

The Sensory Diet in Design

Creating Supportive Learning Environments

A4LE - LearningSCAPES 2025

Introduction



Session Speakers



Greg Kochanowski, AIA
Design Principal,
Practice



Robyn Reagan
Principal and Vice President
Of Special Education Services,
Villa Esperanza Services



Sarah Lindell
Landscape Designer + Artist,
Mammatus Studio



Noelle White, AIA
Project Architect,
Practice

Introduction to Autism Spectrum Disorders & Educational / Therapeutic Facilities

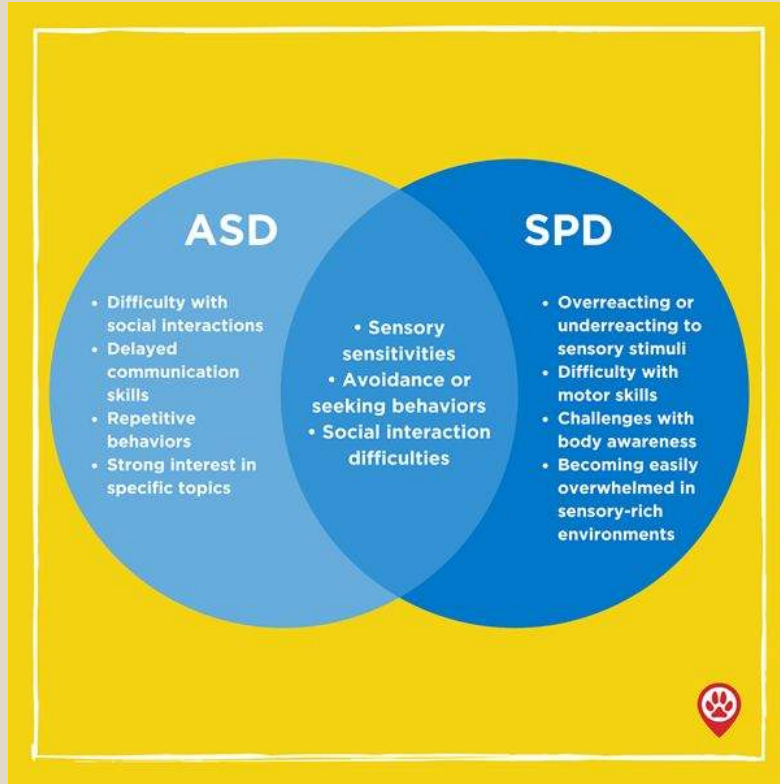


Robyn Reagan
Principal and Vice President
Of Special Education Services,
Villa Esperanza Services

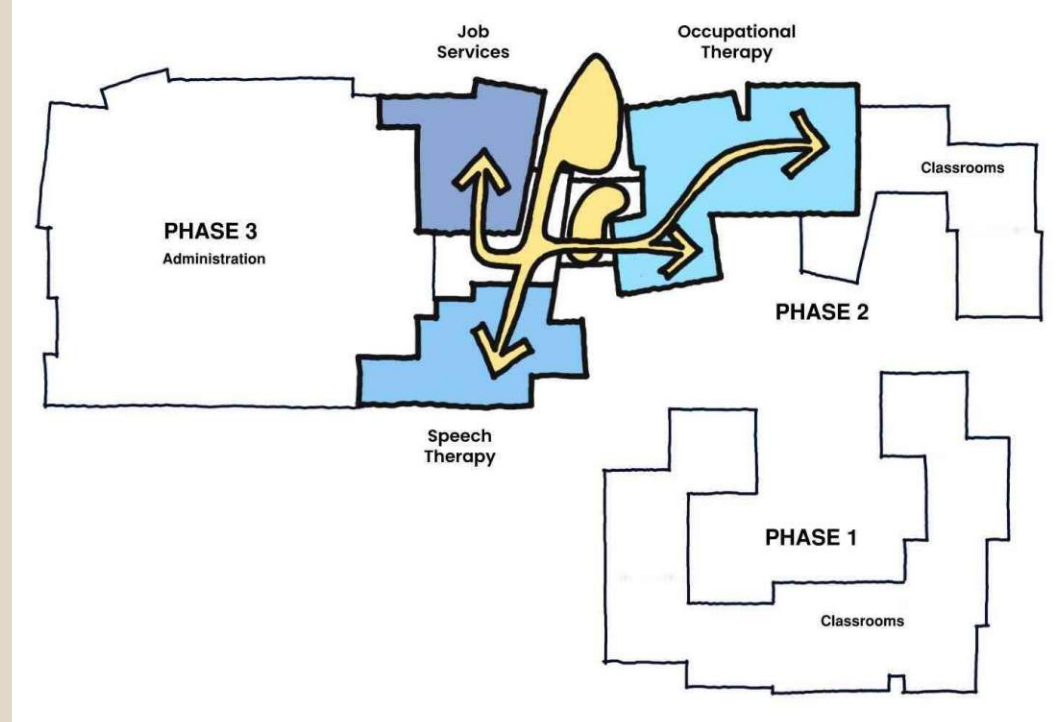
Establishment of Villa Esperanza Services



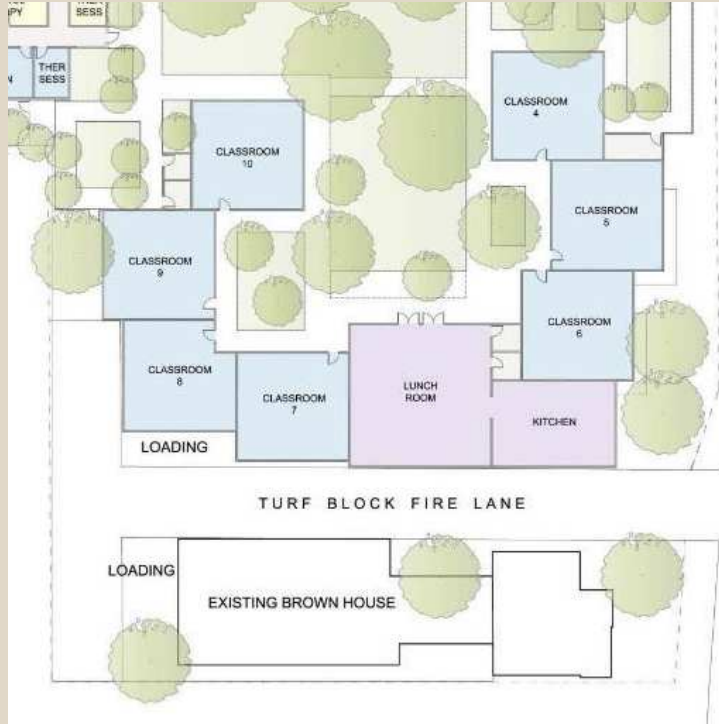
Autism Spectrum Disorder + Sensory Processing Disorders



