

Supporting Special Education Inclusion with School Design

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A group of people, including children and adults, are holding hands in a circle, symbolizing unity and community. The image is overlaid with a semi-transparent blue rectangle containing text.

AIA Continuing Education

Learning Objectives:

1. Participants will learn the significance of inclusive design for special education and explain how it positively impacts the overall learning experience and wellbeing of all students.
2. Participants will learn the importance of designing a building holistically and how incorporating inclusive design from the largest site level to the small details benefits special education student safety and cognitive function.
3. Participants will learn how to incorporate inclusive design for special education at the overall site and building level, and understand how it aids in the routines and processes necessary for special education student welfare.
4. Participants will learn how to incorporate inclusive design for special education at the interior building and classroom level, and understand how incorporating flexibility, variety, and sensory transitions into spaces aids in creating a comfortable, healthy, and successful environment for all students and educators.

AGENDA

01 : REFLECTION EXERCISE

02 : INTRODUCTION

03 : SITE & LAYOUT

04 : SPACE DESIGN

REFLECTION EXERCISE

Do you or have you known someone, whether is was a friend, a family memeber, a peer or even yourself, that had/has a **learning disability**?

Imagine that this individual went to your elementary school... how would you **design** that school differently based on their needs?

INTRODUCTION



NAC
ARCHITECTURE



DESIGNING FOR SPECIAL EDUCATION

BEST PRACTICES FOR SPECIAL NEEDS LEARNING FACILITIES

Interviewees

Dr. Brian Lowney

Assistant Superintendent of Secondary Schools
Bethel School District, Graham, Washington

Dr. Anna Osipova

Associate Professor, Division of Special Education & Counseling
California State University, Los Angeles

Jamee Zipkoff

Assistant Principal of Special Education
Los Angeles Unified School District

Flint Simonsen

Associate Professor, Special Education and Applied Behavioral Analysis
Whitworth University, Spokane, Washington

References

Gaines, K. S. & Curry, Z. D. (2011). **The Inclusive Classroom: The Effects of Color on Learning and Behavior.** Journal of Family & Consumer Sciences Education, 29(1), 46 - 57.

Mostafa, M., (2008). **An Architecture for Autism: Concepts of Design Intervention for the Autistic User.** Archnet-IJAR, Volume 1 - Issue 1, 189 - 211, DOI: 10.26687/archnet-ijar.v2i1.182, Source: DOAJ

Mostafa, M., (2008). **An Architecture for Autism: Autism aspectss™ in school design.** Archnet-IJAR, Volume 8 - Issue 1, 143 - 158, DOI: 10.26687/archnet-ijar.v8i1.314

What is a Learning Disability

*A learning disability is a difference
in brain function that affects
cognitive processes related to
learning*

AROUND 15% OF THE US
POPULATION, **OR 1 IN 7**
INDIVIDUALS, HAS SOME FORM
OF LEARNING DISABILITY.



Salish Sea Elementary

Special Education & Mental Health

Compared to children and students without disabilities, children and students with disabilities experience:

- Higher rates of mental health challenges;
- More anxiety, depression, and academic-related distress;
- Higher rates of suicide ideation and suicide attempts, and nonsuicidal self-injury; and
- Greater peer victimization (Coduti et al., 2016; Fleming et al., 2016; Salle et al., 2018).

Rates of anxiety and depression:

- ASD 4.4x
- ADHD 2.9x
- (Whitney et al, 2020)



Expedition Elementary



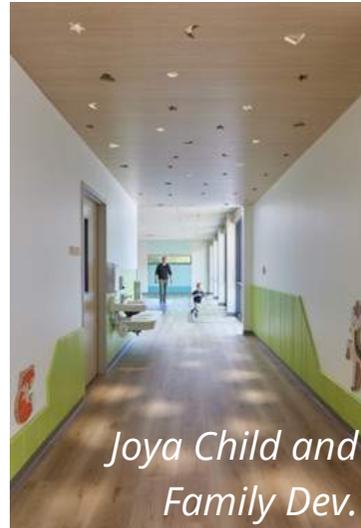
2e students, *twice exceptional*, are students who have a learning disability but also highly gifted in another domain.

