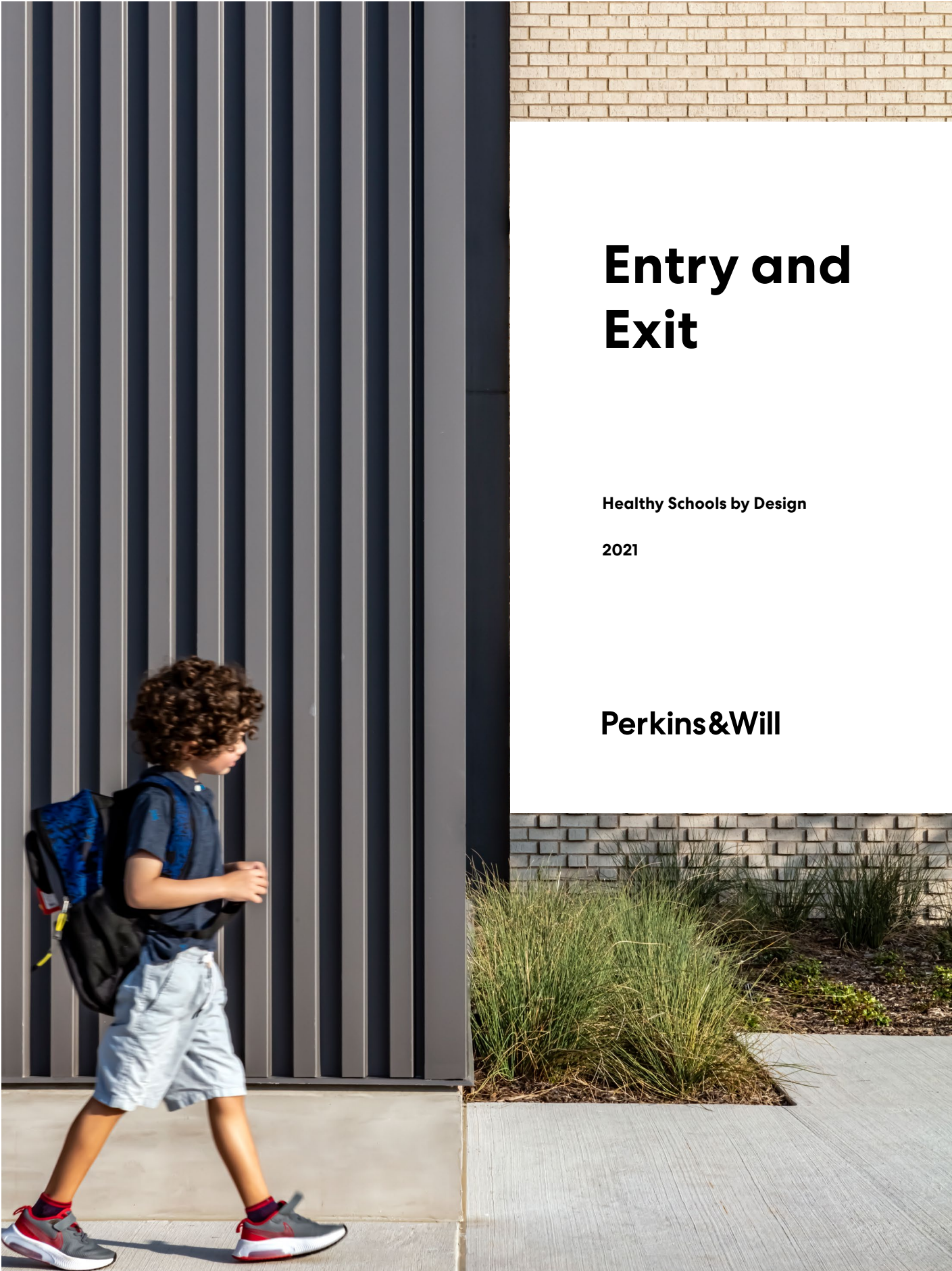


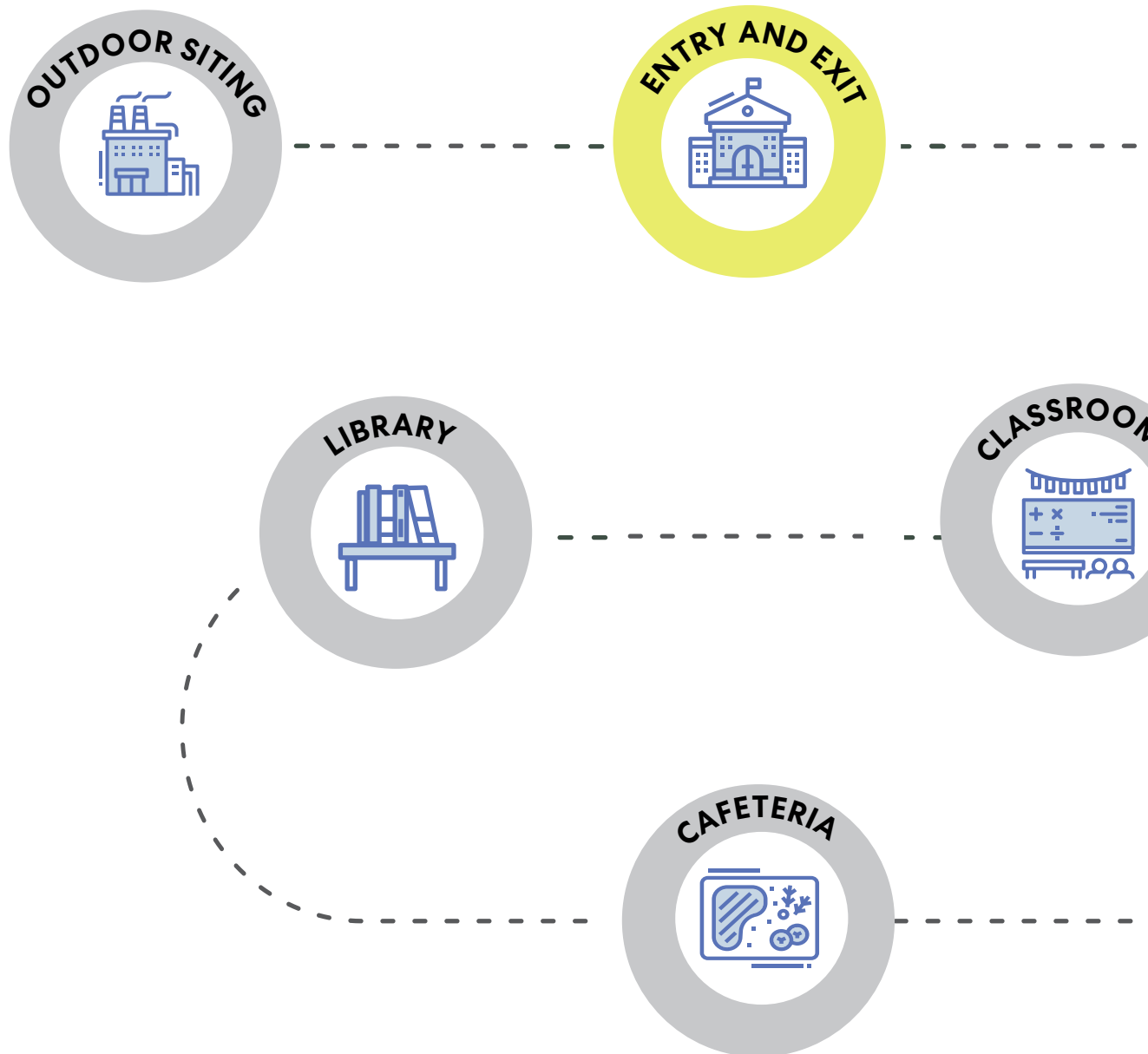


Entry and Exit

Healthy Schools by Design

2021

Perkins&Will