Envisioning a New Educational + Therapeutic Facility



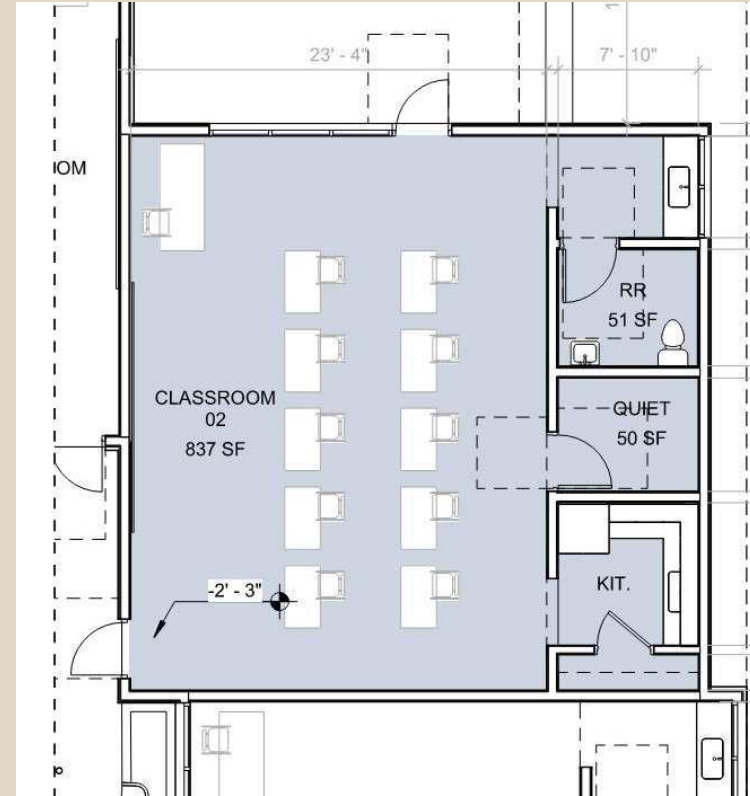
Phase 1: Classrooms + Multi-Purpose Room



Phase 2: Classrooms, Occupational Therapy, Behavioral Therapy



Phase 2: Classrooms



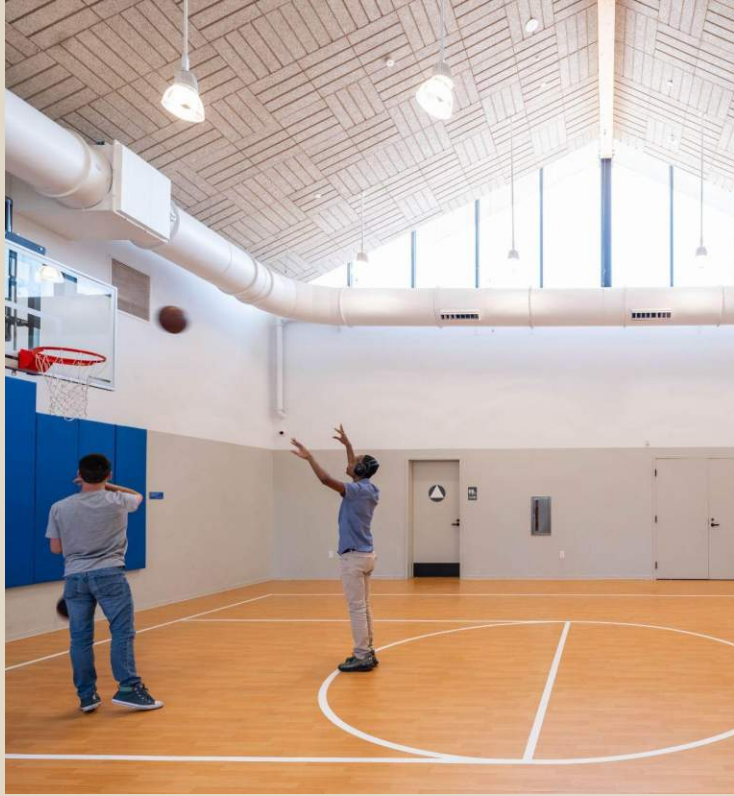
Phase 2: Occupational Therapy



Phase 2: Preschool Therapy



Phase 2: Physical Education



Phase 2: Life Skills Support



Phase 2: Courtyards



Future Phase 3: Speech Therapy + Administrative Offices



Villa Esperanza + Larger Community



Introduction to Sensory Diets



Sarah Lindell
Landscape Designer + Artist,
Mammatus Studio

Sensory Diet: Definition

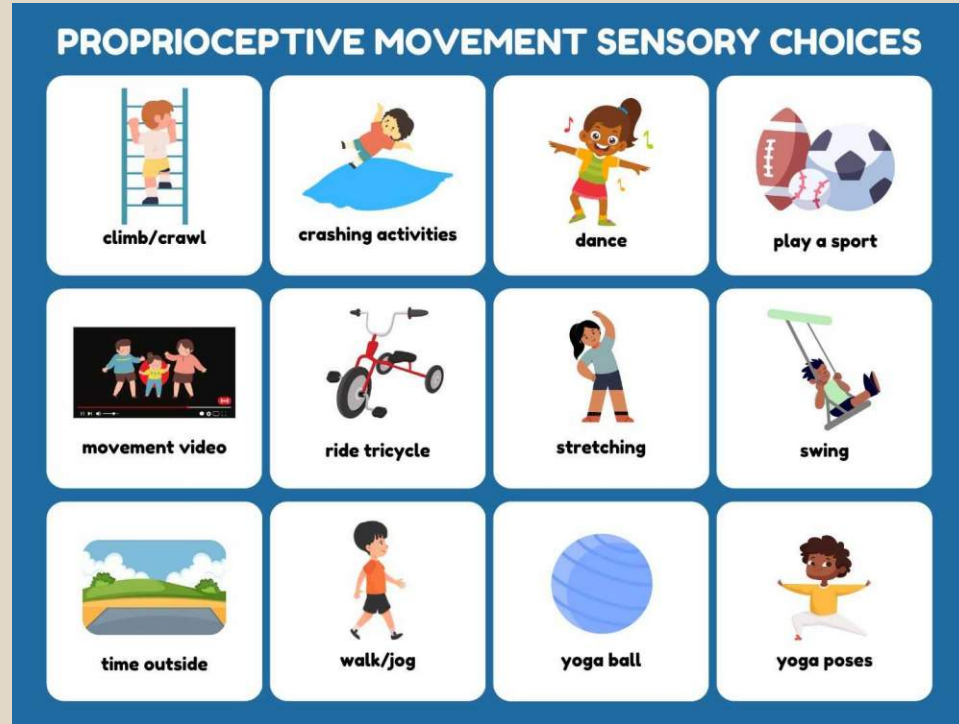
A personalized set of sensory activities designed to help individuals with sensory processing disorders (SPD) regulate their sensory input throughout the day.