SITE & LAYOUT



Site Design: Drop Off and Entry

- **Spark Curiosity: Interactive Elements**
- **Set the Stage for Learning: Support Space Orientation**
- **Transparency: Create a Sense of Belonging for Students & Parents**



Site Design: Drop Off and Entry

- **Covered Drop Off/Pick Up Zones**
- **Level Paving and Flush Transitions**
- **Barrier-Free**



Wonderful College Prep Academy

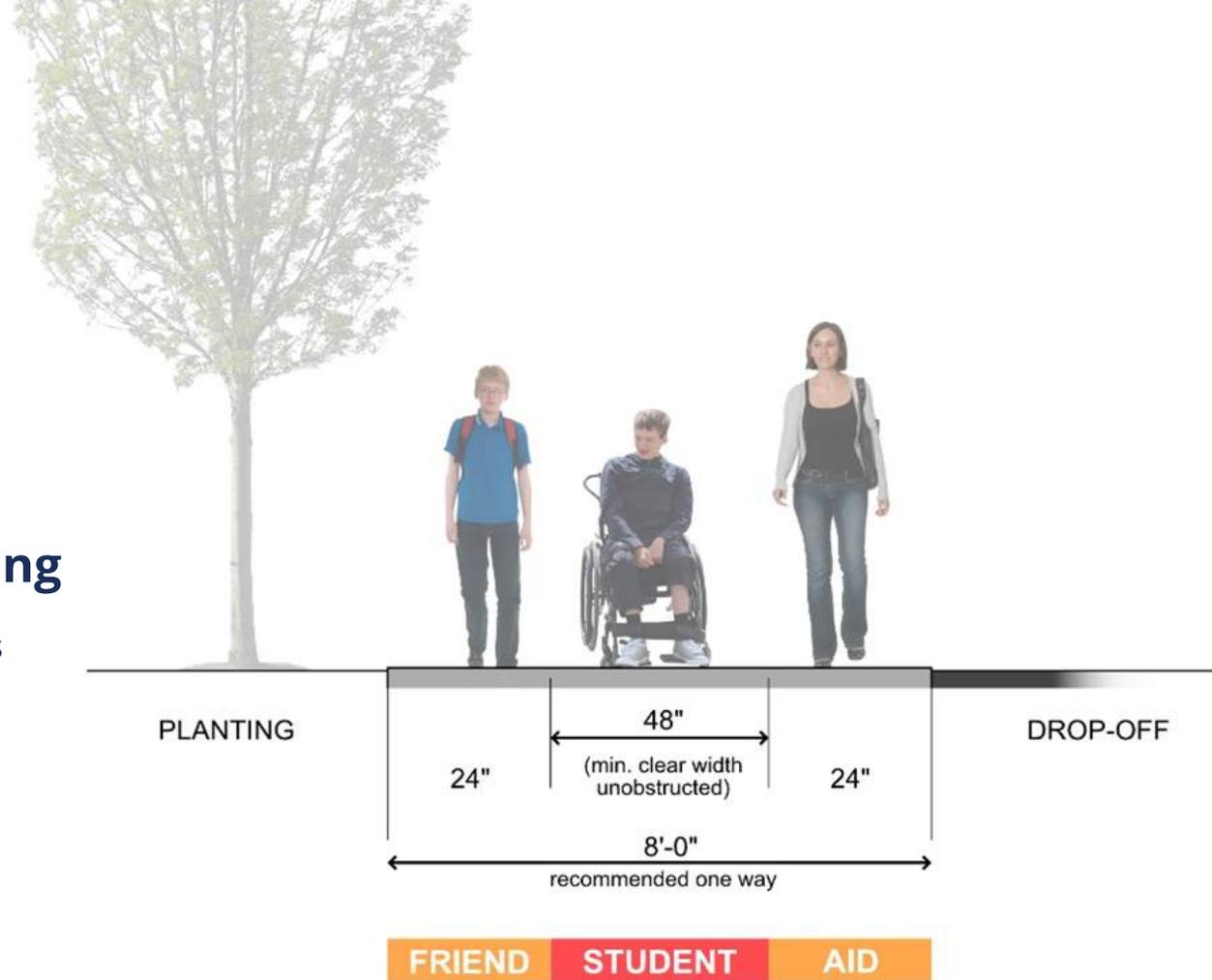
Site Design: Drop Off and Entry

• Wide Entry Walks to Fit:

- Student
- Friends
- Para-Educator/Aid

• Mobility Equipment Turning

- Turning diameter for **wheelchairs** was updated from 60" to **67"** in the 2017 A11.7.1.
- "The minimum diameter for an **electric wheelchair, scooter, or reclining wheelchair user is 94 inches**, while more room is always preferable."*



*<https://scootaroundstore.com/en.wheelchair-turning-radius-everything-you-need-to-know>