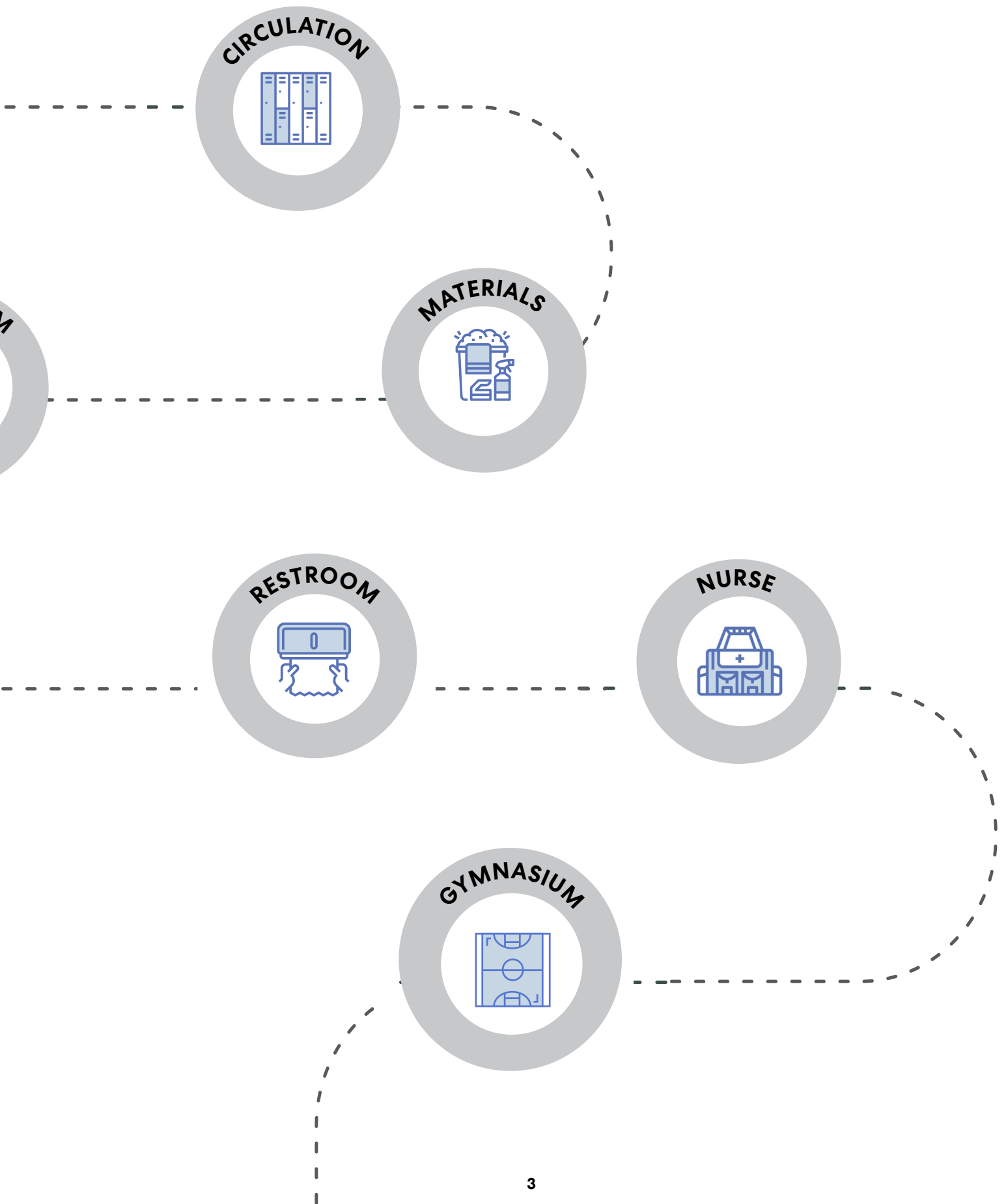
A DAY IN THE LIFE

Meet Riley

In the pages that follow, we invite you to imagine how these design interventions will impact Riley, an imaginary—but very real—student. We owe it to students like Riley to make school buildings as inviting, safe, and healthy as they can be.