SENSORY DIET	
 MORNING	Swinging
 LUNCH	Water play
 AFTERNOON	Deep pressure
 EVENING	Blowing bubbles



Sensory Diet: Objectives

- Enhance attention and learning
- Reduce sensory overload or meltdowns
- Increase tolerance to sensory input
- Support emotional and behavioral regulation



Sensory Diet: 5 Senses



Proprioceptive



Vestibular



Tactile



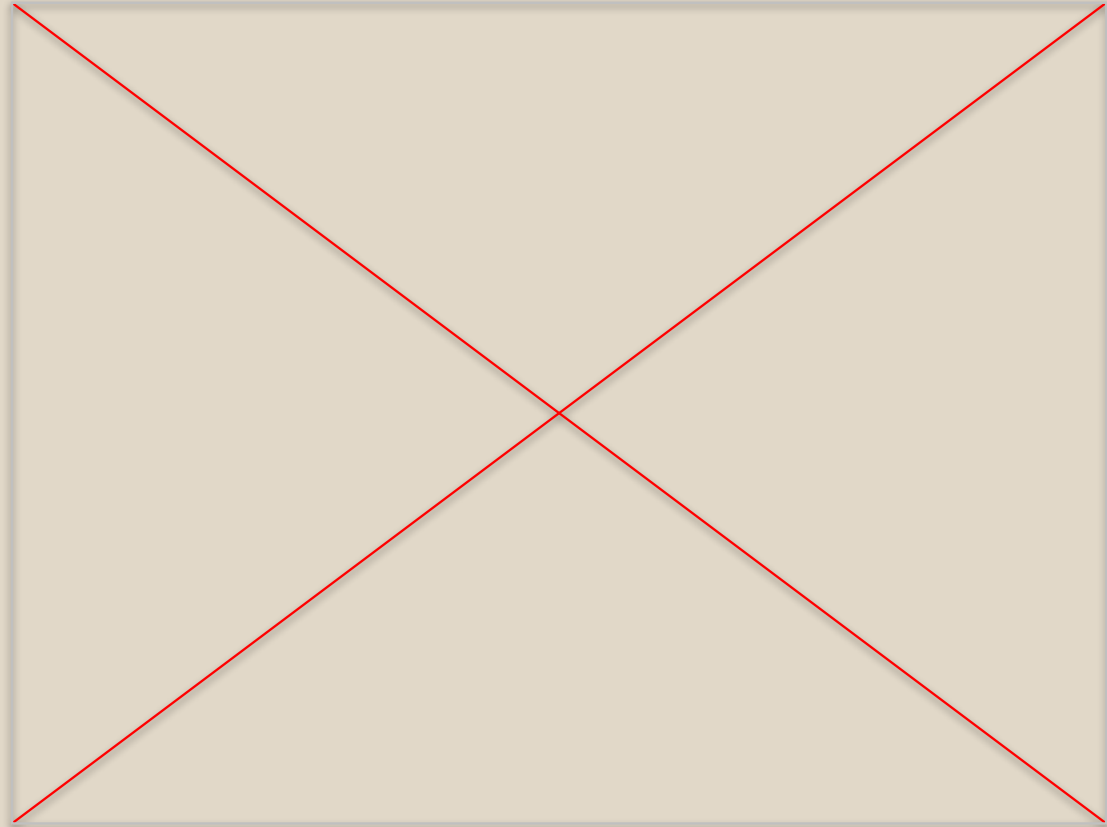
Visual & Auditory



Smell & Taste

Sensory Comfort For All

Benefit	Description
Self-awareness	Helps you recognize and respond to sensory needs
Regulation	Keeps emotions and energy levels balanced
Performance	Improves focus, attention, and cognitive efficiency
Mental Health	Reduces stress and anxiety, promotes calm
Well-being	Encourages healthy routines and rest