Site Design: Playgrounds



- **Facilitate Multiple Type of Play and Interaction:**
 - Informal Play
 - Hard-Surface Play
 - Play Structures / Soft-Surface Play
 - Playfields
 - Covered Play
 - Sensory Gardens
- **Quiet Reflection Areas**
- **Transition Zones**

Site Design: Playgrounds

- **Level Paving and Surface Materials**
- **Gradual Grade Changes**
- **Maintenance**



Site Design: Wayfinding

- **Graphic Imagery & Color in Addition to Written Words for:**

- Language Processing Disorders
- Young Students
- ESL



Building Layout

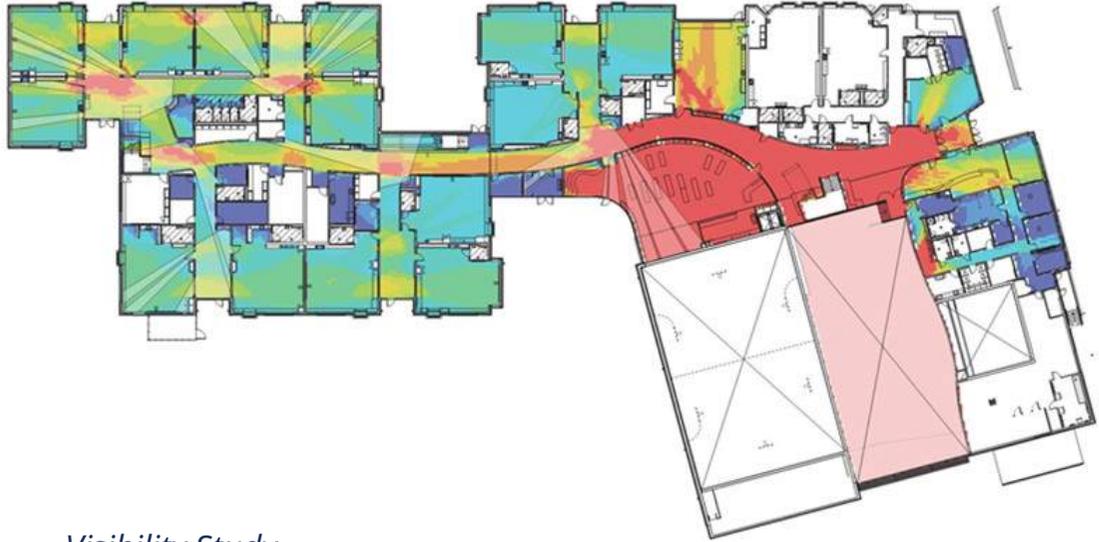
Locate spaces based on acoustical and stimulatory similarities

High Stimulus Spaces

- Gyms, physical activity areas
- Music Rooms
- Commons and Cafeterias
- Entry and Drop Off Zones
- Playgrounds*