Follow Riley's journey through school at
healthyk12.perkinswill.com/





Project: Willow Wood Elementary School,
McKinney, Texas



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— Entry and Exit

A student’s sense of safety, motivation, belonging, and school pride begins at the schoolhouse door. Every day, around 25% of Americans enter a school as teachers, students, staff, or administrators. This critical part of the building can have acute (daily) and chronic (monthly, yearly) exposures that have both social and physical implications.

Our holistic framework address the most critical issues affecting schools through three lenses: Educational Adaptation, Health Promotion, and Risk Mitigation.

Introduction



DID YOU KNOW?

According to the OECD , students in the U.S. attend school for a total of 8,884 hours over nine years to complete primary and lower secondary education (OECD, 2019).

Entry and Exit

RISK MITIGATION

Throughout the pandemic, our entrances not only helped control the flow and number of outside visitors but also became the location for health screenings and temperature checks (Lieberman, 2020). Although, the Centers for Disease Control and Prevention did not recommend screening children at the entry for in-person learning due to time, expense, and inaccuracy, many school districts felt this was an important part of a layered approach to keeping students safe (CDC, 2021).

In the future and in support of healthy schools, we may need to reimagine these spaces and adopt measures that provide:

- **Options for health screenings,**
- **Opportunities to distribute resources,**
- **Ways to limit and manage entry.**

Additionally, our school entrances can reduce exposure to everyday pollutants. Examples include heavy metals, chemicals, and other pollutants that can be brought in on our shoes and become part of the dust that we breathe. As we discussed in ‘Outdoor Siting’, proximity to major roadways and industrial sites can adversely impact children. However, a more local source of air pollution that can come in through doorways and windows are school buses. Anti-idling bus policies vary across the U.S., but the **U.S. Environmental Protection Agency’s Clean School Bus National Idle Reduction Campaign** has research and strategies for protecting students from the health impacts of diesel exhaust pollutants (EPA, 2020).

Lastly, entry and exit points can also contribute to overall safety. **We aim for a balanced and layered approach to safety that seeks to deter, detect, and delay threats.** The approaches outlined in the CPTED principles — natural surveillance, natural access control, and territorial reinforcement — have proven effective in decreasing incidents of crime while improving the quality of space. Since, in emergencies, people follow people, we must make accessible egress available with well-marked pathways.

EDUCATIONAL ADAPTATION

A building entrance filled with natural light has been shown to support comprehension throughout the day (Shishegar and Boubekri, 2016). This is especially important in schools because children are more sensitive to daylight exposure as they have larger pupils and significantly greater light-induced melatonin suppression, a hormone responsible for our sleep-wake cycle. Younger children are the most sensitive to daylight, yet studies have shown that even blind individuals can have alerting effects (Lee et al., 2018; Akacem, Wright, and LeBourgeois, 2018).

HEALTH PROMOTION

Improvements to wayfinding can support walking and navigation and help to reduce cognitive demand, stress, and anxiety (Vandenberg et al., 2016, Kanakri et al., 2016, Ghamari and Sharifi, 2021). Additionally, the use of age-appropriate color has been shown to be a useful tool in supporting children’s wayfinding, especially warm hues and bright accents that stimulate student senses (Helvacioğlu, 2007). **A well-designed entrance can use design elements such as branding to:**

- **Tell a story,**
- **Support a common vision,**
- **Spark human connections,**
- **Trigger pride,**
- **Create a sense of belonging, engagement, and ownership.**

Visibility is also a primary feature of a healthy school entrance. First, good visibility can let administrators know who is approaching the school. Second, the symbols and signs that are visible when people enter the school can contribute to the perception of facility’s quality. This has been shown to be a contributor to teacher retention because it is seen as an indicator of the level of commitment school management has, the resources available to support teachers, and the connection to the broader community (Buckley, Schneider, and Shang, 2005).