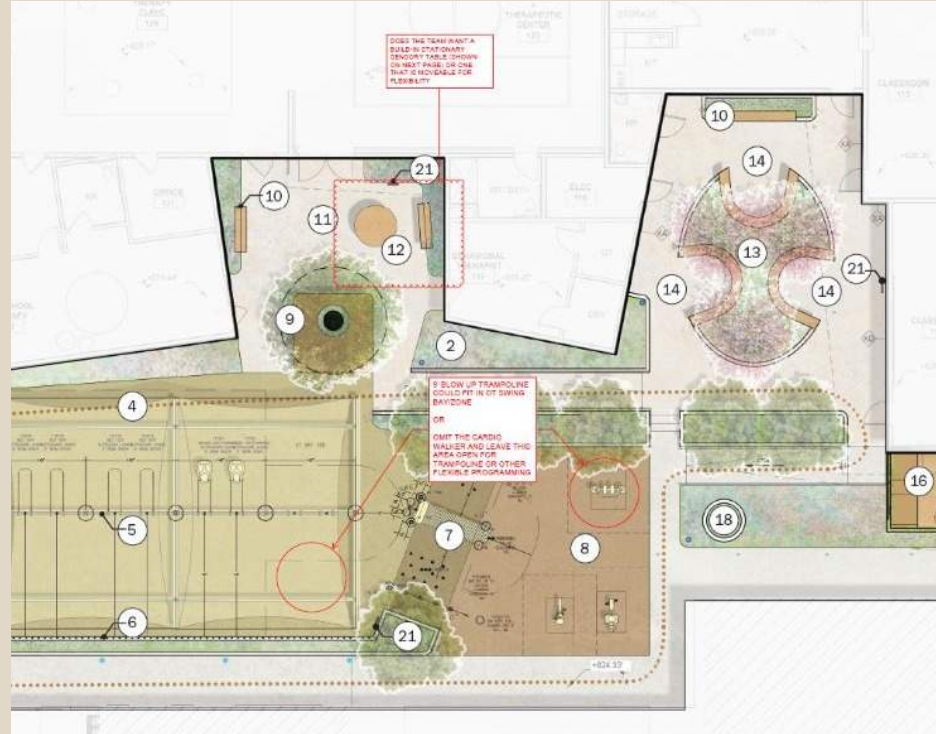


The Gathering Place (MVVA), Tulsa OK

Sensory Diet: Staff & Therapist Collaboration



Design Team working with Therapists



Space Use Dialogue throughout Design Phases

The Sensory Diet in Design: Creating Supportive Learning Environments



Sarah Lindell
Landscape Designer + Artist,
Mammatus Studio

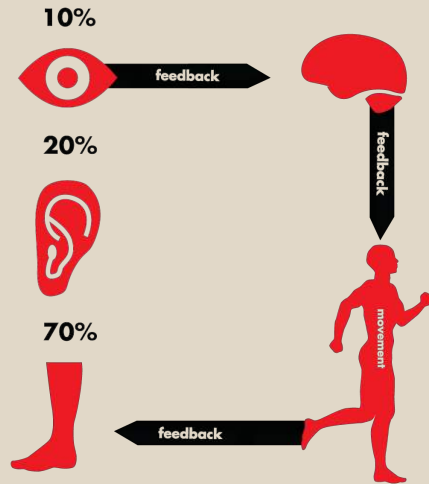


Noelle White, AIA
Project Architect,
Practice

Proprioception: Awareness of the position and movement of the body

Proprioception helps a person understand where their body is located in space and what movements are required to perform an activity, like climbing the stairs. Informs spatial cognition and perception.

 = Proprioception



Proprioception: Awareness of the position and movement of the body

Without a developed proprioceptive system, individuals struggle with:



Spatial Awareness



Fine Motor Skills



Wayfinding



Understanding Other Senses

Proprioception: Therapeutic + Design Interventions

Design legible spaces with contrasting finishes and unique features to promote Wayfinding.



Proprioception: Therapeutic + Design Interventions

Design legible spaces with contrasting finishes and unique features to promote Wayfinding.



Proprioception: Therapeutic + Design Interventions

Design legible spaces with contrasting finishes and unique features to promote Wayfinding.



Proprioception: Therapeutic + Design Interventions

Provide opportunities for kinesthetic enrichment: Hammocks and Swings



Courtyard Swing Structure



Occupational Therapy Apparatus

Proprioception: Therapeutic + Design Interventions

Provide opportunities for kinesthetic enrichment: Push/Pull Exercises



Scramble Wall



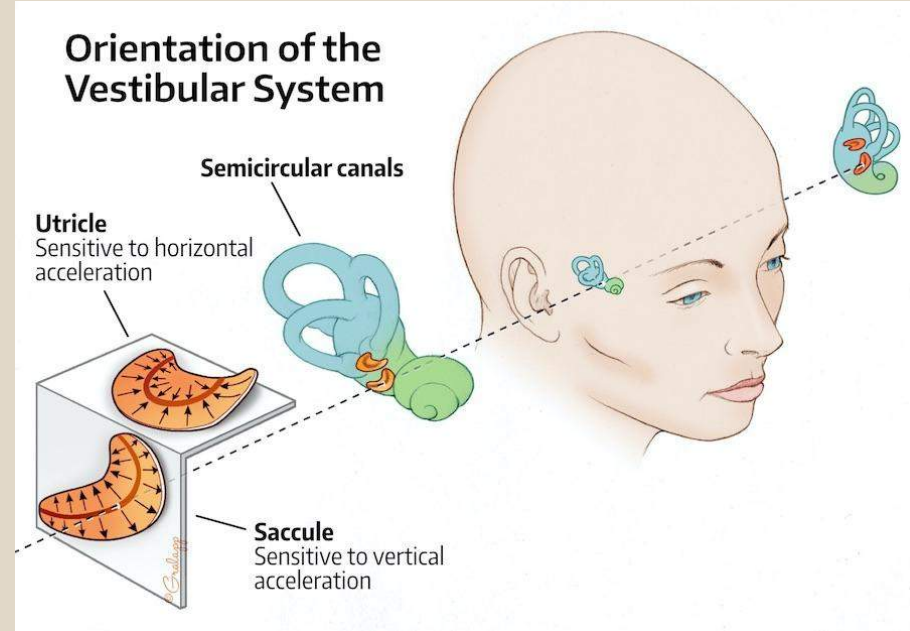
Exercise Equipment



Recumbent Cycle

Vestibular: Sense of balance and movement

The Vestibular Sense: movement, posture, vision, and balance.



Vestibular: Sense of balance and movement

Without a developed vestibular sense, individuals struggle with:



Balance and Coordination



Motor Planning/Body Awareness



Visual and Eye Movement Challenges

Vestibular: Therapeutic + Design Interventions

Provide opportunities for practicing balance and bodily movement



Elements at Various Levels



Yoga

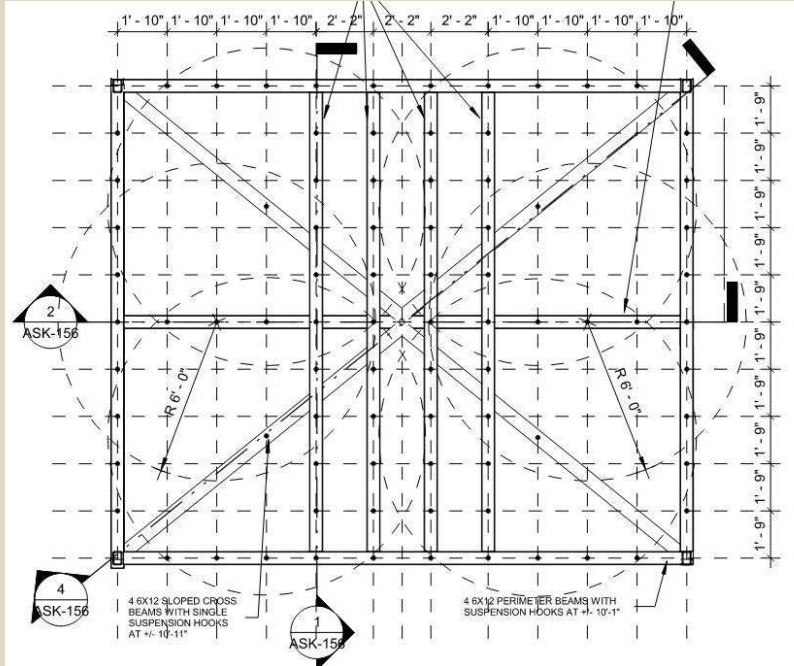


Balance Beams



Balance and Coordination

Occupational Therapy Apparatus



Vestibular: Therapeutic + Design Interventions

Occupational Therapy Apparatus



Tactile: Sense of touch

Our first medium of communication and the “mother” of our other senses.

SENSE OF TOUCH



**BODY AWARENESS
SAFETY**



**REGULATION OF
THE NERVOUS SYSTEM**



**FINE MOTOR
AND DAILY SKILLS**



**EMOTIONAL AND
SOCIAL DEVELOPMENT**



Tactile: Sense of touch

Individuals with a hypersensitivity or hypo-reactivity to the touch sense may struggle with:



Clothing Discomfort



Discomfort with Tactile Experiences



Aversion to Touch and/or Misunderstanding of Personal Space

Tactile: Therapeutic + Design Interventions

Encourage Activities-Based Tactile Engagement



Sensory Walks



Water Features



Raised Garden Beds &
Textured Planting



Sensory Tables

Tactile: Therapeutic + Design Interventions

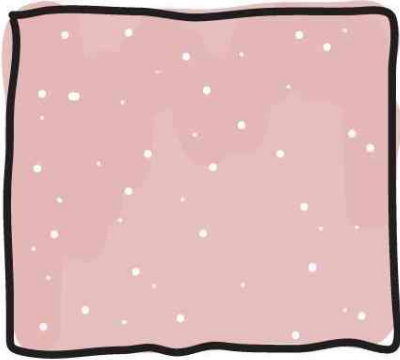
Encourage Tactile Engagement Through Landscape Design



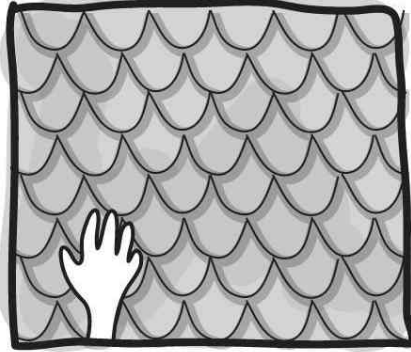
Tactile: Therapeutic + Design Interventions

Encourage Tactile Engagement in Building Materials

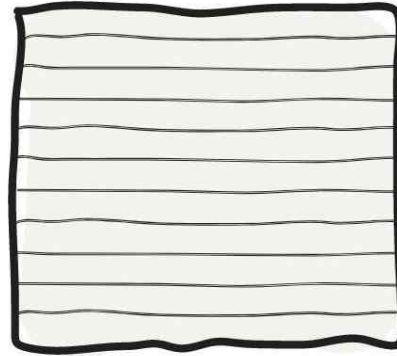
Stucco



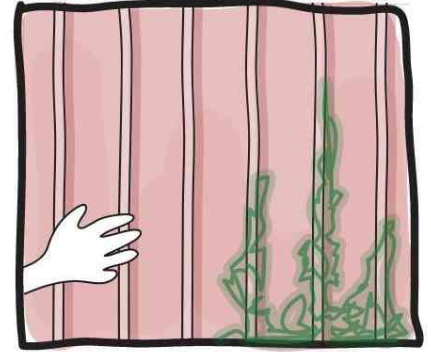
Shingles



Siding



Board + Batten



Tactile: Therapeutic + Design Interventions

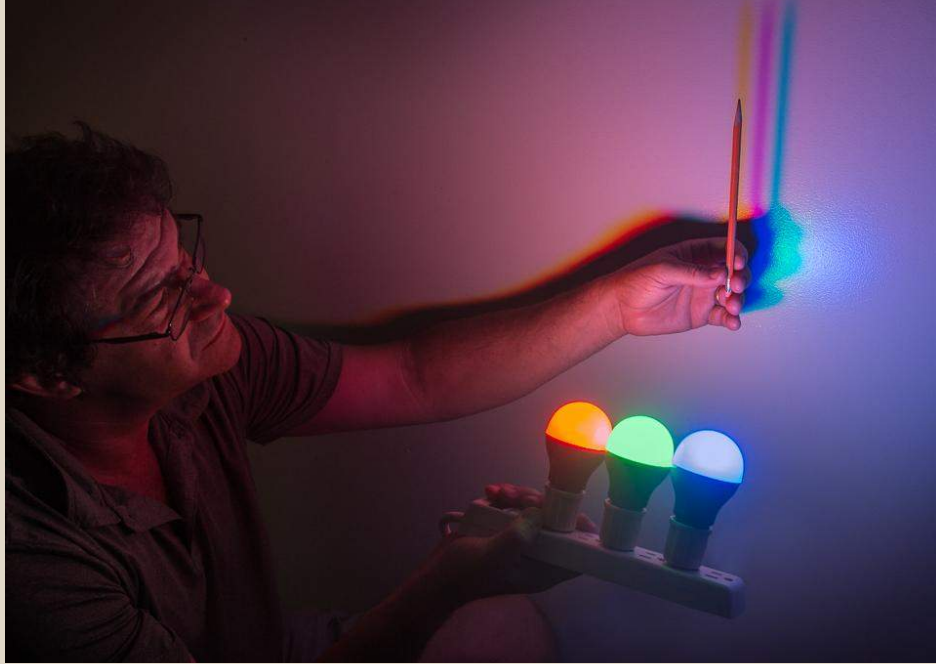
Encourage Tactile Engagement in Building Materials



The Sensory Diet in Design: Creating Supportive Learning Environments

Visual: Sense of Sight

The sensory system that is most widely used by individuals to understand their surroundings, objects, and nature.