Low Stimulus Spaces

- Libraries
- Computer Labs
- Speech Therapy
- Administration
- Classrooms



*Visibility Study,
James Baldwin
Elementary School*

Layout: Spatial Sequencing

- Routine
- One-Way Circulation
- Age Level or Grade Level



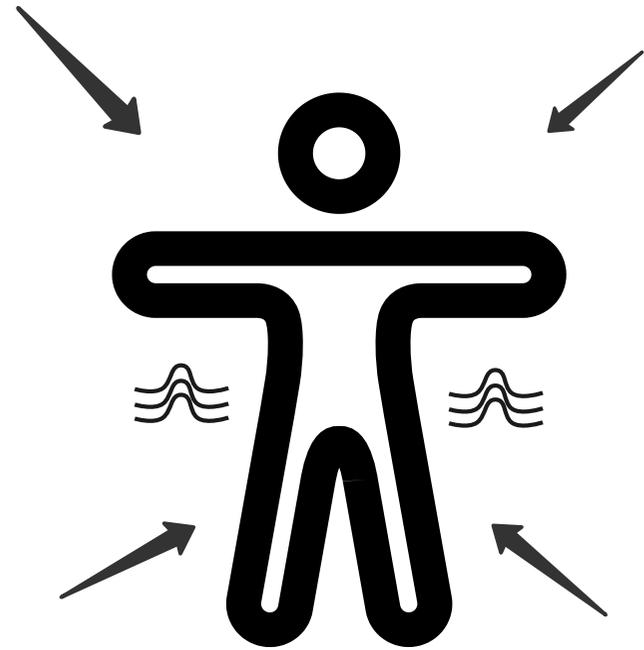
SPACE DESIGN



Sensory Process & Students

8 Human Senses

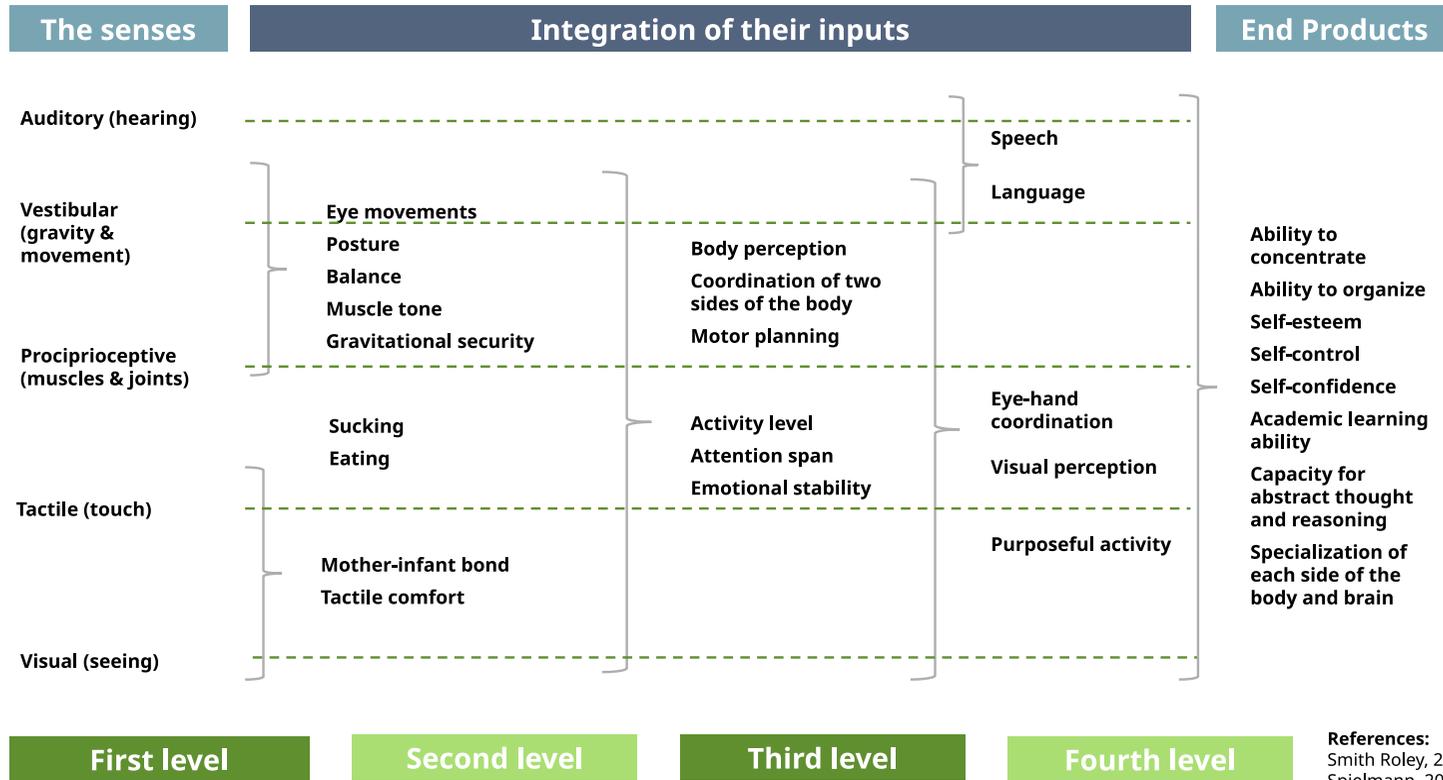
- Visual (looking)
- Gustatory (tasting)
- Olfactory (smelling)
- Auditory (hearing)
- Tactile (touching)
- Vestibular (movement)
- Proprioception (muscle & joint sensation)
- Interoception (internal organ sensation)



How we make sense of the world

Mechanisms of how we feel

Sensory Integrative Processes



References:
Smith Roley, 2015;
Spielmann, 2019

Outdoor Learning Spaces

- **Outdoor Classrooms**
- **Sensory Gardens**
- **Vocational Gardens**

Dr. Owen, C. (2016) Design Across the Spectrum. School of Architecture & Design, University of Tasmania, Australia.

McAllister, K., & Sloan, S. (2016). Designed by the Pupils, for the Pupils: An Autism-Friendly School. British Journal of Special Education.



