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AUTISM-FRIENDLY DESIGN

Insights to Promote Optimal Well-being

Brian Giebink, Brian.Giebink@hdrinc.com
Bethany DeLine, Bethany.DeLine@hdrinc.com
Curtis (Chipp) Windham, cwindham@spero.academy
WELCOME!

1. Autism
2. Spero Academy
3. Research
4. Design Strategies
5. Lessons Learned / Reflecting
6. Looking Forward
AUTISM SPECTRUM DISORDER
AUTISM SPECTRUM DISORDER (ASD)

- Not a single disorder
- Wide degree of variation
- Every child on the spectrum has unique abilities, symptoms, and challenges
PREVALENCE OF AUTISM

2014: 1 in 68 based on 2010 data
2012: 1 in 88 2008 data
2009: 1 in 100 2006 data
2007: 1 in 150 2002 data

SOURCE: Centers for Disease Control and Prevention
SYMPTOMS OF AUTISM

Severity, frequency, and grouping of symptoms will determine where (if at all) an individual falls on the spectrum.

• Delayed speech or language development

• Hypersensitivity to light & sound

• Frequent temper tantrums

• Self injurious behavior

• Need for sameness (routine)
SPEREO ACADEMY
SPERO ACADEMY

- Students 109 - Largest enrollment in school history
- 90% of current enrollment on IEP's
- 60% of current enrollment are autistic
- Spero Academy (fka Fraser Academy) is on year 14
- 77 total staff
- 18 teachers
- 41 paraprofessionals
- 14 classrooms
CURRENT CHALLENGES FOR SPERO ACADEMY

Fitting into the typical school prototype of an existing building

• Issues
• Staff feedback
• Sensory experience
• Individualized care
THE NEW SPERO ACADEMY

Located in Northeast Minneapolis (27th and California Street)

2 Stories, 63,500 Square Feet

- 21 Classrooms
- 7 Specialist Rooms
- 3 Calming Rooms
- Youth Gymnasium
- Gathering Stair / Presentation Space
- Kitchen
- Cafeteria
INFORMATION GATHERING

• Learning theories: Neuro-Typical vs. Sensory Sensitive

• Limitations of Research available
  - Anecdotal evidence, small sample sizes, questionnaires
  - Diverse Array of Symptom Expressions

• Organization-guided

• User interviews

• Continuous feedback

• Facility Tours
TOURS

• Karner Blue Education Center

• St. David’s Center for Child and Family Development
DESIGN STRATEGIES
STRATEGIES FOR SPERO

- ASPECTSS™
- Student Support Spaces
- Staff Support Spaces
- Indoor Environmental Health
- Daylighting
- Exterior Design
MAGDA MOSTAFA’S ASPECTS™

Acoustics

SPatial Sequencing

Escape Space

Compartmentalization

Transitions

Sensory Zoning

Safety
Reverberation Mapping

- Gypsum Wall Board
- Glass
- Concrete Flooring
- Open
- Audience Area
- Wood Door
- Absorptive Wall Treatment
ACOUSTICS

Partition Types

STC 50
- LINE OF STRUCTURE
- 3 5/8" 20 GA MTL STUDS
- 5/8" GWB X
- ISOBOX CLIP
- ACOUSTIC SEALANT BOTH SIDES
- CEILING AS SCHEDULED
- SOUND ATTENUATION BATT (SAB)
- REF SCHEDULE FOR PARTITION WIDTH
- MTL STUD RUNNER
- ACOUSTIC SEALANT BOTH SIDES

STC 55
- LINE OF STRUCTURE
- 3 5/8" 20 GA MTL STUDS
- 5/8" GWB X
- ISOBOX CLIP
- ACOUSTIC SEALANT BOTH SIDES
- CEILING AS SCHEDULED
- SOUND ATTENUATION BATT (SAB)
- REF SCHEDULE FOR PARTITION WIDTH
- MTL STUD RUNNER
- ACOUSTIC SEALANT BOTH SIDES

STC 60
- LINE OF STRUCTURE
- 5/8" GWB X
- ISOBOX CLIP
- ACOUSTIC SEALANT EACH SIDE
- SOUND ATTENUATION BATT (SAB)
- REF SCHEDULE FOR PARTITION WIDTH
- MTL STUD RUNNER
- ACOUSTIC SEALANT BOTH SIDES
SPATIAL SEQUENCING

Accent Color Plan
ESCAPE SPACE

- Calming Rooms
- Behavior Room
COMPARTMENTALIZATION

Classroom Zoning

- Relax
- One-on-one
- Structured Learning
- Shared Office
- Shared Storage
- Toilet Room
- Flex Learning
TRANSITION SPACES AND SENSORY ZONING
SAFETY
SAFETY

View from Reception Desk
SAFETY

View from Centralized Location

View from Office to South Exit
Sloped Window Sills

- Storefront system - refer to elevations
- Sealant and backer rod
- Sill flashing by WDW supplier - match frame color
- 5/8” GYP. board
- Blocking - slope sill as shown
- Embed by WDW supplier cast in by PC supplier - typical
- Angle supplied and installed by WDW supplier - typical
- Precast concrete panel
- 3 5/8” metal stud framing
SUPPORT SPACE

- OT Gym and OT Room
- Speech
- Adaptive Playground
- Gym and Track

Climbing Wall at Karner Blue Education Center
STAFF SUPPORT

• Respite Rooms
• Staff-only Restrooms
• Lounge
• Conferencing
• Uplifting design
INDOOR ENVIRONMENTAL HEALTH

Links between Autism and Air Quality

Interior Finishes

- PVC-free
- Low emitting
- Durable
- Cleanable
- Abuse-resistant
DAYLIGHTING

- Classrooms
- Hallways
- Cafeteria / Treehouse
- Entrance
EXTERIOR DESIGN

• Sensory Sensitive vs. Neuro-typical

• Positive impression for prospective students and parents

• Friendly connection to surrounding community
PUBLIC FACE
EXTERIOR ELEVATIONS
REFLECTING
CHALLENGES

• Coordination disciplines beyond traditional process

• Availability of materials that support goals

• Timeline

• Construction Budget

• Challenges (and Benefits) specific to Charter Schools
CHALLENGES

Balancing Opposing Forces

- Wayfinding vs. Calming gradations
- Cost vs. Specialized Products
- Daylighting vs. Glare
- Supporting Students vs. Perceived Design
OPPORTUNITY FOR IMPROVEMENT

Create a hierarchy of needs early in the project

- Environments that foster learning
- Acoustics
- Safety
- Indoor environmental health
- Staff support
- Etc.
LOOKING FORWARD
THE FUTURE OF SPERO

• Expansion

• 5-year plan

• ROOTS

• Center of Excellence
THANK YOU!
**SOURCES REVIEWED**


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• Manchala, S., "Center for autistic children: an architectural intervention", Department of architecture, school of planning and architecture, Vijayawada, 2014.


SOURCES REVIEWED


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• Smith, M. and Segal, J., Autism Symptoms and Early Signs, Center for Autism Research & Treatment, available online : www.helpguide.org


SOURCES REVIEWED


- Setting Up Your Classroom for a Student with Autism, National Autism resources, available online, http://www.nationalautismresources.com/classroom-setup-for-autistic-student.html