Visual: Sense of Sight

Individuals with a hypersensitivity or hyposensitivity to visual stimuli may struggle with:



Difficulty with Eye Contact



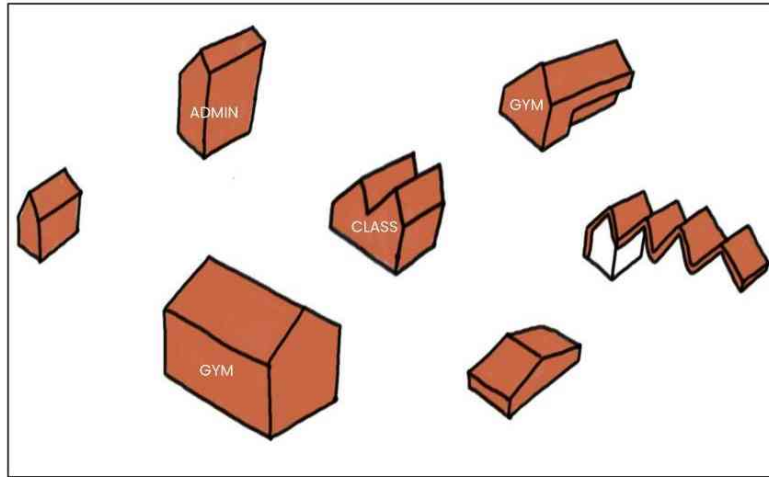
Visual Details
(Over-Focus or Under-Focus)



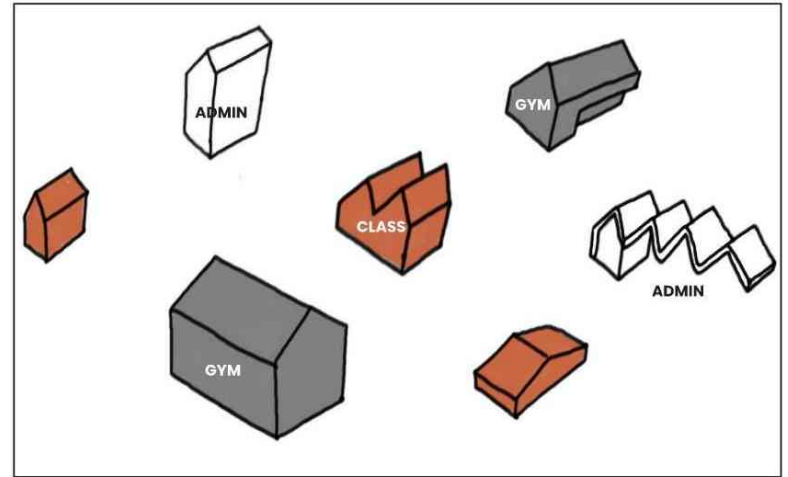
Sensitivity to Light and Color

Visual: Therapeutic + Design Interventions

Consider Wayfinding Strategies



SHAPE



MATERIAL

Legible Buildings with Color-Coded Uses

Visual: Therapeutic + Design Interventions

Consider Wayfinding Strategies



Legible Buildings with Color-Coded Uses

The Sensory Diet in Design: Creating Supportive Learning Environments

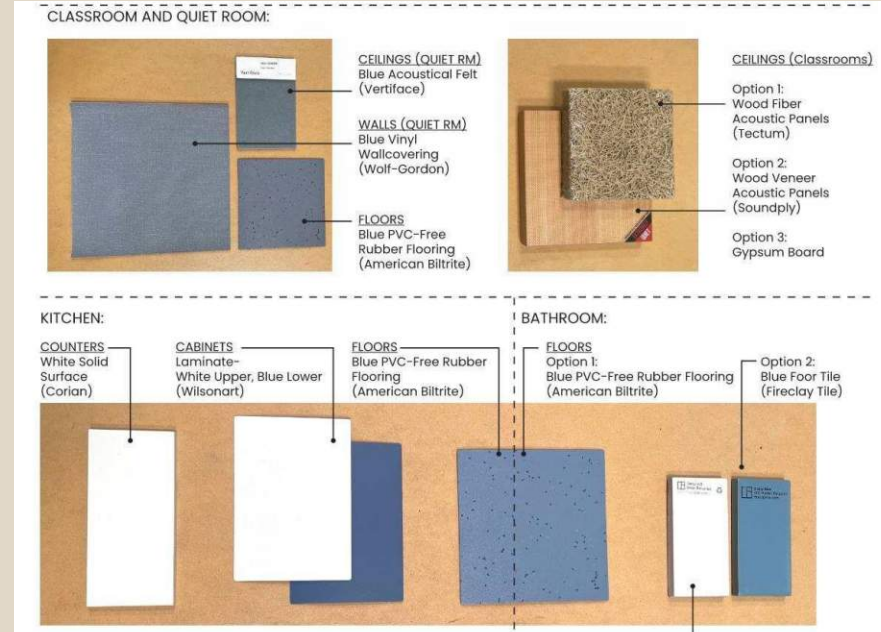
Visual: Therapeutic + Design Interventions