Vocational Gardens

- **Pair Vocational Gardens with Work Areas**
- **Vegetable Gardening Skills**
- **Floral Arranging**
- **Herb Drying and Packaging**



Playa Vista Elementary School

Circulation Spaces

- Clear, Calm Flow
- Indirect and Natural Lighting
- Minimize Glare
- Sound Absorption
- Curves
- Transition Zones



Missoula International School



Machias Elementary School

High Traffic Areas

- Wide Enough to Accommodate Large Groups - Min. 10'-0"
- Signage and Graphics to Manage "Traffic"
- Reduce Conflict and Overstimulation
- Rounded Corners

Min. 10'-0"



Transition Spaces

- **Prepare Student for Next Activity Zone or Stimulation**
- **Recalibrate Student**
- **Incorporate Nature**
- **Indirect & natural Light**
- **Acoustic Treatment**



La Center Middle School

Classrooms: Layout

- **Transparency**
 - Sense of Belonging
 - Connection
- **Entries Opposite Teaching Wall**



Riverview Elementary School

Classrooms: Layout

- **Zones for Flexibility**
- **Variety of Furniture**
- **Sensory Zones & Reflection Spaces**
- **Multiple Teaching Walls**
- **Classroom Shape**



Stevens Creek Elementary School



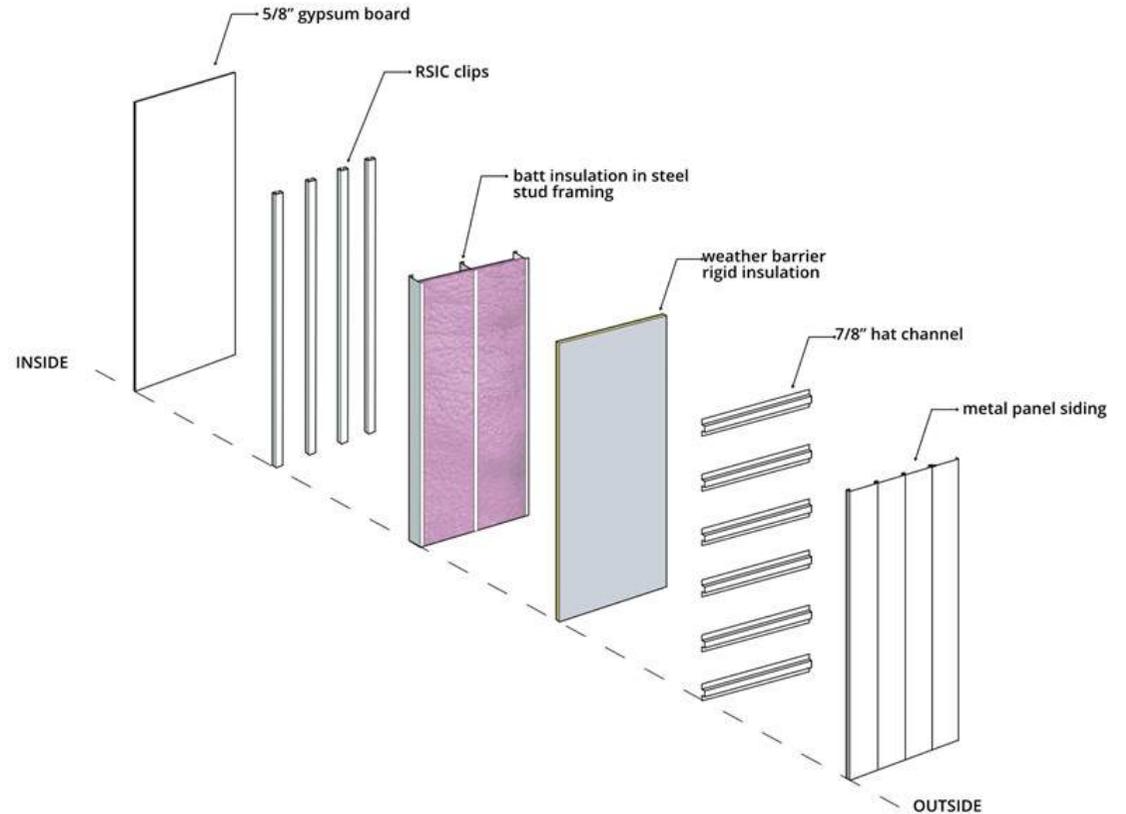
Happy Valley Elementary School

Classrooms: Multiple Instructors

- **Instructor & Para-Instructor**
- **Storage**
 - **Equipment Storage**
 - **Instructor Storage**