Strategies

STRATEGY		CATEGORY	NEW/EXISTING	INCLUDED IN YOUR SCHOOL?
E.1	Install track pad at every entrance to reduce outdoor contaminants from soil (lead, heavy metals) that contribute to indoor dust. This can be surface installed or part of a recessed system. Make sure the trackpad is flush with the entrance, so it is ADA accessible for wheelchair users and blind/low-vision individuals.	Risk Mitigation Health Promotion Educational Adaptation	New Construction Existing Building	☐ Yes ☐ No ☐ Not Applicable
E.2	Create an entry sequence that allows for safety (e.g., health check, visitor check-in) by providing a secure vestibule. Elements may include a window check-in and thru-wall drawer to share visitor information. Proactively manage visitors and how they access the building with their understanding that they may be momentarily inconvenienced with questions and perhaps a quick background check.	Risk Mitigation Health Promotion Educational Adaptation	New Construction Existing Building	☐ Yes ☐ No ☐ Not Applicable
E.3	Install touchless hardware technology (motion-activated, foot-activated, voice-activated, etc.) to reduce fomite transmission and allow easy access for visitors of all abilities. Include signage and graphics that advises students and staff how touchless technology is operated. Provide technology at different heights for wheelchair users.	Risk Mitigation Health Promotion Educational Adaptation	New Construction Existing Building	☐ Yes ☐ No ☐ Not Applicable
E.4	Include hand washing/sanitizing stations at entrances and exits (Hobbs et al., 2015).	Risk Mitigation Health Promotion Educational Adaptation	New Construction Existing Building	☐ Yes ☐ No ☐ Not Applicable
E.5	Include the Universal Design for Learning framework when addressing entry and exit strategies (UDL). Include mobile and fixed announcement and wayfinding signage and graphics (Kashima et al., 2017). Incorporate QR codes for interactive features and screen readers.	Risk Mitigation Health Promotion Educational Adaptation	New Construction Existing Building	☐ Yes ☐ No ☐ Not Applicable
E.6	Orient school entrances away from major traffic roads to reduce exposure to outdoor air pollution during rush hour and protecting bike and pedestrian safety from high-speed traffic.	Risk Mitigation Health Promotion Educational Adaptation	New Construction Existing Building	☐ Yes ☐ No ☐ Not Applicable
E.7	Use signage to designate entry and exit doors to reduce bottlenecks in doorways and provide one-way traffic. Provide visual landmarks to support student wayfinding, especially in younger grades and elementary schools. Use color contrast that accounts for students with color blindness with clear text and scale. Include tactile elements and Braille.	Risk Mitigation Health Promotion Educational Adaptation	New Construction Existing Building	☐ Yes ☐ No ☐ Not Applicable

Entry and Exit

	STRATEGY	CATEGORY	NEW/EXISTING	INCLUDED IN YOUR SCHOOL?
E.8	Provide adequate frontage to avoid congestion between vehicles and protect pedestrians entering the building.	Risk Mitigation Health Promotion Educational Adaptation	New Construction Existing Building	☐ Yes ☐ No ☐ Not Applicable
E.9	Provide a clear single point of entry after the school day starts to support wayfinding for outside visitors, clear views to see who is approaching the school for safety and discourage easy access with doors that easily lock. Secure windows and doors knowing that a door left propped open will quickly undermine other security measures.	Risk Mitigation Health Promotion Educational Adaptation	New Construction Existing Building	☐ Yes ☐ No ☐ Not Applicable
E.10	Secure after school activities by creating a clear division between academic and extracurricular activities. Layer the building from the front entry inward with secure zones that can be locked down when necessary. Manage after school activities when multiple visitors are present on campus and in the school.	Risk Mitigation Health Promotion Educational Adaptation	New Construction Existing Building	☐ Yes ☐ No ☐ Not Applicable
E.11	Use CPTED-informed risk-reduction approaches including monitored entrances and exits, internal locks, limiting the number of entries, removing dense foliage around the site where intruders can hide, and limit hidden stairwells.	Risk Mitigation Health Promotion Educational Adaptation	New Construction Existing Building	☐ Yes ☐ No ☐ Not Applicable
E.12	Make entrances and exits fully accessible. Replace or co-locate stairs with ramps, when possible, at entrances.	Risk Mitigation Health Promotion Educational Adaptation	New Construction Existing Building	☐ Yes ☐ No ☐ Not Applicable
E.13	Incorporate clear, easy access to stairs to promote physical activity and clear signage for elevators or ramps for wheelchair users and individuals with limited mobility.	Risk Mitigation Health Promotion Educational Adaptation	New Construction Existing Building	☐ Yes ☐ No ☐ Not Applicable
E.14	Provide wayfinding cues on the floor including color and texture contrast to support low-vision learners.	Risk Mitigation Health Promotion Educational Adaptation	New Construction Existing Building	☐ Yes ☐ No ☐ Not Applicable
E.15	Incorporate daylighting at the entrance to support student alertness early in the day.	Risk Mitigation Health Promotion Educational Adaptation	New Construction Existing Building	☐ Yes ☐ No ☐ Not Applicable
E.16	Provide signage at the entrance that empowers students and staff, reflects school culture, and creates an inclusive community.	Risk Mitigation Health Promotion Educational Adaptation	New Construction Existing Building	☐ Yes ☐ No ☐ Not Applicable

