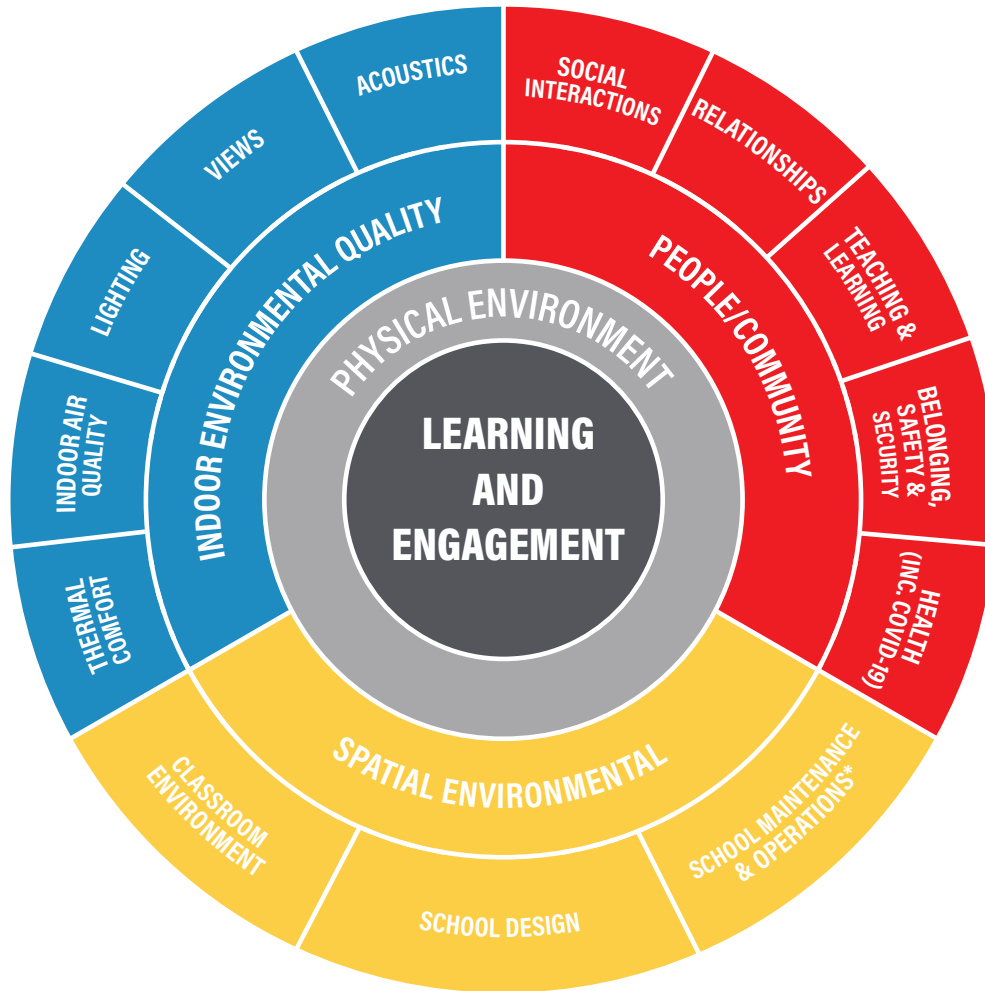# The Impact of School Facilities on Student Engagement and Learning

This project outlines, catalogs, and summarizes a framework of literature that highlights the impact of school of facilities and classroom environments on student engagement and learning. The NetZED Laboratory at the University of Oregon commenced this project following a Request for Proposals from the California School Facilities Research Initiative (CSFRI) which sought to identify elements of the built environment of K–12 schools that result in higher levels of student engagement and learning. CSFRI's goal was to summarize existing literature regarding the effects that physical organizational environments and furnishings within classrooms, makerspaces, laboratories, and interior ancillary facilities, as well as space at the exterior of the building that contribute to

See attributions and references in the paper "The Impact of School Facilities on Student Learning and Engagement".

student engagement and learning. The overall intent of this project is to draw upon published evidence and original research to support the design planning and process for facility planners/managers, architects, educator, and community members who will seek funding to renovate and build new schools in California.

With learning and engagement at the center, we developed a diagram of relationships of the school's physical environment that includes three categories: indoor environment, spatial environment, and the people/community in relation to the school and classrooms.

The review initially captured more than 750 peer-reviewed papers, reports, dissertations, books and literature reviews using framework, key word searches, and relevancy criteria, and stored through shared referencing software (Mendeley). Approximately 500 publications were selected to become an annotated bibliography and form the basis for this white paper. The review included studies from around the world, though most studies are applicable to conditions in the U.S.

These info sheets present the key findings of the white paper developed for the project. The info sheets are organized by the three categories shown in the Framework, and examine the sub-categories as they impact learning engagement and performance:

Indoor Environmental Quality (IEQ)

Indoor Environmental Quality (IEQ) refers to all the factors that influence the occupants' sensory experience of a place and includes thermal comfort, indoor air quality (IAQ), lighting (daylighting and electric lighting), views, and acoustics.

Spatial Environment

Spatial Environment includes school design characteristics of the buildings and grounds, school operations and maintenance that influence the functioning and operations of building systems and surroundings, as well as the spatial design of classrooms and within classrooms such as furnishings and arrangements.

People and Community

People and Community includes social interactions, relationships, teaching/learning, belonging, safety and security, health and recent innovations and impacts of the design planning around the pandemic.