Classrooms: Acoustics

- **Wall Construction**
- **Mechanical Systems**
 - Displacement Ventilation
 - Numbers of bends/corners
- **Spatial Adjacencies**
- **Site Background Noise**



Cherry Crest Elementary School



La Center Middle School



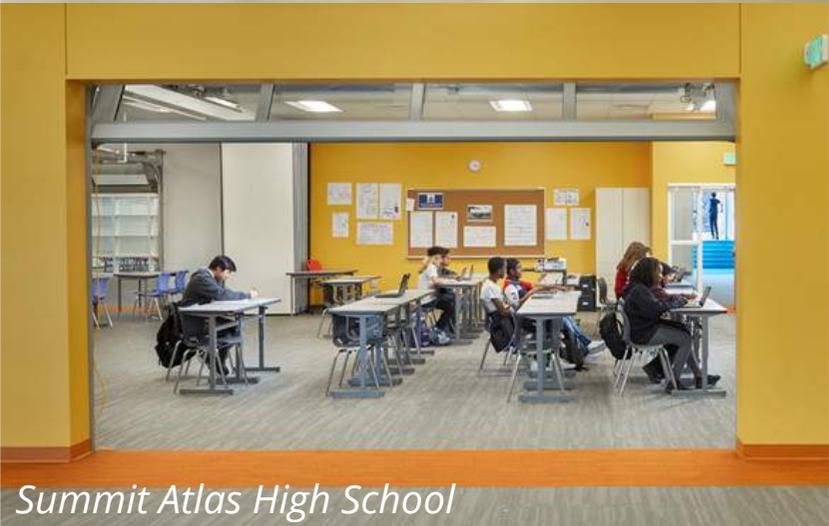
Venice High School

Classrooms: Lighting & Daylighting

- Indirect & Soft Overhead Lighting
- Natural Light
- Shades/Glare Reduction
- Daylight Indicators/Routine
- RGBW Lighting



Dessie Evans Elementary School



Summit Atlas High School

Classrooms: Color & Visual Aid Placement

- **Visual Aid Placement Behind Students**
- **Accent Color for Focus on Side Wall**
- **Color Theory: Neutrals & Greens**



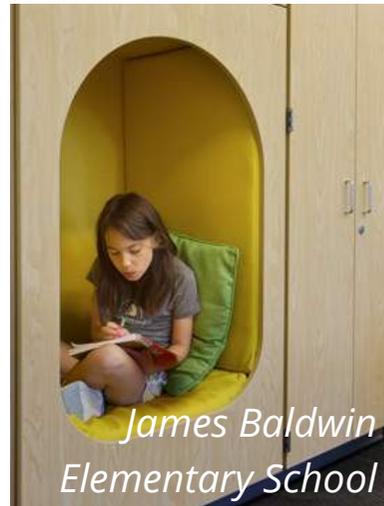
Mount Si High School



Stevens Creek Elementary School



*Wing Luke
Elementary School*



*James Baldwin
Elementary School*

Breakout Spaces & Escape Spaces

- Support Classroom Functions
- Sensory Input, Focus
- Separate Spaces
- Visible from Classroom

Sensory Spaces

- Improved Focus and Concentration
- Promotes self-regulation
- Development of social emotional skills
- Improved fine and gross motor skills
- Neurodivergent and neurotypical inclusion and exploration



Multi-Sensory Spaces





New Bethel High School

Open Spaces: Variety

- Variety of Furniture Types
- Sensory Zones
- Zones, Scale and Capacity
- Acoustic Treatment

Open Spaces: Ventilation & Sensory Input

- **Ventilation to Reduce/Isolate Unwanted Smell**
 - Mechanical Separation
 - Physical Separation
 - Building Layout