Consider Color Comfort



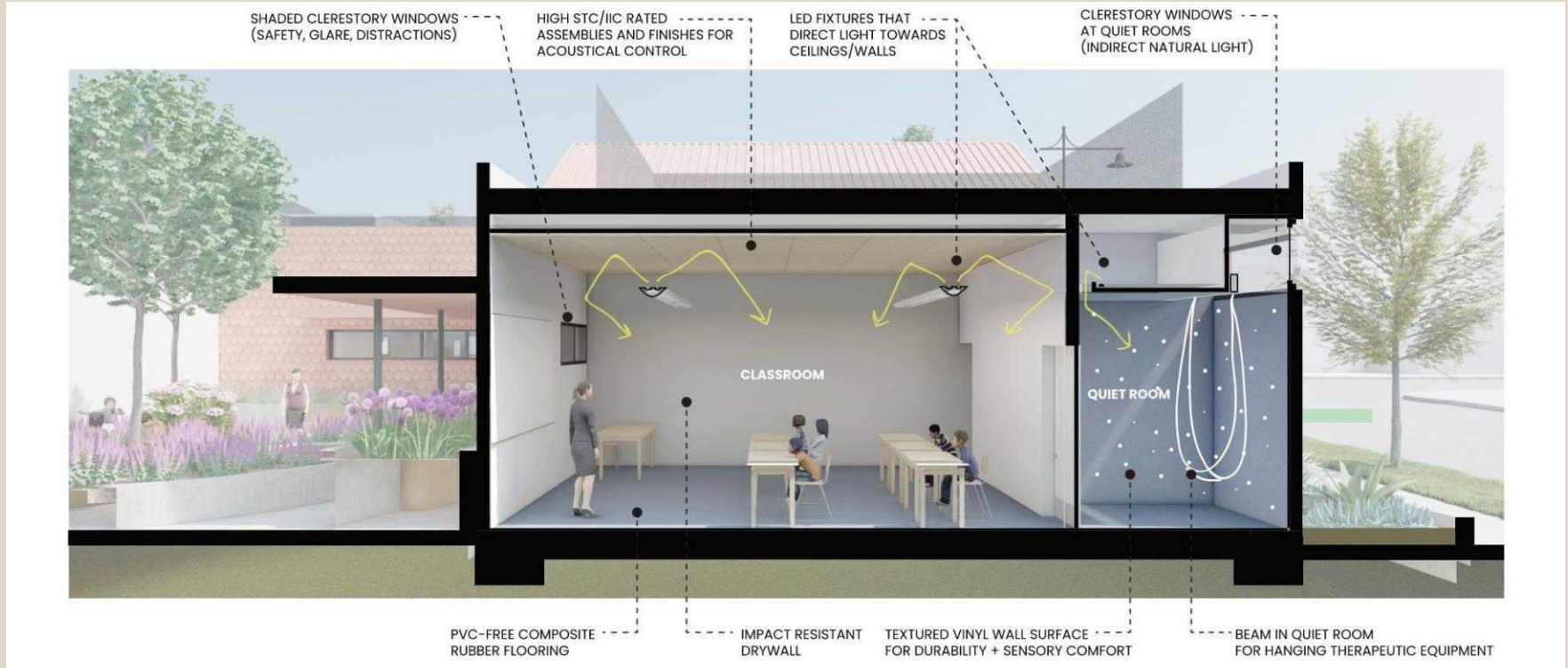
Interior Colors: Calming Blues, Natural Hues

The Sensory Diet in Design: Creating Supportive Learning Environments



Visual: Therapeutic + Design Interventions

Consider Lighting Design and Window Locations. Provide Spaces for Privacy and Sensory Regulation.



The Sensory Diet in Design: Creating Supportive Learning Environments

Visual: Therapeutic + Design Interventions

Activities designed to help manage and respond appropriately to sight input from an individual's environment.



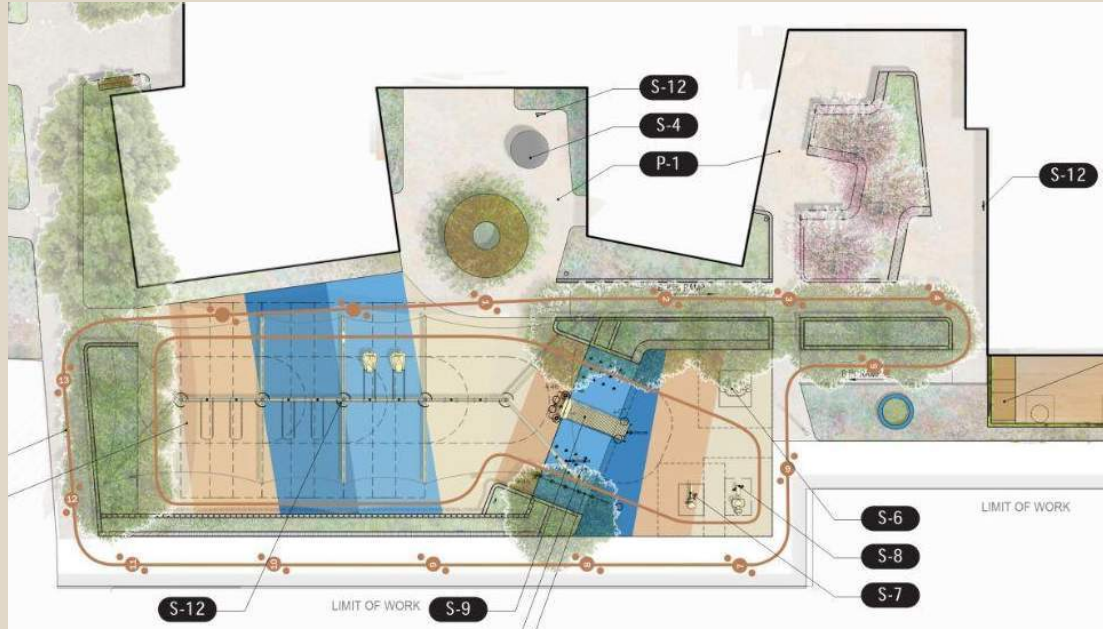
Private, Reflective Areas



De-Stimulation Nooks

Visual: Therapeutic + Design Interventions

Consider Wayfinding Strategies

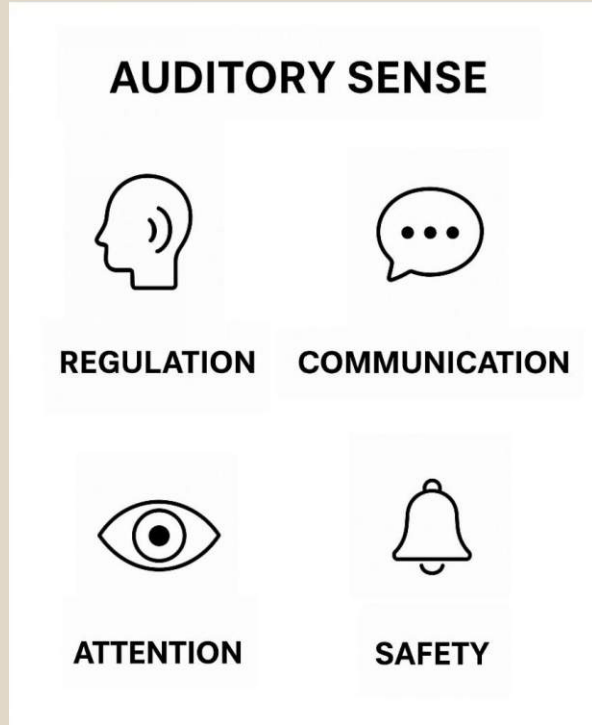


Interactive Walking Loop/ Wayfinding



Auditory: Sense of Sound

Our body's ability to process sounds and gather information from our surroundings