Our aim is to support holistically healthy buildings, but we understand that each learning community is unique and has their own health priorities. Use these strategies as a starting point!

Exit-Entry

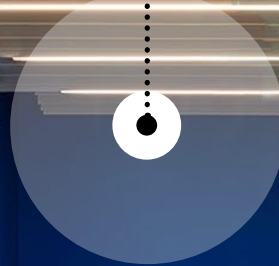
Strategies in Action

E.4

Include Hand Washing/Sanitizing Stations at Entrances and Exits

E.13

Incorporate Clear, Easy Access to Stairs



E.3

Install Touchless Hardware Technology
(motion-activated, foot-activated,
voice-activated, etc.)

E.1

Install Track Pad at Every Entrance



E.10 Include a single point of entry and a vestibule to control access.

E.15 Incorporate daylighting

Check it out!



Did you know?

Allergens

Did you know that for people who do not have a pet at home, school can be the largest exposure to animal allergens. For example, cat allergens can transfer from your homes to my classmates clothing and disperse into the air. So, you bring more than your backpack when you enter a school.

Check out [this paper](#) for more information.



E.14- What is Universal Design for Learning (UDL) in our entry-exits?

UDL provides multiple means of engagement, representation, and expression. This provides opportunities who may have different auditory, visual, or mobility abilities. Therefore, to promote individual's health and sense of safety, every entrance and exit can include signage with both symbols, colors, and words that can direct people to the entrance and exit during an emergency. Schools are extending their operational hours to support the community including English Language classes, food service, and more. Ensuring the languages spoken in the community are represented at the entrance are critical to create inclusive welcoming invites.