Tillicum Middle School

Open Spaces: Variety

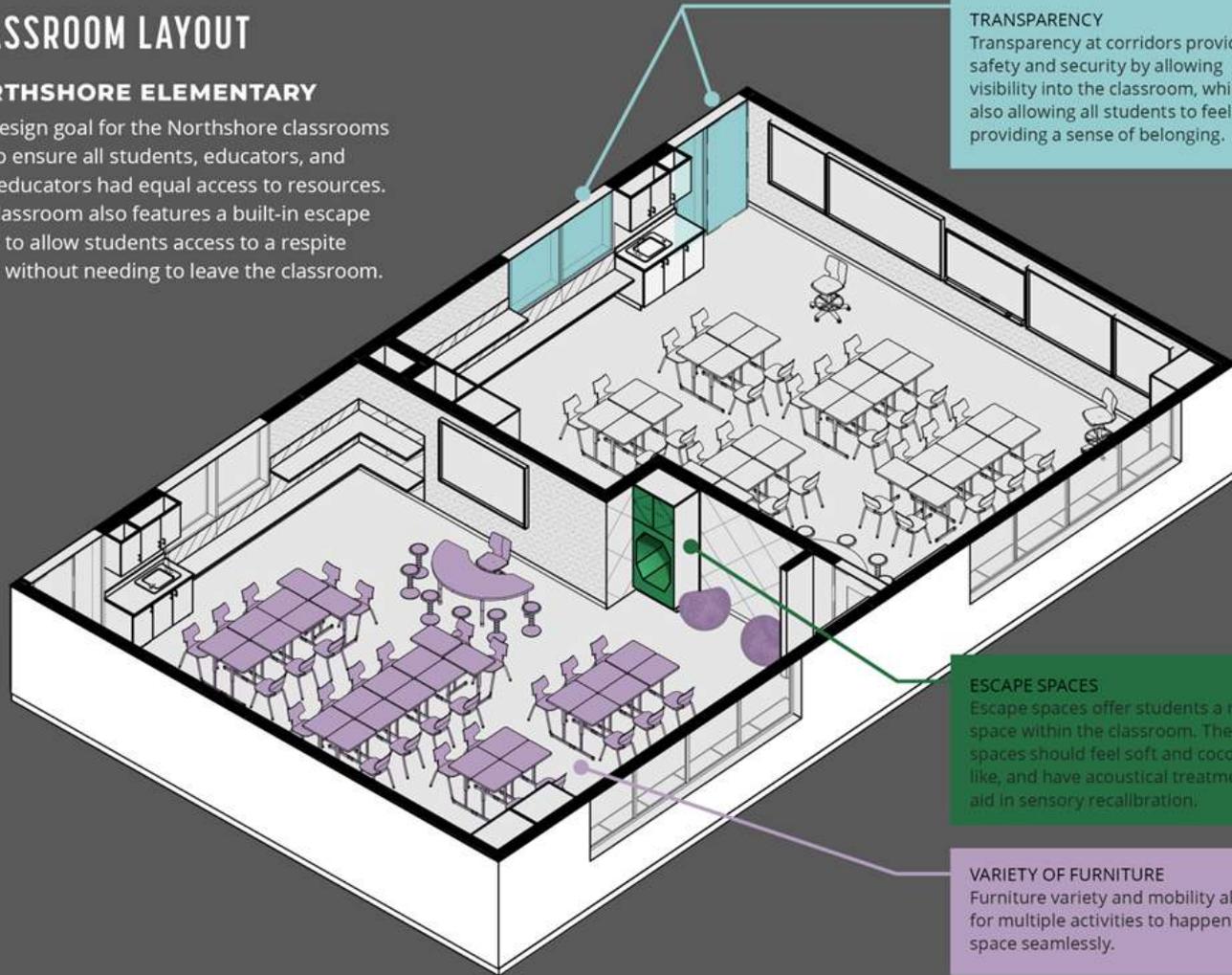
- **Variety of Activities in Gyms based on Sensory Input**



CLASSROOM LAYOUT

NORTHSHORE ELEMENTARY

The design goal for the Northshore classrooms was to ensure all students, educators, and para-educators had equal access to resources. The classroom also features a built-in escape space to allow students access to a respite space without needing to leave the classroom.



TRANSPARENCY

Transparency at corridors provides safety and security by allowing visibility into the classroom, while also allowing all students to feel seen, providing a sense of belonging.

ESCAPE SPACES

Escape spaces offer students a respite space within the classroom. These spaces should feel soft and cocoon-like, and have acoustical treatment to aid in sensory recalibration.

