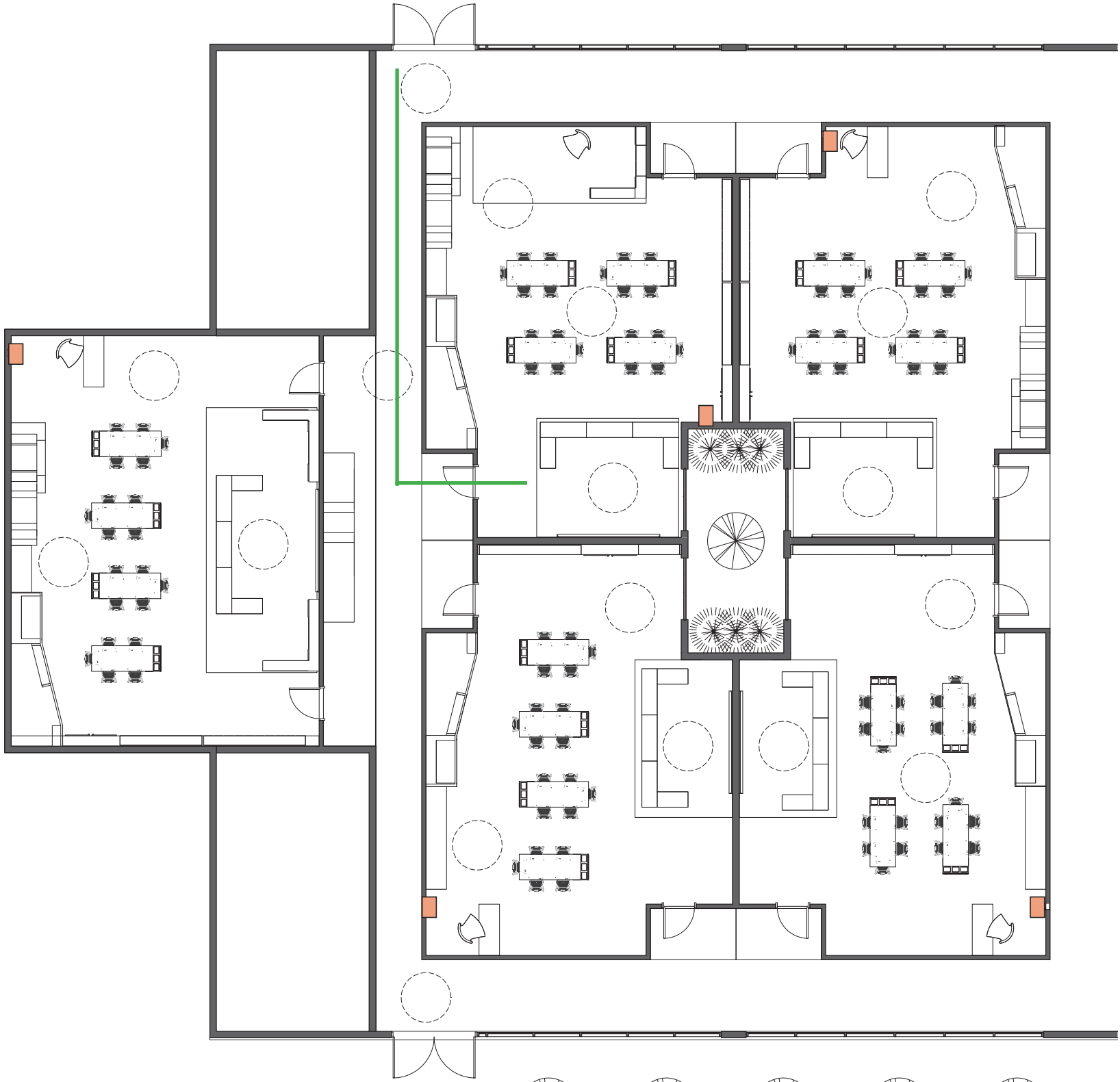
## Notes

1. Occupancy type E
2. Occupancy load is 20sqft per student.
3. There is a maximum load of 41 people per classroom (820 sqft).
4. 8 lavatories provided for each wing based on need.





# Code



ADA Turning Radius



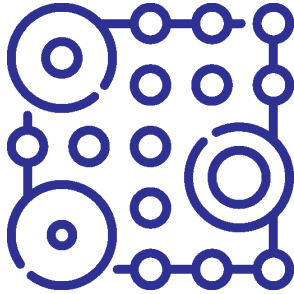
Common Path of Travel



Fire Extinguisher Cabinet

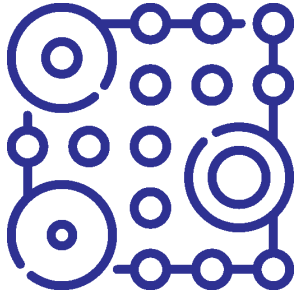
## Notes

1. Occupancy type E
2. Occupancy load is 20sqft per student.
3. There is a maximum load of 50 people per classroom (1,000 sqft).
4. 10 lavatories provided for each wing based on need.