E.5 Include the Universal Design for Learning Framework

E.14 Provide Wayfinding Cues on the Floor

Strategies in Action

**E.2 Create an Entry Sequence that Allows
for Safety by Providing a Secure Vestibule**

Project: Lisle Elementary School, Lisle, Illinois





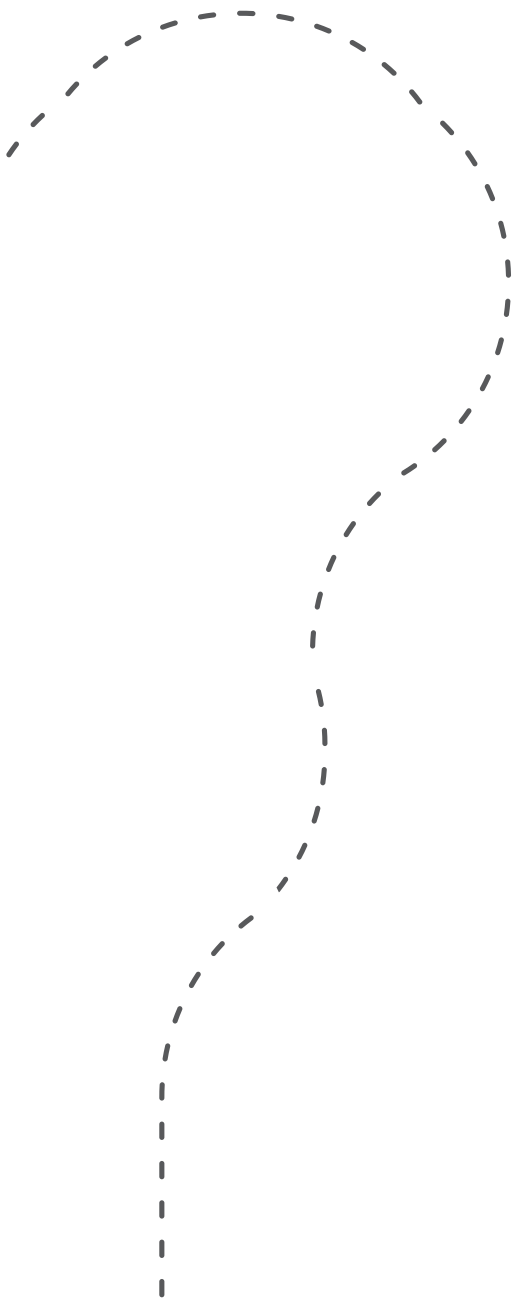
References



**E.16 Provide Signage
at the Entrance that
Empowers Students and
Staff**

Entry and Exit

1. Akacem, L. D., Wright, K. P., Jr, & LeBourgeois, M. K. (2018). Sensitivity of the circadian system to evening bright light in preschool-age children. *Physiological reports*, 6(5), e13617. <https://doi.org/10.14814/phy2.13617>
2. Buckley, Schneider & Shang (2005). Fix It and They Might Stay: School Facility Quality and Teacher Retention in Washington, D.C. *Teachers College Record*. <https://www.tcrecord.org/Content.asp?ContentId=11852>
3. CDC. (2021). Screening K-12 Students for Symptoms of COVID-19: Limitations and Considerations. Last Update: Mar. 17, 2021. <https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/symptom-screening.html>
4. EPA. (2020). School Bus Idle Reduction. <https://www.epa.gov/dera/school-bus-idle-reduction>
5. Helvacioğlu, E. (2007). Color Contribution to Children's Wayfinding in School Environments. <http://repository.bilkent.edu.tr/bitstream/handle/11693/18618/1.pdf?sequence=1>
6. Ghamari, H., & Sharifi, A. (2021). Mapping the Evolutions and Trends of Literature on Wayfinding in Indoor Environments. *European journal of investigation in health, psychology and education*, 11(2), 585–606. <https://doi.org/10.3390/ejihpe11020042>
7. Kanakri, S., Schott, M., Mitchell, A., Mohammad, H., Etters, M., Palme, N. (2016). Wayfinding Systems in Educational Environments. *Environment and Ecology Research*, 4(5), 251 - 256. DOI: 10.13189/eer.2016.040503.
8. Lieberman, M. (2020). Schools Are Doing COVID-19 Temperature Checks: Do They Really Help? *EdWeek*. <https://www.edweek.org/leadership/schools-are-doing-covid-19-temperature-checks-do-they-really-help/2020/11>
9. Lee, S. I., Matsumori, K., Nishimura, K., Nishimura, Y., Ikeda, Y., Eto, T., & Higuchi, S. (2018). Melatonin suppression and sleepiness in children exposed to blue-enriched white LED lighting at night. *Physiological reports*, 6(24), e13942. <https://doi.org/10.14814/phy2.13942>
10. Shishegar, Nastaran and Mohamed Boubekri. (2016). "Natural Light and Productivity : Analyzing the Impacts of Daylighting on Students ' and Workers ' Health and Alertness." .
11. Vandenberg, A. E., Hunter, R. H., Anderson, L. A., Bryant, L. L., Hooker, S. P., & Satariano, W. A. (2016). Walking and Walkability: Is Wayfinding a Missing Link? Implications for Public Health Practice. *Journal of physical activity & health*, 13(2), 189–197. <https://doi.org/10.1123/jpah.2014-0577> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5578416/>
12. Yesiltepe, D., Conroy Dalton, R., & Ozbil Torun, A. (2021). Landmarks in wayfinding: a review of the existing literature. *Cognitive processing*, 22(3), 369–410. <https://doi.org/10.1007/s10339-021-01012-x>



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