VARIETY OF FURNITURE

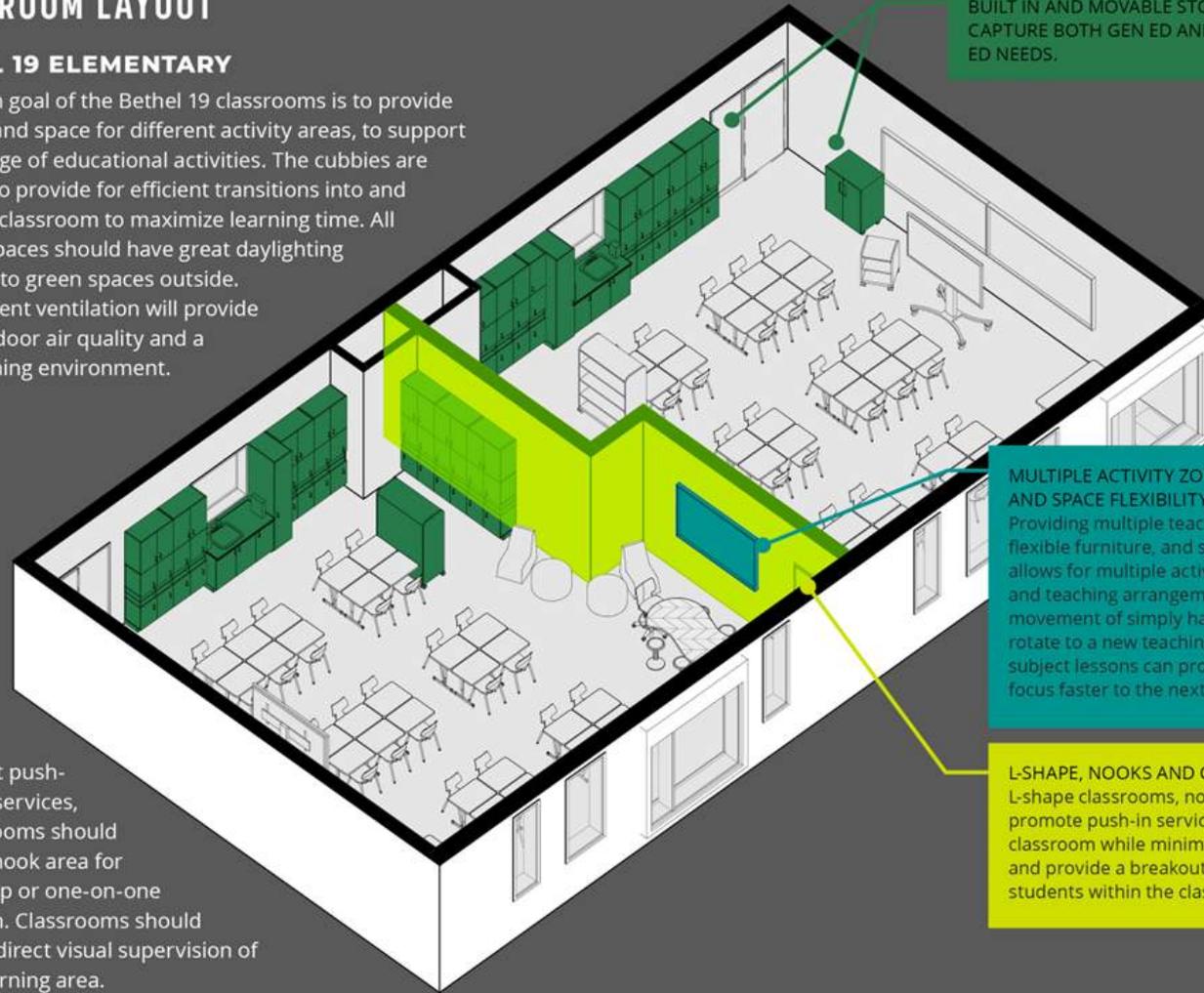
Furniture variety and mobility allows for multiple activities to happen in a space seamlessly.

CLASSROOM LAYOUT

BETHEL 19 ELEMENTARY

The design goal of the Bethel 19 classrooms is to provide flexibility and space for different activity areas, to support a wide range of educational activities. The cubbies are intended to provide for efficient transitions into and out of the classroom to maximize learning time. All learning spaces should have great daylighting and views to green spaces outside. Displacement ventilation will provide healthy indoor air quality and a quiet learning environment.

To support push-in special services, the classrooms should include a nook area for small group or one-on-one instruction. Classrooms should also have direct visual supervision of shared learning area.



BUILT IN AND MOVABLE STORAGE TO CAPTURE BOTH GEN ED AND SPECIAL ED NEEDS.

MULTIPLE ACTIVITY ZONES AND SPACE FLEXIBILITY
Providing multiple teaching walls, flexible furniture, and space flexibility allows for multiple activity zones and teaching arrangements. The movement of simply having students rotate to a new teaching wall between subject lessons can provide renewed focus faster to the next activity.

L-SHAPE, NOOKS AND CORNERS
L-shape classrooms, nooks and corners promote push-in services in the classroom while minimizing disruption, and provide a breakout space for students within the classroom.

QUESTIONS & DISCUSSION





**THANK YOU
FOR ATTENDING**

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