# EBD Chart

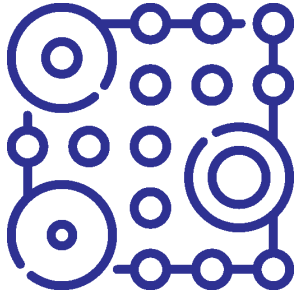
ASPECT	LIGHT	COLOR	ACOUSTICS
SOLUTION	Using LED indirect or diffuse lighting making sure that the light is evenly distributed Dimmable lighting Natural lighting is present but reduces glare and is controllable Reduce glare and shadows	Use Muted colors Bright white is too intense Monochromatic, Analogous, or Complementary color schemes are advised Greens, Blues, and Light pinks are amog favorites Neutrals and natural materials	Soft materials like carpet ceilings with high NRC ratings upholstered panels heavily insulated thick walls walls that go up to the roof. white noise machines
APPLICATION	LED diffuse pendant lights Dimmable lighting Clarestory windows and smartglass used for courtyard windows minimize reflective surfaces in the classrooms.	Monochromatic color schemes in classrooms Muted colors in ASD wing Off-white wall paint Natural wood material for furniture and Casework	Carpet in classrooms and in halls Armstrong ceilings with high NRC ratings Upholstered wall panels with Knoll textiles 8" walls with good insulation that go to the structure
SOURCE	<a href="https://www.trilux.com/products/en/LateraloP-H1-BLGS-6000-840-ETDD-AM2-01/?tab=downloads">https://www.trilux.com/products/en/LateraloP-H1-BLGS-6000-840-ETDD-AM2-01/?tab=downloads</a>  CLASSROOM LIGHTING DESIGN FOR STUDENTS WITH AUTISM SPECTRUM DISORDERS by Emily Ann Long	Mostafa Altenmuller-Lewis NAC Architecture <a href="https://pubmed.ncbi.nlm.nih.gov/18449634/">https://pubmed.ncbi.nlm.nih.gov/18449634/</a> <a href="https://www.frontiersin.org/articles/10.3389/fpsyg.2016.01976/full">https://www.frontiersin.org/articles/10.3389/fpsyg.2016.01976/full</a>	knoll textiles JJ Flooring Armstrong ceilings  Mostafa Altenmuiller NAC Architecture



# EBD Chart

ASPECT	ORGANIZATION	GH EFFECT	ESCAPE
SOLUTION	Broken up by task Broken up by subject Broken up by levels of stimulation Broken up by expectation of behavior Circulation is one way and logical	Allow children to build independence Improve social skills and interactions Exposure to stimulation and life skills	Tactile considerations Heavy acoustic insulation Adjustable lighting Place for students to feel cocooned Visually calming features Abundant and accessible
APPLICATION	Show changes in task by clear change in seating and zones Change subject in each classroom Higher stimulation are indicated with ceiling changes and transition zones Behavior expectations change with ceiling heights and shapes Circulation is in pods around and one way	Easy circulation and organization reduces the need for adult assistance Having lunch and recess with NT students Transition from subject to subject helps prepare them for task changes and higher education	Ceilings with high NRC and carpeting Insulated walls Dimmable lighting and no windows Fiber optic plumes for relaxation Glass in-lit tubes of bubbles flowing up in water Hide-away space that also serves as a bench Chair that allows student to sway
SOURCE	Mostafa Altenmueller-Lewis NAC Architecture	Mostafa  Altenmueller-Lewis	JJ Flooring Armstrong ceilings Star Room <a href="https://www.hayesdesign.com/new-sensory-friendly-room-designed-by-hdg/">https://www.hayesdesign.com/new-sensory-friendly-room-designed-by-hdg/</a> Mostafa Altenmueller





# EBD Chart

ASPECT	WAYFINDING	FURNITURE	TRANSITION
SOLUTION	Use Organization to zone spaces Transition zones indicating different spaces Color coding Ceiling Changes in height and Material Flooring changes in material and color Signage	Natural materials Easily used Adaptable and varietous Cushioned feet on tables and chairs Help zone rooms Soft, smooth, allow for movement Built in storage for reduction of clutter	Changes in Ceiling heights Nodes in the hall Change in floor type Change in size of the room Change in lighting Change in colors
APPLICATION	Color coding on the floor and walls showing which classrooms are which Letters and numbers indicating what grade the wing is Graphics on walls in Transition zones Material and height changes in ceiling Material changes in flooring	Custom furniture that allows for storage and mobility Consistent across all classrooms Some plastic, some wood, some Upholstered	Ceiling heights and materials change More Natural lighting in Transition zones Floor type changes Built in casework that allows students to sit in "hidey-holes" to adjust to new stimuli
SOURCE	JJ Flooring Armstrong Ceilings  Mostafa Altenmuiller Cheng textbook NAC Architecture	NAC Architecture Mostafa Altenmuiller-Lewis  Knoll Textiles Steelcase HermanMiller	JJ Flooring Armstrong ceilings  Mostafa Altenmuiller Cheng Textbook



738

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