Auditory: Sense of Sound

Individuals with auditory sensitivity may struggle with:



Being Easily Distracted By Noise



Regulating Their Volume,
Echolalia (Creating Sounds)



Overreaction to Unexpected Noises

Auditory: Therapeutic + Design Interventions



Dancing Chimes



Sound Tubes



Water Elements

Auditory: Therapeutic + Design Interventions

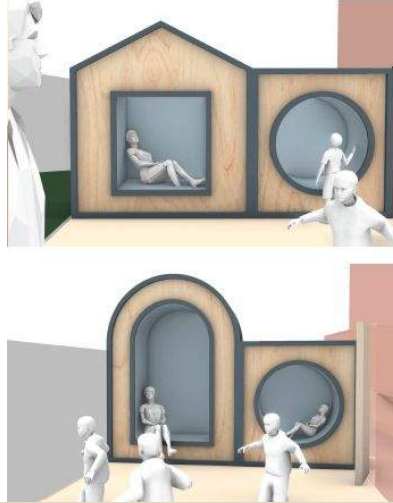
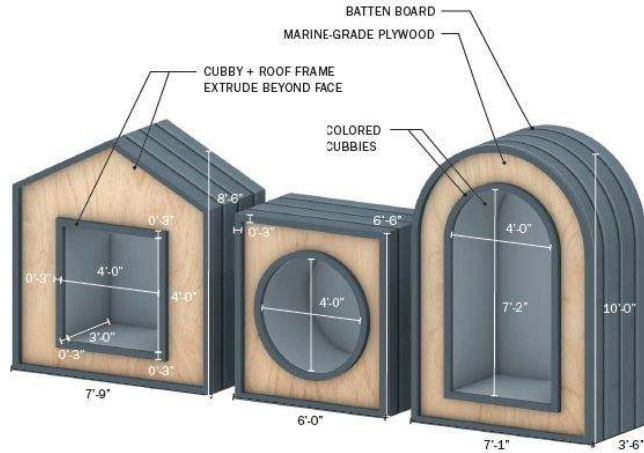


High Activity/Stimulation Area



Quiet Relaxing Area

Auditory: Therapeutic + Design Interventions



Destimulation Nooks for Auditory and Visual Regulation



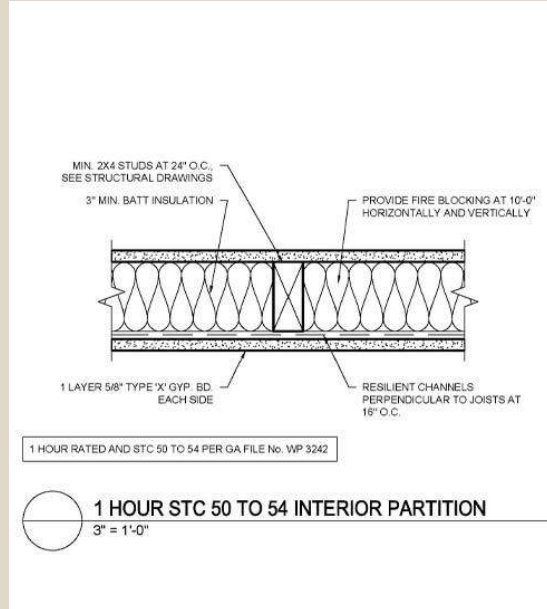
Plants that Rattle/Shake

Auditory: Therapeutic + Design Interventions

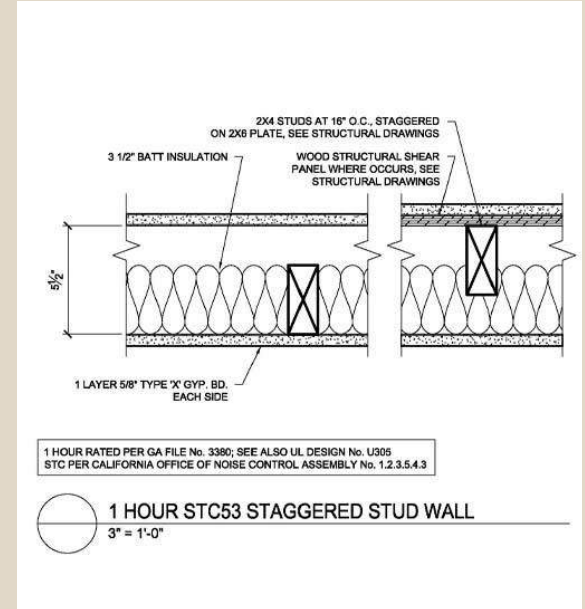
Our body's ability to process sounds and gather information from our surroundings



Interior Materials with High NRC



High STC Rated Assemblies



Smell and Taste: Olfactory and Gustatory Senses

Stimulation of olfactory and taste receptors to heighten connection to body

SMELL AND TASTE



REGULATION
OF AROUSAL



EMOTIONAL
CONNECTION
AND COMFORT



ORAL-MOTOR
DEVELOPMENT AND
FEEDING SKILLS



ENGAGEMENT
AND MOTIVATION



Smell and Taste: Olfactory and Gustatory Senses

When people are hyper- or hypo-sensitive to taste and smell, they can struggle with:



Food Aversions



Easily Overwhelmed by
Strong Odors and Tastes



Chewing or Licking Non-Food Items

Smell and Taste: Design Interventions



Fragrant Plants Bordering
Pathways



Outdoor Kitchen Gardens



Edible Plants in Specific Areas

Smell and Taste: Design Interventions



Fragrant Plants at Villa Esperanza

Smell and Taste: Design Interventions

Accessible Kitchens for Students, Staff



The Sensory Diet in Design: Creating Supportive Learning Environments



The Sensory Diet in Design: Creating Supportive Learning Environments

Image Sources

Villa Esperanza Services

- Design Team: Practice, SALT Landscape Architects
- Photo Credit: Paul Vu, Ric Berryman

Aaron Milken Early Childhood Center

- Design Team: Abramson Architects, SALT Landscape Architects
- Photo Credit: Michael Wells

Long Beach Granada and Junipero

- Design Team: RADA Architecture, SALT Landscape Architects
- Photo Credit: Michael Wells

Montessori School Waalsdorp

- Design Team: De Zwarte Hond
- Photo Credit: ScagliolaBrakkee